

METAVERSE

A digital landscape with binary code (0s and 1s) falling like rain. The background is a gradient of blue and purple, with a bright, glowing horizon line. The overall aesthetic is futuristic and high-tech.

THE NEXT DIGITAL REVOLUTION FOR BUSINESS?

AUTHORS

Albert Meige, Michael Papadopoulos, Rick Eagar

Unless you are a science-fiction fan, a gaming nerd or a designer, virtual reality (VR) may not have played a big part in your life up to now. However, since Facebook changed its name to Meta in October 2021 and announced the creation of 10,000 new jobs in Europe to create the metaverse, it's fair to assume that this could be about to change.

A revolution powered by VR has been promised for decades, but it's only recently that improvements in hardware and software, together with a new level of consumer

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engagement, have started to converge to create something that could be genuinely disruptive in the foreseeable future. If you are in the business of gaming or entertainment the potential is clear, but what could the metaverse mean for the rest of the business world,

and what are some of the challenges that will need to be overcome? Is it something that deserves your attention now, or will there be another stage in the "hype curve" before it has a major impact?

A LONG TIME COMING

The metaverse is most simply described as a VR space in which users can interact within a computer-generated environment, a description that reflects its initial application in gaming. As such, the metaverse is certainly nothing new. Attempts to create virtual worlds have been around for nearly two decades. (See Figure 1.)

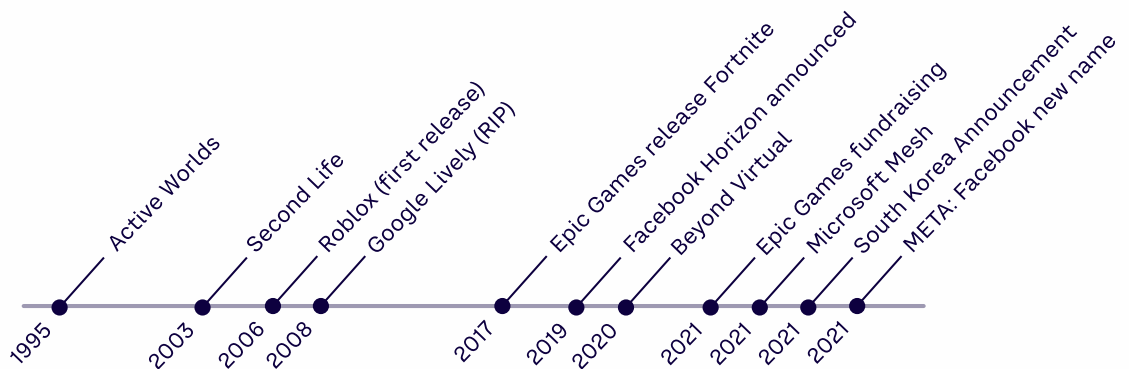


FIGURE 1: VIRTUAL WORLDS OVER THE LAST TWO DECADES

One of the first was Active Worlds, created in 1995 and still existing today, which allows users to own worlds and universes, and develop custom 3D content. Second Life followed in 2003, allowing people to create an avatar for themselves and have a second life in an online virtual world. It generated substantial hype and high expectations, but never managed more than 1 million users by 2013, followed by a gradual decline until the 2020 pandemic, when a large spike in new registrations was reported.

Roblox, established in 2006, is an online game platform and game creation system that allows users to program and play games, and is growing rapidly. Roblox, by making its development environment publicly available, allows anyone to develop games accessible in its virtual universe and players to purchase virtual assets, such as using Apple's AppStore. Roblox is something like the YouTube of video games, bringing creators and consumers together. With daily users in excess of 40 million, revenues over USD1 billion and growth of some 500% per annum, Roblox has become a major player in the developing metaverse. This has also attracted the attention of brands, including luxury brands. For example, Gucci opened its Gucci Garden virtual space on Roblox for two weeks at the end of May 2021. Gucci also released a limited edition of in-game virtual bags that sold for USD4,115. Cosmetic brands have started to offer their own virtual beauty products. At the end of April 2020, for example, L'Oréal allowed Snapchatters to virtually try the products of several of their brands, such as Garnier and Lancôme.

Epic Games released the online game Fortnite in 2017, and it became something of a cultural phenomenon, generating over USD5 billion in revenues in 2020. This included an online concert by rapper Travis Scott for which 12 million people logged in. Young people, the consumers of tomorrow, already spend considerable sums of money to dress up their Fortnite avatar in a fashionable skin. In April 2020, Epic Games announced that it had completed a USD1 billion round of funding, which will allow the company to support future growth and pursue its long-term vision for the metaverse.



FIGURE 2: TRAVIS SCOTT PERFORMED LIVE AT FORTNITE “IN FRONT OF” AN AUDIENCE OF 12 MILLION PEOPLE.

