



Presents

Use cases of Metaverse in 30 Industries



TABLE OF CONTENT

■ Introduction: Metaverse Overview	3 - 22
■ Importance of the Metaverse	23 - 26
1. Virtual Real Estate	27 - 30
2. Metaverse In Creative Arts And Design	31 - 33
3. Metaverse In Social Media	34 - 39
4. Metaverse In Gaming	40 - 45
5. Virtual Marketplaces	46 - 49
6. Metaverse In Manufacturing Industry	50 - 55
7. Metaverse In Marketing And Advertisements	56 - 62
8. Metaverse In Fashion	63 - 70
9. Metaverse In Retail Industry	71 - 77
10. Metaverse In Healthcare Industry	78 - 85
11. Metaverse In Sports	86 - 87
12. Metaverse In Banking And Finance	88 - 90
13. Metaverse In Education And Learning	91 - 94
14. Metaverse In Event Industry	95 - 100
15. Metaverse In Law	101 - 105
16. Metaverse In Travel And Tourism	106 - 115

17. Metaverse In Public Sector	116 - 122
18. Metaverse In Entertainment	123 - 128
19. Remote Virtual Office	129 - 135
20. Metaverse In Telecommunication	136 - 139
21. Metaverse In Construction	140 - 143
22. Metaverse In Food And Beverages	144 - 150
23. Metaverse In Hotel And Hospitality Industry	151 -155
24. Metaverse In Supply Chain	156 - 158
25. Metaverse In Defense	159 - 162
26. Metaverse In Agriculture	163 - 165
27. Metaverse In Pharmaceutical Companies	166 - 169
28. Metaverse In Insurance Industry	170 - 175
29. Metaverse In Photography	176 - 177
30. Metaverse In Social Networking Spaces	178 - 179
■ Conclusion: Future of the metaverse	180

INTRODUCTION: METAVERSE OVERVIEW

Looking back on 2021, the first year of the Metaverse, its breakout was significantly more intense, and market participants' responses were much faster than when the internet first entered global consciousness. A peek at the global and Chinese marketplaces demonstrates that the Metaverse has evolved into a setting for all of mankind to explore the next stages of growth in society, technology, legal systems, and the arts, rather than just an experiment for small-scale players. With the dramatic drop in Metaverse-related stock prices in 2022, the capital market's overwhelming enthusiasm has since begun to fade, and people are now seeing the Metaverse prospect more sensibly. The Metaverse shall profoundly alter people's work, lives, and social interactions, eventually resulting in the creation of a new universe. Companies that focus on proper positioning, constant development, and exceptional talent will generate a viable Metaverse that inspires continued interest after the euphoria has subsided.

What Exactly Is The Metaverse?

The Metaverse is indeed a compilation of all virtual worlds created with blockchain technology. It might be gaming worlds, NFT galleries, curated territories, or digital streets.

The most fundamental aspect of the Metaverse to understand is that it is not a single location. Media companies, music publishers, clothing labels, and bitcoin analytics tools can all be found in the Metaverse.

Rock stars, rappers, Care Bears, and Smurfs all fall into this category. So it's a big church with plenty of room for everyone.

What distinguishes the Metaverse from other online social platforms such as Second Life and Minecraft is the space between centralization and decentralization.

Previously, digital spaces were closely controlled by a single firm from their own servers. Every time you left their realm and entered another, you had to sign up with a new identity. The Metaverse allows you to travel across and across the developing network of virtual environments using a single identity. This makes it more like a reflection of reality. When you travel to new towns, cities, and countries, you do not need to obtain a new passport each time.

Understanding The Seven Layers Of The Metaverse

According to entrepreneur and author Jon Radoff, the Metaverse is divided into seven distinct layers, each of which influences one aspect of the user experience:

■ **Experience:**

As physical space dematerializes in the digital world, the limitations of physicality will be removed. The Metaverse will offer people a variety of experiences that we cannot currently enjoy.

■ **Discovery:**

Customers can learn about new platforms through app stores, search engines, and rating websites thanks to this layer. This critical step is required for the discovery of new technology and communities.

■ **Creator economy:**

Developers use various design tools and apps to create digital assets or experiences. Various platforms, such as drag-and-drop tools, are gradually developing more straightforward creative methods.

■ **Spatial computing:**

This technology combines mixed reality (MR), virtual reality (VR), and augmented reality (AR) (AR). It has evolved into a significant technology category that allows users to interact with 3D environments for enhanced experiences over time.

■ **Decentralization:**

The Metaverse will not be ruled by a single authority. As the Metaverse expands, enabled by blockchain technology, scalable ecosystems will assist business owners in providing a more comprehensive range of specialized digital items.

■ **Human interfacing:**

The Metaverse's hardware layer must include human interfacing. A person's body can be accepted as a 3D, realistic avatar in any virtual world.

■ Infrastructure:

The infrastructure layer includes the technology that powers people's devices, connects them to the network, and distributes content. Over time, 5G networks will significantly increase the Metaverse's capacity.

How Does Crypto Fit Into The Metaverse?

Gaming gives the 3D part of the metaverse but does not cover all required in a virtual world that can include all aspects of life. Crypto can offer the other key parts required, such as digital proof of ownership, transfer of value, governance, and accessibility. But what do these mean exactly?

We will need a secure system to establish ownership if we operate, communicate, and even buy virtual items in the metaverse in the future. We must also feel secure when moving these commodities and money around the metaverse. Finally, we will also want to play a role in the decision-making taking place in the metaverse if it will be such a large part of our lives.

Some video games already include some rudimentary solutions, but many developers prefer to employ crypto and blockchain as a better choice. While video game development is more tightly managed, blockchain allows for a decentralized and transparent approach to dealing with the issues.

Blockchain developers also take influence from the video game world too. Gamification is common in Decentralized Finance (DeFi) and GameFi. It seems there will be enough similarities in the future that the two worlds may become even more integrated. The following are the key properties of blockchain that make it suitable for the metaverse:

■ Digital proof of ownership:

By owning a wallet with access to your private keys, you can instantly prove ownership of activity or an asset on the blockchain. For example, you could show an exact transcript of your transactions on the blockchain while at work to show accountability. A wallet is one of the most secure and robust methods for establishing a digital identity and proof of ownership.

■ Virtual collectibility:

In the same way that we can determine who owns something, we can also demonstrate that an item is original and one-of-a-kind. This is critical for a metaverse that wants to incorporate more real-life activities. We can use NFTs to construct objects that are completely unique and cannot be replicated or forged. A blockchain can also represent ownership of physical items.

■ **Value transfer:**

A metaverse will require a secure method of transferring value that users can rely on. In-game currencies in multiplayer games are less secure than crypto on a blockchain. If users spend a significant amount of time in the metaverse and even make money there, they will require a trustworthy currency.

■ **Governance:**

Users should be able to control the laws of their interactions with the metaverse. In real life, we can have voting rights in companies and elect leaders and governments. The metaverse will also require methods for implementing fair governance, and blockchain is currently a proven method for doing so.

■ **Accessibility:**

Anyone in the world can create a wallet on public blockchains. Unlike a bank account, you are not required to pay any money or submit any information. As a result, it is one of the most accessible methods of managing finances and an online, digital identity.

■ **Interoperability:**

Blockchain technology is constantly improving platform compatibility. The Polkadot (DOT) and Avalanche (AVAX) projects allow for the establishment of distinct blockchains that can communicate with one another. A single metaverse will be required to connect different initiatives, for which blockchain technology already has solutions.

Features Of The Metaverse

The Metaverse's operation is built on the following key features:

■ Incorporation of avatars

One of the basic principals of the Metaverse is the creation of digital avatars of oneself as a means of uniquely expressing one's emotions and feelings. Every individual has their own digital identity, which can be static or animated and is unique to them. Avatars are a unique way to express yourself because, in addition to being exact replicas of your actual form, they can also be recreations of your favorite celebrities or something completely original.

Gamification is introduced when users have the option to customize their avatars, resulting in a more engaging and dynamic experience.

Avatars are frequently altered and can closely resemble their users' real-life counterparts in certain ways. Avatars can occasionally be computer programs. Users can control their avatars using keyboards, joysticks, mice, and specialized human-computer interfacing (HCI) devices. More lifelike avatars may provide a more immersive experience for viewers or anyone interacting with them.

■ Blockchain-based operations

Blockchain protects consumers' virtual assets and provides digital proof of ownership, making it an essential component of the Metaverse. The Metaverse is seeing an increase in data volume, value, and the importance of security and dependability. To ensure data validity in the Metaverse, blockchain skills and technology are required, and artificial intelligence is used to protect its diversity and wealth of material.

The Metaverse concept is incomplete without blockchain due to the numerous drawbacks of centralized data storage in systems such as database management systems (DBMS). The blockchain-based Metaverse provides access to any digital location without the influence of a centralized organization.

■ The use of virtual land (parcels)

The Metaverse's demand for virtual land is skyrocketing. Anyone can buy land in the Metaverse for cryptocurrencies. The land is a non-fungible token (NFT), a type of blockchain asset that cannot be traded for other things. The fundamental number of pixels in a plot of Metaverse real estate is referred to as size.

On virtual land, users can interact with digital storefronts, virtual gaming, and even entertainment. Its size and location will determine the land's use cases. Plots near a VR street, for example, may be worthwhile due to the possibility of displaying advertisements.

■ Immersive Experiences (AR and VR)

By utilizing mixed reality and AR/VR technologies, Metaverse participants will be able to have more immersive experiences that converge reality and the virtual world. It's easy to see why the Metaverse is becoming more popular by the day: it brings games to life, concerts and plays to life, as well as professional or educational encounters to life.

AR and VR are the main building blocks of Metaverse projects. The connectivity of actual and virtual environments, real-time interaction, and accurate 3D object rendering are three key components required for augmented reality systems to function.

■ Intersection with artificial intelligence (AI)

AI is critical to the Metaverse as the driving force behind corporate research in fields such as content analysis, self-supervised speech processing, robotic interactions, computer vision, and wholebody posture estimation.

AI can be used to deliver Metaverse business applications in a variety of ways. AIOps, a subfield of AI, uses machine learning to help businesses manage their IT infrastructure, which will soon be applicable to Metaverse systems. Furthermore, AI-powered chatbots are becoming increasingly popular among businesses. AI bots with lifelike avatars can be used for a variety of purposes in the Metaverse, including sales, marketing, and customer support.

■ Decentralized Autonomous Organizations (DAOs) for governance

A DAO is a governance body, similar to a council or a committee, that uses blockchain and smart contracts to reach decisions. The Treasury Wallet, according to DAO governance guidelines, provides money for farming across multiple networks. All decisions in DAOs are still governed by proposals and voting procedures to make sure that everyone in the organization has the chance to take part in the governance process. The procedure is critical for helping participants in casting ballots on important Metaverse resource management decisions.

■ Use of Human-Computer Interface (HCI) technology

Metaverse is a massive online computer platform that includes a wide range of platforms, devices, and individual users. The application of HCI in the creation of the Metaverse — specifically, how to integrate user activities into the virtual world — is critical to achieving this goal.

To participate in specific activities, a human and a computer exchange information via a process known as HCI. The most important advantage of human-computer interaction is that it assists groups in need of formal training and information on how to connect with computing systems.

■ Emphasis on social interactions

Avatars and visual representations of users are used by humans to communicate and interact in the Metaverse. Users can interact with the Metaverse as well as other users. These exchanges take place in cyberspace, which serves as a representation of the real world.

However, there are distinctions between the economic and physical constraints of actual locations. Our physical experiences in the real world could merge into a single virtual environment. People will be able to navigate the infinite world thanks to this holistic experience that will bring together all of these disparate encounters.

■ Web3 Support

Web3's goal is to usher in a new era of the internet. It is the development of user ownership and control over their online content, digital assets, and online personas. Web3 and Metaverse technologies complement one another perfectly. Because the Metaverse is a virtual environment that prefers a decentralized web, Web3 may provide the foundation for connectivity.

Examples Of Metaverse Platforms:

To grasp the concept of the Metaverse, consider the following platforms that are bringing this vision to life:

■ Decentraland

Decentraland is a virtual social environment based on blockchain technology. It is used to create, trade, earn money, and navigate virtual worlds. It is essentially a digital ledger that records bitcoin transactions across a network of computers and serves as the foundation for the Decentraland universe. It offers exceptional opportunities for both studying and having fun with virtual experiences. Decentraland can be used to hold meetings and trade virtual goods in marketplaces, among other things. Interacting with other members is as simple as it is in real life.

■ The SandBox

A 3D virtual world hosted on the Ethereum blockchain where users can interact, build things, and earn money. Sandbox supports a wide range of devices, including Windows phones and smartphones. People can earn money by participating in new virtual experiences. However, it is not cheap to use. SandBox has created its SAND coin, which is based on Ethereum, to make this possible. SAND tokens can be used to pay for gas on the Ethereum network

■ Bloktopia

Bloktopia provides users with an immersive experience by utilizing virtual reality. It is a 21-story virtual structure representing the current 21 million Bitcoins in circulation. It offers a variety of revenue-generating opportunities with new virtual experiences. People can create their own avatars, take part in various activities, learn about cryptocurrencies, and buy virtual "real estate" in the tower. You can also use this real estate to create artwork, games, sequences, and other things by using the platform's builder tool.

■ Meta Horizon Worlds

On Horizon Worlds, users can socialize, conduct business meetings, explore the virtual environment, participate in virtual activities, and play games. Horizon Worlds is one of Meta's VR social apps. Blockchain technology is not used in the Horizon universe. It includes functional VR building blocks like code blocks, music, and animation effects to help content developers, as well as navigable VR settings. Horizons was launched in August 2020 as a test platform for virtual explorers with an invite-only policy by Facebook (now Meta Platforms Inc.).

Metahero

The Metahero project provides usable technology that allows users to scan real-world objects and transport them to the Metaverse rather than a virtual realm. Its primary goal is to digitize physical artifacts using ultra-HD photogrammetric scanning technologies. Users can use Metahero as a portal to start exploring the NFT, social media, fashion, and many other aspects of the Metaverse with their 3D avatars. Metahero creates high-resolution avatars out of real-world objects, including people.

What's The Biggest Metaverse?

With over 200 million monthly active users, Roblox is considered the largest metaverse world.

The number is gradually increasing. It had approximately 180 million monthly active users in January 2021 and surpassed 225 million in December. According to Activeplayer.io data, the numbers after that hover around 200 million.

Roblox servers only accept 100 players per game, but it has the most active users overall.

What Are The Top Metaverse Platform Rankings?

Here are the metaverse platform rankings according to monthly active users:

Source: [Activeplayer.io, Dappradar data \(July 2022\)](#)

Rank	Metaverse Name	Monthly Active Users
#1	Roblox	200 Million
#2	Minecraft	170 Million
#3	Fortnite	80 Million
#4	Second Life	1 Million
#5	Axie Infinity	548,030
#6	Horizon Worlds	300,000
#7	The SandBox	9,640
#8	Decentraland	604

What Is The Metaverse Market Size?

Here's a table of the metaverse market size per year:

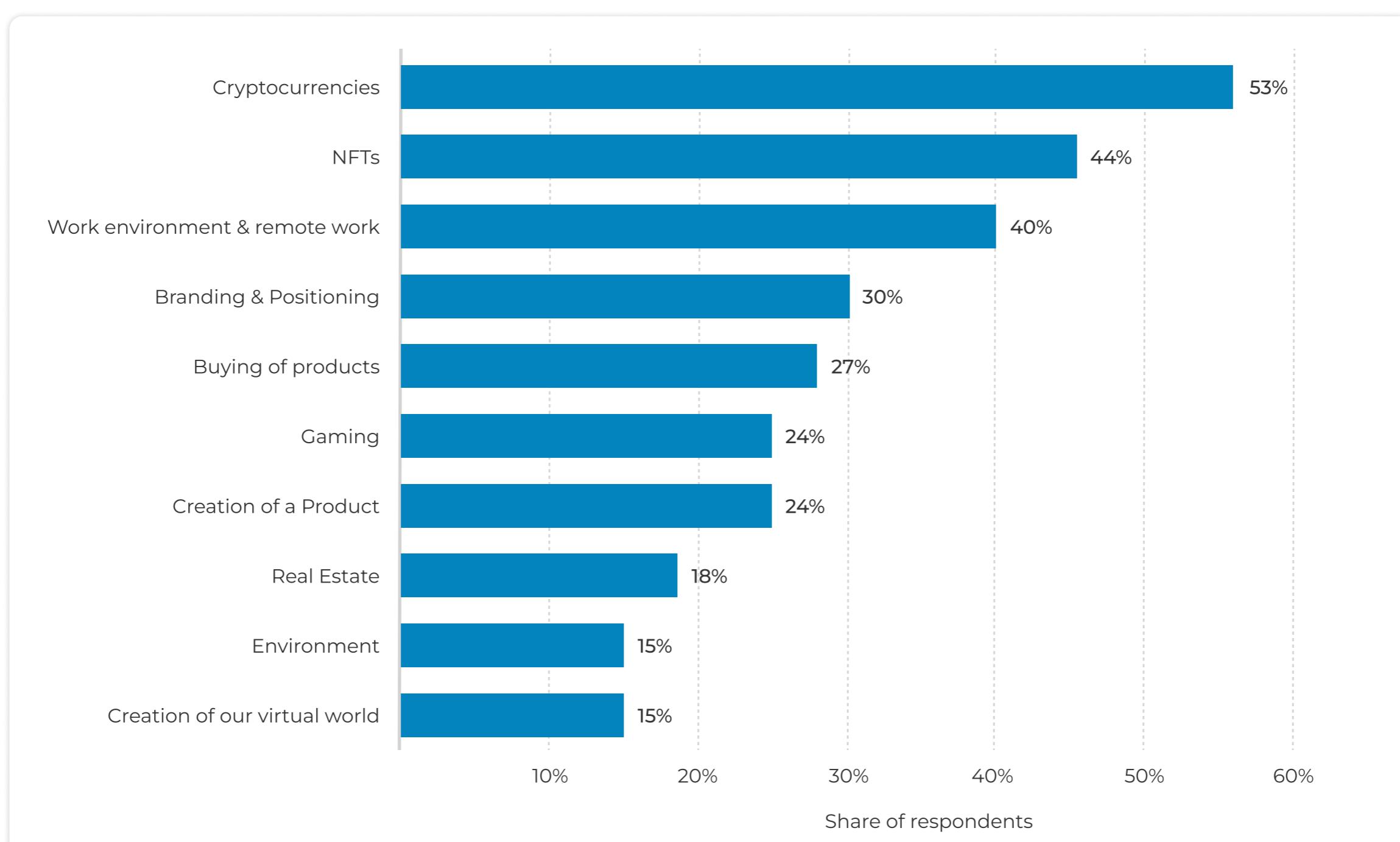
Source: ([ReportsAndData, Statista 3](#))

Year	Metaverse Market Size (USD)
2022	\$47.78 billion
2021	\$38.85 billion
2020	\$41.9 billion

Companies Worldwide Plan To Invest In The Metaverse By 2022.

More than half of responding businesses in a March 2022 survey of companies from selected countries that have already invested in the metaverse stated that they invested in cryptocurrencies. NFTs came in second place. Work environment and remote work ranked third, with 40% of respondents saying they had invested in projects in this sector.

Source: [Statista 2022](#)

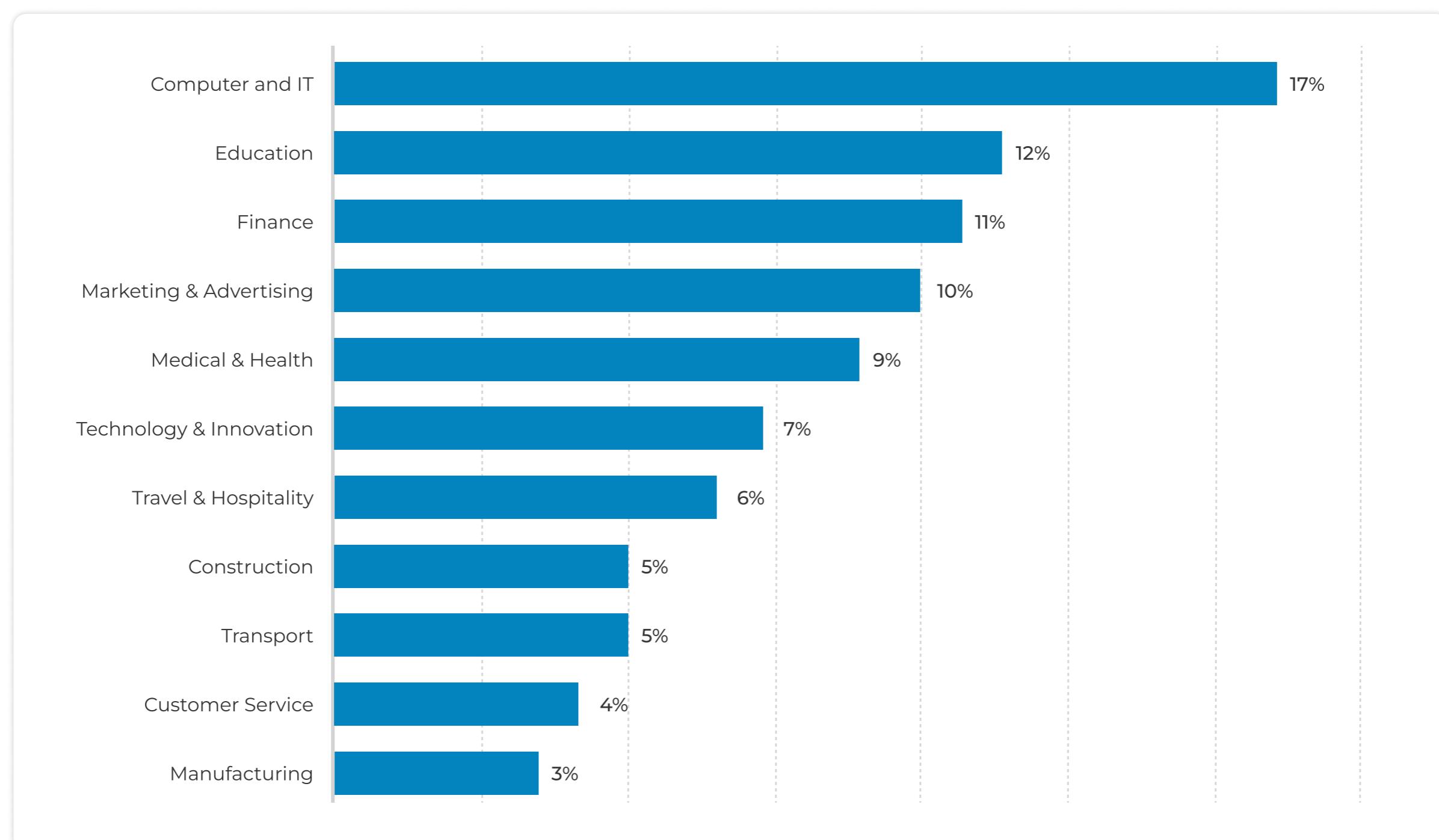


An in-depth examination of firms' perspectives and investments in the metaverse

Leading Industries Are Already Investing In The Metaverse 2022.

According to a March 2022 survey of companies from selected countries that have already invested in the metaverse, businesses in the computer and information technology sector were the most likely to have done so. Overall, 17 percent of companies in this sector had already invested in the metaverse as a business opportunity, with the education sector coming in second at 12 percent of responding businesses.

Source: [Statista 2022](#)



After polling 200 of these companies in Europe and the United States about their digital strategy for the metaverse, we can see how deep the rabbit hole goes and how the metaverse is transforming into, presumably, a privileged playground.

52%

of brands believe customers are ready for the metaverse

5 Years

The time companies believe the metaverse will need to boom

26%

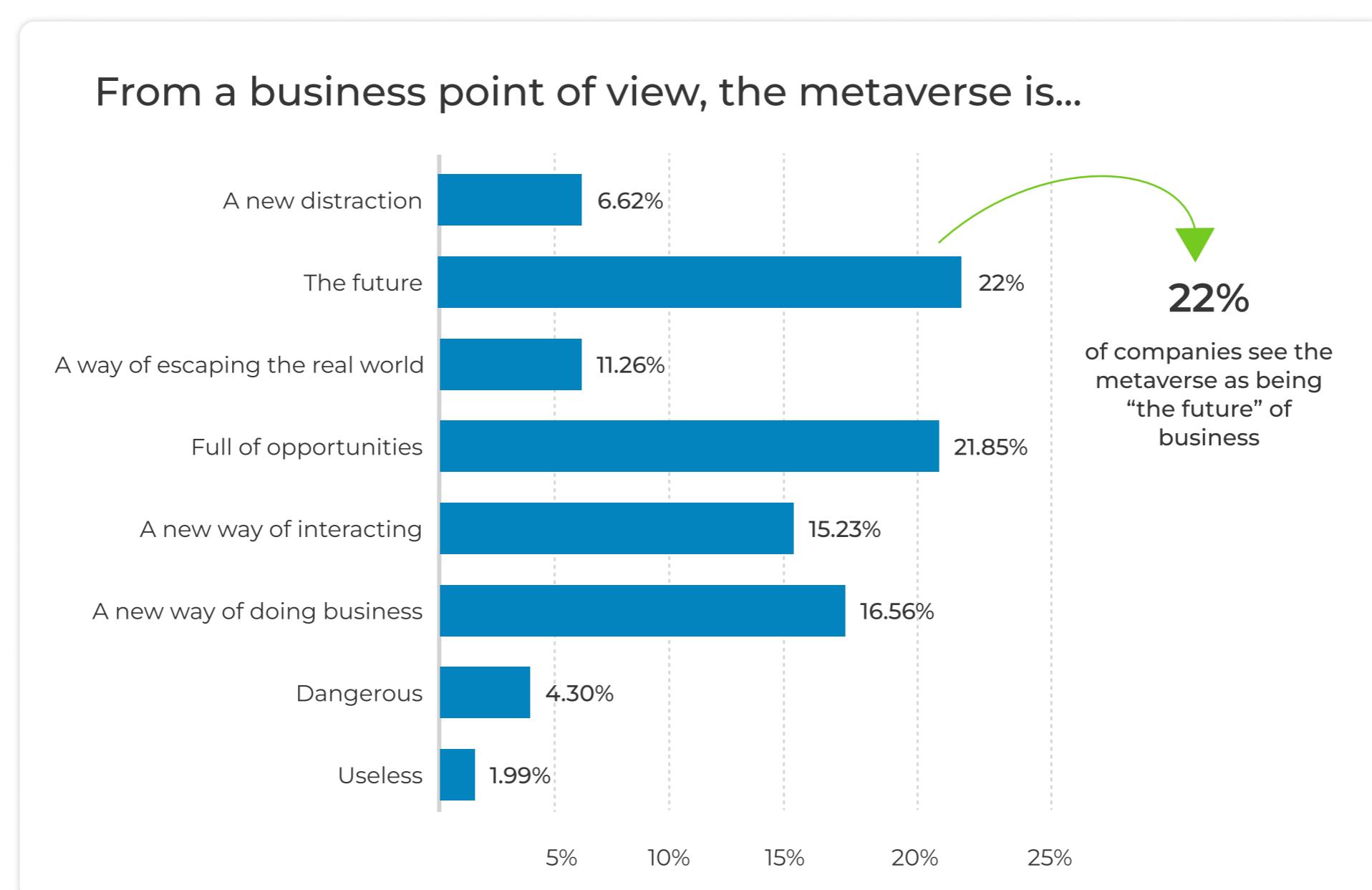
of brands expect to see a return on investment in the metaverse

The Metaverse Is The New Risk-Taking Cap

55% of industries believe the metaverse is a risk worth taking.

When asked why they started investing in it, the surveyed companies said it is "the future" (22%).

Source: [Sortlist](#)



Every Company Will Have A Piece Of The Metaverse

Brands are so confident in the metaverse that only about 3% believe it will take more than ten years to reach global consumption.

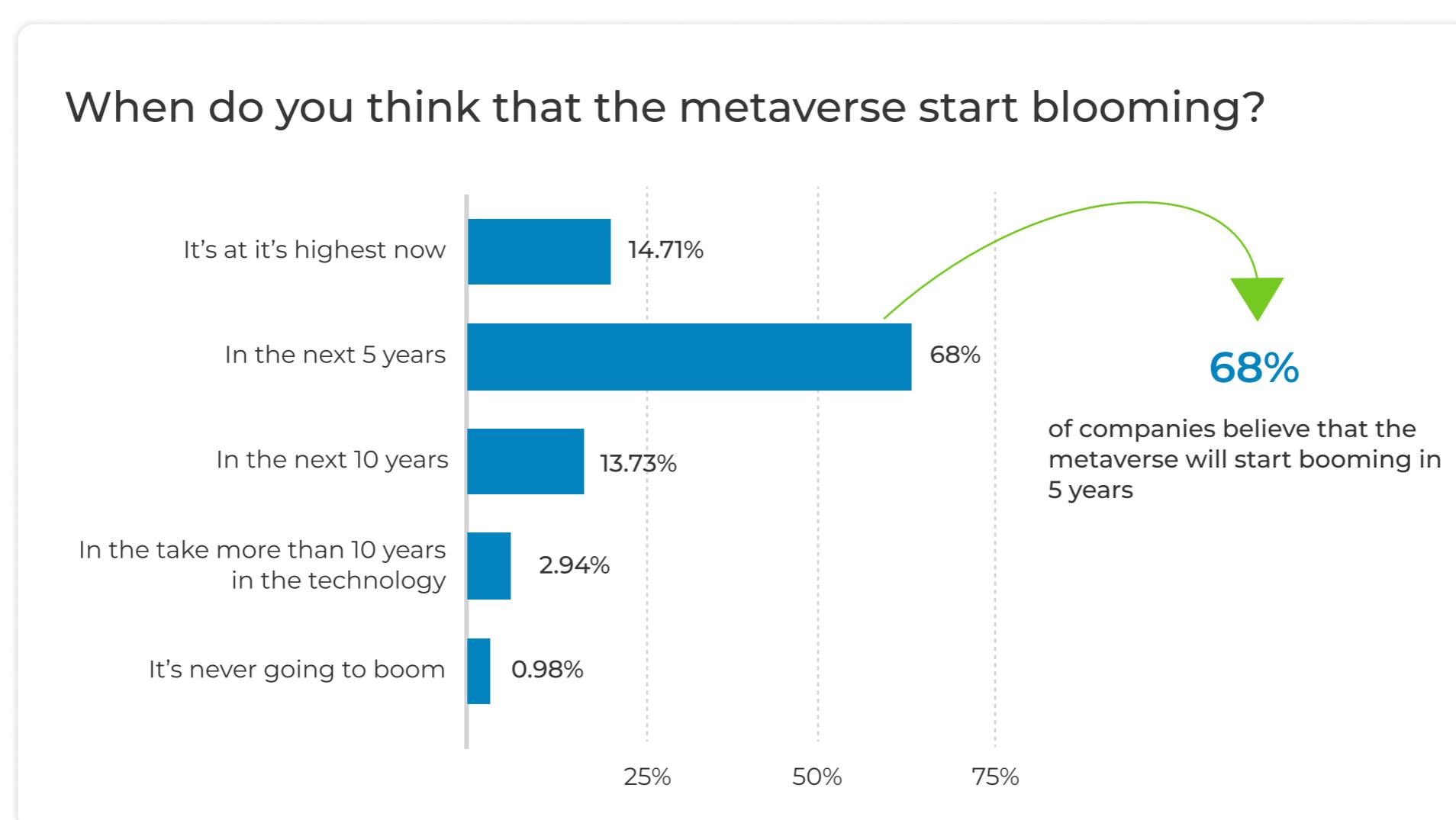
The majority (68%) believe it will boom in the next five years.

76% believe that the virtual world will provide opportunities for all industries.

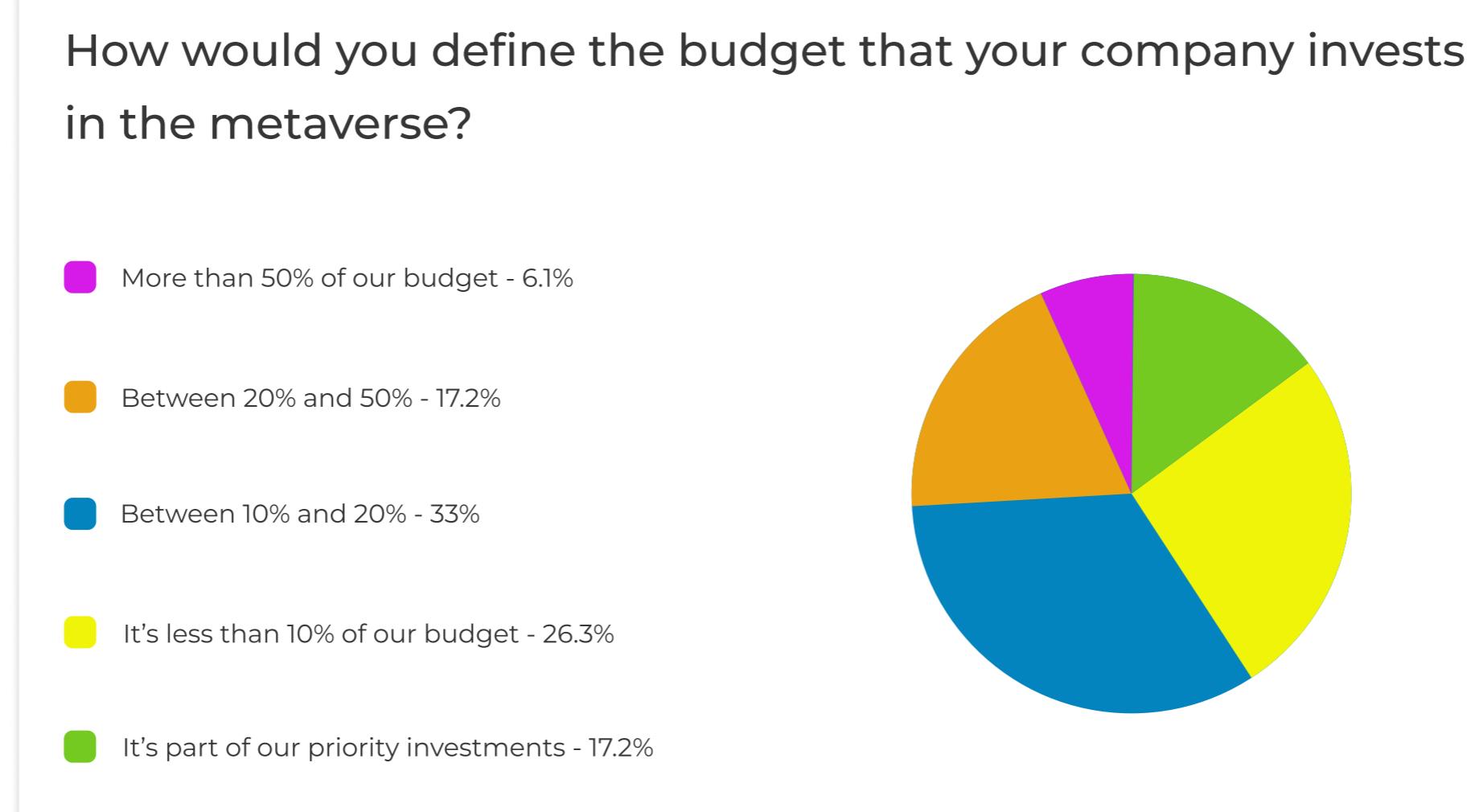
33% Of Brands Invest 10-20% Of Their Budget In The Metaverse.

