



Woman in VR (virtual reality) glasses playing an AR (augmented reality) game.

THE WHAT, WHEN, HOW, AND WHERE OF THE METAVERSE!

From factory floors to designer dos, the metaverse is transforming how we view the world. But is it a fad or the future? Read on to find out.

By RAHUL JAGTIANI

THE BIGGEST TECHNOLOGICAL developments are often anticipated decades in advance, well before the capacity to produce them. Since the early 1980s, many in the technology community have imagined a future state of the Internet that would revolutionise not just the digital world, but also the physical one. Much of this has been brilliantly captured in Neal Stephenson's 1992 science fiction

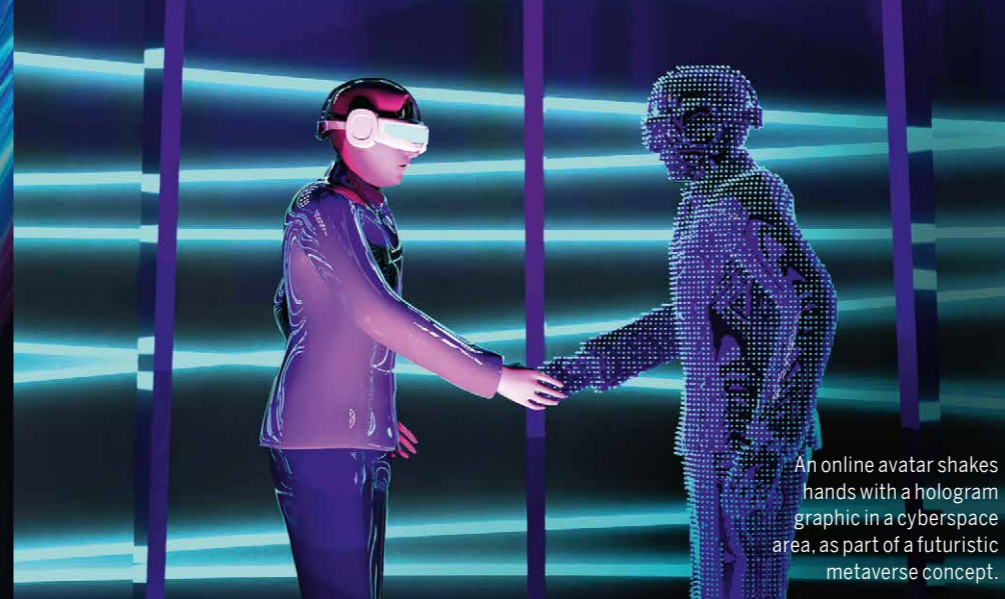
novel, *Snow Crash*, which first coined the terms 'Metaverse' and 'Avatar'.

WHAT IS THE METAVERSE?

The early days of the read-only, Web 1.0 version of the Internet looked very different from the Internet we all know today. Similarly, the metaverse remains hard to define, let alone fully envision into the decades ahead. But a critical mass of working pieces, such

as 5G broadband, as well as affordable mobile- and graphic-based computing are coalescing and enabling it to take shape. Mainstream Hollywood movies like *The Matrix* and *Ready Player One* offer a glimpse into the future of the metaverse, but some aspects of the 'virtual worlds' shown in these movies already exist in some form today.

Nevertheless, the metaverse will most likely be driven by a combination



An online avatar shakes hands with a hologram graphic in a cyberspace area, as part of a futuristic metaverse concept.

"Metaverse isn't a thing a company builds. It's the next chapter of the Internet overall."

MARK ZUCKERBERG

of augmented reality (AR) and virtual reality (VR), and will encompass both the digital and physical worlds. An individual may use their avatar to conduct a mixed reality meeting in their virtual office, manage finances, shop at a favourite store, and enjoy an evening concert with friends in a blockchain-based game, all inside the metaverse. While a cohesive, frictionless experience may currently be lacking, big tech players are making bold moves and investing billions of dollars with an overarching goal of capturing value in the metaverse.

METAVERSE & BIG TECH

Facebook fuelled its VR ambitions back in 2014 with the purchase of Oculus, a virtual reality headset company for US\$2 billion, and doubled down on its vision by investing another US\$10 billion in metaverse-related expenses in 2021. It also officially changed its name to Meta in October 2021. However, as per Mark Zuckerberg's own admission, its Horizon Worlds metaverse VR platform is far from a finished product.