Entropia Universe, designed by the Swedish software company MindArk and released in 2003, is a virtual game environment in which players can buy in-game currency using real money. As long ago as 2010, a virtual club named “Club Neverdie” was sold for USD635,000. Virtual reality programs such as Decentraland use non-fungible tokens (NFT) as a form of property rights – tokens are tied to 3D plots of land, which can be bought and sold on the secondary market. In November 2021 a 500m2 plot of virtual real estate sold for a record USD2.43 million, purchased by virtual real estate company Metaverse Group. There is no doubt that virtual assets can have commercial value in the same way as physical assets.

On the hardware side also, technological progress on both digital infrastructure and consumer devices has been rapid. For example, Apple has filed multiple patents over the last 10 years related to VR headsets (Figure 3), and VR hiring and acquisitions have ramped up.

Rapid advances are also starting to be made in brain computer interfaces (BCIs). For example, NextMind, a start-up, is already offering a non-invasive BCI device which can read brain waves from the visual cortex of the brain to enable direct control of functions in games. It is no longer completely fanciful to imagine a virtual environment which is, superficially at least, close to being indistinguishable from a real one.

So, already the metaverse is going a long way beyond online game playing. A better definition for the metaverse might be **“a future version of the web in which immersive 3D virtual universes meet social networks, collaborative spaces, marketplaces and e-commerce”**. If we consider the metaverse the default on-line environment of the future, replacing the current web, then its potential importance for business needs no further explanation.



FIGURE 3: VIRTUAL REALITY HEADSET

However, the next important question is: when do we need to worry about it? Recent history is littered with examples of new technologies which have spent a long time in the “trough of disillusionment” in the so-called Gartner hype curve, perhaps the most recent example being autonomous vehicles. Fifteen years ago,

virtual worlds themselves were expected to have a much bigger impact than they have achieved so far. Is the publicity around the metaverse just another piece of hype?

Of course, it’s hard for anyone to make a confident prediction. But the recent examples above illustrate the convergence of three key factors that indicate we could possibly be at the inflection point in an exponential growth curve:

- **Software:** We are now seeing the creation of metaplatforms and standards, which allow for interoperability and enable the creation of multiple applications in a functioning value chain that is already starting to move well beyond gaming.
- **Hardware:** There are signs that accelerating advances in hardware, at both the infrastructure and consumer levels, will reduce some of the barriers to widespread adoption of VR, namely, the limited quality of the consumer experience and its relatively high cost.
- **Consumers:** The user base for VR is exploding, not only among younger consumers, but also across all demographics, thanks to the shared familiarity with virtual interaction brought about by the pandemic.

As with the worldwide web, an exponential growth curve means, in practice, a sudden and increasingly rapid acceleration of activity. Being adequately prepared before this happens makes good business sense. Bloomberg Intelligence recently estimated that the metaverse's market size would reach USD 800bn by 2024.

THE OPPORTUNITIES FOR BUSINESS

So, what are likely to be some of the opportunities for business, beyond the obvious areas of gaming and entertainment? There are some good short-term candidates: collaboration, problem solving, training and events. And these opportunities are relevant across a wide range of industries, including sectors such as healthcare, automotive and telecoms:

Collaboration: The pandemic has massively accelerated remote working, and we are unlikely to ever see a return to the same level of physical co-working that existed previously. However, remote workers complain that they are unable to communicate as effectively as they

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would in person because they can't read any body language. Also, prolonged absence of in-person interactions can lead to problems such as employee disengagement and lack of visibility over productivity. A high-quality metaverse-type environment will enable meetings,

workshops and collaborative work sessions to move from 2D screens to immersive virtual workplaces, using avatars to allow employees to work together similarly to in the real world. Facebook's Workrooms app is an early example, currently clunky but illustrative of the potential for the future. Microsoft Mesh is another current example of an immersive virtual environment for meeting and collaboration. We know from online gaming that people can become highly engaged with each other in 3D worlds, forming sometimes lifelong friendships.

Problem solving: 3D modeling is already well established as a key tool in fields such as architecture and industrial design. An advanced metaverse gives you space where anything can be 3D modeled virtually using digital twins. This enables smarter problem solving in numerous industries that do not traditionally use 3D models, such as healthcare and life sciences. A recent example relevant to the automotive and robotics sectors is NVIDIA's Omniverse Replicator, a synthetic data-generation engine that produces physically simulated synthetic data for training deep neural networks. Some of its early implementations include NVIDIA DRIVE Sim, a virtual world for hosting

the digital twin of autonomous vehicles, and NVIDIA Isaac Sim, a virtual world for the digital twin of manipulation robots.