When asked what percentage of their budget they set aside for metaverse projects, one-third of businesses said it was between 10% and 20%.

Source: [Sortlist](#)



Source: [Sortlist](#)



Metaverse For Business: Expectations.

Despite the fact that 20% of users see the metaverse as a "way of escaping the real world," it has proven to be the exact opposite for brands, who believe (26%) that a trip into virtual worlds will yield more than just entertainment for customers: profit

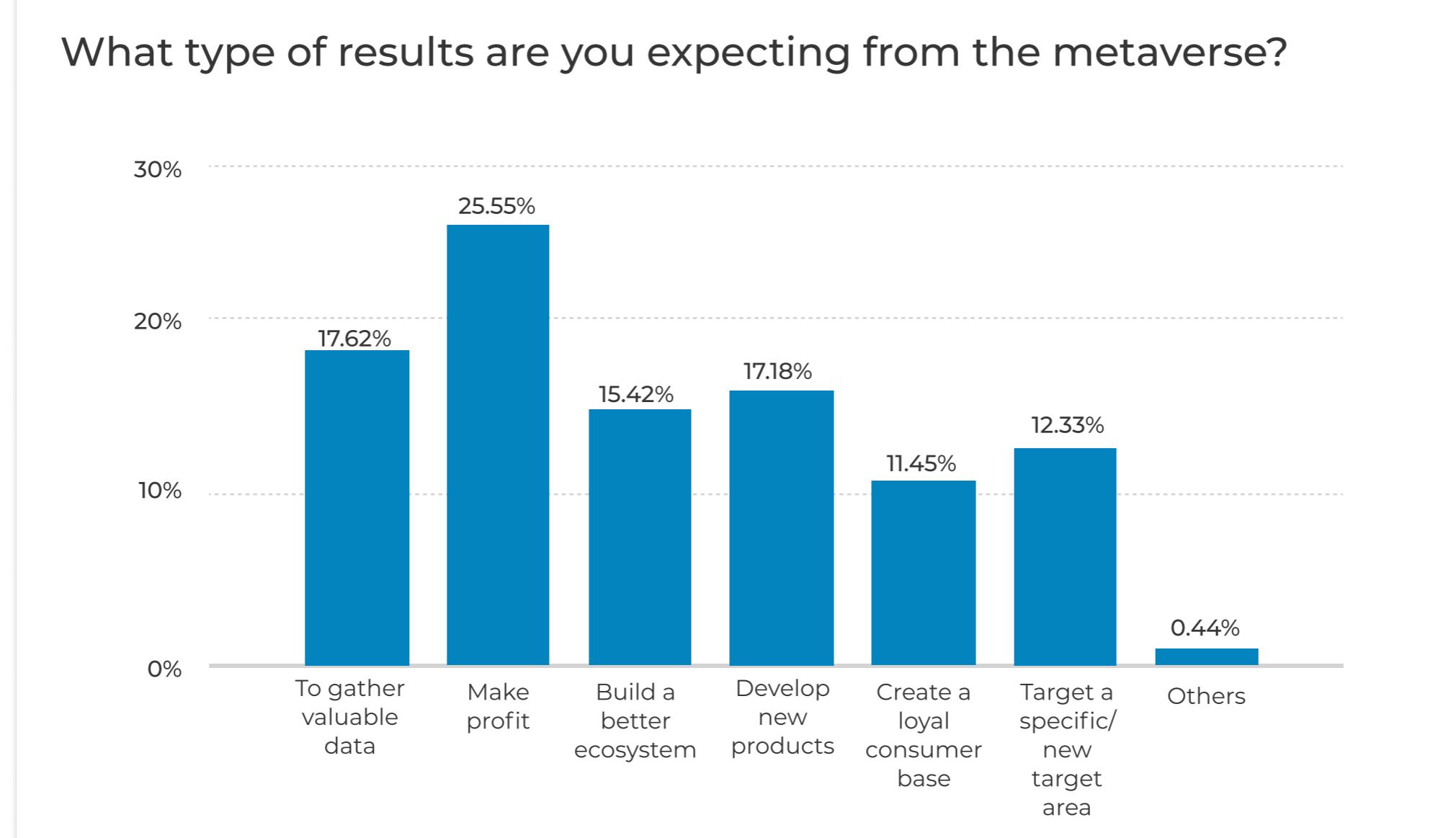
The Metaverse's Ideal Metaverse Customer Target Audience

Companies that have invested in the metaverse understand that this new realm is primarily aimed at men (11.3%).

Big brands (10.7%).

Millennials (9.3%) and Gen Z (9.9%).

Source: [Sortlist](#)



Source: [Sortlist](#)

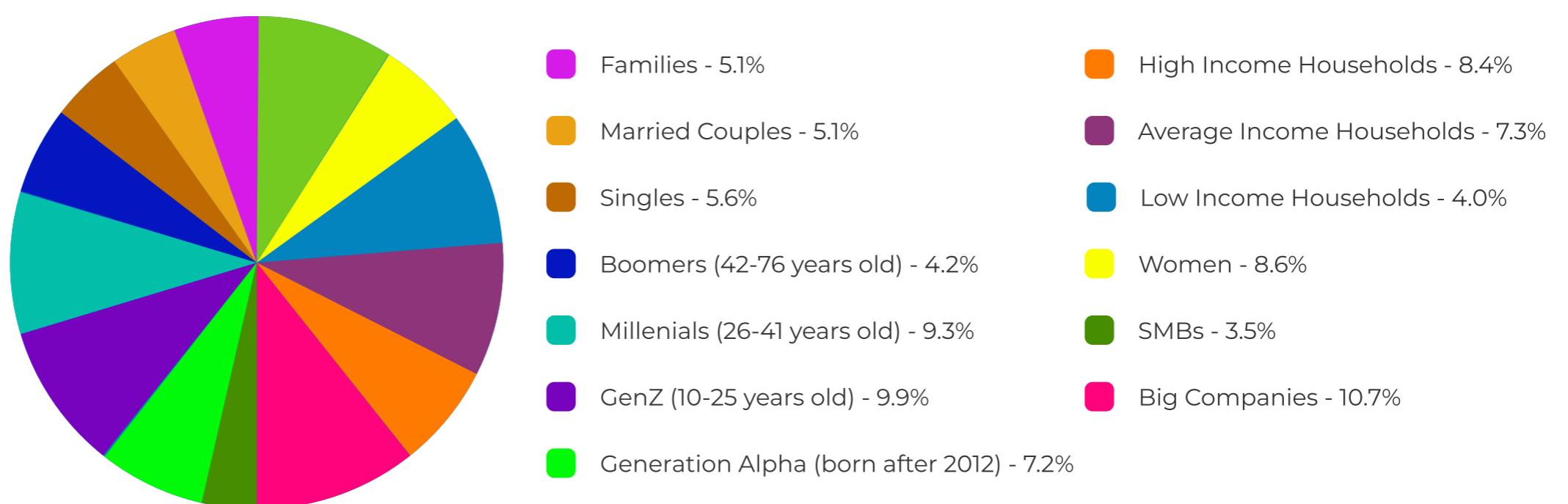
What is the target audience for your metaverse investment?

For most companies, the target audience when it comes to the metaverse consists of-

-Big Companies

-Men

-Gen Z



The Metaverse Is Designed For Businesses With Innovation Departments

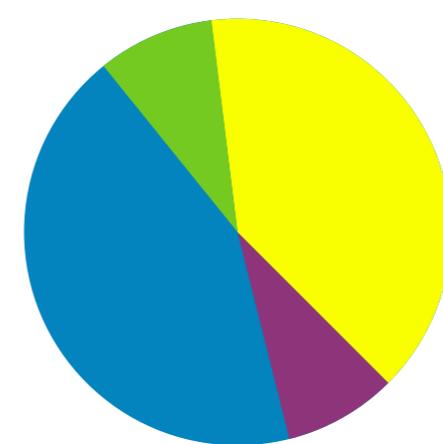
47% of brands that have already invested in the metaverse say their innovation departments are most interested in metaverse initiatives.

This demonstrates that businesses are ready for new technologies in the field, but it also highlights an important reality: innovation departments are a hallmark of larger corporations.

Source: [Sortlist](#)

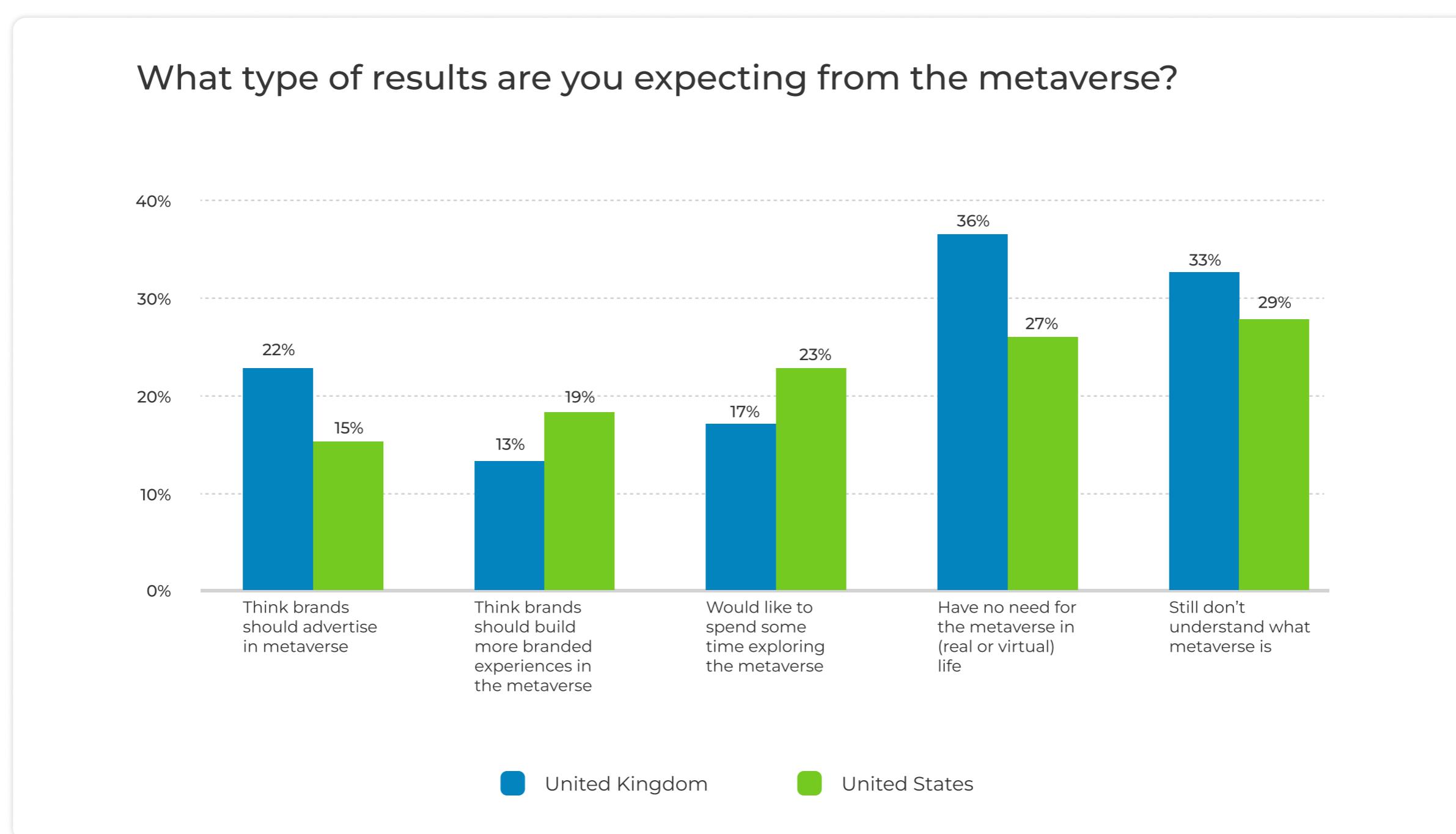
Which department in your company is most interested in metaverse initiatives?

Board Level	6.9%
Innovation	47.1%
R&D Department	10.8%
Innovation	47.1%



As Of August 2021, Brand-Related Attitudes Toward The Metaverse Among Internet Users In The United Kingdom And The United States

According to an August 2021 survey of internet users in the United Kingdom and the United States, 15% in the UK and 22% in the US thought brands should advertise in the metaverse. Brands should use the metaverse to create more branded experiences, according to 13% of respondents in the UK and 19% in the US.

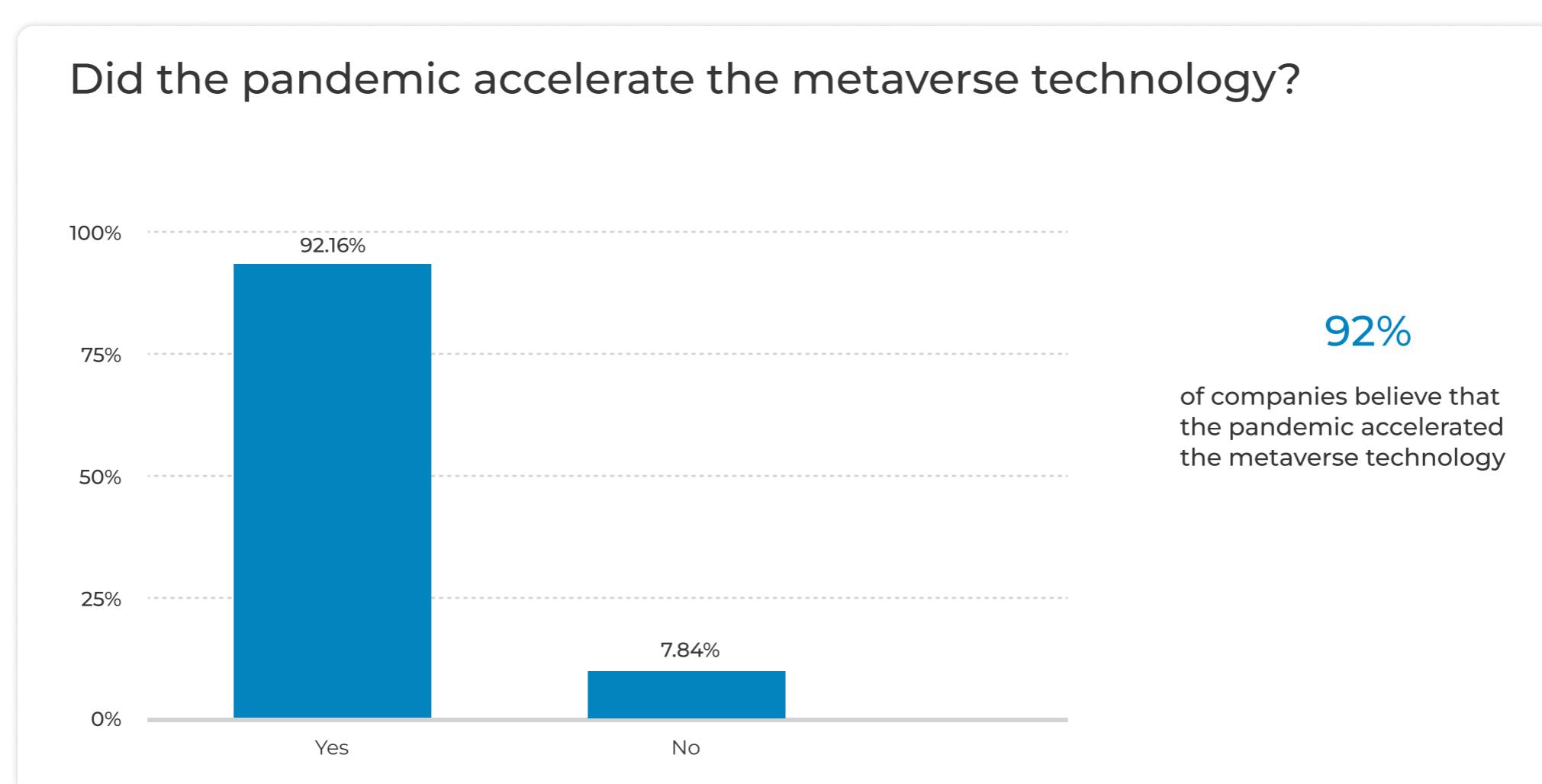


Why Is The Metaverse Now Rising?

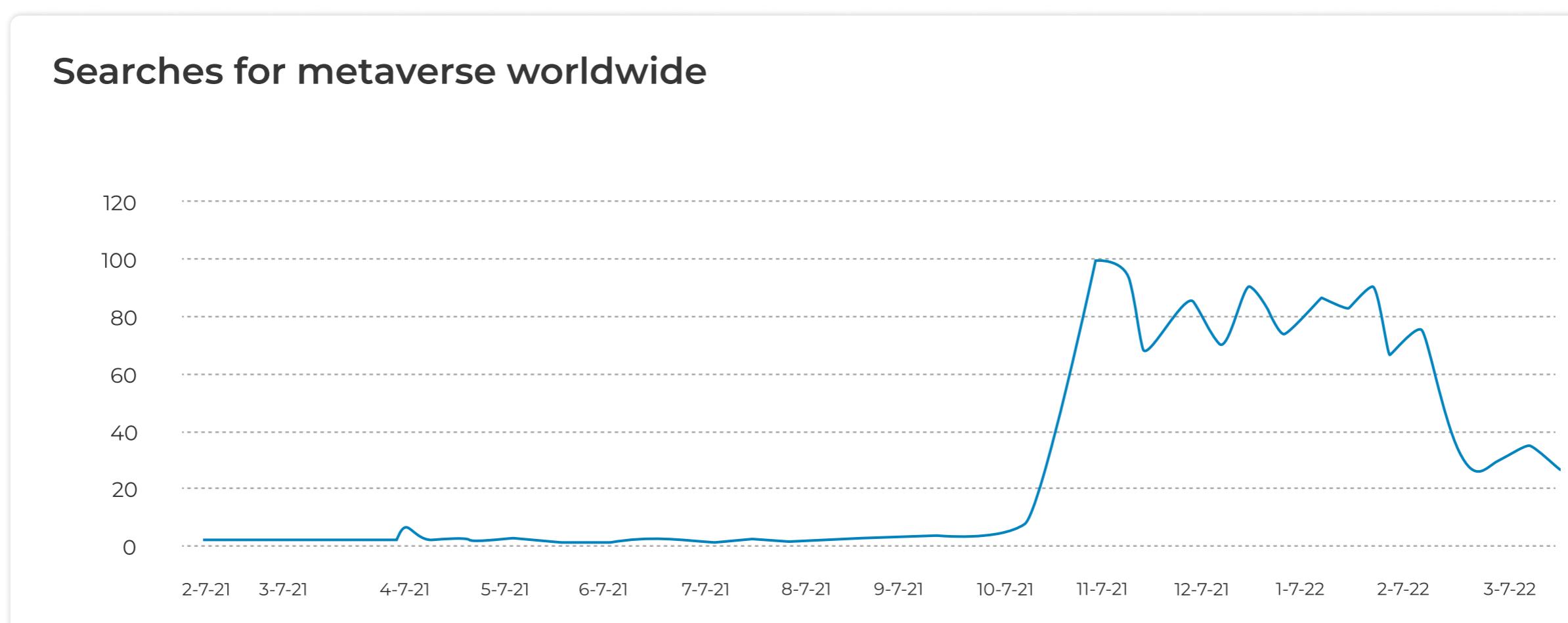
The Pandemic had a significant impact on the Metaverse's eventual realization.

The combination of the health crisis and the need for businesses to undergo digital transformation has increased interest in the metaverse as a business opportunity.

The pandemic accelerated the metaverse technology, according to 92% of companies polled.



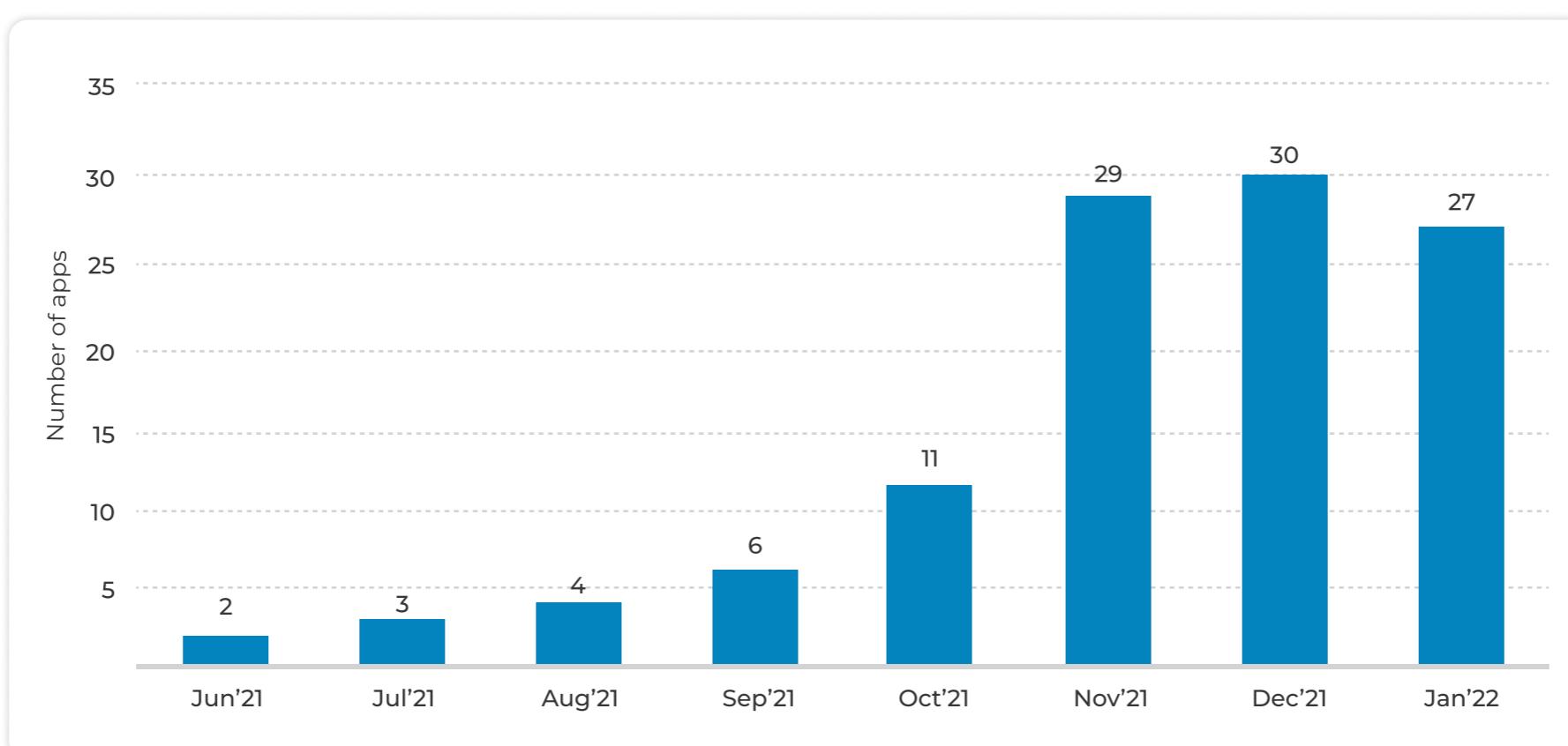
The Renaming Of Facebook Caused A Rise Of Metaverse Interest.



How Fast Is Metaverse Growing?

Number Of Apps With The Metaverse Keyword In Their Names In 2021-2022

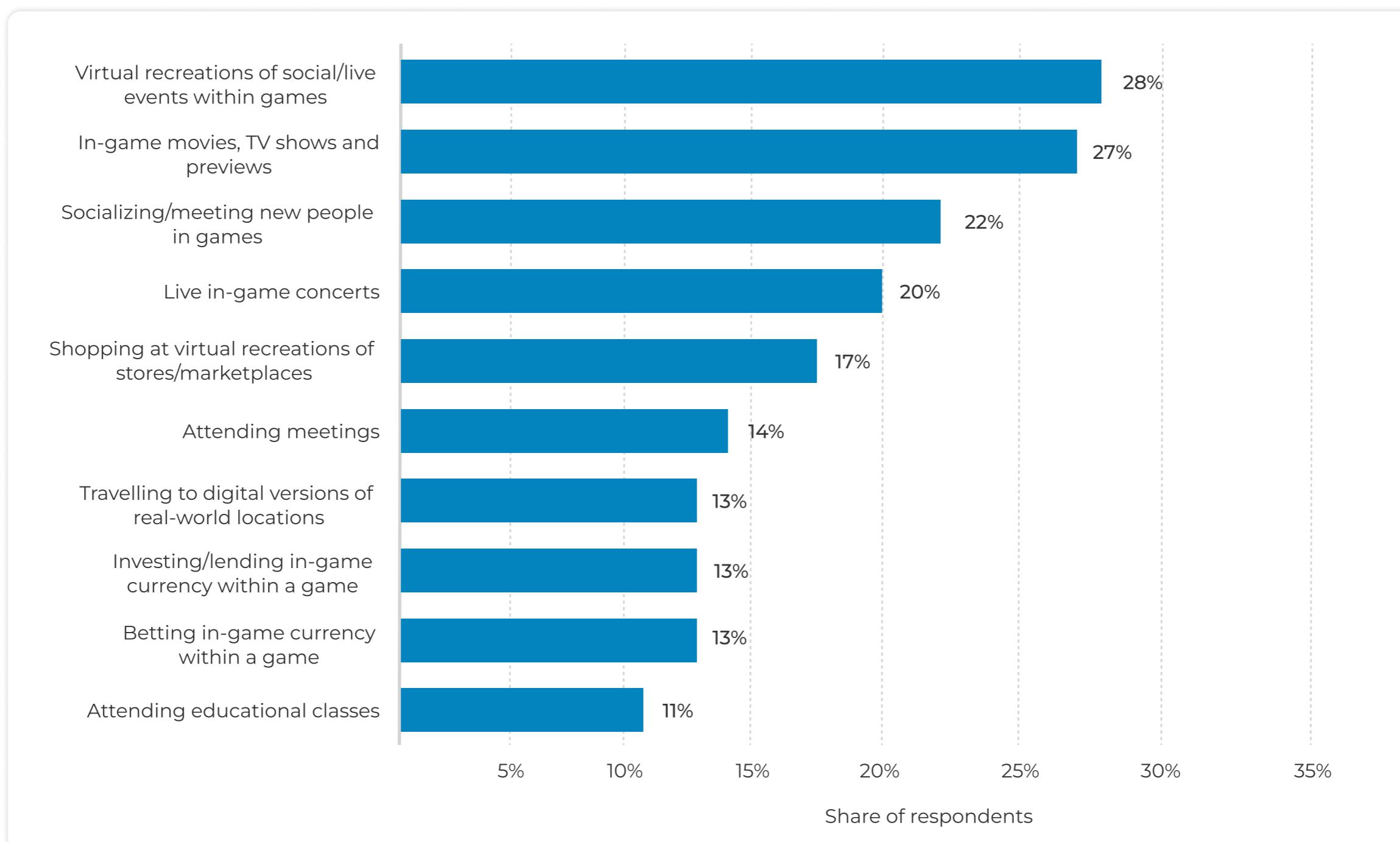
In January 2022, 27 apps added the keyword "metaverse" to their name or description, a 145 percent increase from the 11 apps that updated their names in October 2021. During the Facebook Connect event in October 2021, Facebook announced its new name and next futuristic endeavor. Far from being a rebranding exercise, Facebook's new name Meta reflects the company's new focus on creating an immersive metaverse experience.



2021: US Gamers Participating In Non-Gaming Activities Within Video Games

Non-gaming activities will be a significant part of the online-gaming environment in 2021. In the last year, approximately 60% of gamers in the United States engaged in non-gaming activities, with virtual recreations of social or life events within games being the most popular. Second place went to online hangouts where gamers watched in-game movies, TV shows, and previews together. In total, 20% of respondents said they had attended live in-game concerts such as Travis Scott's Fortnite concert.

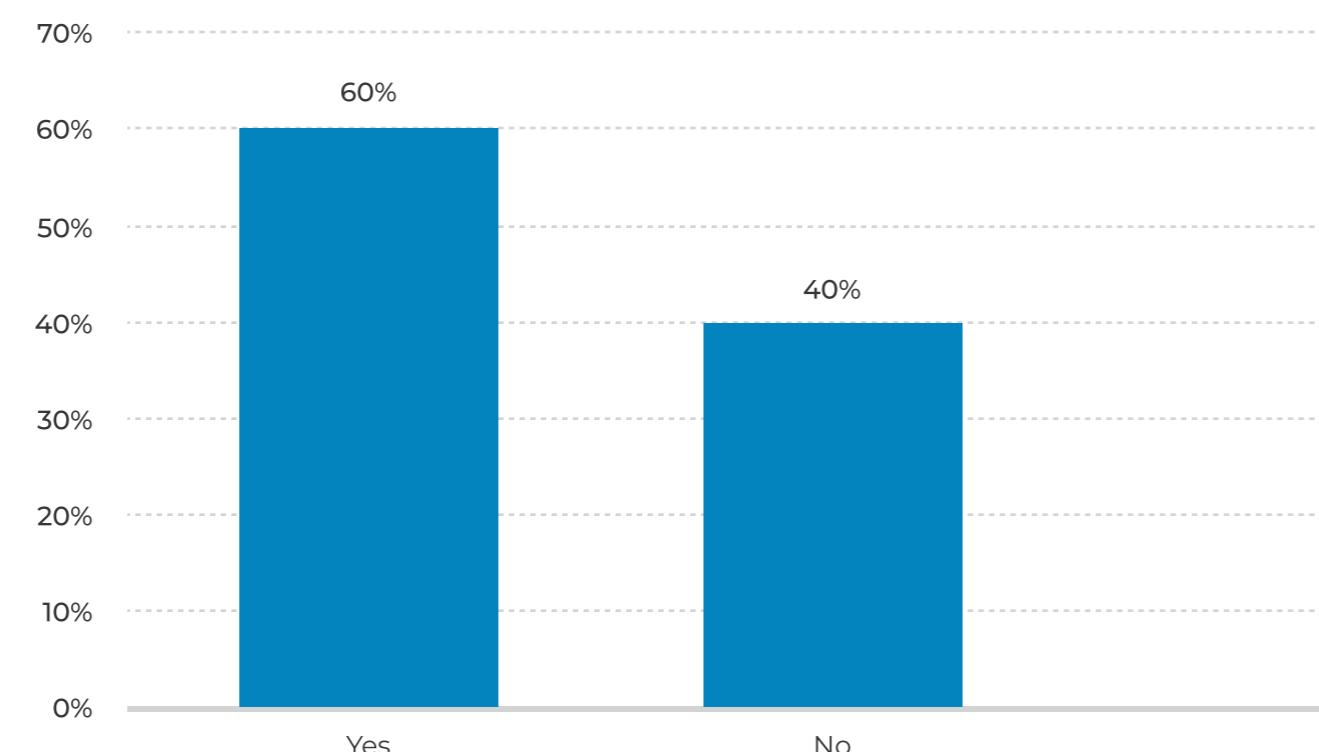
Source: [Statista 2022](#)



2021: US Gamers Engaging In Non-Gaming Activities Within Video Games

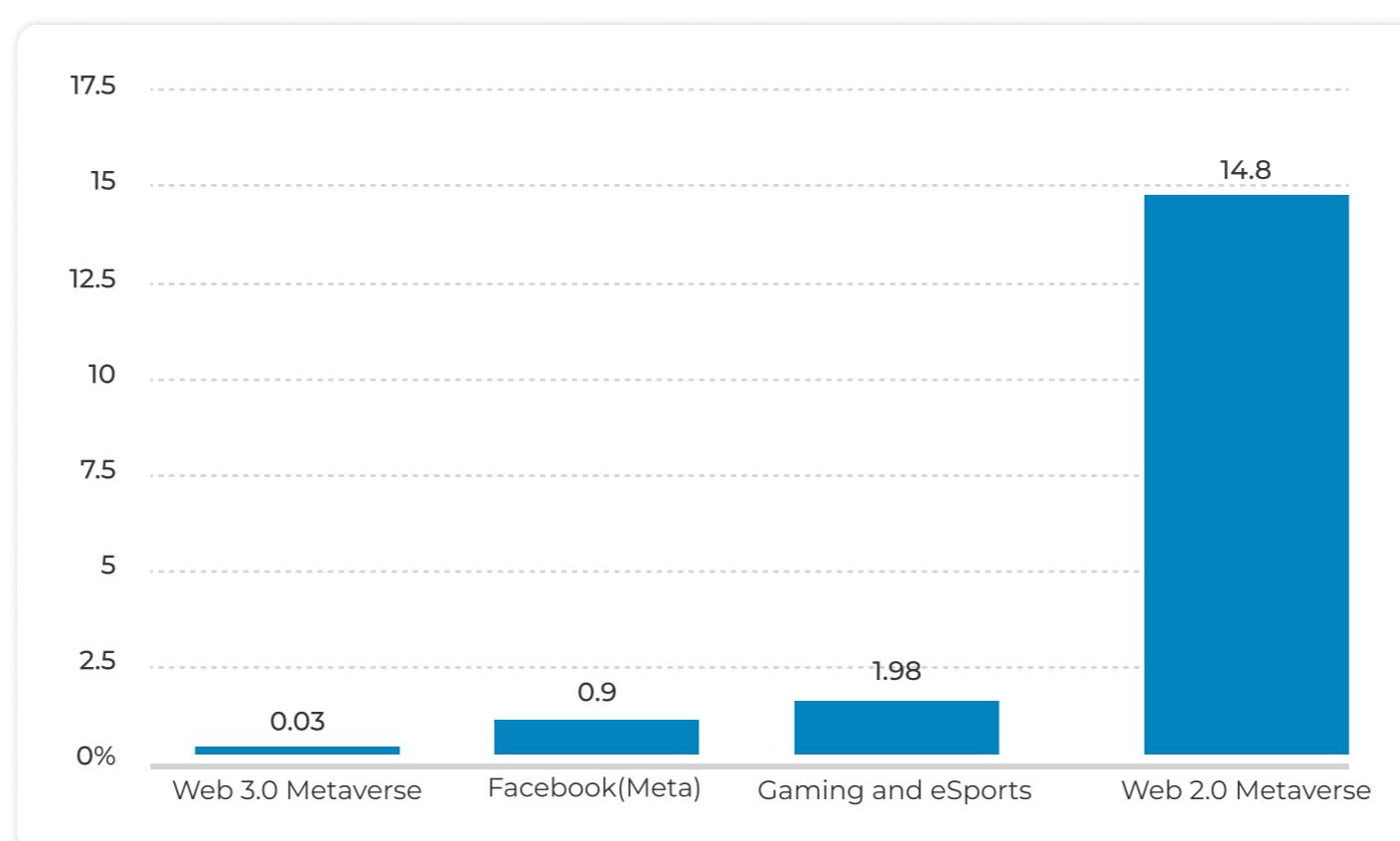
Non-gaming activities will be a significant part of the online-gaming environment in 2021. In the last year, approximately 60% of gamers in the United States engaged in non-gaming activities, with virtual recreations of social or life events within games being the most popular. Second place went to online hangouts where gamers watched in-game movies, TV shows, and previews together. In total, 20% of respondents said they had attended live in-game concerts such as Travis Scott's Fortnite concert.