Microsoft, too, has developed the HoloLens, a US\$3,500 headset that showcases live-sized digital holograms, with a focus on applications for businesses and government agencies. The software giant has secured a US\$21.9 billion contract from the

US Army to produce 1,20,000 such headsets. American video game developer and publisher Epic Games recently raised US\$2 billion to invest towards a metaverse where brands can build immersive experiences for creators to thrive.

Nvidia Corp, one of the world's largest computer chip manufacturers, is plugging away at the 'nuts and bolts' of the metaverse with its Omniverse platform, an infrastructure layer to interlink multiple 3D worlds into a collaborative, interoperable virtual universe. Similarly, Google Labs has reorganised to gather the company's numerous innovative projects and long-term bets all under one roof—from Project Starline, a cutting-edge holographic video-conferencing project, to its existing AR and VR efforts.

All these steps clearly indicate a metaverse-centric future. However, Raja Koduri, Senior VP and GM at Intel, put things in perspective. In a December 2021 blog, he mentioned that immersive computing at a scale that's accessible by billions of humans in real time will require a 1,000 times increase in computational efficiency from today's state-of-the-art technology. This may be true. But despite Koduri's reality check, there are several industries acting as the torchbearers for the metaverse today.

METAVERSE & GAMING

Modern-day gaming, with high-end graphics closely mirroring live action movies, is almost synonymous with the current form of the metaverse. Web 2.0 games like Fortnite, Minecraft, and Roblox were once platforms for gaming enthusiasts to fight valiant virtual battles. Over the years, they have evolved into social squares with bustling economies where digital- and real-world friends hang out, share intimate details, and purchase in-game assets such as clothes, skins, and props that can be used across platforms (mobiles, desktops, tablets etc.).

The more recent Web 3.0 gaming infrastructure, too, has already shown signs of promise, where these in-game assets can be monetised via NFTs (non-fungible tokens) that live on a blockchain. Assets that upgrade a player's utility or offer a form of 'social cred' in the game are now traded on NFT marketplaces such as OpenSea, Magic Eden, and Rarible. In fact, NFT sales skyrocketed in 2021 with US\$25 billion being traded compared to a mere US\$94.9 million in 2020.

Roblox has even inked a deal with digital fashion brand DressX to incorporate 3D garments for its in-game characters. The scope seems endless. With 50 million daily active users and one-in-five active

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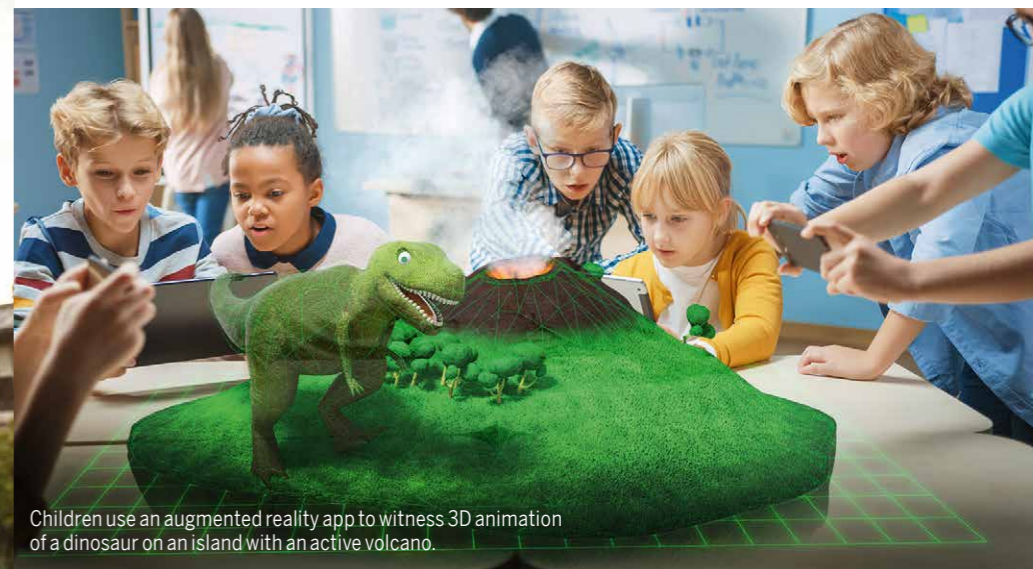
Rapper Lil Nas X performs at a virtual concert.



A virtual model walks the ramp at a fashion show.



A traveller explores the concept of virtual travel around the world.