Training: Virtual training has already existed for a long time, since the first flight simulators were created. It has already advanced significantly in other areas where highly specialized skill sets are needed, such as robotic surgery. One such innovative example is Osso VR, which offers training for advanced surgical procedures using virtual worlds. More recently, there has been an explosion in development of new virtual training offerings for a wide range of less specialized applications. Virtual training is especially powerful in situations requiring interaction with either physical objects or people, and where on-the-job physical learning is impractical, costly or hazardous. One good example is Strivr, which offers a suite of immersive training solutions covering areas such as health & safety, operational efficiency, customer service, soft skills and sports.

Events: For large organisations, the metaverse could offer significant efficiency benefits. A virtual workplace, equipped with virtual whiteboards, virtual screens and workstation equipment that transfers the employees' at-home keystrokes, can create a far more collaborative conferencing experience than a typical Teams or Zoom session of today. VR offers the opportunity of holding any major event, such as a conference or concert, as a fully virtual or hybrid event. Virtual events were reported to have grown tenfold during the pandemic (Forbes), with forecasts of future compound annual growth well over 20% in the next 5 years. One typical example is Party.Space, which already has a gallery of 11 venue spaces and offers a "metaverse-style" experience, including games and transactions using NFTs¹.

More broadly, the emerging metaverse value chain will offer other types of opportunity, for example:

Physical to virtual products: The metaverse environment provides a natural marketplace for businesses that already sell digital products, such as media, games and software. However, as mentioned earlier, there will be opportunities for consumer brands, especially luxury and designer brands, to extend their offerings from physical to virtual products. Another example of this is Louis Vuitton, who in 2019 released a range of some 40 different virtual clothes for the League of Legends game, including a USD5000 "leather" jacket. While this is still an online games application, we can easily imagine that as more daily activities start to take place in the metaverse – such as work, education, socializing, buying, selling, entertainment, sport and play – there could be a huge expansion of possibilities for other types of virtual product, from apparel and accessories through to virtual real estate. For companies that sell physical products, the ability to leverage virtual product capabilities to sell physical products will also be key.

1. NFT: Non-fungible token is a form of unique digital asset that cannot be duplicated, modified or deleted, and that is registered in a blockchain in a way that is unchanging and incorruptible.

New value chain roles: Whether the metaverse is essentially a monopoly (for example, with key infrastructure and access owned by a single giant such as Meta) or else fully public and accessible to all (or some combination of the two), there will be a developing value chain that provides new business opportunities. (See Figure 4.)

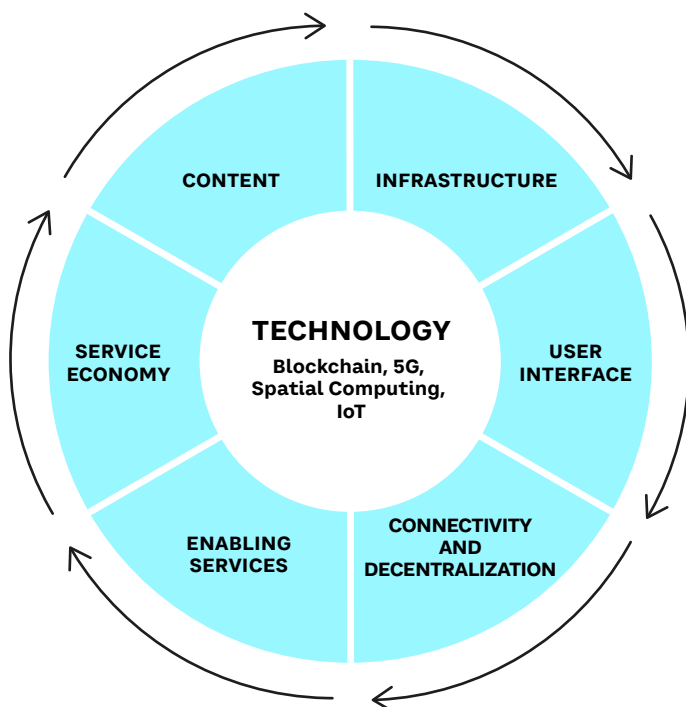


FIGURE 4: NEW VALUE CHAIN BUSINESS OPPORTUNITIES

For example, at the infrastructure level there will be new opportunities for hardware and software companies. The metaverse will require a plethora of new devices at the user interface, ranging from visors and haptic feedback devices to the more mundane smartphones and personal computers. Enabling services include, for example, e-commerce, entertainment, search and reference services, social media and cloud services. The service economy will give rise to new markets for payment, security, cryptocurrency, blockchain, asset management, financial and legal services, including crossovers between the virtual and physical worlds. There will be new content opportunities in the creative arts, design and innovation. YouTube is a helpful example in this respect. By bringing together creators and viewers it has enabled the emergence of thousands of new talents from the crowd and significantly disrupted established business models. The metaverse will blur the line further between professional and user-generated content, facilitated by the introduction of new tools and templates (e.g., video B-Roll, 3D assets). There will be new retail, marketing and sales opportunities. Once the metaverse has achieved a certain degree of scale and penetration, the list is almost endless.