Did the pandemic accelerate the metaverse technology?



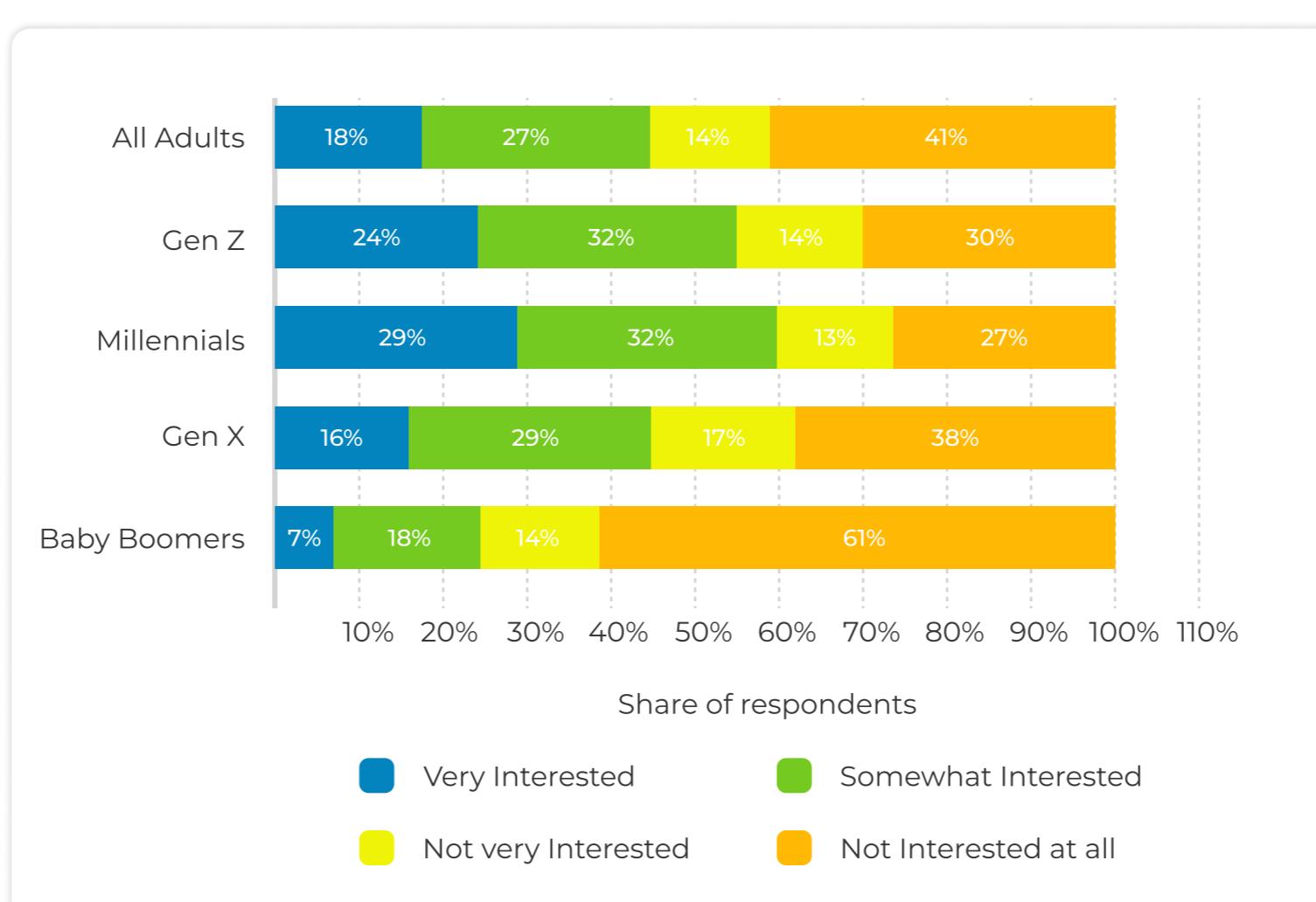
2021 Global Market Capitalization Of The Metaverse, Facebook, And Gaming

The total market capitalization of Web 2.0 metaverse companies was 14.8 trillion US dollars as of October 2021. This figure is much lower for gaming and eSports, as well as Facebook (now known as Meta following an October 2021 restructuring and pivot to VR), at 1.98 trillion and 0.90 trillion, respectively.



By Generation, The Proportion Of Internet Users In The United States Who Would Be Interested In Virtually Attending A Live Music Event In The Metaverse As Of March 2022

A survey conducted in the United States in March 2022 found that 41% of respondents would be uninterested in virtually attending a live music event in the metaverse. Overall, Millennials expressed the most interest in attending a virtual music event in the metaverse, with 32% saying they were somewhat interested and 29% saying they were very interested. Although 32% of Generation Z said they were somewhat interested, 30% said they were completely uninterested in virtually attending music events in the metaverse. The Baby Boomer group expressed the least enthusiasm for such an online event.



IMPORTANCE OF METAVERSE

The Metaverse is more than just a new emerging technology that is part of today's hype cycle. It is the culmination of years of research into artificial intelligence and immersive interactivity, and it will transform businesses in a variety of ways.

■ It is a novel method of interacting with users.

As a business, you can use the Metaverse to provide customers with a whole new level of immersive experiences and entertainment options. If your company is one of the first to offer clients a Metaverse experience, you will gain a competitive advantage and attention.

Branded gaming experiences, virtual items, and AR/VR showrooms are all ways to promote your company in the Metaverse. Businesses can use the Metaverse to create immersive, engaging 3D marketing experiences that capture the attention of potential customers in novel and embracing ways.

■ Businesses can find virtual event opportunities.

It's not unusual to organize a conference or live event that can be viewed both online and in person. Many people are unable to travel to a professional conference or lecture, but this is no excuse for not learning more. A conference in the Metaverse, as opposed to a simple Zoom or Google Meet stream, can be a full-fledged VR experience, with suitable networking and participation opportunities, instead of simply another video in a small window with comments underneath it. Because of VR and the Metaverse, spectators will feel more present and immersed in the experience.

■ Businesses can advertise and sell their products.

Several companies are already using augmented reality to allow customers to virtually try on clothing or eyewear, see how new furniture might fit in their space, or get a makeover with new hair or cosmetics. There is the possibility of having the same experiences but in a better way in the Metaverse.

If you have the option to lease or buy commercial property, you can set up shops and showrooms in the Metaverse where users can view your products. Users continue to buy virtual clothing and accessories with zeal today, demonstrating that digital fashion is having a moment.

■ The Metaverse introduces a new advertising medium.

In an e-commerce business, brands can engage with a massive global audience via Metaverse platforms. Businesses should expect to see novel techniques for brand storytelling and general advertising introduced in the Metaverse. One of the most effective ways to boost brand awareness and identification is through storytelling.

People enjoy hearing stories that tell much more about a company's beliefs and values than simple slogans. Storytelling will evolve into "story living" when audience members become active players or even characters with a say in the events rather than passive listeners.

■ It is possible to improve teamwork and process creation.

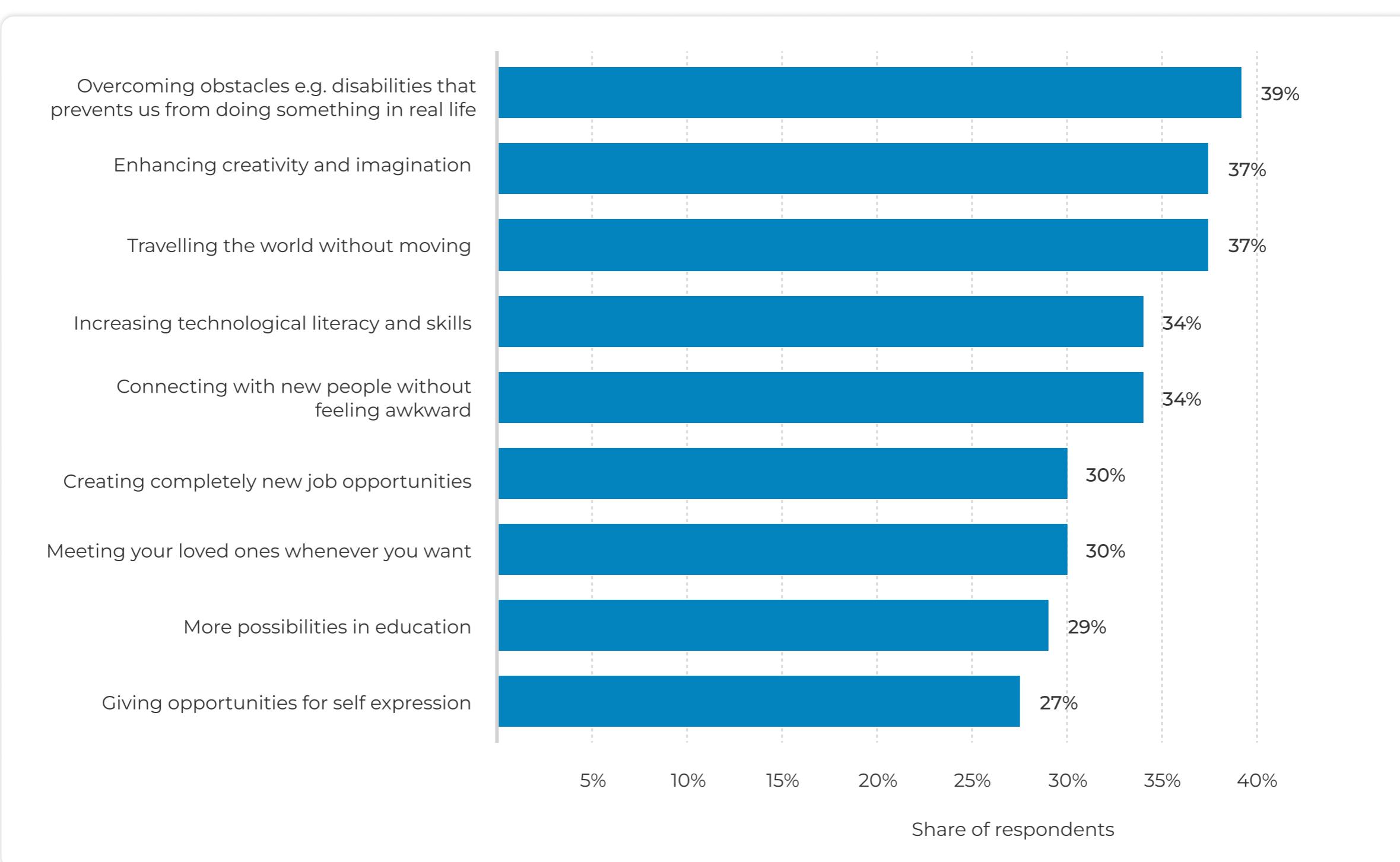
We have all come to terms with the new realities of online meetings and remote teamwork. These methods were imposed on us, but they worked just as well in a face-to-face office setting. Using the Metaverse can help to improve workflows even further. Meetings will be displayed as a group of people sitting in a room instead of Zoom calls.

Meta has already begun to provide VR workrooms. The Metaverse provides workers with a digital environment for communication, as well as the ability to read each other's body language and emotions and maintain an emotional bond.

■ E-wallets and cryptocurrencies facilitate business transactions.

Cryptocurrencies and the Metaverse are inextricably linked. Even at this early stage of adoption, it will be difficult to reap the benefits of the digital world without a crypto wallet. Metaverse also supports digital wallets, allowing businesses to control transactions across their virtual ecosystem.

Although this concept may be intimidating to some business users, blockchain technology and cryptocurrencies have more advantages than disadvantages. Users and businesses can conduct any online transaction more conveniently with cryptocurrency. There is no need to connect your bank account to virtual worlds; payments are as simple as a few clicks, and all transactions are transparent.



Source: [Tidio](#)

Bigest benefit of the Metaverse



People who wanted to share their specific answers also said



The metaverse (will create) endless possibilities



The metaverse (will create) endless possibilities



The metaverse (will create) endless possibilities

Leading Metaverse Advantages In 2021

According to a late 2021 survey of global internet users, the biggest benefit of the metaverse was combating challenges that prevented them from doing something in real life. Enhancing creativity and imagination came in second place, with 37% of respondents citing this as a benefit. Upskilling, education, and exploring new career opportunities are also possibilities in the metaverse.

THE USE CASES OF METAVERSE IN 30 INDUSTRIES

1. VIRTUAL REAL ESTATE

What Is Virtual Real Estate's Metaverse?

Virtual real estate involves digital property that occurs in online places, sometimes known as virtual worlds or metaverse. These digital possessions come in a variety of forms and sizes, but the most common are parcels of land, buildings, and avatars. In the most fundamental sense, they are pixels. They are, however, more than just digital photos. They are programmable areas in virtual reality platforms where individuals can mingle, play games, sell NFTs, attend meetings, attend virtual concerts, and engage in a variety of other virtual activities.

Digital real estate is predicted to flourish and expand in tandem with the rise of the metaverse. In reality, after Facebook changed its name to META and expressed a strong interest in the metaverse, a metaverse real estate boom happened in the fourth quarter of 2021. As its popularity develops, the value of metaverse real estate is predicted to rise at a CAGR of 31.2% from 2022 to 2028.

Why Should You Buy Metaverse Real Estate?

Customers can use metaverse real estate to connect with other individuals online. Individuals can socialize and play games on their digitized land. Creators can monetize the content of their properties by charging for access or trading their NFTs. Brands may use their virtual properties to market services, launch virtual products, and provide memorable consumer experiences. These digitized parcels of land represent a lucrative opportunity for real estate investors. Like real-world properties, metaverse properties can be developed, flipped, or leased. Indeed, metaverse real estate has several applications.

What Impact Will Metaverse Real Estate Have On The Industry?

The metaverse portends significant changes for the real estate business. Consider the following:

- It opens up real estate to a broader spectrum of investors: Real estate in the metaverse comes in a variety of shapes, sizes, locations, and price points. It is available in a number of different currencies. Almost everyone can invest because of the low cost and simplicity of access

- It prioritizes size and location over utility: Size, location, and utility are all essential aspects in real estate. The goal of purchasing land in the metaverse is to develop it or lease it out. This prioritizes size and location while ignoring utility.
- It can be used as a platform for real-world activities: In the future, people may organize more realworld activities such as trade exhibits, exhibitions, weddings, and other social gatherings on the metaverse. This could lessen the need for physical attributes utilized for these reasons.

Is Metaverse Virtual Real Estate A Good Investment?

By now, metaverse real estate appears to be an excellent investment. With prices rising by up to 300% in just four years, it appears to be a terrific way to get rich quick.

There are, however, risks involved. It is a new entity, and it is difficult to predict how successful some platforms will be in the long run. Losses might also be caused by concerns about privacy and security. Proceed with cautiously, according to the best advice.

The metaverse casts a whole new light on the real estate industry. It has been extremely effective thus far, but like with anything new, time will tell whether it is truly viable.

How Do I Purchase A Metaverse Property?

Parcels in The Sandbox and Decentraland are becoming increasingly valuable as major corporations like as Atari, Samsung, Miller Lite, and Adidas stake their claims in these virtual worlds. Many early buyers of adjacent or surrounding parcels gained handsomely from their acquisitions.

If you want to invest in metaverse real estate, look for areas with growth potential. Places where people can congregate will be appreciated more than those in ordinary locations. Consider adjacent, but not within, developed regions. You can purchase these properties at a low cost, develop them, and then wait for prices to climb.

Land in the metaverse, like real-world real estate, can be purchased through brokers and property managers. However, unlike in the real world, metaverse brokers do not need licenses and are not restricted in any way. As a result, always conduct business with recognized companies.

How Do I Decide Which Land Parcels To Purchase In The Metaverse?

Just like in real life, location is vital when choosing a virtual area in the metaverse. As large firms such as Atari, Samsung, Miller Lite, and Adidas stake their claims in these virtual worlds, parcels in The Sandbox and Decentraland are becoming increasingly expensive. Many early buyers of adjacent or surrounding parcels gained handsomely from their acquisitions.

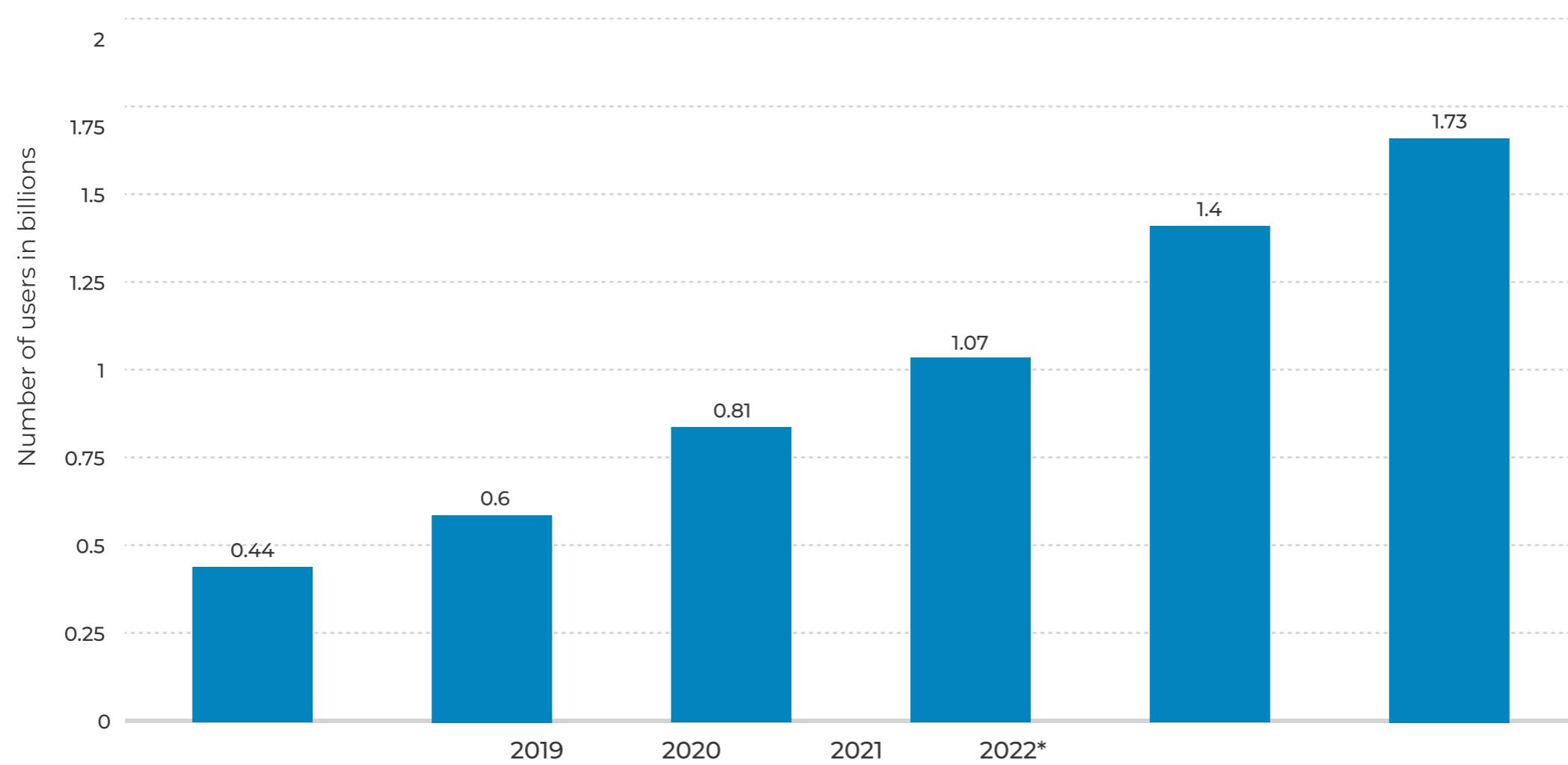
If you want to invest in metaverse real estate, look for areas with growth potential. Places where people can congregate will be appreciated more than those in ordinary locations. Consider adjacent, but not within, developed regions. You can purchase these properties at a low cost, develop them, and then wait for prices to climb. Land in the metaverse, like real-world real estate, can be purchased through brokers and property managers. Moreover, in contrast to the real world, metaverse brokers do not need licenses and are not restricted in any way. As a result, always conduct business with recognized companies.

Metaverse Real Estate Statistics

We've compiled the most recent industry information to assist you make a data-driven choice about whether to invest in metaverse properties or not. Examine these figures to see if metaverse real estate is a good investment.

- Sandbox LAND increased by 150% in 2021. It also had the highest transaction volume in the same year, with a total of \$350 million for 65,000 virtual land purchases.
- Sales of metaverse real estate on the four major platforms hit \$501 million in 2021 and are forecast to more than quadruple to \$1 billion this year.
- A research study that valued the metaverse industry at \$47.69 billion in 2020 predicts the same market will be worth \$828.95 billion in 2028.
- In major metaverse platforms, the average price of a parcel has risen from \$1,265 to \$12,684.
- Only approximately 25,000 individual cryptocurrency wallets participate to Metaverse real estate investments.

The vast bulk of metaverse real estate data appears to be favorable. They point to significant advantages for early "settlers" on virtual platforms. Keep in mind, though, that some worlds are still in their early stages. The numbers may be tempting, but you may need to go beyond statistics.



The Risks And Difficulties Of Investing In The Metaverse

Although the metaverse is likely to grow dramatically in the coming years, it is still a relatively new industry that is far from solid. For example, if a metaverse platform goes offline permanently, all of your land and assets on that platform become non-existent.

Then there's the question of valuation. There is always the challenge of how to allocate value to land whose scarcity is artificial and whose future value cannot be determined. Metaverse land is vulnerable to turbulent situations because its value is based on highly volatile cryptocurrency.

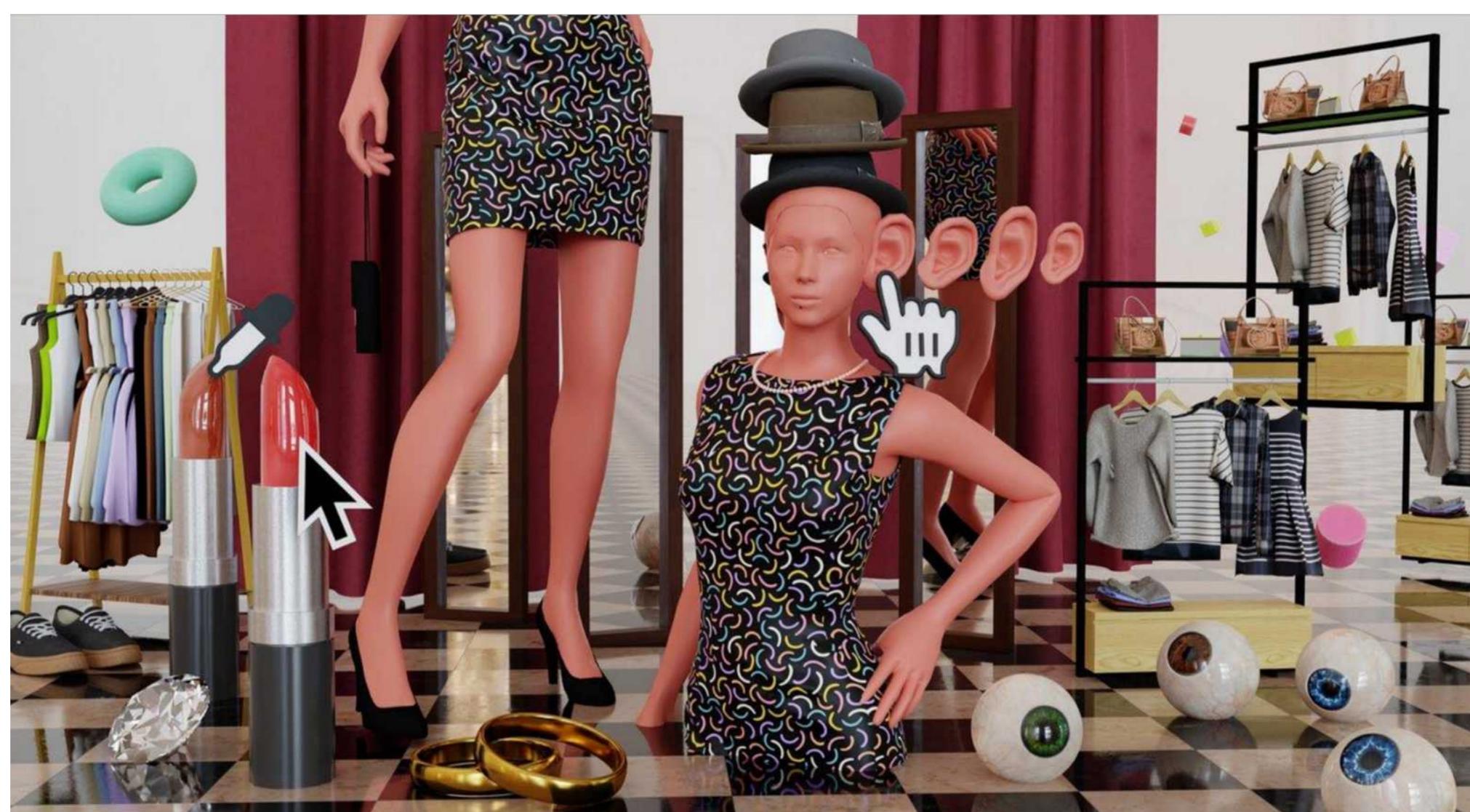
Conclusion

So, what are your thoughts? Is the metaverse and virtual real estate here to stay? Will their popularity continue to grow?

The market is still expanding, and there are several prospects for new entrants. Remember that there are scammers out there, so conduct the necessary due diligence and comprehensive study before deciding whether or not to enter the metaverse for your business or brand.

2. METAVERSE IN CREATIVE ARTS AND DESIGN

Metaverse Creativity is a peer-reviewed magazine that examines creativity in user-created online virtual worlds such as Second Life. While such creative work includes artistic activity, this definition should not be confined to artistic output alone, but should also include the output of other design disciplines, such as fashion and object design, landscape, and virtual architecture, which are all abundant in Second Life.



The metaverse has shown benefits for creators in its early stages, ranging from the chance to accomplish what they love and make money in new ways to seamless cooperation and more.

The metaverse, however, might be scary to artists due to its unknowns. As someone who is developing creative tools for this yet-to-be-completely-explored metaverse, my desire is that it can serve as a home for all creatives, where they can easily adapt and grasp how the metaverse can help them reach their goals.

As the metaverse evolves, there are several key advantages to being creative in this new world.

- **Digitalization will be driven by collaboration and connectivity.**

The social connection at the heart of the metaverse is what draws many people to this digital domain. Connectivity and cooperation go hand in hand for creatives, and I believe the digital canvas will become both dimensional and social as creatives collaborate better and faster, remixing each other's work.

Photographer and designer by trade "I'm doing more collaborations than I ever have in my entire life/career," Jeremy Cowart said of how cooperation and networking in the metaverse will open up more chances for creatives. I'm also more connected than I've ever been to other artists. I believe we can all agree that the Web 3.0 sector is still in its infancy and is clinging to life by a thread. As a result, we all rely on one another to succeed. In this new industry, a rising tide truly lifts all boats."

Consider having one item generate a full universe, or maybe a succession of worlds—this is common in physical fandoms now. An author publishes a book, which inspires fan art, which catches the attention of producers who make a film, which grabs the hearts of children who hand-made Halloween costumes, who raise children to read the original books, and so on. All of this can coexist in the metaverse, where creatives can convey their relative work to people who can remix it as many times as they wish, fluidly switching between creator and consumer.

As everything becomes a canvas, creatives will encounter new learning curves as they figure out how to connect the physical and digital worlds, which leads me to my next point.

■ The distinction between 2D and 3D artwork will dissolve.

Many artists, particularly typically 2D artists attempting to create 3D work in a digital world, encounter a steep learning curve when navigating 3D art creation. In addition to the obstacles they confront, these creatives are frequently pressed for time and money due to rigorous freelance deadlines or side hustles. To be successful in this immersive arena, creatives must learn how to use 3D technology to automate their labor. With existing technology that identifies form and shape, creatives may work in a dimension they are familiar with and have their work produced in 3D automatically.

Consider the current and popular Van Gogh immersive exhibits. The ability to see each brush stroke of "The Starry Night" larger than life on a projector screen gave the piece new meaning. Imagine a world where you can dive into the layers of a piece and, while keeping accessibility in mind, touch the bumps in the canvas, hear the brush strokes and crickets sing, and see beyond the canvas into the actual landscape Van Gogh experienced. 3D activations have the potential to bring art to life beyond our wildest fantasies.

Furthermore, recontextualizing content will become the standard in the metaverse, with avatars (electronic images often used online) representing humans. Avatars will become a part of the total, serving as both a solitary piece as a sign of the times and a glimpse inside your larger, all-encompassing online creation. Identity will be crucial in how individuals interact with the metaverse. With new ways to customize personal virtual reality settings, avatars, and more, there will be a greater need to create content for these experiences and allow users to create unique digital identities.



■ Artists will have complete creative freedom.

With the unrestricted norms of sharing art in the metaverse, artists who previously had to worry about copyright laws and protecting their work will be able to produce without fear of their work being stolen or shared without acknowledgment. Systems and marketplaces in the metaverse will facilitate the transfer of rights via attribution models and ensure that individuals who generated it are properly compensated.

What's Next In The Metaverse For Creativity?

As the metaverse evolves, creatives can employ lessons learned from constructing the original World Wide Web to reap all of the benefits that this digital domain provides that the physical universe does not. Many creatives are afraid to enter this uncharted territory and are unclear of what lies ahead, which is why I encourage them to take charge of their creative future. Obstacles are unavoidable, and artists will always confront new hurdles, particularly when venturing into a new creative domain, but I hope that more creatives will feel empowered to take use of what the metaverse has to offer.

The metaverse will push collaboration, identity, and creativity to new heights while conserving and strengthening physical art's romance and realism. "It's evolving every day," Jeremy says of the future of creation in the metaverse, which many of us are feeling. I've never worked in an industry that moves so quickly. But I've never had so much fun. Anything goes in the wild, wild west." I believe it is safe to say that the metaverse is defining—and disrupting—the future of creation, and I am delighted to assist creatives in not only adapting to but also learning to thrive in this new platform.

3. METAVERSE IN SOCIAL NETWORKING SPACES

Over the previous two decades, social media has emerged as a dominating issue. It has enabled people to interact, transact, and share their interests digitally, removing the need for them to physically cross boundaries. Social networking is only going to get more immersive with the metaverse.

The Metaverse is a social media extension. It will bring immersion into the equation and provide consumers with new experiences. The Metaverse will combine many common social media components, such as collaboration, commerce, live events, and immersive experiences based on virtual and augmented reality (AR).