Children use an augmented reality app to witness 3D animation of a dinosaur on an island with an active volcano.

community members updating their avatars daily, the stage is all set for numerous such future collaborations.

METaverse & MUSIC

Virtual concerts are the latest strategy for games to stay relevant as their predominantly young players get older. In April 2020, as the pandemic lockdown forced the entire world to stay indoors, Fortnite creator, Epic Games, onboarded artiste Travis Scott for a live virtual performance. It drew in 27.7 million unique attendees! Not to be outdone by a competitor, Roblox roped in rapper Lil Nas X for a concert later that year, where his motion-

As per a recent study, digital clothing is likely to reduce the industry's carbon footprint by a whopping 30 per cent!

captured incarnation performed a mere four songs and yet garnered a total of 33 million views!

Mumbai-based rapper Jay Kila says, "Virtual communities in the music arena are thriving. I attended a launch party for Vuzeer, a music platform in Decentraland, a browser-based 3D virtual world, and was incredibly surprised by the turnout.

The vibe was electric, with different artists being live-streamed on a big screen." The experience has inspired Jay to experiment further in the virtual world and potentially release some of his tracks as music NFTs for this niche audience.

METaverse & FASHION

The amalgamation of fashion and the metaverse is definitely a match made in virtual heaven! So far in 2022, brands like Nike, Adidas, and Gucci have reportedly generated US\$137.5 million in NFT sales. Dolce & Gabbana's digital Glass Suit fetched a cool US\$1 million, their most expensive one ever sold. Clearly, it's profitable to stay abreast of cutting-edge technology. But brands nowadays are increasingly mindful of their Environmental, Social, and Governance (ESG) responsibilities, too. "Digital fashion offers limitless creativity without the constraints of the real world. Trying on digital clothes can reduce returns and lessen the negative impact on the environment," says Anne-Liese Prem, brand and metaverse strategist.

The digital fashion industry, albeit nascent, created a strong impact at the Metaverse Fashion Week that took place in Decentraland in March 2022, featuring several prominent brands such as Estée Lauder, Paco Rabanne, and Tommy Hilfiger among others. Glamorous digital models sashayed on the catwalk and the glittering event witnessed fireside chats, as well as exclusive NFT drops.

METaverse & TRAVEL

A truly immersive virtual experience in a different country has the potential to democratise travel and be a dream come true for many. Furthermore, it will facilitate more informed choices for both business and leisure travellers. Singapore-headquartered Millennium Hotels is one of the first hospitality groups with metaversal ambitions. In May 2022, it launched the vibrant M Social Hotel in Decentraland, as a digital twin to one of its worldwide portfolio properties. Their aim was to foster a deeper relationship with customers. Here, an avatar leads guests through the hotel, who are then incentivised with real-world

hotel benefits upon completion of the tour. This is just the tip of the iceberg for the travel industry in the metaverse, opines Shane Sibley, Head of Business Development at Travala, a leading cryptocurrency-friendly travel booking platform. "While consumer-facing applications get more eyeballs, we shouldn't rule out the role of B2B operations in the metaverse as well."

Indeed, aircraft manufacturing company Boeing is making a compelling case to build its future airplanes in the metaverse with a plan to completely overhaul its supply chain and production processes. Engineers are working to leverage Microsoft's HoloLens technology to build a 3D aircraft and run digital simulations in the virtual world to streamline production and design.

METaverse & EDUCATION

There's no doubt about it. The metaverse presents an incredible opportunity to enhance the educational experience. Roblox has now expanded its features to include classrooms where students can log into virtual scenarios from their homes.

A 3D virtual landscape depicting ancient Rome, where students can witness a historical landmark up close, or utilise haptic sensors to conduct a biology experiment in a lab may soon become a reality.

An often overlooked aspect of online learning is the lack of social interaction. Cohorts that focus on community building foster a greater spirit of learning and cultural awareness, thus offering students a far superior educational experience. Bengaluru-based Invact Metaversity addresses this with an aim to upskill working professionals. Says CEO Tanay Pratap, "A sizeable demography of India lacks access to quality campus life. Invact has created an inclusive metaversity that can work on low-bandwidth and lower-end laptops. Our platform encourages students to nurture friendships while learning together."

In conclusion, much like the advent of the Internet, the metaverse is an all-encompassing creation, with unimaginable potential yet to unfold. The future, as they say, is just around the corner. ⚙️

CLOCKWISE FROM TOP LEFT: Image courtesy of roblox.com; franz12/Shutterstock; Gordenko11/Shutterstock; WvW.org