NEW OPPORTUNITIES BRING NEW CHALLENGES

One thing we can be fairly certain about is that along with new opportunities there will be new risks and challenges. For example, few predicted the myriad social and ethical challenges that we already face today with the internet, and we could expect something similar – but different – when the metaverse revolution takes off. Focusing specifically on the business world, several challenges become immediately apparent:

- **Security and fraud:** The metaverse will be, at least initially, a largely unregulated environment based on cryptocurrency such as NFTs. There will be major challenges in terms of defending intellectual property, avoiding counterfeiting and protecting against other forms of criminal activity.
- **Enabling interoperability and agreeing standards:** One of the prerequisites for a functioning metaverse is that virtual assets purchased in one platform or world can also be used in another. It is not yet clear what sort of balance will be struck that will be in the interests of both platform operators such as Meta and business and private users, for which interoperability, transparency and low cost will be paramount.
- **Understanding consumer behaviors:** It is easy to make rash assumptions about consumer behaviors in the metaverse that may not be correct. For example, we have already seen a few examples of consumers paying a premium for virtual products based on what is essentially artificial scarcity. This is a carryover from the

physical world. But once the metaverse is more established, will such behaviors continue, or will different forms of customer value emerge? For example, we already know that Millennials and Generation X in general have different values to Baby Boomers. How will this translate to business in the metaverse?

THE SERVICE ECONOMY WILL GIVE RISE TO NEW MARKETS FOR PAYMENT, SECURITY, CRYPTOCURRENCY, BLOCKCHAIN, ASSET MANAGEMENT, FINANCIAL AND LEGAL SERVICES, INCLUDING CROSSOVERS BETWEEN THE VIRTUAL AND PHYSICAL WORLDS.

- **Accessing and leveraging new talent:** The metaverse will encourage the emergence of new talents, for example in design and experience creation, which will become critical for business success. This will be democratized and therefore hard to control. Companies will need to work out how to win the new war for talent.

- **Combining physical and virtual assets:** The new metaverse economy will not be 100 percent in the virtual world. It is likely that the most successful companies will be those that are able to exploit both the physical and the virtual worlds to cross-sell in both directions. This is somewhat analogous to how companies such as Amazon gained scale through a combination of digital and logistics know-how and innovation.
- **Countering digital native vertical brands (DNVBs)²:** For established historical brands with physical products today, one of the challenges will be how to counter the likely arrival of new DNVBs that may gain an early foothold in the metaverse and expand rapidly into the physical world, disrupting established markets. For this reason, being able to move fast when the metaverse takes off will be very important for established brands.

INSIGHTS FOR THE EXECUTIVE - WHAT TO DO NEXT

The metaverse is certainly the “flavor of the month” at present. Whether this will translate into major disruption and exponential growth in the short term, or whether we will go through a period of

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extended disillusionment, is still hard to predict with any certainty. However, what is clear is that the risk of being slow off the mark is a very real one that businesses should take seriously. Executives would do well to start now,

considering what the metaverse could mean for the future of their businesses, for example:

- **New products and services:** What are the potential areas where your company’s products or services, or the underlying capabilities and know-how you possess to realize them, could translate into new virtual products or services? Are there ways that new virtual offerings could be developed to help sell physical products and services?
- **New business models:** Are there any opportunities for new or disrupted business models resulting from the emergence of the metaverse as a place to do business? For example, could you change your position in the value chain, change your relationships with partners, use assets differently or adopt a new pricing or cost model? What are the threats and opportunities for your current business?

2. DNVB: A highly customer-focused brand that starts online and controls its entire customer experience from factory to consumer

- **New applications and use cases:** In your own business operations, which aspects could benefit from the virtualization opportunities offered by the metaverse? For example, global collaboration, training or problem solving?
- **Monitoring developments:** Whose responsibility is it in your organization to monitor developments around the metaverse? Who might be possible partners and collaborators to help you extend your capabilities?

So, will the new virtual world provide new physical business opportunities? The clear answer is yes, and it might be happening sooner than you expect. The opportunity is immense – but so are the challenges. It will be interesting to see who emerges as the winners and losers.

ALBERT MEIGE

is the Associate Director of Arthur D. Little and founder of Presans.

MICHAEL PAPADOPOULOS

is a Chief Software Architect of Arthur D. Little.

RICK EAGAR

is a Partner Emeritus of Arthur D. Little.