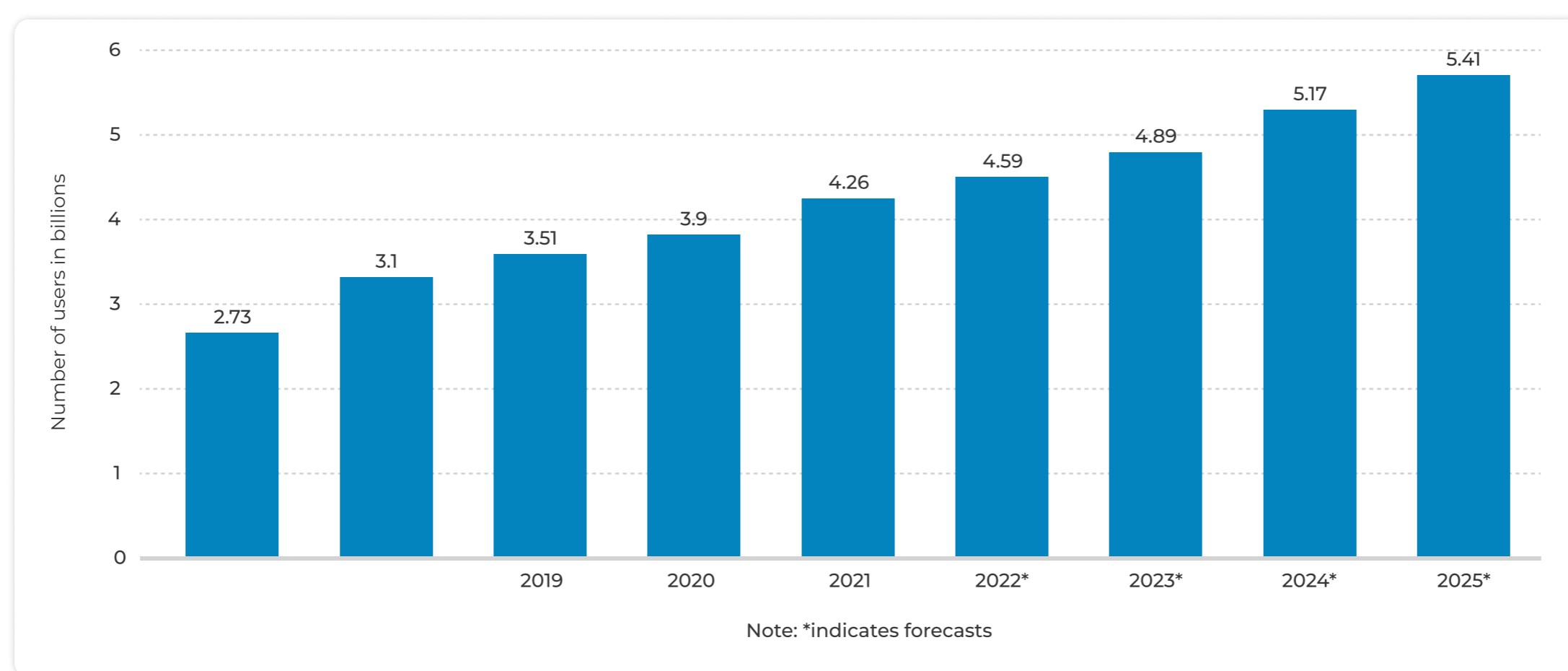
However, it will take some time because the Metaverse is still mostly conceptual, and its underlying technologies are in their early phases of development. Regulators will actively monitor the growth of the metaverse to highlight potential risks to users and their information.

Furthermore, as social media is plagued with marketing, misinformation, online harm, data privacy concerns, and copycat experiences, rules will be a major issue for the Metaverse. As they acquire biometric and other personal data from their users, metaverse platforms are likely to encounter similar and additional issues.

What Will The Metaverse Mean For Social Media?

Social networking has evolved into a strong virtual environment, allowing individuals to engage and share experiences online. In a short period of time, many social media networks have built massive social communities with millions of customers. With such quick growth, merging Metaverse into social media will provide customers with new deliverables, boosting the online community, and ultimately monetizing the possibility. By incorporating the Metaverse into Social Networks, the Metaverse would be able to provide a social networking site with safer data security regulations, AR/VR capabilities, encrypted transfer mechanisms, and smart contracts to ensure that all rules and guidelines are followed. As a result, social networking as a company will undergo a huge transition in the near future.

Source: [Global ETFs with information derived from : Dixon S. \(2022, July 26\). Number of social media users, worldwide from 2018 to 2027 \(in billions\). Statista: Keplos, \(2022, July\). Global Social Media statistics. Date are portal](#)



The following are the key benefits of Metaverse social media platform development:

■ Immersive Environment

Customers can interact with community members on the Metaverse social media network while enjoying a personalized, lifelike simulation.

■ Data Protection

The information we broadcast on social media is significantly safer than previously imagined when we use the decentralized metaverse network.

■ Connectivity and compatibility

Because Metaverse is bidirectional, members can converse across social media networks.

■ Online Learning

During the lockdown, many social networks were hailed as a learning option. Students using the Metaverse social media networks can benefit from improved engagement tactics in order to interact with their training centers.

■ Social Media Monetization

The establishment of a metaverse social media platform can assist businesses in providing wonderful benefits to their community members such as advertising metaverse items, rare collectibles, and so on. If the social media network is linked to another NFT marketplace, it can earn money for each trade that is initiated through its platform. Similarly, as more individuals join the metaverse social media platform, advertising opportunities may become more lucrative.

What Are The Benefits Of Using Metaverse For Social Media Marketing?

Metaverse development is an effective social network management method. It allows you to publish information across many social media platforms from a single platform, produce content, and track your online presence.

If Someone Wants To Understand More About Metaverse, He Should Consider The Following Benefits:

- Manage several accounts from a single dashboard – No matter what social networking site you use, the Metaverse allows you to access everything from a single interface.
- The Metaverse discovers the most amazing content to share on Facebook, Twitter, and LinkedIn. It employs superior deep learning technology and artificial intelligence to optimize data transfer based on information in the best interests of your customers.

The Following Are The Steps Involved In The Development Of The Metaverse Social Media Platform:

Step 1: Select a metaverse architecture.

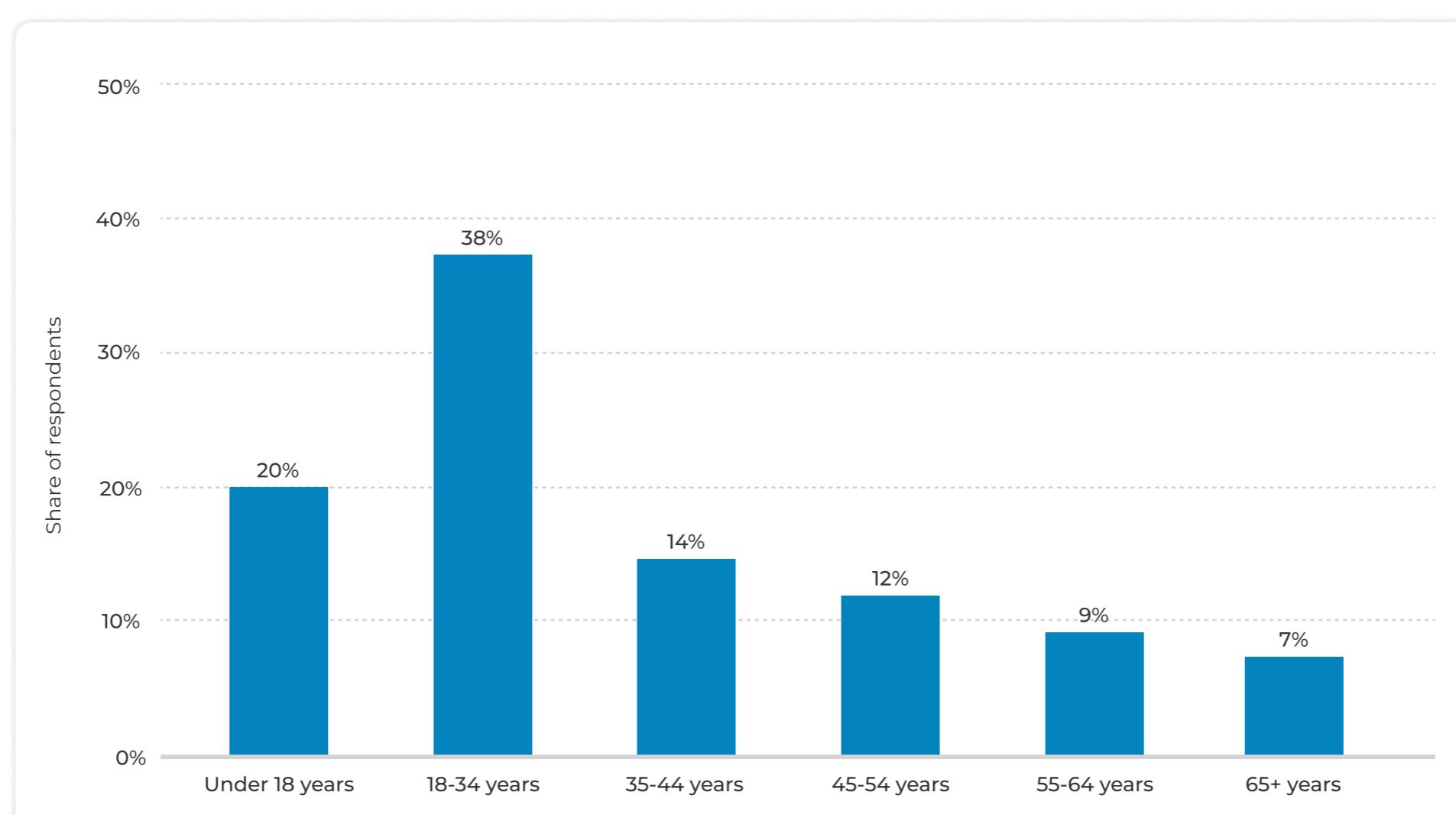
To construct a metaverse environment or application, you must first choose a metaverse ecosystem. You can model your platform after current metaverse solutions, such as Facebook Meta. You can even start from scratch to build your own metaverse platform with unique features. The other option is more expensive, but it is better suitable for bespoke metaverse applications, particularly large undertakings.

Step 2: Construct the metospace

After finding the metaverse solution, the natural next step is to create the metospace. A metospace can be anything from a software application to a virtual meeting room, a digital convention center, or even an immersive projection screen. Metospace is a simulated environment accessible via a Head-mounted display. Within the metospace, users can interact with the environment and other people. So, in order to create a digital conference room for your business, you must first create the digital metospace that will be integrated with the Metaverse.

To produce the interactive reality area, you'll need the help of a developing multimedia company that specializes in the design process and VR-based items.

Source: [Statista 2022](#)



Step 3: Create an interactive element

The third stage of developing a Metaverse social media platform is to incorporate an interactive feature that allows your consumers to interact with the metospace you've developed. A 3D representation of a conference room, for example, is meaningless unless it can be interacted with. The interactive element specifies customer capabilities, accessibility constraints, navigation handles, and customer communication mechanisms. The interactive features also illustrate how external systems and apps work together to keep the metospace running.

Step 4: Create an integrated framework

Functional processes can use compatibility requirements to simplify data interchange and dissemination across many platforms. The goal of compatibility is enable persons and computers to independently obtain and use information and virtual assets. Metaverse enables money transfer methods that facilitate cryptocurrency transmission. To promote safe, open, and decentralized activities, fully integrated virtual environments necessitate the use of blockchain.

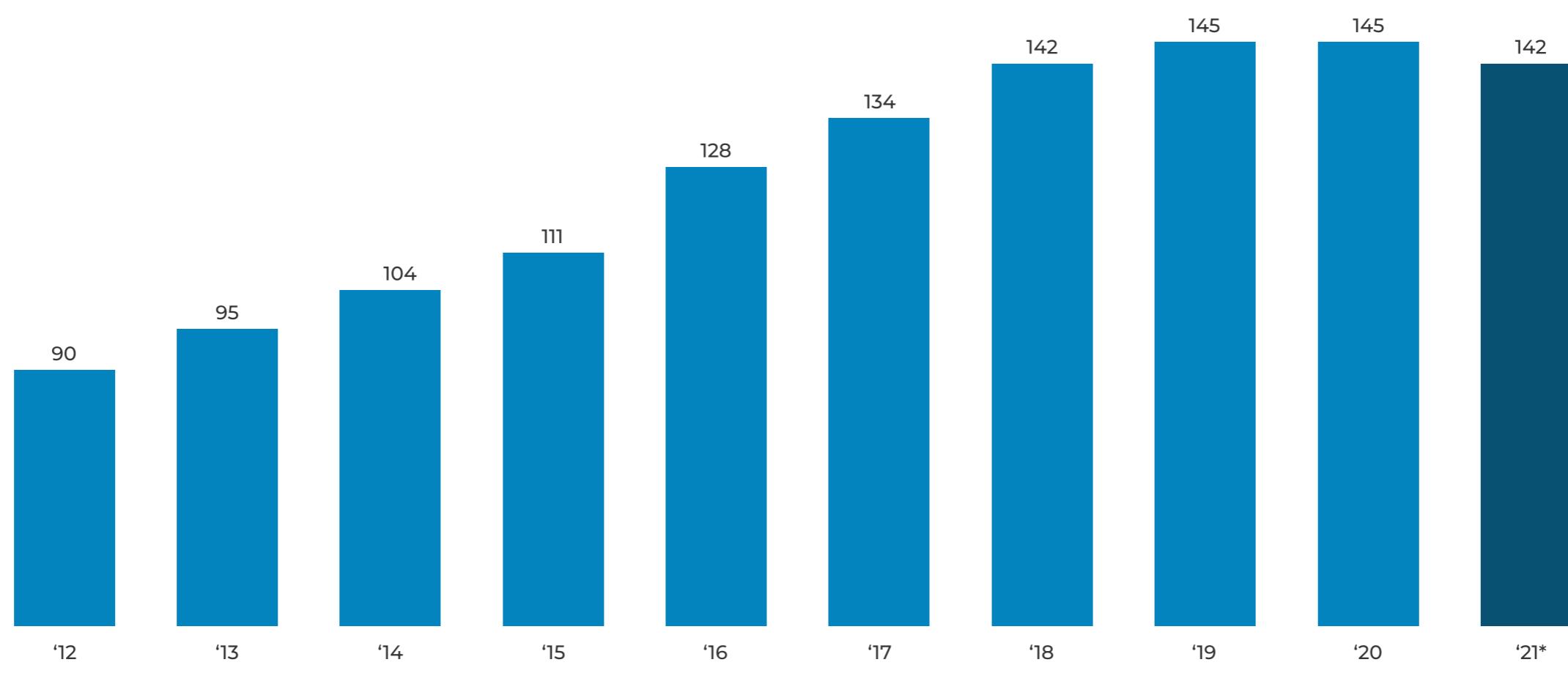
Will The Metaverse Replace Social Media?

It would be beneficial if you altered your perspective to grasp how new groups within the Metaverse might take over social media. The Metaverse revolves around interaction, whereas social media revolves about social media. Many platforms that were originally deemed gaming environments are increasingly transitioning into social networking environments. The most popular are Roblox and Fortnite, but there are many others.

Source: [Statista Digital Economy Compass 2021](#)

Is Peak Social Media already behind Us?

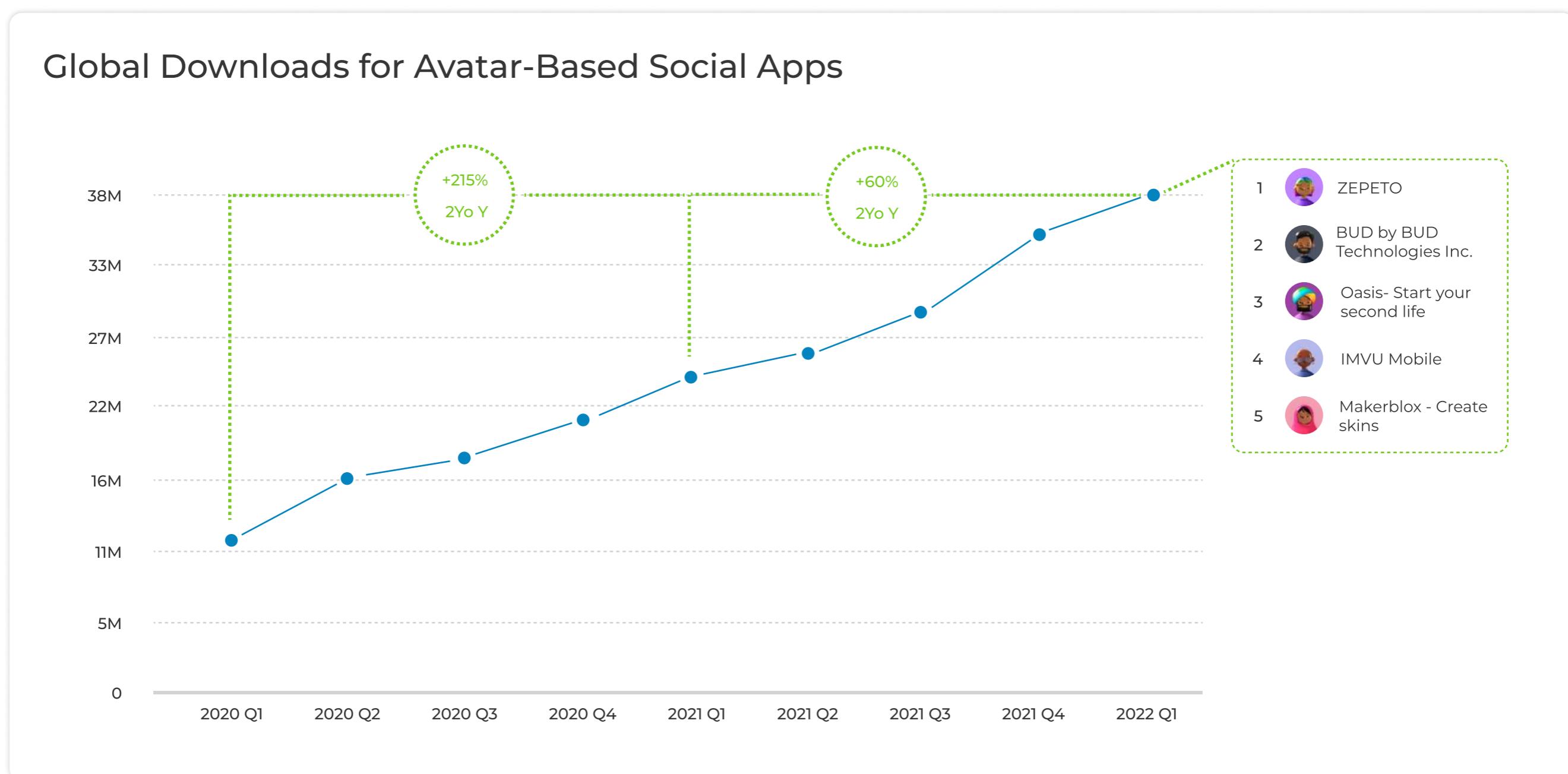
Global Average daily time spent on social media per internet user (in minutes)



In the Metaverse, there are still distinct social media platforms. They provide a distinct method for utilizing the Metaverse's benefits and developing new applications. One such platform is Gravity. The main value of the platform is user empowerment, and it is the first social media network to enter the Metaverse. Gravity allows users to manage their news streams and compensates them with crypto tokens for using the platform. Gravity is, at its core, a SocialFi project. This is possibly the most transformational phrase for Metaverse social media companies that have moved away from centralized ownership. It ushers in an era in which consumers own their data, firms profit, and loyalty is rewarded. This is made possible by a networked web that incorporates NFT contracts and financial services, Blockchain, and social networking.

Although it is impossible to forecast when the Metaverse will replace social media networks, it will surely yield unprecedented commercial and societal benefits.

Source: [data.ai intelligence](#)



Conclusion

The Metaverse will have far-reaching social consequences. It will enable companies and enterprises to experiment with new ideas and unleash their creativity. Although it may be an improvement over existing social media platforms, the Metaverse will eventually alter the planet. New technologies and ideas will emerge that take advantage of the Metaverse's underlying behavioral shifts. Social media will transition from two to three dimensions, and online contact will become more immersive, allowing us to communicate with family and friends all across the world in whole new ways.

4. METAVERSE IN GAMING

The game industry, like the Metaverse and blockchain, is emerging as the way of the future. Metaverse gaming refers to the practice of playing games in the Metaverse. Metaverse is used by 13% of the retail market, with a \$6.071 billion annual revenue in 2021. A Metaverse is a large online community where you may play games and make new friends. Gaming has always been a natural fit for virtual reality. The main difference between virtual reality games and traditional games is that virtual reality games seem as a 3D virtual reality world that you may view in 360 degrees and virtually "touch" with a genuine sense of perception.

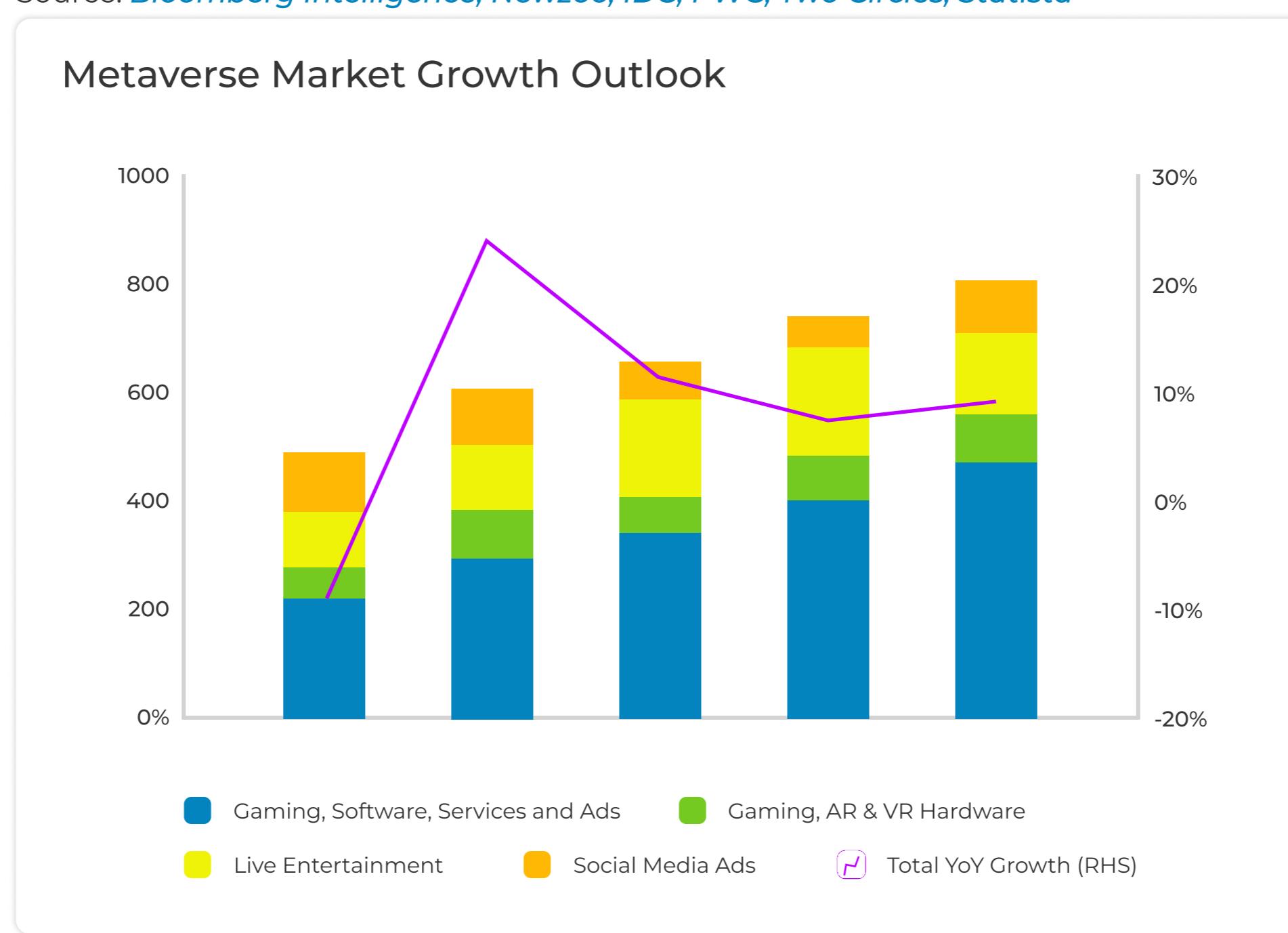


The Metaverse is a platform that incorporates social networking, online gaming, virtual reality, augmented reality, and cryptocurrency to enable people to interact digitally. Players who were previously engaged in other types of online games, such as multiplayer games, are frequently changing their focus to the Metaverse. In the future, the Metaverse is likely to facilitate corporate meetings, trainings, online entertainment, and possibly web-based learning.

The metaverse has drawn major investment from game firms, tech titans, and venture capitalists alike. Decentraland is one of the first firms to actively attempt to construct a metaverse for multiplayer gaming. Sandbox is a metaverse-native video game that allows you to play, build, own, and control a virtual world. And Epic Games is most noted for Fortnite, a VR game that also functions as an event place.

You can earn money while playing games in the metaverse gaming industry. There are several games to play in Metaverse games that have been launched by various gaming titans and pay you in NFTs. Axis Infinity has been a major source of money for gamers; it is an RPG game that allows players to exchange NFTs on its platform; others include Alien Worlds, Splinterlands, Farmers World, and so on. Players can participate in profitable activities in addition to following linear storytelling and regulations.

Source: [Bloomberg Intelligence](#), [Newzoo](#), [IDC](#), [PWC](#), [Two Circles](#), [Statista](#)



Roblox is an online game platform and game development system that lets users to create their own worlds and games within the larger metaverse. Gaming in the metaverse could involve mixed reality, with players transitioning from augmented reality group text to mixed reality board games. Today, gaming is the most dynamic and interesting category of entertainment across all platforms, and it will play an important part in the development of metaverse platforms. The metaverse's entertainment sector will range from immersive experiences and fantastical worlds to introducing simple games into our daily lives.

The Evolution Of Online Gaming

As a result, information on financial companies' diverse physical and cyber security systems can be centrally obtained, processed, and shared with other financial services partners in the value chain. Such information may include other relevant forms of security information for the financial industry, such as assets and services, in addition to assaults and threats.

■ Gaming before Metaverse

Players favored multiplayer games prior to the emergence of blockchain-powered games. However, blockchain has significantly transformed the online gaming industry. Its use cases, such as NFTs and cryptocurrencies, astonish gamers with features like tokenization of gaming assets and the option to sell them in cryptocurrency for money.

Depending on the game's rules, players can either sell or collect their assets until they earn incentives from the platform. People who are interested in real money games and crypto spaces are the ones who have lauded the global popularity of NFT games.

Apart from the profit, such games gained popularity because to the high-quality visual reproduction of real-life things and outstanding graphics.

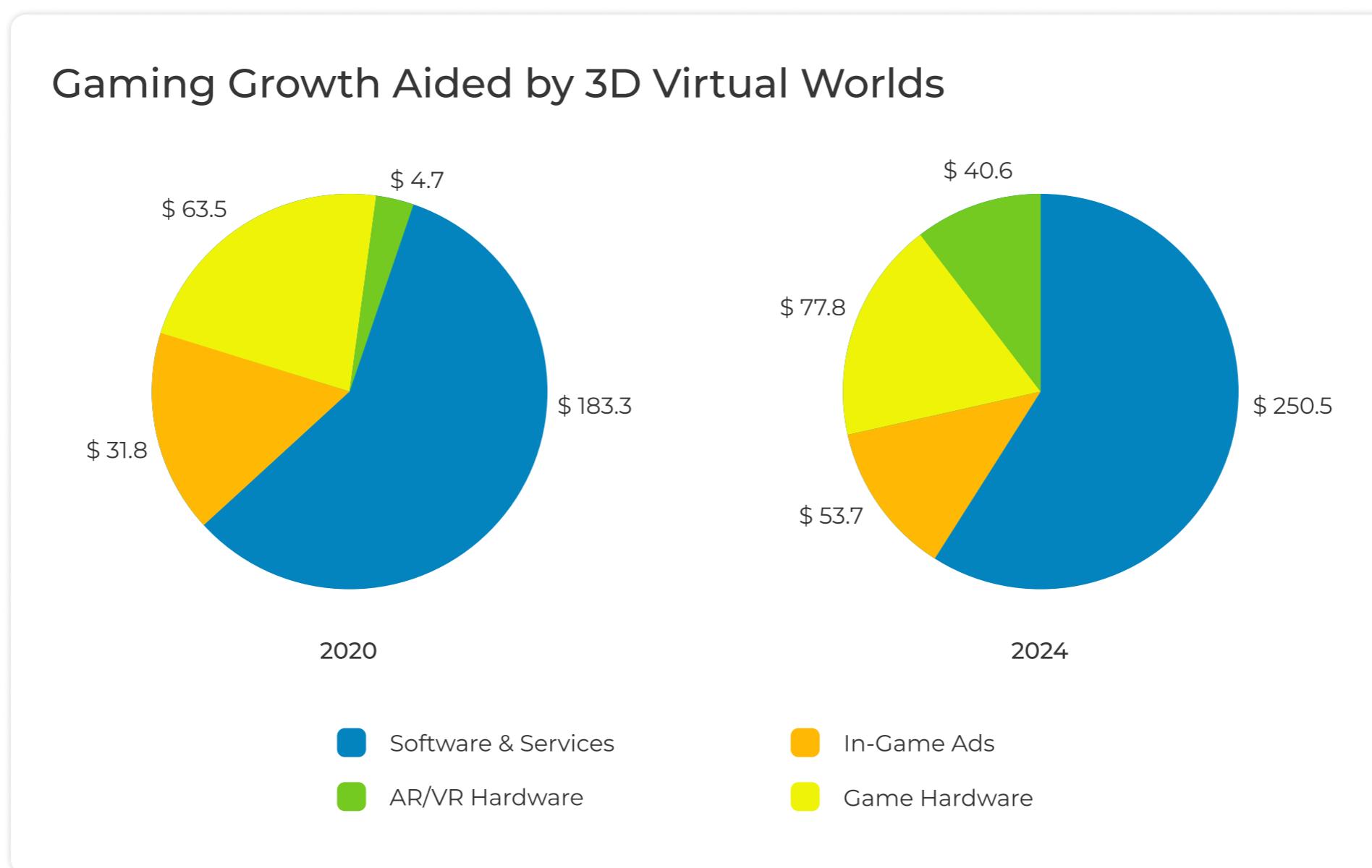
■ Metaverse Gaming

As a result of the gaming industry's recent expansion, Metaverse games have lately developed. Players are venturing into the Metaverse to experience next-generation gaming. While Metaverse can be either centralized or decentralized, game companies favor decentralized efforts because the future is decentralized. Stay to assist players understand how the Metaverse works by visualizing the games.

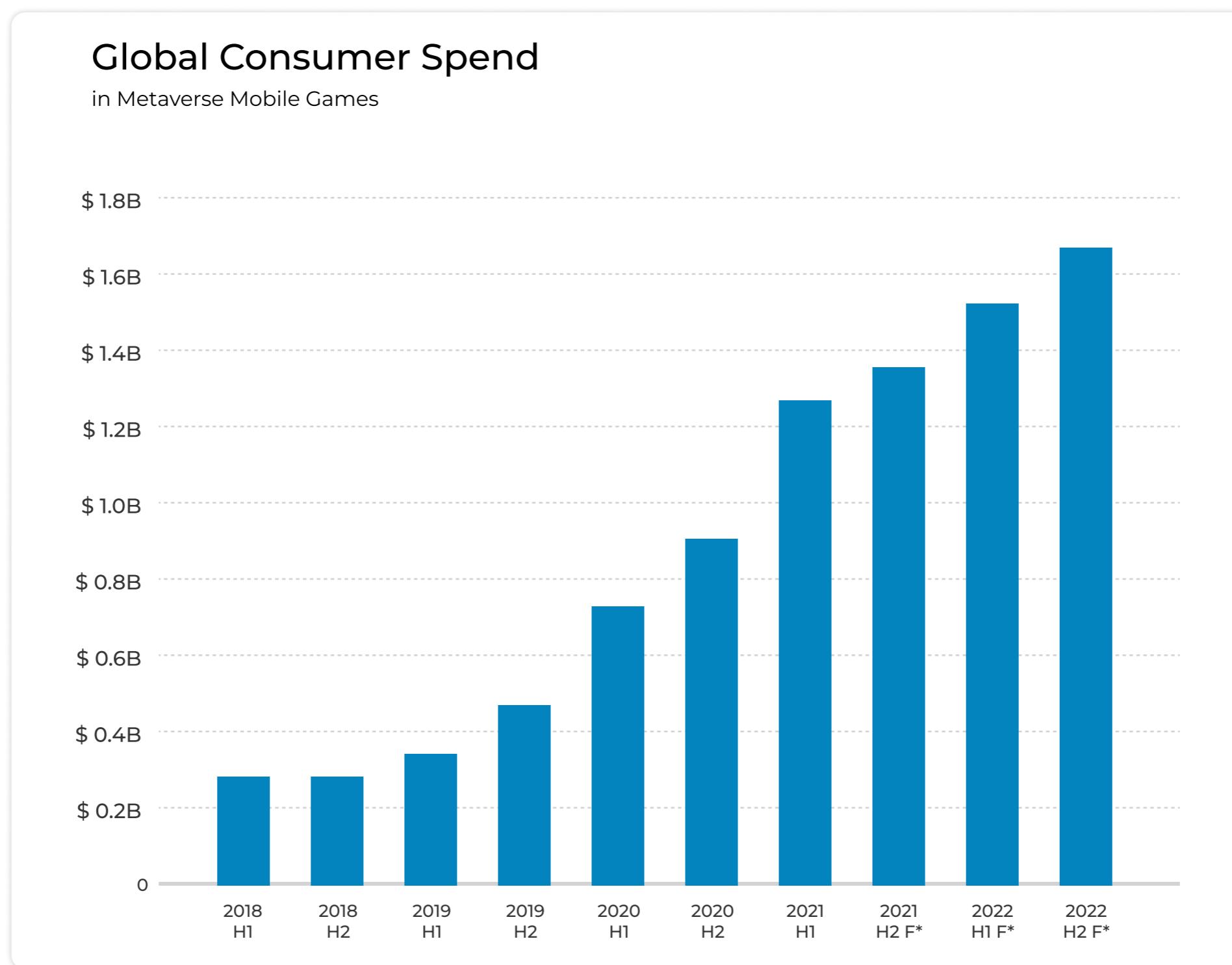
Characters in Metaverse games are controlled by players' own avatars, which are virtual representations of their real identities. These characters live in the Metaverse in the same way as individuals do in the real world.

The play-to-earn concept underpins metaverse games, which allow users to win virtual gaming products and sell them for real-world money.

Source: [Bloomberg](#), [Intelligence](#), [Newzoo](#), [IDC](#)



Source: [App Annie Intelligence Note: Consumer spend across iOS, Google Play](#).
Metaverse games represented by Creative SandBox (Simulation) and Avatar Life (Simulation) Game IQ subgenres



Players may ask their online network connections to join them in the Metaverse, engage with other players, and collaborate to enjoy the games together.

Because Metaverse uses AR and VR technology to provide a more organic experience, gamers have a lifelike experience similar to how they feel in real life.

The Metaverse's gaming platforms are interoperable, allowing players to transport their gaming apparatus from one location to another with minimal disturbance.

What Technologies Aid In The Expansion Of The Gaming Metaverse?

The most current Metaverse development has pushed gaming companies to switch to Metaverse games. To improve the gaming experience, metaverse game developers use cutting-edge technologies like as blockchain and artificial intelligence.

Let us identify the key technologies needed to create a gaming Metaverse:

■ AR/VR Technologies

Augmented reality (AR) and virtual reality (VR) are the primary technologies driving Metaverse development (VR). AR uses visual components and characters to convert the real environment into a virtual world. It supports smartphones and other digital devices, allowing users to enjoy immersive experiences while on the go.

■ Blockchain Technology and Cryptocurrencies

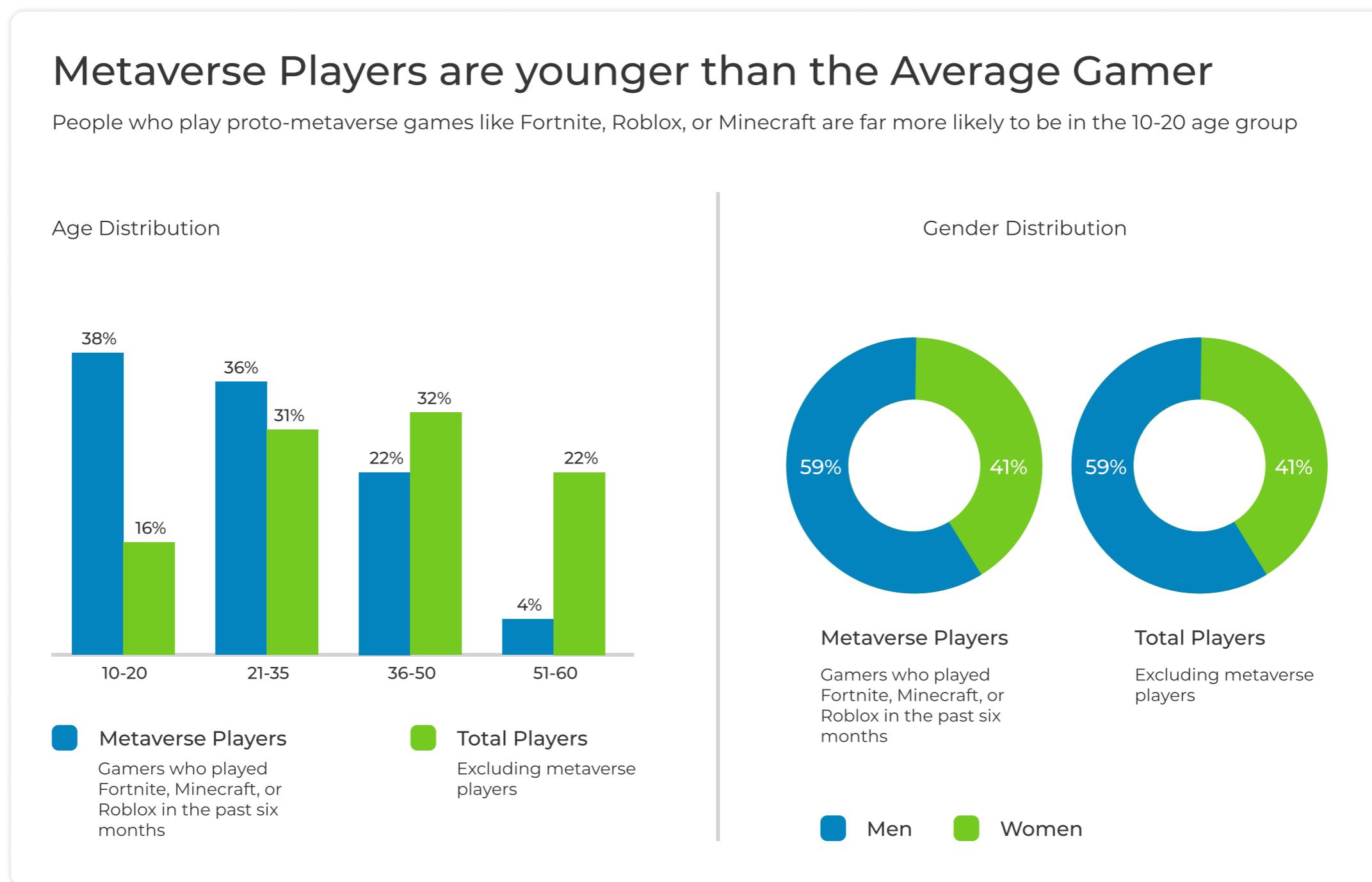
Blockchain technology facilitates the creation of decentralized Metaverse projects. It offers benefits like digital identification of ownership, value transfer, digital collectability, and interoperability. As realworld currencies, cryptocurrency allows users to transfer value in Metaverse's 3D immersive realm.

■ The Internet of Things (IoT)

Metaverse can collect, retrieve, and use data from the physical world using the internet of things (IoT). It connects the virtual world of Metaverse to a huge number of real-world devices, allowing things in the Metaverse to change their behavior in response to changing weather or atmosphere.

3D Rebuilding

Although 3D technology is not new, the covid pandemic has dramatically increased demand for 3D reconstruction. This technology has been used by several real estate firms to take prospective purchasers on a virtual property tour. Since the Metaverse is a novel concept, it has depended on 3D reconstruction to enhance existing technology.



Conclusion

While Metaverse is currently in its beginning stages, a slew of new game platforms have been introduced. Future projects include Decentraland and Sandbox, and huge tech companies like Microsoft while Facebook are launching their own Metaverse initiatives. As a result, we are likely to see a significantly improved version of Metaverse in the future

5. VIRTUAL MARKETPLACES

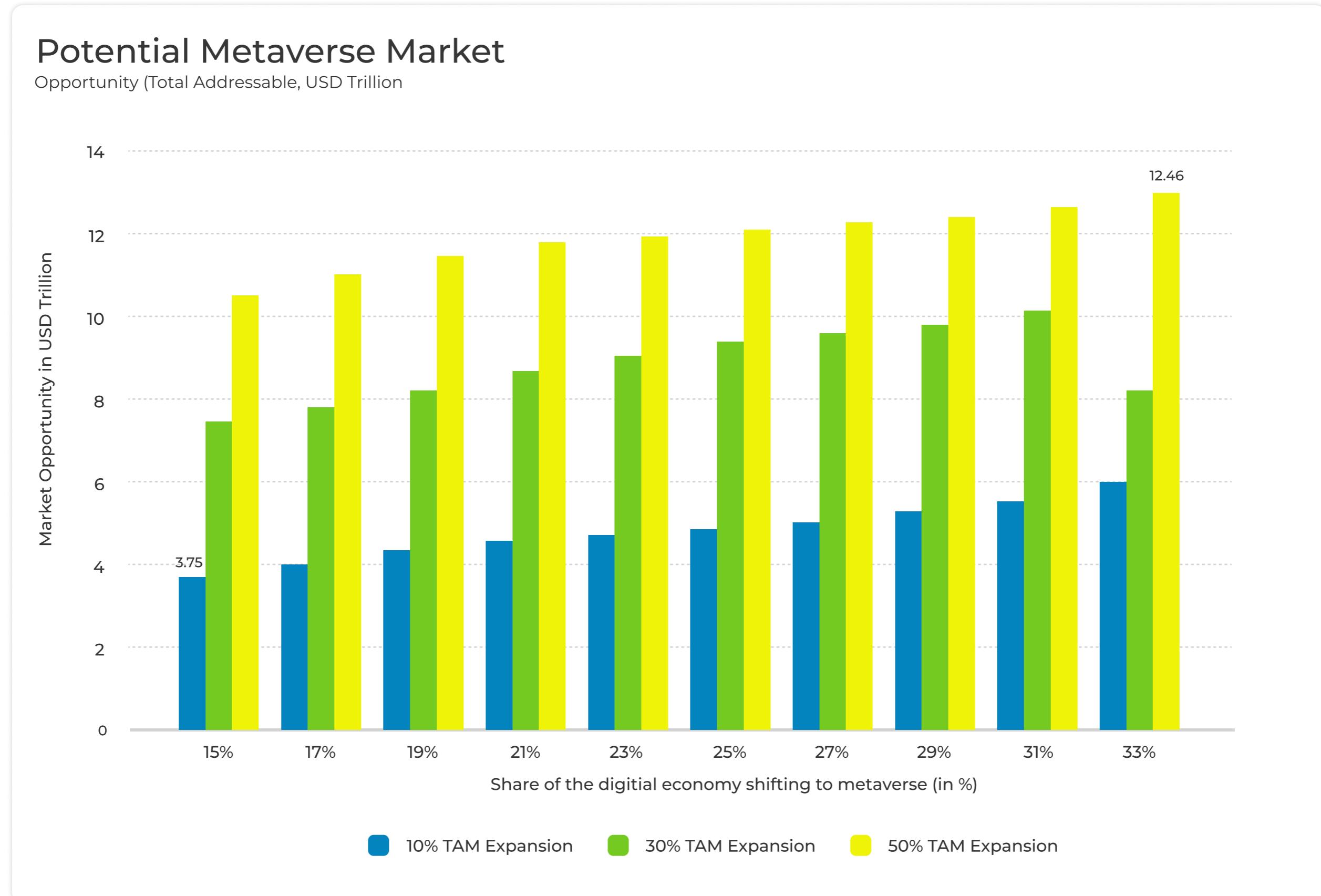
While the FDA's Hazard Analysis and Critical Control Point (HACCP) system is in place to address these mounting issues, compliance reporting is still manual, time-consuming, and prone to fraud. It is feasible to automate food condition monitoring, greatly increase its accuracy, and streamline regulatory compliance with the use of IoT and blockchain.

While the FDA's Hazard Analysis and Critical Control Point (HACCP) system is in place to address these mounting issues, compliance reporting is still manual, time-consuming, and prone to fraud. It is feasible to automate food condition monitoring, greatly increase its accuracy, and streamline regulatory compliance with the use of IoT and blockchain.

Meta recently stated that it has begun testing user monetization options within Horizon Worlds. Selected creators can already start making digital objects and effects to sell directly in the virtual social arena. It's all part of an attempt to monetize the metaverse.

Virtual Purchasing

Source: [Grand View Research](#)



Users will be able to sell access to things and experiences within the app using the tools. Meta expects that one day people will be able to "make a living" in the metaverse.

Horizon Worlds is Meta's social VR platform, centered on user-generated content that anyone may create within the app. The platform is presently only available to VR users over the age of 18 in the United States and Canada.

What you'll be able to purchase and sell in Meta's version of the metaverse is unclear. According to the firm, the tools would allow developers to "sell virtual goods and effects," with an example of someone selling an attachable accessory (such as a hat) or an item that grants access to an exclusive area of a world (like a special key).

"The metaverse will bring a new level of creativity and new opportunities for future generations of inventors and entrepreneurs to explore their interests and create businesses," Meta stated on its blog.

Ricky Houck, a metaverse business expert at Touchcast.com, a corporate metaverse platform, told Lifewire in an email interview that virtual things are already popular.

Getting Started In A Competitive Virtual Market

"Initially, there was a lot of buzz from the crypto industry migrating into NFTs," he continued, "but now we're seeing fashion brands, in particular, investing in this area." Gucci, Nike, and Tommy Hilfiger have all made headways in the metaverse market, while Dolce & Gabbana just sold a \$300,000 metaverse-exclusive tiara.

However, according to Houck, Meta may face criticism for commercializing the metaverse. Many people, he believes, prefer a Web 3.0 vision that is less about buying and selling.

However, a recent survey found that people are eager to shop in the metaverse. Smarty, an online shopping platform, conducted a consumer poll to determine their readiness to buy cryptocurrencies online and whether they are "gearing up" for metaverse shopping or are interested in doing so.

According to the report, 26% of users are looking for an exceptional virtual reality setup to engage in the metaverse, with 35% willing to pay up to \$500 for a VR system. With 20% having already shopped in the metaverse, the top products they're looking to buy right now are music (46%), VR games (37%), and concert tickets (32%).

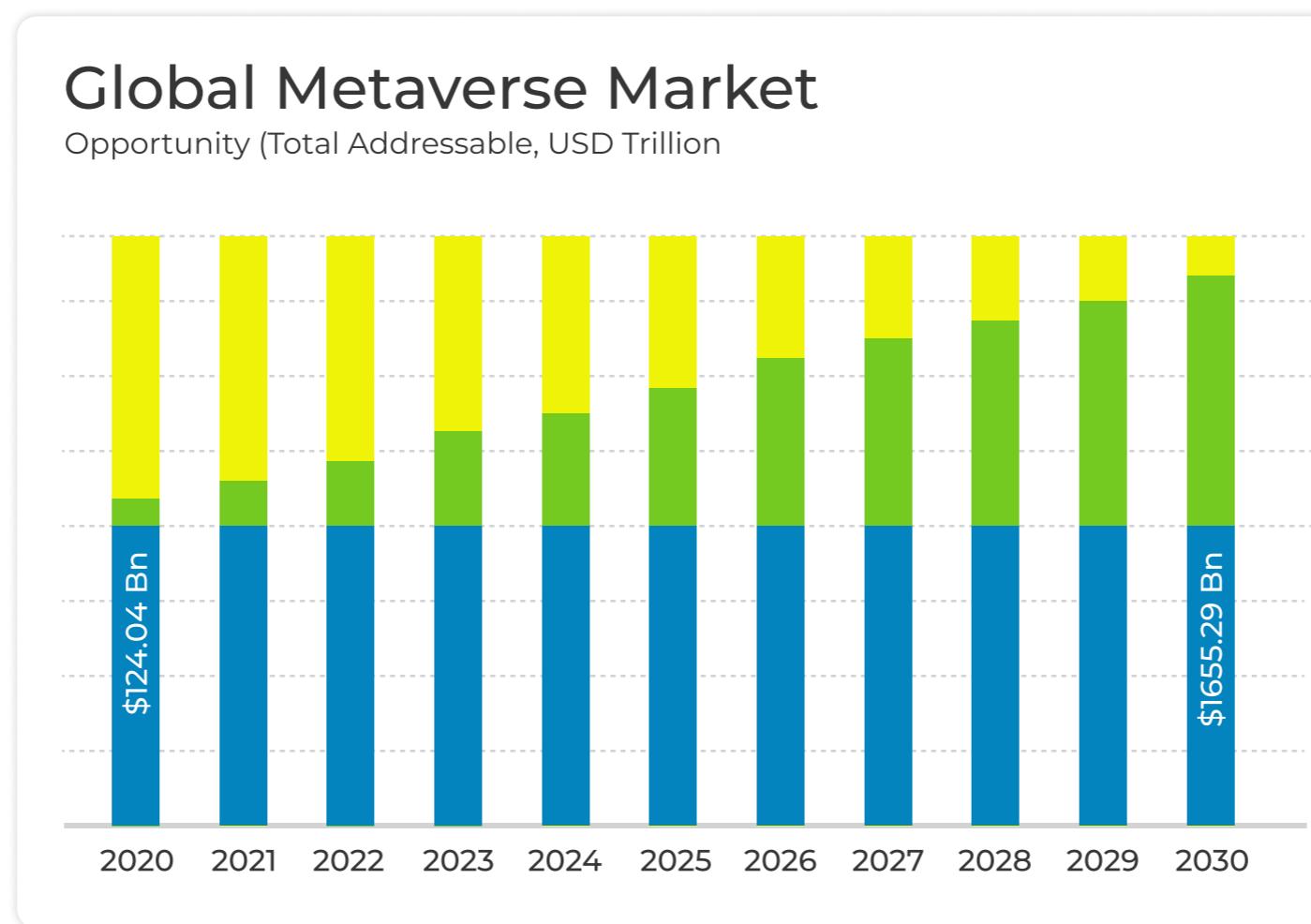
"The data shows that customers are interested in the new internet and want to participate—particularly when it comes to purchasing," claimed Vipin Porwal, CEO and founder of Smarty, in a news release. "Brands will begin to make more changes to match changing consumer desires, similar to way these firms moved during the start of the pandemic to meet altering consumer needs."

Nir Kshetri, a management professor at the University of North Carolina-Greensboro, pointed out in an email chat that one disadvantage of Meta's initiative is the expensive prices that producers must bear. Meta will take 47.5% of all virtual things sold on a Quest VR system in Horizon.

Given that Roblox only pays authors 28.1% of game income, it might not be called excessively expensive.

Advantages Of A Virtual Marketplace

Virtual Marketplace provides a fair and open economy powered entirely by blockchain technology. Entering the Virtual Marketplace with your products and services will provide you with an excellent opportunity to grow your business, reach out to new audiences, and increase sales. Let's have a look at some of the advantages of Virtual Marketplace Development.



Protection

The Virtual Marketplace's transactions are all secured via blockchain, making it impossible for anyone to steal your digital assets. Furthermore, because blockchain assets are immutable, they can never be erased, altered, removed, or misplaced from the blockchain network.

■ Accountability

Users of the Virtual Marketplace can simply observe all of the transactions that occur on a regular basis in the marketplace. As a result, it contributes to the trust and confidence that the traditional market lacks.

■ Growth Prospects

Users of the Virtual Marketplace can simply observe all of the transactions that occur on a regular basis in the marketplace. As a result, it contributes to the trust and confidence that the traditional market lacks.

■ Immediate Payments

All bitcoin transactions and payments do not require comprehensive personal information or credit card details, making it simple, quick, private, and hassle-free for users to make instant payments.

■ A Smooth Trading Experience

In comparison to other marketplaces, the Virtual Marketplace provides a more efficient and smooth trading experience. The platform is built by combining algorithms and methods to provide the greatest asset trading process possible, providing clients with a high-end experience.

■ Quick Asset Transfer

The Virtual Marketplace enables buyers to possess an original item and includes built-in authentication as proof of ownership. Users will be able to tokenize their assets and sell them on the custom-built Virtual Marketplace.

■ Future Proofing

Although the realm of Virtual Marketplace has received significant criticism, Metaverse's growing popularity. Crypto is the way of the future. Taking advantage of the metaverse's precipitous ascent is thus one of the sure-fire strategies to create a future-proof firm.

6. METAVERSE IN MANUFACTURING INDUSTRY

The metaverse has dominated the IT industry in recent years, although the concept itself has been around for decades. The metaverse, a virtual domain in which individuals may interact with one another, is most known today for its use in multiplayer videogames, where people from all over the world can join online in real time.

The metaverse has more practical applications in the industrial sector. It is frequently used by businesses for digital twins, which are virtual copies of existing company functions such as a manufacturing line. Businesses can use digital twins to simulate how alternative situations might affect productivity, safety, external environments, and a variety of other aspects, all without halting production or jeopardizing worker safety.

While the concept of digital twins may be novel to some organizations, others in the manufacturing area have been utilizing them for years, demonstrating not just their effectiveness, but also their capacity to spur innovation in an increasingly competitive economy. So, how are early adopters already employing digital twins, and what does this signify for future applications?



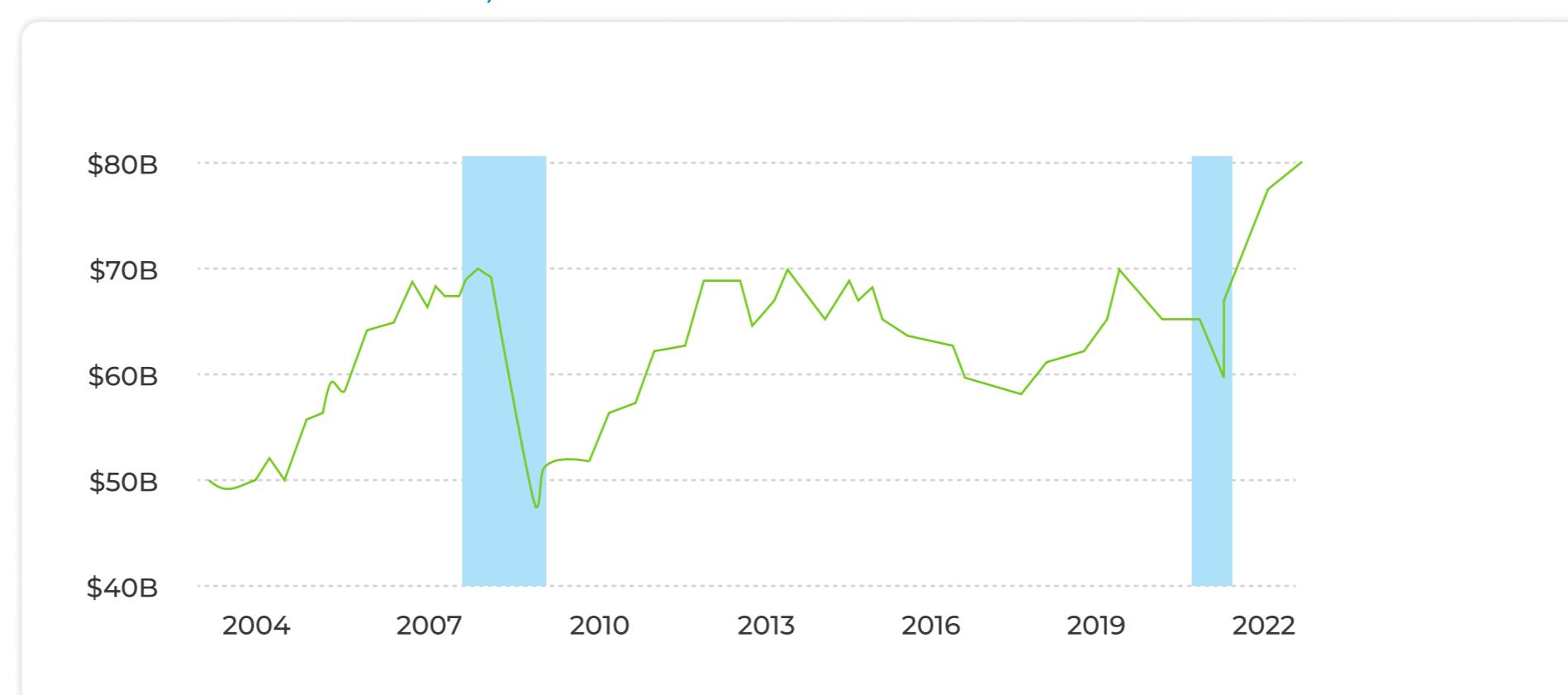
Metaverse Manufacturing

One of the most common applications for digital twins in manufacturing is to record and evaluate realtime data from plant operations in order to suggest changes. This data can then be utilized to create new workflows and streamline a business's processes. The digital twin becomes wiser as it collects and analyzes data from the actual world, eventually developing its own metaverse to test new business models in a low-risk environment. As a result, businesses can sustain efficiency while also encouraging innovation throughout the firm.

The metaverse can also be used to train individuals in highly specialized areas. The virtual environment allows both new and experienced operators to practice their abilities in a more realistic setting, without the risk of potentially catastrophic or costly errors. This is especially useful for employees who operate heavy machinery, which, if used wrong, might endanger workers' lives.

Several car businesses have begun to use the metaverse to improve industrial processes. Hyundai Motor Company and Unity, a platform for developing real-time 3D content, announced a collaboration plan to design a Meta-Factory for the 2022 Consumer Electronics Show (CES). The concept involves creating a digital twin of a physical factory, which is supported by a metaverse platform, with the purpose of optimizing operations and resolving issues in a virtual area.

Source: [US Census Bureau; RSM US LLP](#)



5 Effects Of The Manufacturing Metaverse On Manufacturers

■ Quicker and safer staff training

Several organizations have begun training staff on how to use and maintain equipment using VR headsets rather than real equipment that can be unsafe or difficult to use in a training scenario.

For example, because training JetBlue mechanics with real planes is expensive and time-consuming, the company implemented a VR solution in collaboration with software developer Strivr. The tool allows technicians to simulate touching a jet in the most realistic way possible, but without the time, money, and risk of the physical environment.

"You want people to leave learning something and go back into their work environment and see their performance levels improve," says Andy Kozak, who introduced the VR training at JetBlue

Furthermore, rather than having employees sit in a classroom all day, immersive learning, which blends the sensation and presence of VR with learning theory, data science, and architectural design, enhances the learning experience for employees, particularly younger ones.

Verizon, for example, employs Strivr VR training packages to teach shop personnel how to react in the event of a store heist. Other Stivr programs teach warehouse workers how to properly load and unload vehicles, while food manufacturing workers learn how to be safe near food processing equipment.

Because of these advantages, several businesses are considering deploying VR training as a first step in educating new staff, particularly in industrial or other heavy sector contexts.

Richard Ward, a senior specialist on VR at McKinsey, remarked that when you need to teach people a new vocational skill, such as how to fix a piece of equipment like a truck or a helicopter, one of the really long portions of that educational process is individuals learning where all the parts are on the equipment.

■ Improvements can be discovered through simulations prior to practical deployments.

The metaverse includes digital twin technology, in which all of the components of a physical location (or product) are digitized to create a virtual "twin." In manufacturing, digital twins can be used to compare a product's design to the physical version produced - looking for defects, for example - or virtual environments can be put up for simulation. Many autonomous car designers, for example, are already using simulations of real-world places to fine-tune and better train the vehicles how to operate.

According to McKinsey's Ward, BMW used simulation for six months at a new factory, constructing virtual automobiles on a one-to-one scale within the metaverse before deploying the final layout for the factory. Based on the simulation results, the corporation revised around 30% of the design from the original over the course of six months. They didn't say exactly how much efficient it was, but they did state that around 30% of what they believed was the best manufacturing in the world on the first day of the simulation had to alter. These are people who are always developing new plants and are still learning through simulation

■ Field service employees use AR/VR to repair equipment on the job.

According to Rajat Gupta, Microsoft's senior director of Business Development for Autonomous Systems, Mixed Reality, and Metaverse, field service people and technicians, like new frontline workers, can benefit from AR, VR, and MR technologies for equipment maintenance and support.

This accelerated during the epidemic, when all support teams were constrained by travel limitations and health concerns.

"Rather than bringing someone from Sweden or another nation back to the United States," Gupta explained, "a lot of them employed VR and mixed reality to provide remote help."

Many remote support solutions do not require additional hardware such as specialist AR glasses or massive VR headsets, which is a plus for enterprises in the space. "Many firms are investigating the application of AR with existing devices, such as smartphones and tablets," says Tom Mainelli, an analyst with research firm IDC. "The pandemic accelerated many companies' adoption of AR/VR technologies."

According to Ward of McKinsey, the usage of this technology can assist improve the attitudes of workers in the field without giving them the impression that they are being watched or monitored by their employer.

This technology is said to upset field staff since it acts like Big Brother. While no one enjoys the feeling that someone is watching them, it turns out that one of the things individuals enjoy is gaining mastery over problems, which also gives them with a sense of job fulfillment.

Virtual global product design collaboration

Another significant area where the epidemic pushed activity surrounding VR is in product design for manufacturers. Engineers could collaborate on designs in conference rooms when everyone was in the office, but now that everyone was working from home, they needed a new solution. With virtual reality, design engineers from all around the world can cooperate remotely to build a virtual design.

"If you look at an automotive firm, they develop automobiles by starting with clay models, and they have a clay model that anybody can create visually," explains Gupta of Microsoft. "They're then designed in CAD software, but it's difficult to cooperate on CAD and image things in 3D, so many are now using mixed reality - AR and VR - to take that vehicle in 3D and invite others to input on the car design." Source: Bloomberg Intelligence, Newzoo, IDC

During the epidemic, businesses created metaverse design rooms through the Internet.

"Our clients and other skilled engineers may log in remotely," McKinsey's Ward adds, "and the experience takes on the quality of Zoom in 3D, enabling for a new level of engineering to occur." "The beauty of it is that people can perform incredibly productive technical design work without having to fly, which has a lot of long-term implications for what we're doing."

Creating tangible objects from virtual concepts; converting physical items into digital assets

The transition from the physical to the virtual world will present various opportunities for manufacturers, potentially opening up new revenue sources. While virtual-to-virtual commerce, in which a video gamer can purchase digital objects with real money, has been around for years, new concepts are emerging in which physical products can be made using designs that originated in the virtual environment.

"I'm curious about going beyond the virtual-to-virtual component and into the virtual-to-physical component," says Cathy Hackl, a futurist, novelist, and metaverse expert. "I may be having an online interaction and purchase something that would literally arrive at my place." Then there's the inverse, in which I purchase a tangible object in exchange for a physical experience that unlocks something in a virtual universe for me."

In modest settings, examples of this have already begun to surface. Role-playing gamers, for example, can virtually construct miniature models on the HeroForge website, which has hundreds of various templates for a character's face, attire, weapons, and poses. After purchasing the completed design, HeroForge may 3D print and ship the item to clients. Users can also purchase the virtual design file and use their own device to 3D print the figure.

Toy firm L.O.L. Surprise, for example, manufactures card packs with a QR code that can be scanned to access non-fungible tokens (NFTs) and virtual experiences, according to Hackl. "These are things that have not been done at scale yet," she notes, "however I'm confident they will be as companies learn more about how the consumer journey in retail and buy points is moving."

Manufacturers Who Do Not Wait Will Discover An Infinite Number Of Possibilities

Businesses have historically been sluggish to adopt new technology, but experts in the metaverse and AR/VR area say the prospects are too big for manufacturers to ignore.

"Manufacturing companies that aren't experimenting with [AR and VR] today risk slipping behind in the foreseeable future," IDC's Mainelli warns. "AR/VR will not only assist manufacturers digitally alter their businesses, but they will also be critical in the future for recruiting, onboarding, and upskilling their workforces."

7. METAVERSE IN MARKETING AND ADVERTISEMENTS

The tremendous volume of rapid technological advancement has surely provided numerous new opportunities. Metaverse is most likely the best example of technological innovation aimed at changing the way people engage with one another and use digital platforms.

The metaverse is more than a 3D version of the internet since it is a shared, persistent, and open three-dimensional world where individuals may communicate as digital avatars and explore diverse virtual areas. The use of the metaverse for advertising has been one of the top goals for businesses looking for new methods to gain from the metaverse.

The metaverse is more than a 3D version of the internet since it is a shared, persistent, and open three-dimensional world where individuals may communicate as digital avatars and explore diverse virtual areas. The use of the metaverse for advertising has been one of the top goals for businesses looking for new methods to gain from the metaverse.



However, it is natural to worry about the potential of metaverse advertising and whether it will evolve into something valuable in the future. Are businesses ready to use the metaverse to sell their brands to specific customer bases? Only by considering the various advertising opportunities in the metaverse can you find the answer. The following discussion will assist you in discovering all of the various use cases of metaverse in advertising that can provide value to current organizations. With the support of real-world examples, you may assess the likelihood of metaverse adoption in various marketing use cases.

Marketing's Evolution

Source: [TechTarget](#)



The practice of promoting and selling a company's products or services is known as marketing. It includes the four P's of marketing: price, product, promotion, and location. Marketing and advertising in the metaverse can provide new places to shop and new avenues for promotion.

In The Metaverse, The Four Ps Of The Marketing Mix Are Critical.

Marketing evolves in tandem with improvements on the internet. The purpose of marketing in web 1.0 was to establish a website with contact information for a business. Then Web 2.0 began linking people and collecting their search history in order to tailor the user's experience. According to Griffin LaFleur, senior marketing operations manager at Swing Education and a B2B marketing consultant, Web 3.0 now provides a more immersive experience.

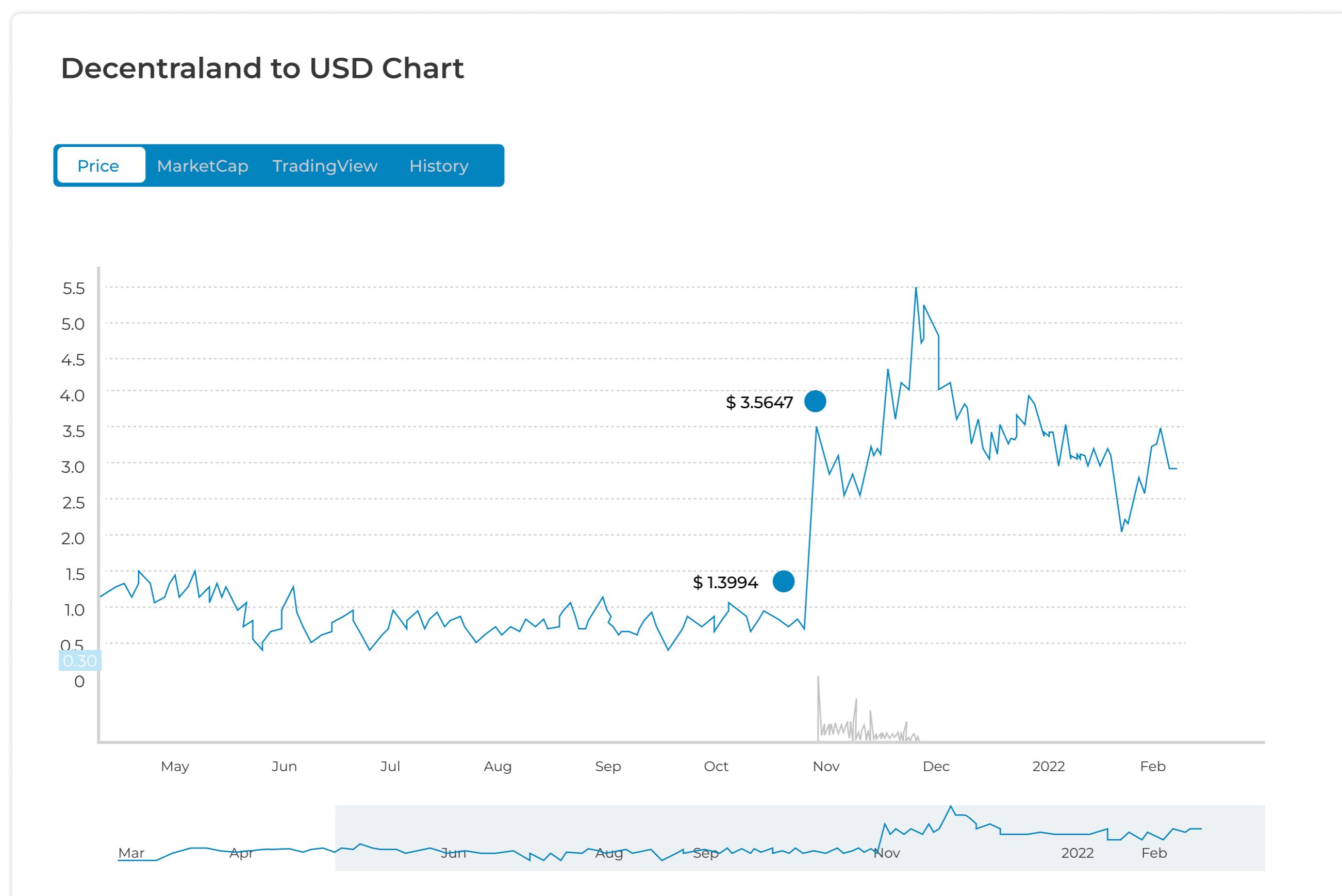
According to a LinkedIn research from Metaversed, a consultancy firm, 400 million unique and active users access a metaverse site monthly. Companies must follow their generational audiences to the metaverse in order to reach these users.

The Metaverse's Importance In Marketing

If you want to grasp how the metaverse will affect marketing, you must first understand how the metaverse fits perfectly with marketing. To begin with, the metaverse is more of a parallel virtual world with several interconnected virtual places. People might enter the metaverse as digital avatars and interact with it. Shopping, trading assets, networking, and creating experiences and objects are among the activities available in the metaverse.

A fully operating metaverse, albeit still a few years away, would incorporate a variety of technologies, including 3D avatars, AR, VR, and audiovisual features. Online games like Fortnite, Minecraft, Animal Crossing, and Roblox have indications of the metaverse. Other prominent examples, such as Decentraland and Sandbox, also show promising prospects for the metaverse's future. So, the metaverse currently includes a lot of games and may add more in the future. How does it aid in marketing?

Source : [CoinMarketCap](#)



To find the solution, consider the basic characteristics of the metaverse that serve as the optimal foundation for marketing. Indeed, the metaverse's characteristics demonstrate that it is more than just virtual theme parks.

What Role Does The Metaverse Play In Advertising?

The following metaverse characteristics can demonstrate why metaverse advertising is a good idea.

Constantly operational

When you leave the platform, the metaverse stays operational, and the persistent environment does not pause. All platform activities continue indefinitely.

Real-time Functions

The metaverse integrates with the real world's time, providing a direct channel of communication with the intended audience.

There are no restrictions.

The pledge of unlimited freedom is one of the most prominent features in metaverse advertising samples. Participants are not bound to walled gardens and are free to explore many other virtual areas in the metaverse. As a result, marketers have a larger playground for advertising on the metaverse.

The Creator Economy

Many assets can be created, owned, and traded in the metaverse's totally autonomous and self-contained reality. Users can also find ways to earn prizes for their contributions to the metaverse.

User-Generated Content (UGC)

Most importantly, with increased options for user-generated content, the usage of the metaverse for advertising becomes increasingly relevant. The metaverse provides users with more than simply virtual locations to hang out in. Users might generate content and experiences for other users, and marketers could use this feature to broaden their advertising reach.

Advertising Opportunities In The Metaverse

The metaverse's various characteristics demonstrate that it is an excellent choice for advertising. The metaverse is always online, runs in real-time, has an independent, autonomous creative economy, and, most importantly, is user-driven. For obvious reasons, many people would wonder, "Can you advertise in the metaverse?"

The question focuses on the practical ramifications of metaverse advertising. In principle, everything about the metaverse appears to be beneficial to brand marketing. On the other side, you may be wondering how to get started with metaverse advertising and what the best practices are. Here are some examples of how brands could use the metaverse for marketing.

■ Characters and Branded Virtual Real Estate

Many brands have established branded avatars and venues or reproduced their services within online game virtual settings. Interestingly, rather than disturbing gamers' experiences, brands have blended in seamlessly with game surroundings. Fortnite and Animal Crossing are the two most popular online games for brand insertions right now.

Verizon is a famous example of metaverse advertising. The brand gave players the opportunity to meet NFL player avatars by bringing the Super Bowl stadium to Fortnite. Venus, a Procter & Gamble women's razor brand, has produced skin types for different avatars in Animal Crossing that seem more lifelike.

Unilever is another well-known brand that uses the metaverse for advertising. Hellmann's mayonnaise brand created its own branded island in the Animal Crossing video game. You can plainly see how marketers can employ metaverse virtual real estate and personalities for organic advertising that resonates with the intended demographic.

■ Avatar Digital Offerings

Avatars are an essential component of the metaverse, and they will play an important part in many metaverse advertising use cases. When you initially started using the internet, you must have come across avatars. They are the virtual representations of our physical identities and may provide the ideal chance for businesses to establish their presence in the metaverse.

Brands might offer virtual versions of practically every product marketed in the real world and profit from the metaverse's advertising potential. Gucci was one of the first businesses to capitalize on this trend, presenting a digital line of its distinctive garments on Roblox. Gucci has cooperated with avatar developer Zepeto, as well as integrating the SDK of another avatar builder, Genies, into its app. Many more wellknown luxury labels, including Balenciaga and Louis Vuitton, are generating digital assets for in-game sales. In addition, they are developing their own branded in-game worlds and releasing limited-edition NFT collections.

Without a doubt, the examples of high-end businesses researching prospects for advertising in the metaverse provide a good answer to the question "Can you promote in the metaverse?" In the future, we may see brands give their new collections to customers virtually before they are released. It is easy to see the dual benefit of having avatars as tools for allowing customers to test things.

■ Massively Participatory Live Events

Events are the next big thing that will provide marketing chances in the metaverse. Massive Interactive Live Events, or MILEs, employ a single simulation to bring together many participants on a single platform.

MILEs can be a real-time event or game that engages enormous audiences.

Events are another significant focus for answering the question "How will the metaverse effect marketing?" with some successful instances. Travis Scott, an American rapper, performed in front of around 12.3 million Fortnite players in a live event. Balenciaga, the renowned fashion house, showed its fall 2021 collection on Afterworld, a computer game built on Epic Games' Unreal Engine.

■ Diversity and Inclusion

Finally, inclusivity and diversity are the most significant factors driving the prospects for metaverse advertising examples. Almost 71% of customers believe that firms should promote diversity and inclusion through their online advertising. At the same time, nearly 54% of consumers believe that online advertisements lack complete portrayal.

The metaverse, on the other hand, may enable businesses to break down such barriers by allowing customers to construct their own experiences. Brands may naturally enter consumers' metaverse experiences, making them feel included. Consumers, for example, would be more than happy to try on a new clothes collection rather than seeing an online commercial with a celebrity wearing them.

The examples of AR experiences on social media clearly demonstrate the future potential for exploiting the metaverse for advertising. However, it is equally critical for firms to have a head start on taking advantage of the metaverse's advertising prospects.

Conclusion

For brands all across the world, the metaverse provides a unique marketing channel. As individuals interact, network, and trade experiences and digital assets in virtual places, marketers might investigate organic ways to contact customers. The metaverse is still evolving, despite the fact that many existing platforms play an important role in driving advertising opportunities.

However, each new marketing medium or technology brings its own set of obstacles. For starters, the metaverse is not fully operating. As a result, you should proceed with extreme caution when it comes to metaverse advertising. The metaverse's learning curve and the technological transition required for firms to adapt to metaverse marketing can be challenging. Begin learning more about the capabilities of the metaverse for marketing right away.



8. METAVERSE IN FASHION

Brands and their customers stand to benefit greatly from combining the worlds of fashion and the Metaverse. Many people struggle to understand the concept of digital fashion because buying/trying on items that only exist in a virtual environment seems bizarre at first. However, as this niche sector continues to gain pace, many experts are taking the idea of the Metaverse altering the future of fashion more seriously.



According to one recent study, clothing that exists exclusively in the digital world is far more environmentally benign than its physical equivalent, generating 97% less CO₂ and utilizing approximately 3,300 liters of water per piece. Not only that, but evidence suggests that replacing physical samples with digital ones during a company's design and development phases can lower a brand's carbon footprint by up to 30%.

Furthermore, the utilization of digital clothing can be quite beneficial during the many processes leading up to the actual physical creation of a garment. These virtual things, for example, can be used for modeling, sampling, and marketing before their physical iterations are sent into production, drastically reducing the overall environmental effect of a fashion item's whole lifecycle.

Finally, when it comes to sales, digital models of clothing can assist ease problems connected with overproduction, which is commonly seen as a key barrier in today's fashion business.

Why Metaverse Fashion Makes Sense

The metaverse, according to Cathy Hackl, Chief Metaverse Officer at Futures Intelligence Group, is "the progression of Web 2.0...where people, spaces, and assets can [exist] in a totally virtual synthetic environment."

Whereas Web 1.0 permitted the flow of information from one user to another and Web 2.0 focused on linking individuals and creating the sharing economy, Web 3.0 allows these connections to be explored on a more participatory level.

We will be able to interact with content not only through sight and hearing, but also through touch, taste, and smell. The metaverse is simply a sensory extension of our internet experiences.

Source: [Technavio](#)



As our digital identities change and our use of our senses expands within the metaverse, it only seems natural that fashion—a form of self-expression and autonomy associated with a certain time and place—would make its way into the metaverse.

Culturally, we are also shifting away from rapid fashion and toward industry sustainability. Given the rapid rate at which trends emerge, fashion firms are constantly under pressure to manufacture new and stylish things, which frequently results in waste that is hazardous to the environment.

Combine that lack of sustainability with the worldwide supply chain difficulties we're experiencing as a result of a global epidemic, and you've got the perfect excuse to experiment with other kinds of fashion. The opportunity in this situation is digital fashion.

Digital fashion eliminates the need for firms to make physical things at all, allowing them to save money on production costs and appeal to a more ecologically concerned consumer. Because all that is required to develop and sell digital artwork is access to a computer and the internet, the metaverse will also make it easier for smaller designers to get into the market.

Metaverse Fashion Brands

The easiest approach to understand how fashion will function in the metaverse is to look at the fashion brands that are already involved. So far, the majority of the fashion industry's investments in the metaverse have come in the form of video game skins, a \$40 billion-a-year sector.

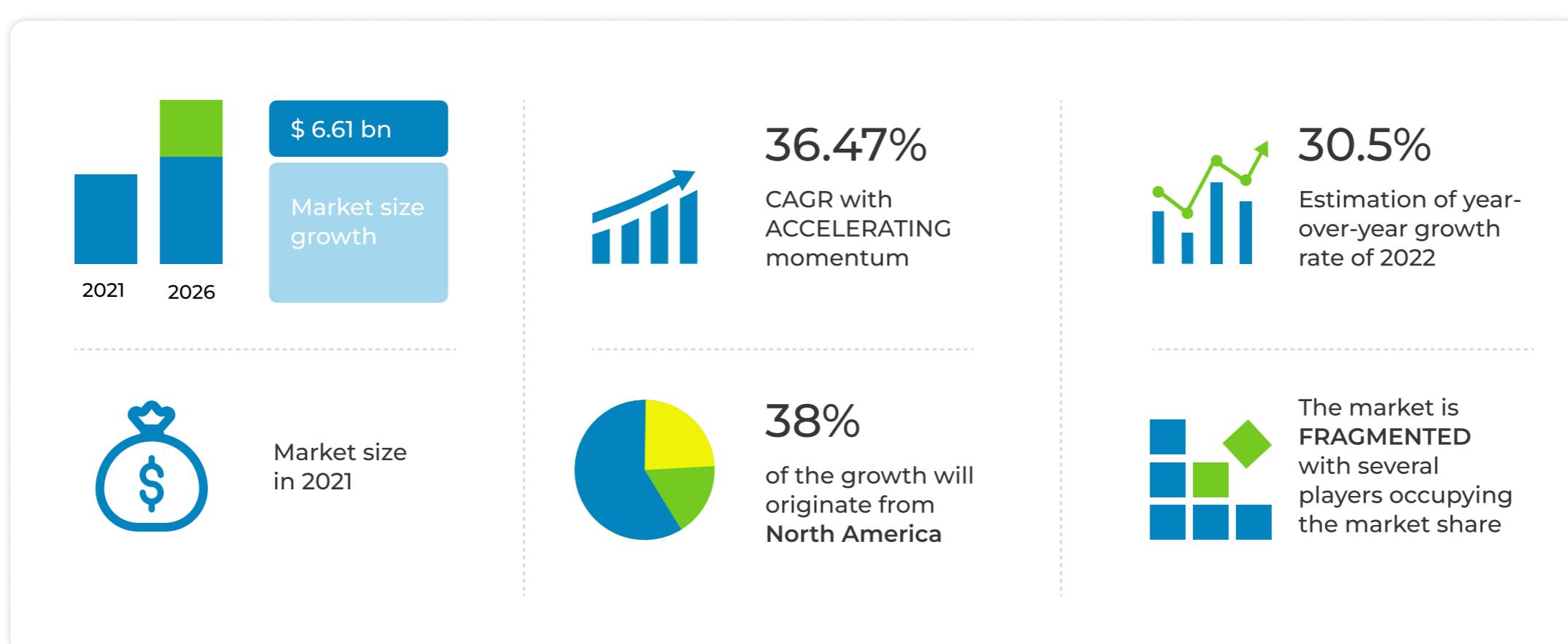
Balenciaga was one of the first fashion houses to adopt virtual reality. They recently announced plans to create a metaverse business unit within the corporation to investigate potential opportunities in the space.



They introduced their seasonal collection through a gaming app in the fall of 2021, and they collaborated with Fortnite to develop a series of "skins" for the game's characters.

Another fashion brand getting its teeth into metaverse fashion is Dolce and Gabbana. They published a nine-piece digital clothing tech drop on the USXD marketplace in September of last year, which was available for purchase in Ethereum, one of the most well-known cryptocurrencies in the metaverse. The company's first NFT collection was auctioned off for about \$6 million.

- Increased security because voting occurs over secure communication channels.
- Low cost of setup because voting across all accessible e-voting platforms requires only an internet connection.



African Virtual Fashion Designers Are Entering The Metaverse.

Aisha Oladimeji had no idea what she was getting herself into when she began creating virtual couture garments. "All I knew was that I was sick of being stuck at home due to covid and ASUU [Academic Staff Union of Universities] strikes, and I wanted something to keep myself sane." Quartz quotes her.



Oladimeji's work is visually appealing, with architectural, high couture, and textural elements. She had a collection dubbed ECLECTIC last year that was inspired by experimental buildings around the world and was shown at New York Digital Fashion Week earlier this year. However, she believes that Africa's fashion sector is not yet ready for the metaverse. "There is freedom of expression in the metaverse, but I believe I've only seen a handful in the fashion industry that are willing to learn and begin moving in that direction."

Beyond Fashion, Africa's Virtual Designers Have Lofty Goals For The Metaverse.

During the pandemic, UX Designer Delz Erinle had a vision for the future. "I was preoccupied with the idea of uncovering something significant, and I recall thinking to myself, 'What if we can tell certain people to go shopping using the virtual reality headset?'" He contacted artist Niyi Okeowo, an artist, and they formed a team of 30 consisting of 3D artists, environment creators, games developers, and 3D modelers—all with a single goal—and launched Astra under their creative firm Thrill Digital.





The Astra Metaverse

Astra is the first metaverse created by Africans Delz Erinle and Niyi Okeowo.

Astra is the first metaverse designed by Africans. Initially, it appeared to be a digital fashion studio for fashion designers to develop 3D assets of their real apparel, but it is now a metaverse with multiple events. But Astra isn't like other metaverses; it combines gaming, cryptocurrency, and fashion. Users can earn cryptocurrency by playing games, going shopping with their avatars, or attending events while wearing VR devices.

"The future of Astra is to figure out how to consistently give value for people in the metaverse; they don't perceive it as a game or social media, but as something that they can utilize in their daily lives." "I think there will come a moment when people will be able to jump into 3D space without experiencing lag," adds Erinle, who is eager to expand the blockchain system to other parts of the world, not only Africa, in order to provide better internet experiences.

Fashion Industry Digital Trends

■ Digital Clothing:

Digital clothing is the hottest new trend in the imaginations of designers, influencers, environmentalists, and fashionistas alike.



In the real world, these clothes will only be available in a digital catalog.

Customers may utilise such in virtual worlds, games, or as a simple overlay on photographs. Even if buyers are unable to wear them, the demand for them remains high.

Customers can try on as many outfits as they choose from their own home's digital inventory in just a few minutes.

To add to the excitement, digital apparel has become a popular way to play with and buy.

■ Models Virtual:

Due to the epidemic and social distancing limits, physical runways with human models were no longer allowed. Virtual models will be updated to reflect new product releases and collection displays.

When created by a 3D digital studio like ours, virtual models look just like real ones.

Virtual models, as opposed to actual models, are expected to present an entire brand's collection in a handful of minutes.

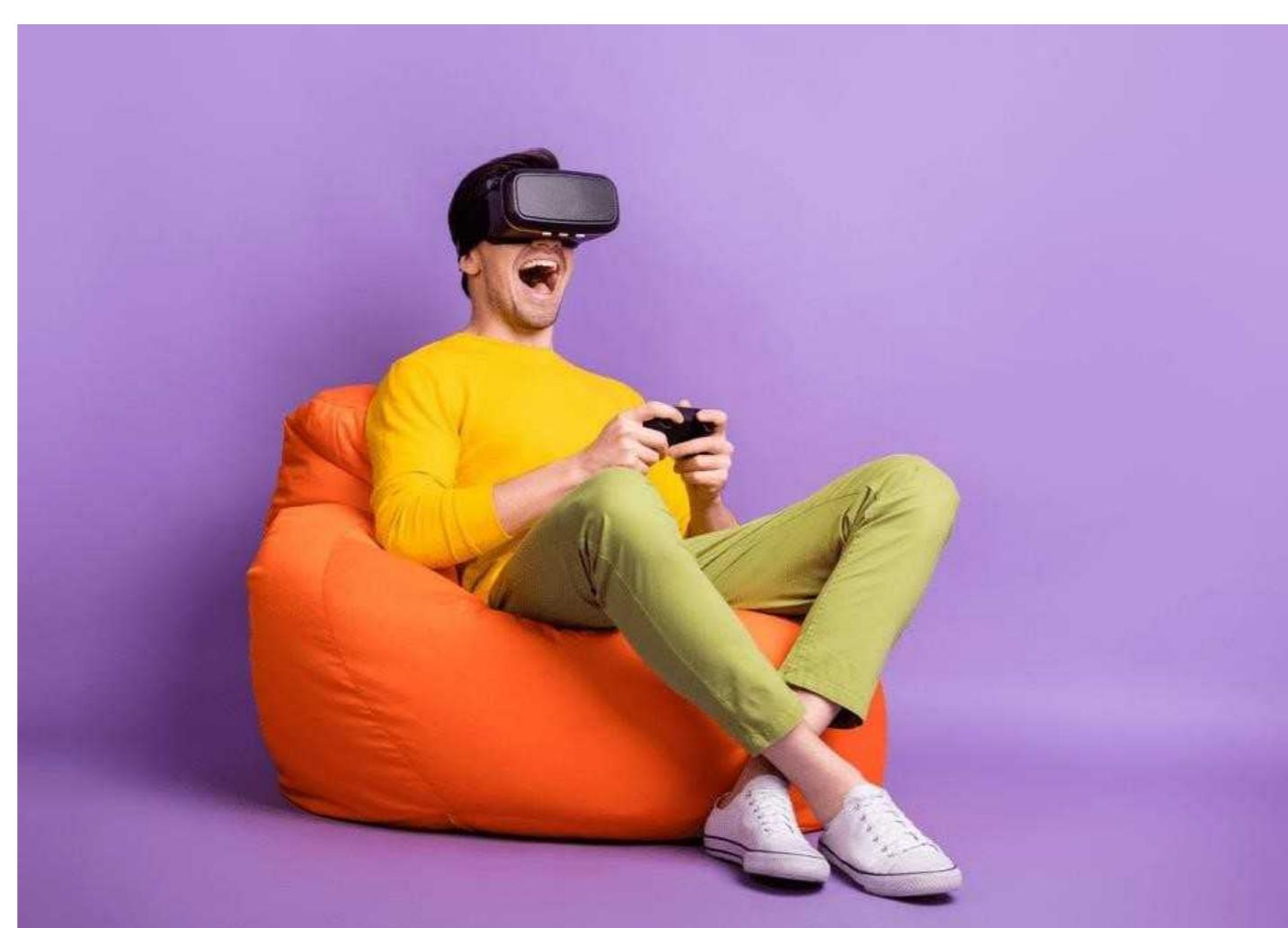
■ Video Games and Fashion:

Fashion brands from around the world are rapidly making their impact on the gaming business. You can buy digital skins and accessories from gamers to express yourself while playing.

Balenciaga collaborated with Epic Games to produce the first-ever Fortnite premium line. Riot Games and Louis Vuitton collaborated on virtual skins for the League of Legends 2019 World Championship Finals.

Overall, the number of high-end corporations and video games that collaborate is growing.

Businesses are collaborating with video game producers to appeal to Millennials and Generation Z in a new digital trend.



Virtual Garbs In The Metaverse: The Future Of Fashion

According to a research of current digital fashion trends, the Metaverse is where fashion will go in the future. Because anyone can be anyone online, luxury fashion firms must have a virtual clothes strategy.

By collaborating with VSLB, a 3D studio, brands can benefit from 3D garbs produced under our creative supervision. To get started with 3D modeling, you can choose from a variety of virtual fashion components.

9. METAVERSE IN RETAIL INDUSTRY

In the last decade, the retail industry has chosen for an omnichannel approach, in which firms have considered integrating physical and internet retail. To bridge the gap between physical and digital retail experiences, brands are investigating the usage of the metaverse to provide their customers with an immersive and multimodal experience that is currently absent in the digital landscape.

The metaverse is an exciting place. When combined with augmented and virtual reality (AR/VR) devices, it has the potential to significantly revolutionize the retail industry. The retail industry is currently confronted with numerous issues and intense competition, including customer service, active customer involvement, client retention, and loyalty development.

To address these concerns, players are looking to the metaverse as a solution for recreating the in-store experience of not only physical apparel stores, but also furniture and vehicle showrooms, among other places.



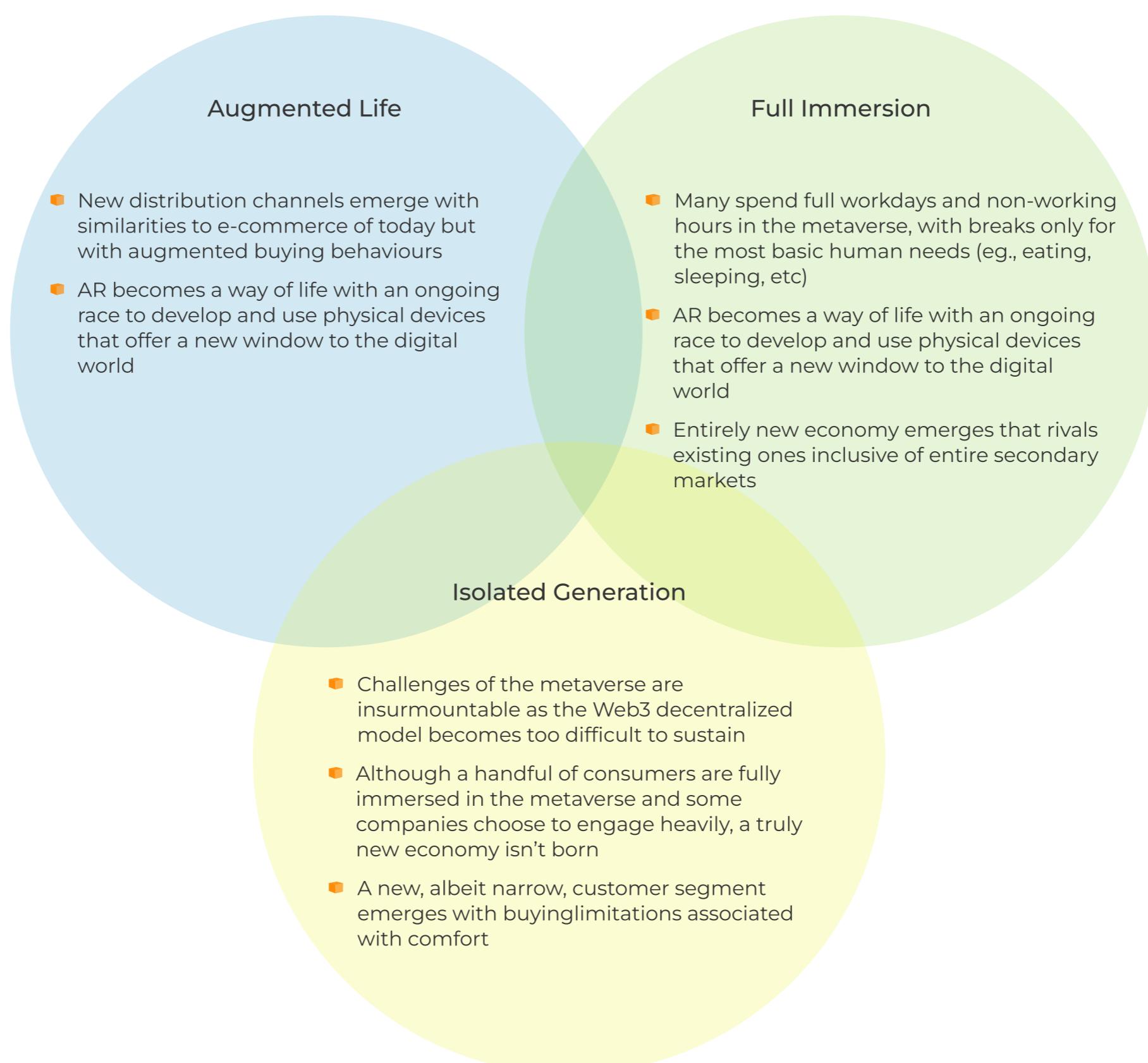
We Recommend That Businesses Examine Three Possible Futures For Retail In The Metaverse:

■ Complete Immersion:

The goal of many proponents of the metaverse is mass adoption, where the majority of people spend their days and nights participating in interactions made possible by the metaverse. Imagine waking up to a hologram that relays a customized news feed and prioritized duties for the day. Then, go for a stationary bike ride that includes an immersive virtual experience (breeze included). Next, work as a digital avatar for an entire day without changing out of your sweatpants. Finally, get a front-row seat to a virtual performance.

■ Separated Generation:

There is currently a group of early adopters who want to spend as much time as technology allows in the metaverse. They devote not just their time to the metaverse, but also their intellect and cash. In the future, metaverse adoption will be predominantly limited to this user group, with the general populace participating only seldom. This small demographic has considerable purchasing power to pique the interest of RCP companies. It also exhibits distinct features that can be targeted, most notably a fondness for the metaverse environment, which can help retail firms in the metaverse efficiently reach out to customers with new offers.



■ Enhanced Life:

In this age, the metaverse will focus on supplementing the physical world with more advanced technologies to help and complement the general population's present day-today activities. In some cases, these enhancements will be communal (e.g., a voice assistant on every commuter train). In other circumstances, it will be confidential (e.g., advances in telehealth).

While all three scenarios are possible, the most likely outcome is a hybrid in which features of each take precedence. However, before any future arises, we must overcome a number of obstacles to expanded metaverse use, including:

■ Connectivity:

The metaverse is made up of numerous worlds, and it's uncertain if people will be able to effortlessly "move" between them and bring valuable digital things with them.

■ Internet enablement:

The majority of customers do not have complete access to the more advanced technologies and services required to run a metaverse ecosystem.

■ Belief:

Attempts to illegally profit from NFTs, as well as lawsuits between firms staking claims in the metaverse, may undermine public trust in this innovative technology.

■ Consumer Experience:

Aspects of the metaverse today are clumsy and cartoonish, perhaps leading to a loss of interest among many consumers as the novelty wears off.

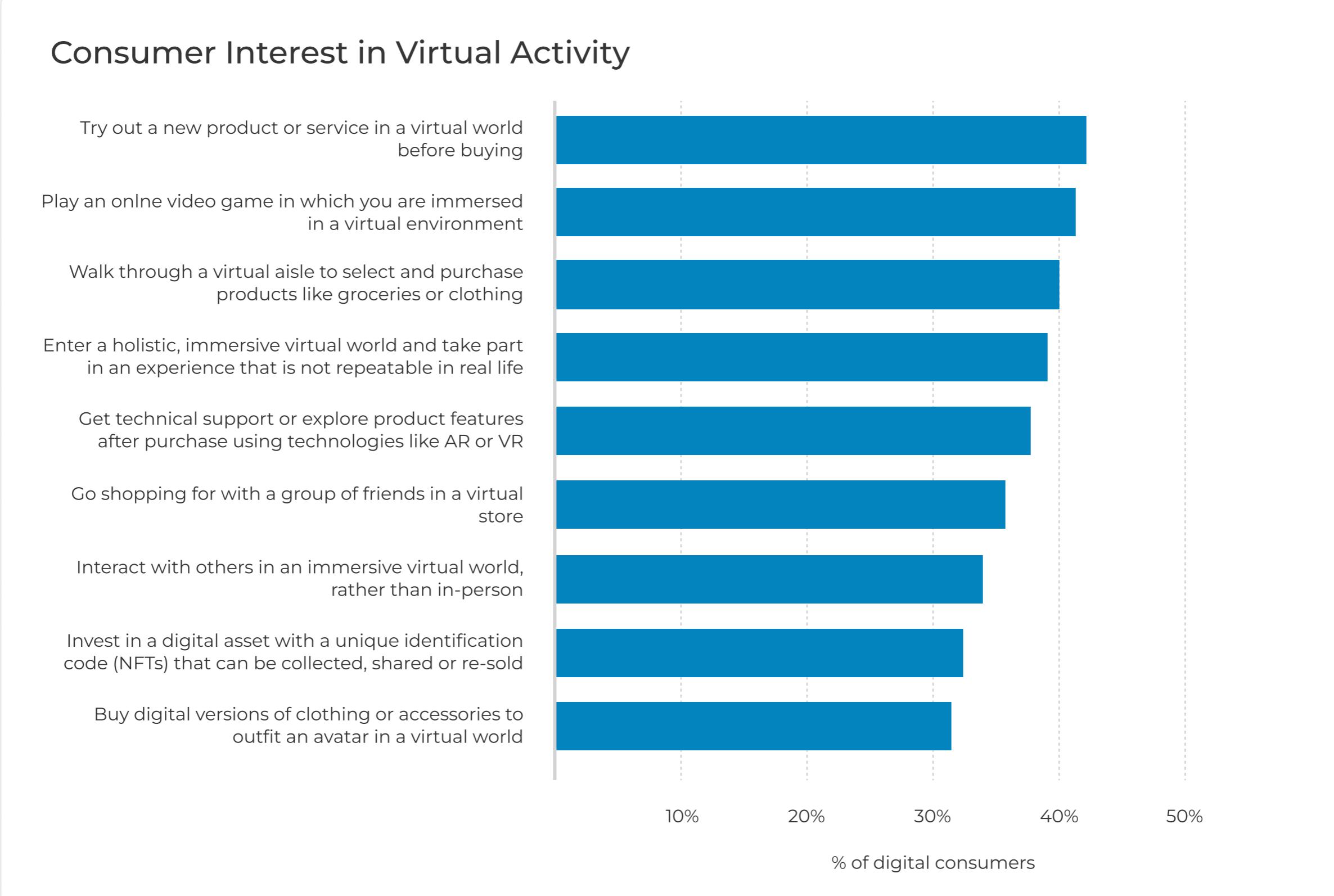
■ Real Cost:

The negative effects of technology on physical and mental health, combined with the huge carbon footprint associated with crypto and blockchain activities, may stymie metaverse technological growth.

Key Considerations For Retail Companies In The Metaverse

While some of the metaverse enthusiasm is expected to fade, we believe that investment in the sector will continue to move it ahead, with a likely bias toward the "augmented life" and "isolated generation" scenarios. The existing constraints may limit the comprehensive metaverse immersion that some dream for, but enough development will be visible to make this a vital component of any forward-thinking retail strategy. Indeed, many have already begun to try to extract value from a variety of use cases in the metaverse for retail.

In other cases, such as NIKE selling branded NFTs or Forever21 having a virtual storefront in the metaverse, these forays are consumer-facing.



New business concepts have also emerged. The Flyfish Club, for example, is one of a few new eateries that exclusively serve diners who own certain access-oriented NFTs. There are also various examples of immersive marketing that uses augmented reality to provide hyper-personalized experiences.

However, consumer interactions are not the only use cases for the metaverse. This technology is also being used to increase efficiencies and improve employee experiences.

Unilever, for example, is utilizing digital twins to generate a representation of its manufacturing facilities. Volvo created a digital driving simulation that allows the corporation to perform ethnographic research in a virtual setting. Furthermore, we've seen several uses of talent engagement that have been hastened by the epidemic, such as improved virtual training, onboarding, and mentorship.

With so many possibilities, retail firms should shift their attention from whether or not to sell in the metaverse to how to do so differently. An interesting component of the metaverse, unlike many prior technological developments, is that firms are not obligated to bend their strategy to the technology. When television became popular in the 1950s, businesses had to change their marketing techniques to target consumers who changed their lifestyle to accommodate programs.

When the Bloomberg terminal became an invaluable tool in financial circles in the 1980s, banks and wealth managers restructured strategies to focus on the immediacy of previously unavailable information.

When smart apps emerged more prevalent in the early 2010s, businesses supplemented their strategy with a mobile-specific plan in order to attract consumers who were no longer confined to a single area. The metaverse, on the other hand, is intended to be an extension of our entire existence. As a result, firms may not need to change their primary strategic differentiators, but rather push the boundaries of how that strategy will be implemented.

The metaverse use cases that a retail company decides to pursue will be heavily influenced by the primary differentiators that it employs to win in the market. Based on our experience, we've prepared a list of metaverse use cases that retail enterprises can leverage to their benefit. We believe that some use cases will be prioritized over others due to their potential effect, ease of implementation, and speed to market.

Priority Retail Metaverse Use Cases

To make all of these use cases a fact, businesses must be ready to use the metaverse's underlying technologies while adjusting quickly to its high rate of change. For example, an attempt to enter new markets with NFTs is unlikely to succeed if a company lacks access to the necessary design and technological skills.

					
PRIORITY	Marketing	Product	Commerce	Supply chain/ops	Commerce
HIGHEST	Product Placement	Product Testing and try-on	Enhanced e-commerce shopping	Manufacturing design, safety and testing	Employee collaboration
	Immersive marketing	Branded digital product	Augmented store experience	Contact center interactions	Immersive events
	Product Demos	Digital and Physical integration	Planogram and store layout visualization	Process stimulation and refinement	Training and hands-on stimulation
	Stimulated ethnographic research	NFT partnerships and licensing	Metaverse demo/digital stores	Last-mile delivery and blockchain verification	
	NFT based loyalty programs				

Building a virtual storefront without a cloud-based infrastructure may prove difficult. Without robust data that establishes an understanding of consumer preferences, selling branded digital products to a new metaverse market niche may fall short. While clean data, cloud-enabled capabilities, and procedures to govern digital partnerships are not novel ideas, they are critical to drive a metaverse-based approach.

Nobody knows where the metaverse will lead us. However, one thing is certain: the genie is no longer in the bottle, and momentum is unlikely to slow or reverse.

The metaverse has arrived in some form, and the potential it provides for well-prepared retail enterprises should make for an exciting future.

The Top Three Retail Businesses Working On Metaverse Are:

■ Nike:

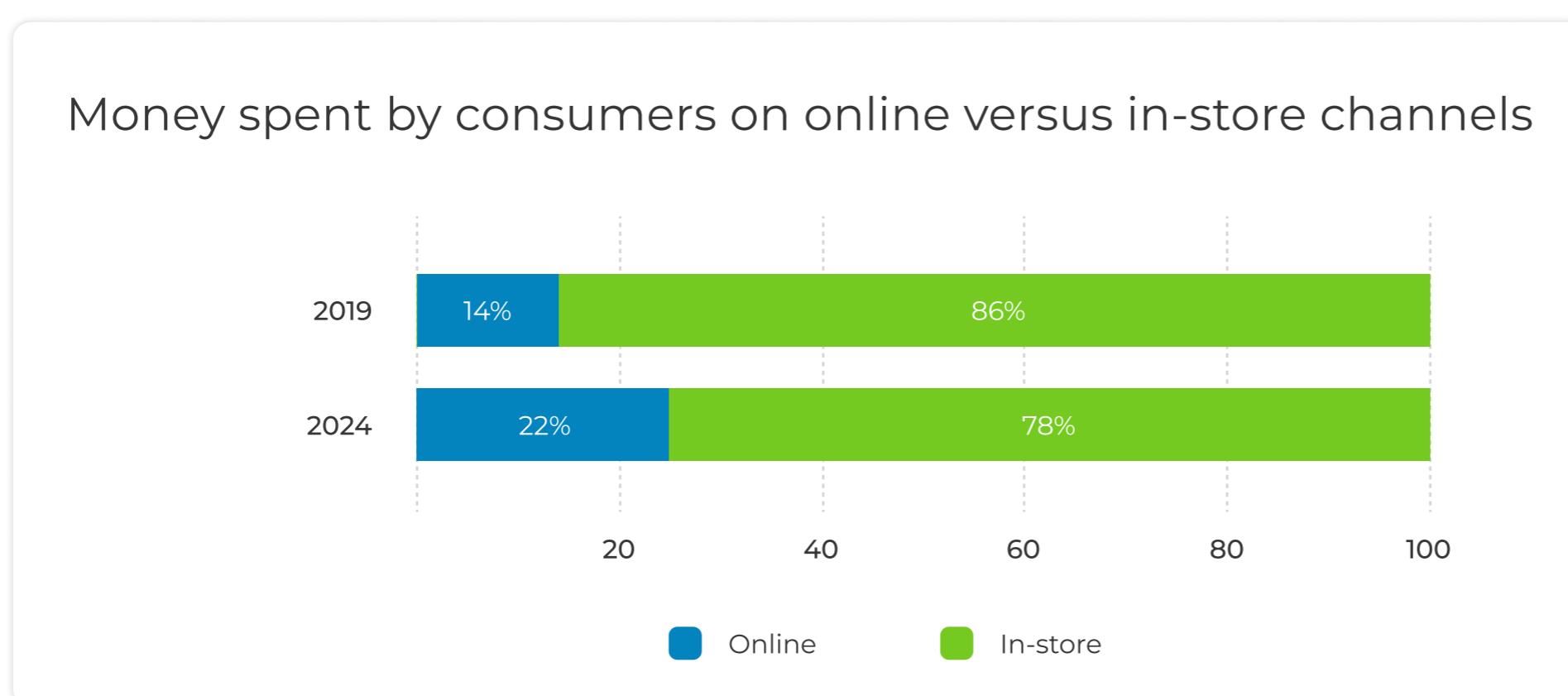
Nike entered the metaverse by purchasing RTFKT, a virtual footwear firm that focused on fashion.

■ Balenciaga:

It launches a metaverse unit in addition to developing a video game for a new collection and collaborating with Fortnite on virtual clothes.

■ Gucci:

It has been a pioneer and early adopter of metaverse technologies.



10. METAVERSE IN HEALTHCARE INDUSTRY



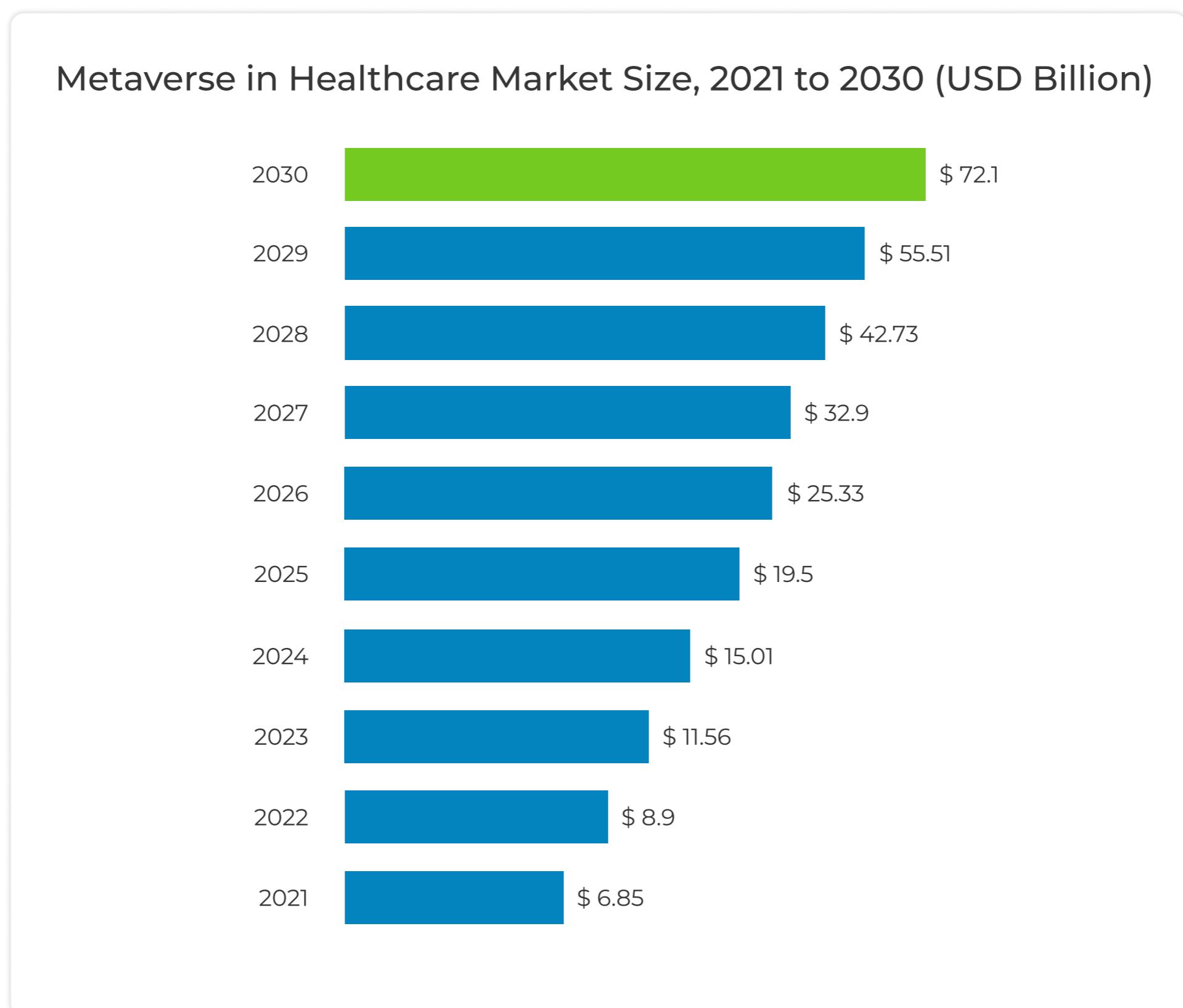
According to Precedence Research, the healthcare metaverse market was valued at USD 6.85 billion in 2021 and is expected to exceed USD 72.10 billion by 2030, increasing at a CAGR of 29.89% from 2022 to 2030.

The metaverse is a massive digital cosmos that lives alongside our physical reality. The metaverse is essentially a collection of virtual worlds where individuals may socialize, play games, chat, and shop.

As major social players incorporate various aspects of virtual reality and immersive experiences, the concept of the metaverse is still in its early stages but will soon add many more dimensions. It will be a terrific tool in the healthcare business for teaching, empowering, and providing delightful experiences to patients and providers. The Metaverse's role to the revolution of healthcare cannot be overstated because it encompasses AI, VR, AR, the Internet of Medical Devices, Web 3.0, intelligent cloud, edge and quantum computing, and robots. With its comical headgear and sci-fi digressions, augmented reality is poised to alter patient care experiences.

Complex surgeries are now expected to combine enhanced facts, as surgical procedures have already done with robotics. Doctors and specialists use virtual reality to teach other medical professionals.

Source: *Precedence Research*



What Is The Regional Extent Of The Healthcare Metaverse?

- North America has kept the leading position and is predicted to continue to do so during the projection period due to the rapid expansion of healthcare infrastructure and the utilization of digital technology. It is owing to the region's high concentration of metaverse-focused enterprises, rapid development of healthcare infrastructure, incorporation of AR and VR platforms into the healthcare industry, increased investment in AR goods and services, and advancements in software and hardware.
- The metaverse can treat a variety of mental ailments, including phobias, anxiety disorders, PTSD, hallucinations, and delusions. Because of technology, we can now request aid from coworkers, friends, family, or medical professionals while we are having a mental breakdown. As a result, this region is likely to grow rapidly in the future.

Highlights Of The Report

■ In terms of components,

The hardware segment leads and is likely to make the greatest contribution to the metaverse in the healthcare business. The development of augmented/virtual reality headsets for better results and convenience is predicted to propel the hardware sector to market dominance. Furthermore, the company's efforts to develop cutting-edge haptic metaverse devices contribute to the segment's growth.

■ In terms of the devices,

During the estimated period, the augmented reality devices category is expected to have the greatest CAGR. This market sector is projected to dominate since augmented reality devices are commonly utilized in the medical industry and patients require continual monitoring. These devices provide an interactive virtual interface and innovative ideas to improve healthcare and medical services.

■ In terms end user,

The medical training and education module segment in the healthcare market is expected to grow at the fastest rate in the metaverse. The medical training and education modules category is the market leader due to the extensive usage of metaverse extensions in medical and surgical training for a three-dimensional learning experience. These technologies assist patients in better understanding surgical procedures, which enhances medical treatments.



The Following Are Some Of The Ways In Which The Metaverse Could Change Healthcare:

■ Schooling and Coaching

The metaverse can overcome physical obstacles to guarantee healthcare personnel obtain education and training even in the most remote locations. Furthermore, it can aid in the upskilling of individuals in healthcare treatments by simulating a real-life setting without endangering patients' lives. Veyond Metaverse, which has entered the metaverse area, wants to bring together healthcare professionals for concurrent education, training, and planning. The platform makes use of cloud and real-time communication technology to allow clinicians to practice their skills with the greatest precision.

■ Diet and Health

Individuals can share their health regimen and food with peers to ensure they, too, are leading a healthy lifestyle in the metaverse, which can encourage healthy behaviors in people. Patients can also compare their vitals and other parameters to people with similar ailments. It can assist them understand how they are doing and share advice and treatment choices with individuals who have already had them.

■ Mental Well-being

Depression, anxiety, and addictive behaviors all increased as a result of the global pandemic. Furthermore, forced isolation aggravated diseases such as bipolar disorder and schizophrenia in patients. The metaverse can be useful in counseling people with mental illnesses and encouraging follow-ups. Because the metaverse can provide illusory sensations, it can aid individuals suffering from psychosis, hallucinations, and anxiety. Furthermore, technology can help patients overcome fear by recreating a situation in their minds via virtual reality. Dr. Daniel Freeman and his colleagues at Oxford University, for example, have created a VR system called gameChange. The system employs virtual reality to treat psychosis, utilizing a medical technique known as digital therapeutics, or DTx.

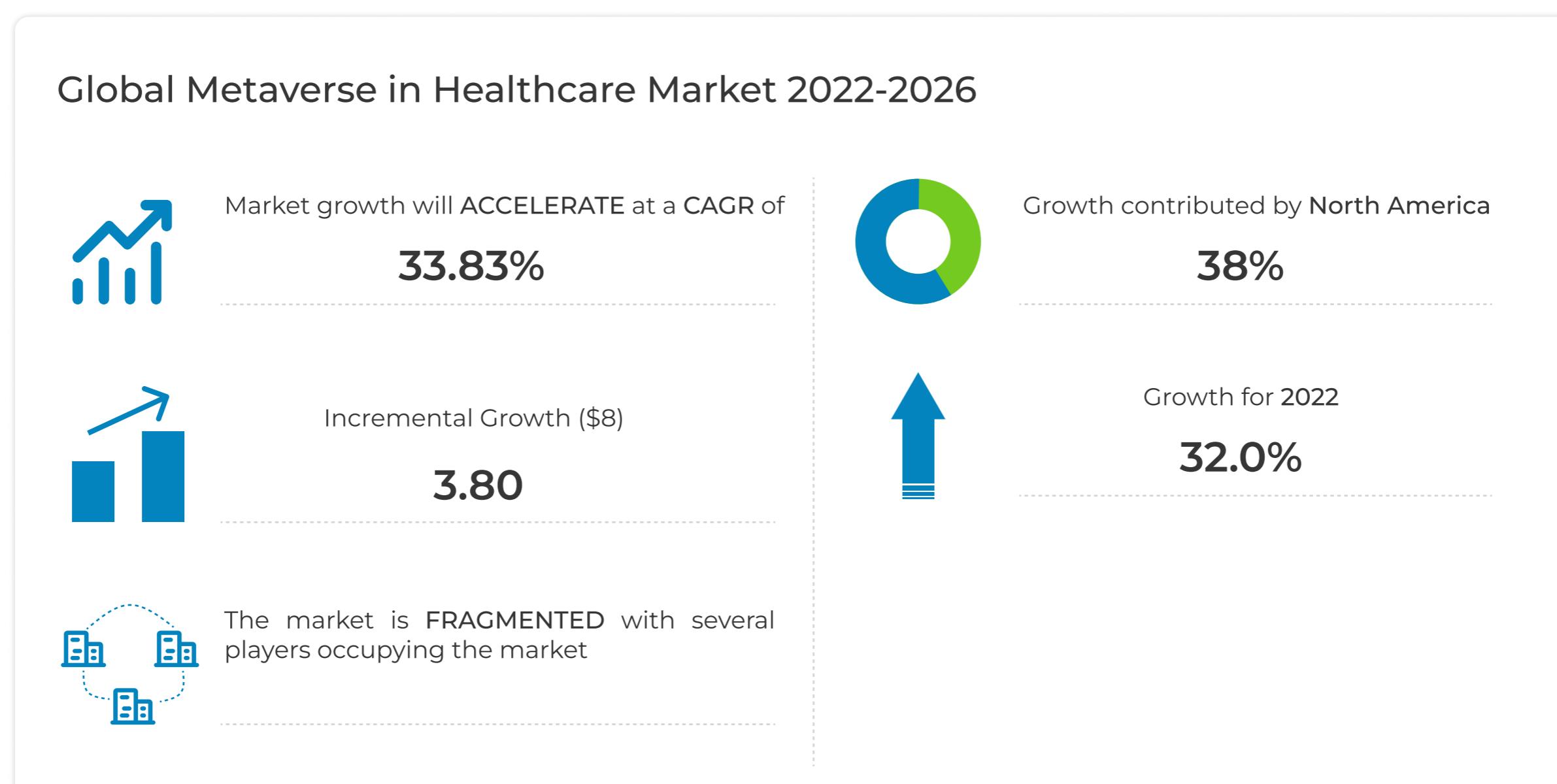
■ Teleconsultation

While telemedicine has recently experienced widespread use during the epidemic, the metaverse has the potential to improve its capabilities even more. It would allow patients to wait in a virtual office and see the physician in a 3D location, making the consultation more informative and intelligent.

■ Collaborative Procedures

The metaverse allows doctors and surgeons to communicate information about complex surgery. Specialists can also provide guidance remotely during the surgery. AR and robotics technologies are already being used in operations. Johns Hopkins neurosurgeons have employed augmented reality to remove a malignant tumor from a patient's spine. The metaverse would be an additional step in improving the capabilities of these technologies.

Source: [Technavio](#)



What Market Factors Are Driving The Metaverse In Healthcare?

There are numerous advantages to using the metaverse in the healthcare business. Artificial intelligence, augmented reality, and robots are rapidly being used in the healthcare business to enhance patient outcomes, boost the effectiveness of medical equipment, and promote better communication between patients and healthcare providers. This is significantly driving market expansion.

Digital twins are increasingly being used in healthcare, which will boost market growth during the forecast period. In the medical field, digital twins can collect vast amounts of patient scan data over time (such as MRI, CT, and ultrasound scans) and integrate it into a single perspective to design therapies and track the progression of diseases and their treatment. Human body replicas, healthcare systems, and even entire hospitals have been employed in a variety of scenarios. For example, EMPA researchers are using hundreds of avatars of real patients with chronic pain to anticipate and improve the effects of drugs. Through digital tracking and human body modeling, the use of digital twins in healthcare is revolutionizing clinical operations and hospital management.

Furthermore, blockchain is an important component of the metaverse in the field of healthcare since it enables democratically governed decentralized communities through smart contracts and a record of digital ownership of surroundings or even things in the virtual world. The most well-known blockchain application in healthcare is the management and security of our incredibly valuable health data. There are numerous benefits connected with the metaverse, which are projected to fuel market growth, and technological advancement is driving demand for metaverse in the healthcare market.

Furthermore, Metaverse will be used to add a virtual office where patients and doctors can consult in a 3D clinic or any other location to telemedicine sessions. As a result, the user experience for teleconsultation services is expected to dramatically improve. Patients in remote areas who would otherwise have to travel a long way will gain the most from it. Another area of healthcare where the metaverse can be extremely beneficial is therapy. Patients can interact with unpleasant situations in safe environments where every aspect of the interaction can be carefully controlled and overseen. These are the variables driving the metaverse market.

Market Restriction

Over the forecast period, market constraints could stem from patient data privacy issues. Connected devices and their interdependent systems face an existential threat. The same holds true for medical devices. The healthcare industry has been a target for cybercriminals due to the enormous data sets that healthcare organizations hold, which contain sensitive financial and medical information; these hazards will also exist in the metaverse.

Market Possibilities

In the healthcare industry, applications of the metaverse that are widely used to explain insurance policies, provide virtual patient care, conduct fitness instruction and physical treatment, and provide remote supervision and educational training are all creating profitable market expansion potential. The increased adoption of technology in the healthcare business will fuel future potential. Many applications in the healthcare sector are being developed by Metaverse.

Market Difficulties

During the projection period, the high cost of hardware and high-tech gadgets may be a hurdle for metaverse in the healthcare market. The shortage of electronic components, combined with rising inflation, is driving up the cost of hardware devices, which may stymie industry growth.

The Top Three Healthcare Businesses Focusing On Metaverse Are:

■ Latus Healthcare

It is creating a "virtual hospital." It consists of a virtual reality hospital environment where treatments will initially focus on physiotherapy services.

■ iMining

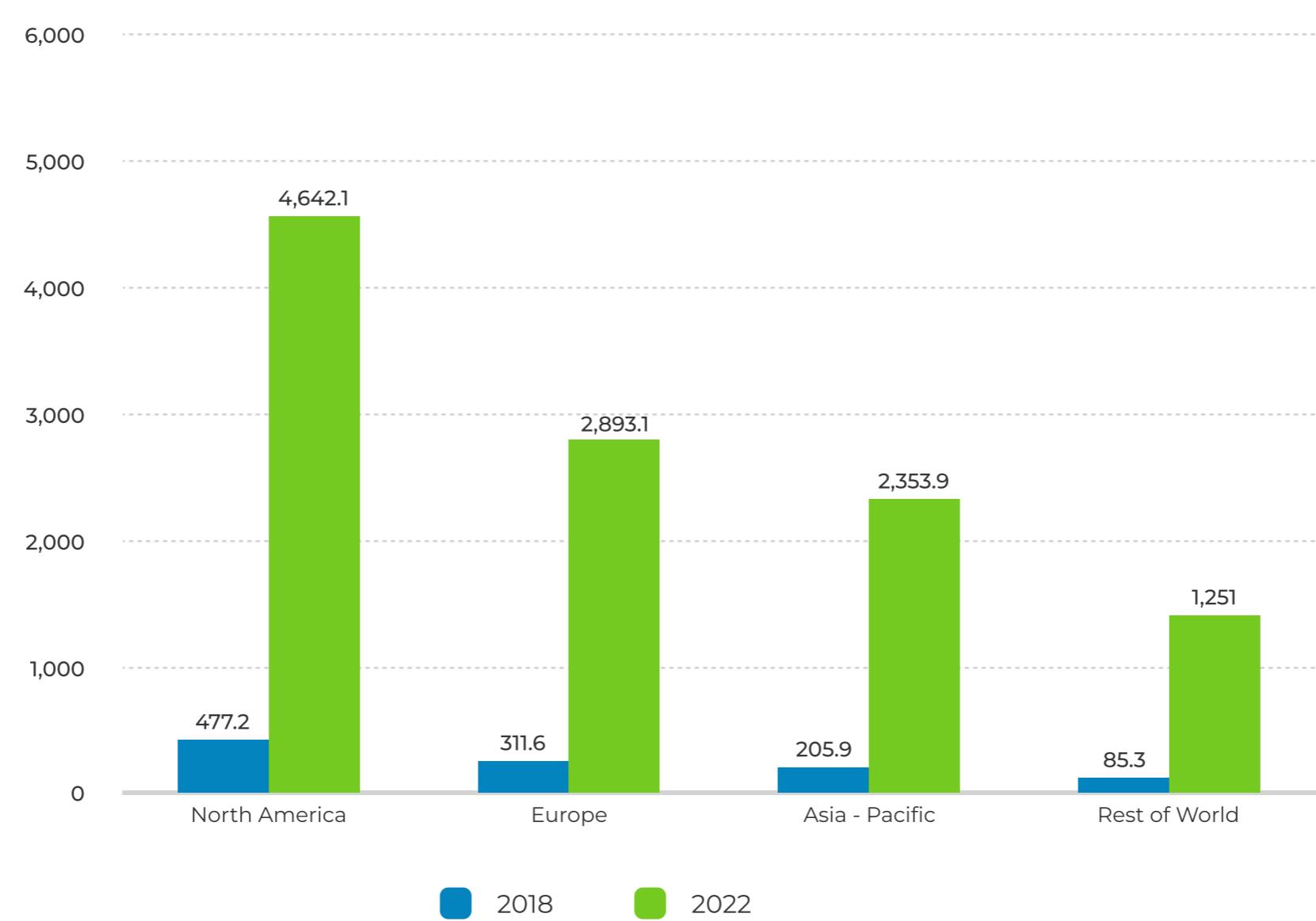
The Decentraland Metaverse's first hospital foundation.

Apollo Healthcare

The Apollo hospital group has launched a unique relationship with '8chili Inc' to enable involvement in the metaverse.

Source: [BIS Research, Statista 2021](#)

Global healthcare AR and VR market in 2018 and 2025, by region (in million dollar U.S)



11. METAVERSE IN SPORTS

The metaverse has enormous potential in the sports industry. It can be used to build virtual stadiums in which fans can watch games and interact with one another. It can also be used to build a virtual training ground for players to hone their skills. Furthermore, metaverse can be used to create virtual worlds in which fans can explore and learn more about their favorite teams and players.

The Use Cases of Metaverse in Sports

■ Consume sports - Better than ever

Sports fans will gather in a virtual sports arena with their virtual avatars to buy and wear fan merchandise from their favorite clubs, socialize, celebrate sports with other fans, and, of course, watch games and events. Of course, there are no longer any geographical or physical barriers. Any number of German fans can watch the Superbowl in a Metaverse stadium in the Metaverse.

Spectators can even enter the field and walk alongside the players, join the football cheerleaders, and watch the game from various vantage points thanks to multi-view camera technology. Finally, Metaverse allows people to sit in the same room as their friends, even if they are physically miles apart.

In the Metaverse, fans will not only be present at sporting events, but will be right in the middle of them, from the comfort of their own home on the couch or computer chair.

Once again, this appears to be an unattainable vision of the future, but the Metaverse is a step further than you think. Manchester City is the first soccer team to announce that the Etihad Stadium will be virtually recreated in the Metaverse. This will allow soccer fans to watch live matches without having to physically enter the stadium. Here, development has already begun.

■ Fan Articles as NFT

Manchester City's archrival has already arrived in the metaverse. Manchester United has begun creating and marketing digital fan merchandise in collaboration with Tezos (XTZ). Fans can purchase these as NFTs, collect them, and wear them in the Metaverse in the future.

With its NBA Top Shots project, the NBA has also relied on digital fan merchandise since 2020. In this case, on trading cards, specifically video trading cards. Each digital video trading card depicts a significant moment in NBA history and can be collected and traded as NFTs. The most expensive moment to date sold for \$387,600 and features a dunk by LeBron James of the Los Angeles Lakers from their game against the Houston Rockets on February 6, 2020. Kobe Bryant, a Lakers legend, had died in a helicopter accident 11 days earlier. LeBron James paid tribute to his late friend with his dunk.

These examples demonstrate unequivocally that this digital driving experience provides lucrative opportunities for rights holders and manufacturers. Above all, the concept of "owning" virtual objects opens up a slew of new revenue opportunities for businesses.

■ Sports Training Opportunities in the Metaverse

But it's not just the way we watch sports and the digital fan experience that will change. The metaverse will also have a significant impact on sports training. Videos have been an integral part of sports training since the advent of platforms such as YouTube, particularly for newcomers to sports or self-taught athletes. Fitness programs and sports apps were also made possible for the first time by mobile Internet and smartphones.

The Metaverse is likely to bring about advancements in this area as well. Fitness coaches appearing as holograms in one's own living room, as well as training sessions with the world's best sports trainers, even if they are on the other side of the world. There appear to be no bounds to the possibilities here.

Companies like smart bike manufacturer Capti are already working to bring sports training into the metaverse. Unlike well-known manufacturers Peloton and Zwift, Capti's gamified cycling platform is based on Unreal Engine 3D worlds. This allows the platform to work with existing virtual worlds. In this way, it's possible to use your own bike for Mario Kart races or simply to get around in a digital parallel world like Second Life.

12. METAVERSE IN BANKING AND FINANCE

In August, Decentraland launched the first ATM in the metaverse on its platform. Players can use the ATM to easily buy cryptocurrency in the metaverse similar to using an ATM in the physical world, thanks to a collaboration with Metaverse Architects studio and Transak payment gateway. Property owners on Decentraland can also add an ATM to their virtual land for easy access to cryptocurrency, similar to how a physical establishment would add an ATM for easy cash access.

JPMorgan Chase became the first bank to open a lounge and an office in the metaverse in February. The opulent space debuted on Decentraland in tandem with a paper released by JPMorgan's blockchain arm Onyx outlining what JPMorgan believes is the future of the metaverse, including a line stating that the metaverse will "infiltrate every sector in some way in the coming years."

In March, American Express registered trademarks for a virtual marketplace and cryptocurrency services in the metaverse. Its digital filings for real-world services include card payment services, an ATM, banking, and fraud detection services, as well as entertainment, travel, and concierge services for its virtual clients.

Quontic, an adaptive digital bank, provides banking services through its virtual offices. Its debit card, which debuted in April, includes Bitcoin checking reward accounts as well as cash and high-interest checking accounts. Its digital outpost includes a teller, posters and website guides, and an interactive ATM. Visitors can enter a meta-pool party and receive a free NFT by opening a bank vault via the ATM. This summer, Cogni purchased a collection of NFTs from Bored Ape Yacht Club and is developing a Bored Ape debit card for a new range of Web3 experiences for customers.

In March, HSBC announced plans to open a metaverse office on Sandbox, and Siam Commercial Bank announced plans to launch a virtual headquarters on Sandbox as well. Financial services do not end with meta-banking: Visa began cryptoliteracy services in December 2021, and Mastercard in February of this year.

■ The information flow:

Managing the information flow between the various groups in logistics presents another significant problem. If the commerce is international, more entities enter the process, making it more complicated.

Use Cases of Metaverse in Banking and Finance

Orange Box: Reinvent existing customer and employee interactions.

Banks will be able to create 3D customer and employee experiences using AR and VR technology.

- Blue Box: Customers can use AR/VR channels to check balances, pay bills, transfer funds, and transact in the metaverse.
- Blue Box: Employee encounters, Providing engaging learning experiences in the safe environment of simulated customer environments, or onboarding remote workers in ways that foster fun, connection, and a sense of community

Orange Box: Engage customers in new directions.

Banks can reinvent how they interact with customers by providing personalized advice, providing empathetic service, and fostering trust. Customers could interact with an avatar at home or go to a physical location that provides metaverse experiences.

Blue Box: Personalized Interaction:

Providing personalized service to customers seeking sophisticated products. Personalized financial advice, such as virtual annual portfolio reviews, financial planning sessions, and mortgage product recommendations

Blue Box: Marketing and brand extension:

Virtualizing familiar brand interactions such as ATM withdrawals, branch placement, branding, and endorsements. Also, making environmental, social, and governance credentials more vivid and emotive.

■ Invent new products and services

There are opportunities for banks to tap into the metaverse's burgeoning economy with novel banking products and services as a source of growth.

■ Digital payments

Facilitating secure wallet functionality and payment rails for metaverse products, services and economies.

■ Digital assets

Banks can extend their role as custodians of customers' assets to the metaverse by securing, insuring and lending against cryptocurrency, NFTs and virtual real estate.

■ Digital twins

Recreating a virtual twin for an asset or property like a home or bank branch. Imagine touring a perfect VR recreation of a home you might be interested in buying rather than simply browsing 2D photos and video. A bank employee could use the digital twin for underwriting the loan.

■ Education and Training

The metaverse is also an excellent tool for banks to train and enlighten their employees. Banks can use virtual branches to educate customers and train employees by simulating real-life customers and scenarios. Banks may also be able to assist the younger generation in understanding good savings culture and loan processes, which will enable them to develop loyalty and customer retention.

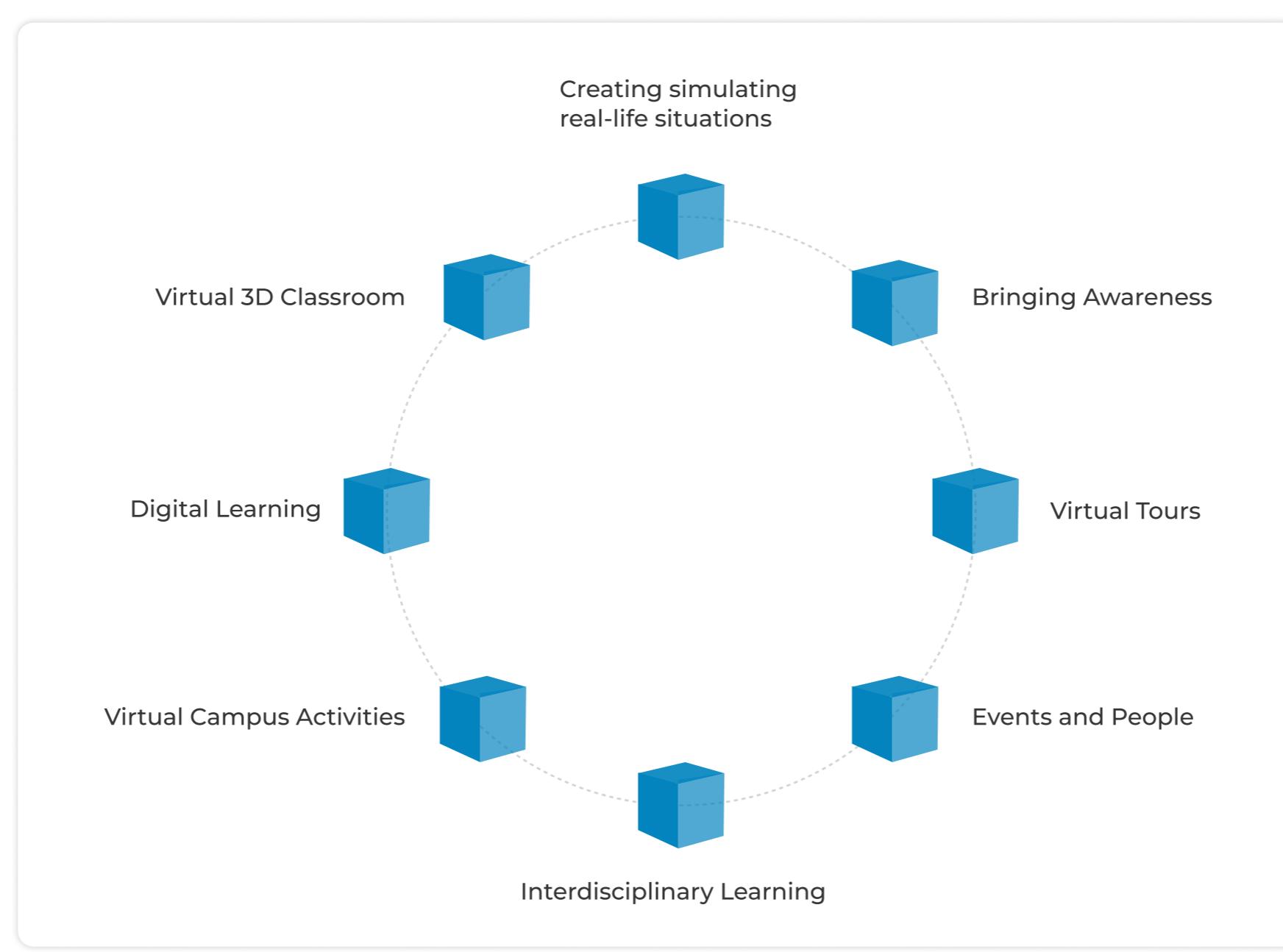
Bank of America is currently training its employees in over 4000 financial centers across the country. Fidelity Investments, a global financial services company, has launched The Fidelity Stack, a metaverse experience that teaches customers the fundamentals of investing using new technology.

13. METAVERSE IN EDUCATION AND LEARNING

Consider a classroom full of students as the history teacher delivers a lecture on the Harappa civilization, the Indian subcontinent's earliest known urban culture. Instead of reading from a book, the teacher takes the students to Harappa in Punjab, then to Mohenjo-daro near the Indus River in Sindh. A timeline of events is projected in front of the students, and they walk around the sites, discovering, asking questions, and learning.

In the metaverse, a virtual recreation of the real world, this is how education will look in the future. Users and developers can customize it to their preference.

The Use Cases Of Metaverse In Education And Learning



■ Connect and learn in an immersive virtual campus

Learning had already begun to shift from physical classrooms to more virtual and blended spaces prior to and during COVID-19. The metaverse enables immersive campus life, in which students wearing virtual reality headsets enter a virtual campus or university to learn, explore, and socialize. Learners can, for example, explore different learning pods, visit libraries and breakout rooms, meet coaches and counselors, and socialize with peers in this digital space.

■ Connect and learn in an immersive virtual campus

Learning had already begun to shift from physical classrooms to more virtual and blended spaces prior to and during COVID-19. The metaverse enables immersive campus life, in which students wearing virtual reality headsets enter a virtual campus or university to learn, explore, and socialize. Learners can, for example, explore different learning pods, visit libraries and breakout rooms, meet coaches and counselors, and socialize with peers in this digital space.

These digital experiences have the potential to truly democratize education by bringing people from diverse economic backgrounds and geographically dispersed locations together to learn in a costeffective, flexible, and faster manner. For example, the planned Kenya-KAIST virtual campus, located 60 kilometers from Nairobi's capital city, will allow the institution to extend its reach across continents in September 2023, enabling students to learn together on cutting-edge topics without having to leave their home countries.

■ Improve real-world proficiency in virtual and hybrid environments

The metaverse offers experiential, embodied skilling opportunities through real-world scenarios and high-pressure situations in which mistakes can be made without repercussions. It combines VR with data science and spatial design to improve learner engagement, confidence, and application when well designed. Some of the advantages of training in the metaverse include:

■ Learning through experience

Novartis, a pharmaceutical company, uses high-fidelity, multiplayer VR simulation to train life-saving lab skills. Students enter a virtual lab where they can interact with instructors while practicing welding tubes, removing bag caps, and labeling bags with unlimited redos.

■ Conscious practice

The metaverse offers intense practice and feedback loops, allowing learners to hone skills by practicing many variations of a concept. Walmart's Spark City game is unique each time it is played. If customers appear within 10 feet, players must ask if they can assist, but only after addressing spills and other safety hazards.

■ State-dependent education

Responding to microaggressions in the workplace causes psychological stress at Providence Health. A live actor captured in 3D volumetric video appears as a hologram standing in the room in front of you through the camera lens of your phone or tablet, for learning and retrieval to take place under the same conditions.

Explore different worlds through visualization and storytelling

Visualization and storytelling are two hallmarks of a metaverse learning experience, and they are desperately needed today after the deluge of dull Zoom experiences at COVID-19. Learners can step into an entirely different world or into the shoes of another person using VR technology. DaVita, for example, uses an interactive, multi-sensory first-person story to build patient empathy.

Entering metaworlds makes it easier to visualize scenarios, including complex development challenges. A learner, for example, can use a VR headset to investigate a street transformation in South Asia or to experience life in a green Smart City. Learners "enter" critical global development challenges such as climate change, education, gender, urban development, international trade, and public health through bite-sized 360-degree stories, virtual tours, and visualizations.

Improve human capabilities in interpersonal and difficult situations

Soft skills training for employees, such as communication, leadership, listening, and empathy, is difficult to achieve and measure. The metaverse facilitates this by immersing learners in real-world conflicts and allowing them to practice soft skills, such as having sensitive or difficult conversations with employees or customers, in a safe environment.

Safety training scenarios involving robberies can create a sense of danger and overwhelm for Verizon employees. Verizon used virtual reality to train over 22,000 associates across 1,600 stores for this complex scenario; the company reported that 97 percent of those trained felt prepared when placed in such dangerous situations.

Improve accessibility for people with disabilities

The metaverse has the potential to improve educational and social opportunities for people with disabilities. An immersive environment, for example, allows young adults with special needs, autism, and social interaction issues to improve their interpersonal and job skills through activities such as visiting a mall or grocery store, shelving products at a store, or loading goods into a truck. They can practice skills and interact with others in a safe environment using VR apps without feeling overwhelmed or anxious.

VR can also help people who have mobility or anxiety problems improve their quality of life. For example, the Starlight charity uses virtual reality technology to allow pediatric patients to "escape" the confines of their hospital room and be transported to another world. They can use VR goggles to play soccer, hang out with friends, or travel to faraway places.

■ Increase data collection on learning performance.

Creating immersive learning experiences in the metaverse enables organizations to collect previously untapped data to gain insights into learner behavior in order to track progress, identify gaps, and continuously improve the learning experience. Usage, performance, attention and engagement, sentiment, and predictive analysis are all examples of useful data on learner actions. Teachers can also take a more active role in gathering data and analyzing lessons on the effectiveness of such learning environments. Hand movements, for example, are tracked in Pfizer, Novartis, and Bristol Myers Squibb's pharma sims. If users cross their hands or angle them incorrectly under the biosafety cabinet, the sim delivers rapid feedback and restarts. Every digital footprint can be quantified, and a telemetry data dashboard may provide actionable information to improve the simulation experience.

Following the internet, the metaverse literally means "life." Virtual campus activities, 3D simulations, and gamified activities are examples of early implementations of this new form of learning. This is just the beginning—there are limitless possibilities for reimagining and democratizing education using this technology.

14. METAVERSE IN EVENT INDUSTRY

The purpose of the majority of events is to bring people together for a common, worthwhile experience. All participants are sharing in an event that is meaningful to them, whether it is roaring spectators at a sold-out stadium, a private poetry reading, or a business conference that is reshaping an industry.

We now have more tools than ever before to design, shape, and access these shared experiences. After all, technology has played a significant role in events throughout history. Video broadcasts allowed spectators from all over the world to watch events, and microphones amplified speakers and artists. The internet increased accessibility and enabled higher levels of interaction and communication among attendees.

What's The Difference Between Digital Events And Metaverse Events?

It's reasonable to claim that many individuals are unaware of the Metaverse or confuse it with existing digital solutions. If you fall into this category, be sure to read our explanation of what the Metaverse is. For the time being, let's summarize: this is a virtual environment accessible via VR where anyone can work, play, and engage in other activities, including communicating with others.

With That In Mind, You Might Be Wondering, "Well, We Already Have Digital Events And Entertainment Online, So What's New About This?" Let Us Investigate More.

■ Hardware

Because the metaverse revolves entirely around virtual reality, VR headsets are required to access it. VR hand controllers, gloves, and other sensors may also be integrated to enable more accurate motion tracking. While the gear required for traditional digital events (a PC or smartphone) is unquestionably more demanding, it provides greater immersion and capabilities.

■ Avatars and interactions

Every individual in the metaverse is reflected by an avatar. It can be humanoid, animal, or anything else as long as it allows them to express themselves and engage with the online world. Although digital avatars have been used for decades, metaverse avatars are designed to more correctly interpret user movements and expressions, as well as have additional functionality built in to interact with the virtual environment and users.

■ Constraints

Prior to the appearance of the first Metaverse events, virtual events were often hampered by constraints. For first, most of them were held on platforms such as Hoppier, Weve, and Mixily, which offered a basic set of interactive and media elements, but this one-size-fits-all approach limited the breadth of interactions and functionality that many organizers would like to use. Furthermore, several of them impose severe constraints on the user populations that may be sustained. Businesses, on the other hand, generally create their own Metaverse platforms, allowing them to include all of the features and capabilities that they want.

What Are The Advantages Of Using A Metaverse In Event Planning?

Everyone understands that just because something is new does not imply that it is superior to all that came before it. However, the Metaverse offers enough benefits and value to justify its position as a worthwhile investment. Here are just a handful of its benefits:

■ Greater immersion and excitement

Even though virtual reality has been available for over 6 years, its "wow factor" has yet to wear off. In other words, people are enthusiastic about using it, and any event offered through it is going to generate a lot of attention and interested attendees. You can create a next-level immersive world using powerful Unity metaverse development tools or other specialized applications.

■ Possibility of reusing

Any event platform designed in the metaverse has a fair probability of longevity and a wide range of applications. After all, as long as the software and hardware remain operational, the platform may be utilized for events and new functionality can be introduced. It might also be leased to other providers using the SaaS business model or sold entirely.

■ Opportunities in next-generation technology

The metaverse is frequently cited in combination with bitcoin, blockchain, and NFTs, all of which are current hot technologies. By incorporating some or all of these technologies, event managers may also future-proof their platforms and attract new investors. They could, for example, include digital objects and NFTs in events that can be purchased with a crypto token, or they could record critical data from events on the blockchain.

■ No space constraints

Unlike events staged in music halls, conference rooms, and stadiums, metaverse platforms can accommodate an almost infinite number of people, and everyone can be in the front row of the action - no shoving or early queue required.

■ Simple personalization

In addition to the previously mentioned unlimited sitting area, the features and interactions available in metaverse event platforms are extremely diverse. Any organization may apply their creativity and business plan to come up with a unique list of features, functionality, and content that will make them shine and make it happen through the software as long as they have a hold on development.

What Kinds Of Events Can Take Place In The Metaverse?

With hundreds of platforms either installed or in the works, the Metaverse is already gaining a foothold in this unique market. To provide context, we've included some of the most typical use cases:

■ Expos and conferences



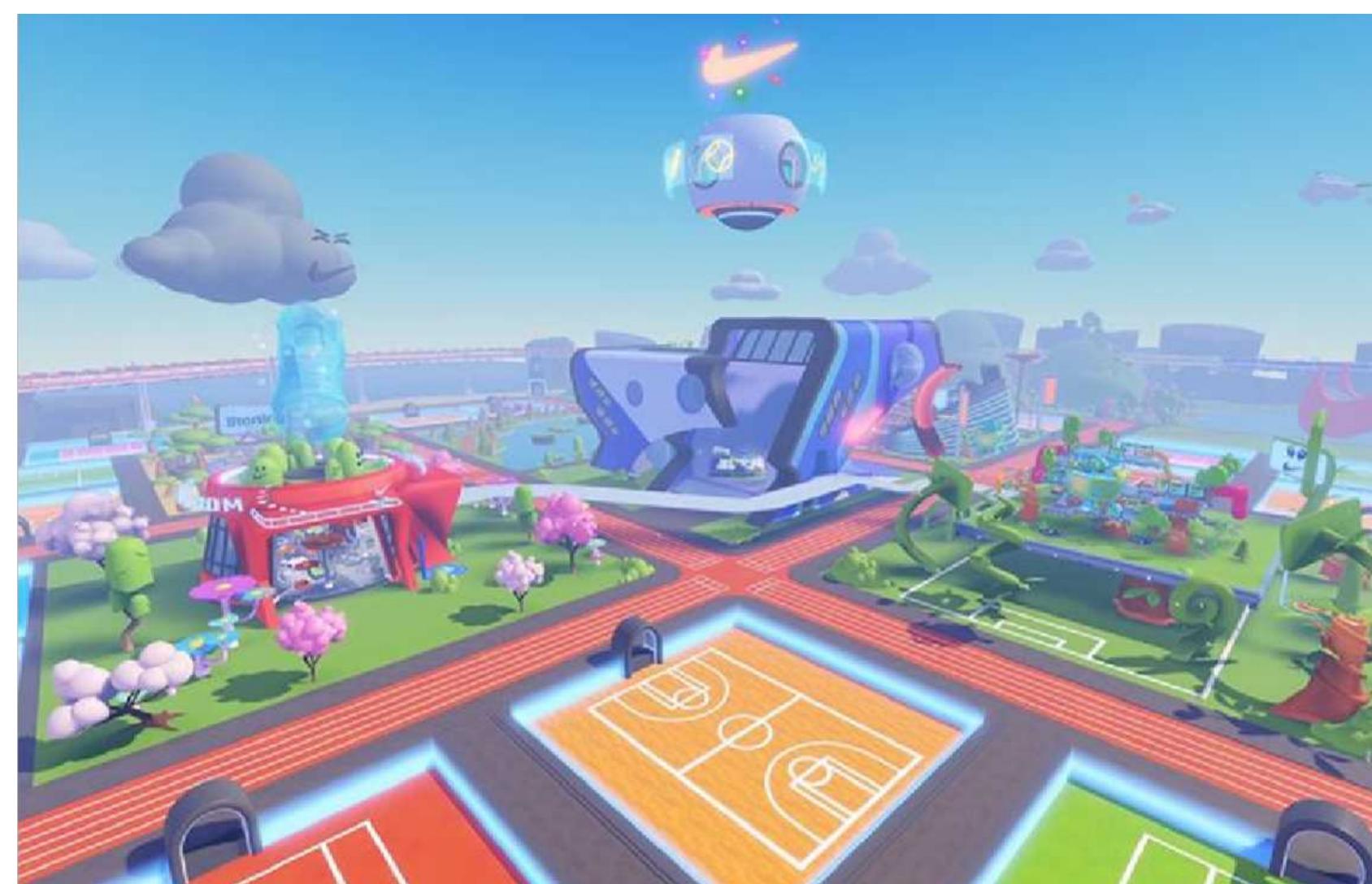
It is quite simple to design expo halls and exhibitions in VR, so you may benefit from a rapid development cycle or take the time to add exciting features like animations, user feedback, and others.

■ Live performance entertainment



Concerts are already taking place in the metaverse, and they may soon be joined by movie premieres, celebrations, festivals, and other loud and visually vibrant events.

■ Sporting events



Some sports leagues, like as the NBA, have already embraced immersive experiences combined with live games. While spectatorship is popular now, future events may allow users to put bets, buy NFTs, and express their emotions at stadiums and contests.

■ Fashion displays



The metaverse is an excellent venue for fashion presentations and galas, with fashion items represented by 3D models or streamed real-life photos/footage into VR. Big brands in the business, such as Prada and Balenciaga, have already begun to deliver on this front.

What Are The Difficulties Involved With The Metaverse?

Although the benefits of the metaverse for the events sector speak for themselves, there are some hurdles that event professionals must consider before jumping in;

■ Accessibility

Although people in the United States and Europe may have high-speed fiber-optic connections in their homes or offices, not everyone does.

When preparing an event in the metaverse, event organizers must pay close attention to where their ideal attendees are. Assume your ideal guest lives in a region where internet speeds and connectivity aren't optimal. In that scenario, you might want to reevaluate your plans for a metaverse event.

AR/VR Technology

Most futurists predict that headsets or AR glasses are required to enter these 3D virtual worlds, which may create a socioeconomic barrier to entrance. However, as the metaverse spreads and demand grows, the cost of VR gear should fall.

"Anyone seriously considering the metaverse should consider alternate ways for guests to engage beyond headphones, which can be a big barrier to admission," Boyle added.

Furthermore, there is no platform parity. Some may be using iOS or Android devices, as well as Chrome or Safari, while others may be utilizing an Oculus or iOS VR set. This diversity of technologies might pose interoperability issues, causing friction in the event experience.

Assume your purpose is to use the metaverse to break down barriers and increase attendance. In that circumstance, it's critical to seek for event technology solutions that allow attendees to interact with the metaverse regardless of the technology they have — or don't have.

"Gear your events toward the person who has the least amount of technology," Carlson says.

Additional Difficulties

Everyone active in the metaverse has learning curves. Attendees, suppliers, and speakers may struggle to adapt to and use the technology, so you may need to make a variety of training films or provide free workshops to get everyone up to speed.

Event planners may also struggle with new technology. Conceptualizing and creating dynamic metaverse experiences may necessitate substantial training, specific relationships, a large budget, and other resources.

Furthermore, the majority of metaverse platforms have limits. Some venues, for example, limit the number of users in a space to 30 to 60 at any particular moment. This may be appropriate for internal training, team meetings, or networking events, but not for a user conference or SKO.

"Live events are intricate." Don't expect it to be simpler in the metaverse," Kebler said. "It is not less complex; it is simply different."

For the best outcomes, take baby steps into the metaverse, identify a partner with experience in the domain, and iterate over time.

15. METAVERSE IN LAW

Anyone interested in cutting-edge technology has likely heard the term "Metaverse." Globally, technology firms have made significant investments in the Metaverse, to the point where even Facebook changed its name to "Meta."

Without a doubt, our society will be significantly impacted by this new technology. Additionally, the Metaverse has its fair share of legal problems, just like any other innovation. The article explains what the Metaverse is and some of the legal fields it might influence.



The Metaverse is a collection of different technologies used in concert to create the illusion of a credible reality in a virtual environment. It is not restricted to any one particular virtual location or universe. These include cryptocurrencies, NFTs, virtual reality (VR), augmented reality (AR), and mixed reality (MR). And because technology has advanced so quickly, the Metaverse surely has a connection to the legal system.

The Metaverse's Impact On Some Legal Aspects

■ Intangible property

The IPR implications of the many technologies that make up the Metaverse are vast. Virtual reality (VR) and augmented reality (AR) are being used by artists to create novel works of art that have never been thought of before. These artistic creations are unquestionably unique and should receive the proper IP Law protections.

Non-Fungible tokens serve as a bridge between intellectual property law and the metaverse (NFTs). Cryptographic assets called "non-fungible tokens" are identified by specific identification numbers and other metadata.

A NFT is a type of digital asset that mimics real-world goods like music, artwork, movies, and in-game items. Because they share the same underlying software as many cryptocurrencies in their encoding, NFTs are frequently exchanged and bought online using cryptocurrencies.

The idea is implied by the name: a non-fungible token is one that is distinct from other tokens and cannot be exchanged.

NFTs have been incorporated into Chapter 3 of the Finance Bill, 2022, which defines "Virtual Digital Assets" (VDA) in India. There are concerns with the regulation of NFTs because the legal status of VDAs is ambiguous in India.

Numerous images and movies depicting NFTs have cost thousands of dollars to produce. And this is when problems begin to arise. If the creator of an image creates and releases an NFT of the image, the NFT's owner will only possess a copy of the original. NFTs are not necessarily protected by intellectual property laws. The underlying work on which an NFT is based is not owned when an NFT is owned.

Even though the NFT has a special key that certifies its ownership, in the end, what is owned is a duplicate. If the genuine owner of an image decides to forbid any copying or sale of their creation, it could cause issues in the future. Furthermore, it would be challenging to enforce such copyrights due to the decentralized nature of the blockchain. It would be considered infringement if someone created an NFT without owning the original piece. If the claimed infringer is anonymous and impossible to find, how can the owner forbid someone from copying their works?



Contracts and Business

The Metaverse has already begun to resemble some aspects of the commercial world. Numerous retail and clothing websites use augmented reality (AR), which enables customers to test out things in real time without actually owning them.

Smart contracts are another application of the Metaverse that has gained popularity in recent years. Smart contracts are agreements that automatically take effect when certain criteria are met. Payment to the parties may be made effectively upon receipt of the merchandise if the transaction involves a sale. Such agreements do away with the necessity for middlemen, saving the parties time and money.

Additionally built on blockchain technology, smart contracts guarantee security and transparency. An open, distributed ledger that stores transactions in code is known as a blockchain. A blockchain is made up of a "chain" of these blocks. Transactions are stored in "blocks." Since these ledgers are encrypted, it would be incredibly difficult to hack them.

NFTs also have a place in business in addition to smart contracts. NFTs can also stand in for digital real estate, which is becoming more and more popular these days. The cost of a single plot of land in the Metaverse has risen to thousands of dollars.

Some problems have emerged as a result of these advancements. How much of this "virtual property" can be considered real estate? If so, will land in the Metaverse be governed by current land laws? Will this land eventually be subject to separate taxes? The most crucial question is whether these plots constitute moveable property (because of their freedom of transfer) or immovable property (assuming they are truly "land").

Smart contracts also have a number of problems. Their decentralized and encrypted nature is both a benefit and a drawback. The blockchain is independent of any centralized authority since it is decentralized. It would be extremely challenging to track down the perpetrator in the event of fraud or misbehavior so that charges could be brought against them. Additionally, any successful scams or hacks would be difficult to track down because the blockchain is encrypted.

Currently, the law provides remedies for anyone who have fallen victim to fraud or schemes. However, if someone has lost thousands of dollars in Ethereum to an unidentified third party, their money may already be out of their hands.

■ Safety and Privacy

The most innovative thinkers in technology of our time have big hopes for the Metaverse. The goal is to develop a virtual environment in which a person may totally immerse oneself and encounter things that weren't previously thought to be conceivable.

Even if this concept seems like a contemporary utopia, there are several issues with it. The breach of a person's right to privacy is the main defense used against the Metaverse. Critics worry that integration with the Metaverse may cause us to breach boundaries that are best not crossed because major corporations and social media sites already have access to the majority of a person's data.

Currently, if we start an app, we typically allow access to it. Because privacy policies are now so covert, some people believe that simply visiting a website constitutes consent to have their data accessed. It is frightening to consider how far these regulations might be implemented in a time when VR is a commonplace component of daily life. It's possible that future technology may allow users to fully access their virtual lives, study their brainwave patterns, and scan their retinas while donning a headset.

In 2060, a person may be living a virtual life without realizing that Big Data is watching their every move and waiting for them to do something that will allow them to receive appropriate adverts. A chip that connects to the brain and transports one into a virtual world is the basis of many science fiction films.

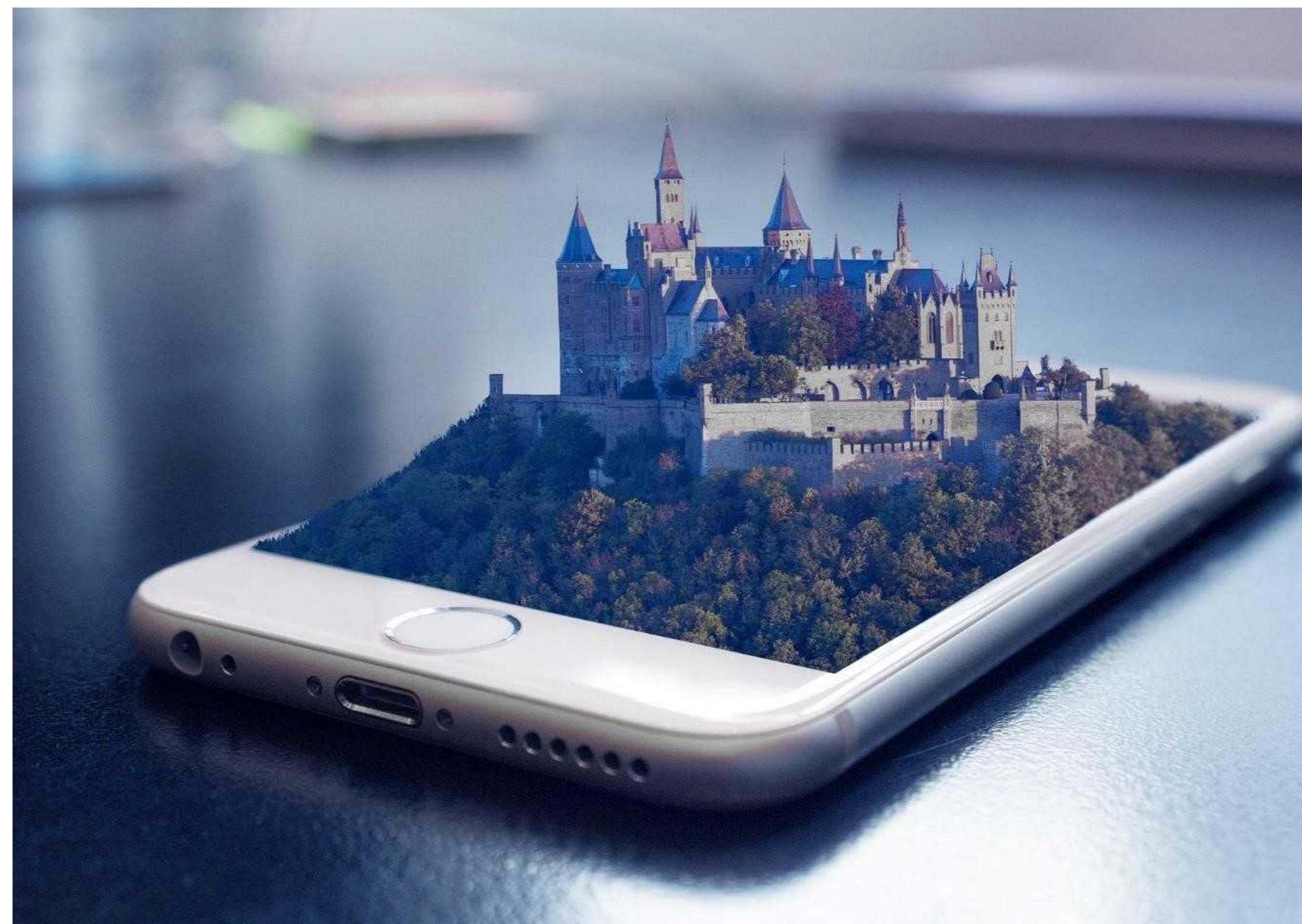
Future chip production by a corporation would make the aforementioned issues even worse. Hacking Facebook accounts is nothing new, so it's not unlikely that a brain-linked chip might also be compromised. Due to the fact that such technology is already being created, this situation is no longer just a fantasy.

What kind of information may we gather if we enter a virtual world? Who has the power to make that happen? Can consent be considered informed if privacy regulations are inserted strategically? Who is responsible for enforcing data privacy laws? How can people be shielded from online threats?

Conclusion

The Metaverse, like any new technical advancement, might either be a blessing or a curse, depending on how it is used. To keep up with the quick rate of growth, quick regulatory and legal adjustments may be required. The Metaverse would undoubtedly advance human society to new heights if proper corporate accountability was enforced and consumer privacy and security were protected.

16. METAVERSE IN TRAVEL AND TOURISM



New methods for social interaction and digital interactions in connected virtual worlds are defined by the metaverse. Therefore, a metaverse's implementations in many use cases, such as tourism, can offer a number of intriguing benefits.

A brief introduction of metaverse tourism could show that the metaverse is capable of much more than just entertainment and video games. The discussion that follows gives you a thorough knowledge of the effects of metaverse on tourism as well as an introduction to metaverse tourism. Along with the best practices for utilizing metaverse capabilities in tourism, you may also find real-world examples of metaverse tourism.

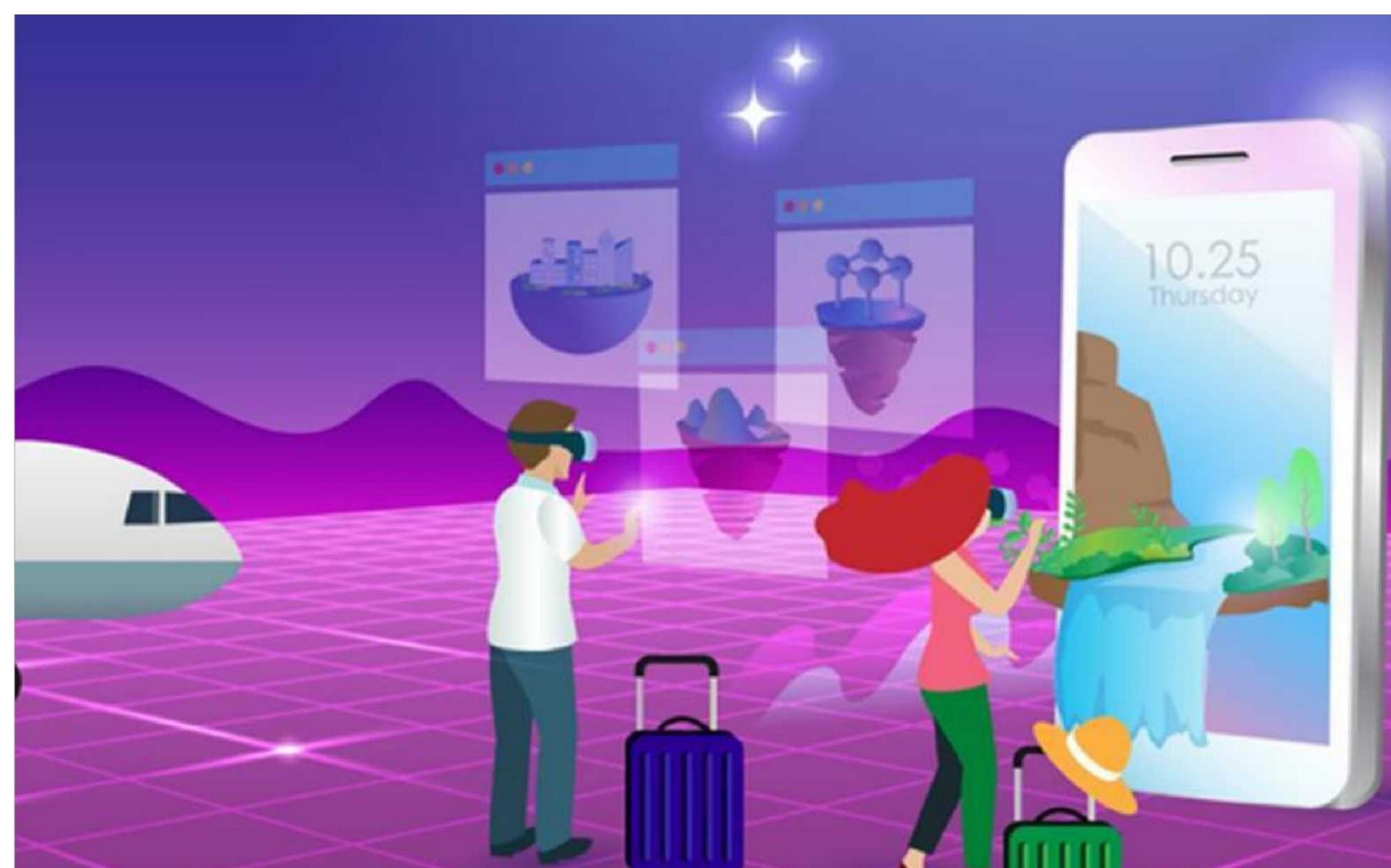
Tourism And Metaverse Relationship

The impact of the metaverse on travel guides would require a thorough understanding of how the metaverse and tourism can coexist. To acquire a credible understanding of metaverse tourism, you must have a distinct understanding of the metaverse and the travel and tourism sector.

The current recognized description of the metaverse depicts it as a digital platform that provides users with immersive digital experiences in decentralized settings. The 1992 science fiction book "Snow Crash" is when the phrase "metaverse" first appeared. The immersive 3D virtual worlds in the metaverse can be accessed by donning virtual reality goggles.

Users can also communicate with virtual items and other users by using motion-sensing controllers and microphones. The collection of various interconnected digital domains would be the best way to describe the metaverse. Users can explore many methods to connect with virtual locations in the metaverse and develop their own avatars, games, and objects there.

Understanding the definition of the tourism industry is essential for the consideration of examples of metaverse tourism. Transportation, entertainment, food and drink, and lodging are some of the crucial components of tourism. Numerous additional activities fall within the purview of the tourism sector.



What connections exist between the tourist and metaverse industries? The ability to create virtual copies of real-world things and locations is a blatant example of the relationship between tourism and the metaverse. With the convenience of your home, virtual reality or VR headsets can enable you experience distant places virtually. The metaverse, however, is much more than just virtual reality experiences, thus it's crucial to distinguish it from regular tourism. One of the metaverse's many technologies that has the potential to affect travel-related goods and services is virtual reality.

Impact Of Metaverse On Tourism

The advantages of metaverse travel shouldn't send the travel and hospitality industries into a tailspin. You may be confident that reservations for actual vacations won't be impacted by metaverse virtual travel experiences for the time being. In reality, the metaverse would provide a fresh tool for the tourism and travel sector to interact with customers.

Therefore, by utilizing the advantages of virtual tourism, metaverse tourism would seek to enhance the trip experience of consumers. The benefits of metaverse tourism may enable people to travel from the comfort of their homes. The metaverse can be used by visitors to attend a variety of events, including

- Live Performances
- Visits to museum
- Expos
- Casinos
- And club dancing are a few examples

Source: [Technavio](#)



Additionally, the metaverse has made it possible to compare various services like hotels and restaurants. To pick the best option for your vacation, for instance, you may use virtual tours of two different hotels in the metaverse. The reach of metaverse tourism also makes it possible for customers to communicate with hotel chains.

Hotel Impact of Metaverse Tourism

According to the overview of metaverse tourism, the metaverse is still in its early phases and would take a long time to make any noticeable changes. How could hoteliers and other professionals get ready for the metaverse adoption? It's interesting to note that hotels can use the metaverse to better their marketing and sales tactics. The metaverse can also aid in improving hotel revenue management strategies and daily operational practices. Hotels can simultaneously look for new ways to connect with a new target market of virtual visitors and broaden their audience reach.

Tourism Marketing Possibilities in the Metaverse

For travel and hospitality businesses, the advantages of metaverse tourism can also result in positive advancements in marketing potential. Businesses can incorporate more immersive product and service demonstrations into their marketing strategy by providing immersive experiences.

The metaverse could be used by customers to compare various establishments, their offerings, and unique attractions. Professionals in the tourism and hospitality industries can look at a variety of different metaverse prospects for digital marketing. Buying advertisements in the metaverse or doing product placements are a couple of instances. As part of marketing campaigns, the metaverse is a fantastic venue for holding virtual events and distributing brand NFTs.

Source: [Technavio](#)

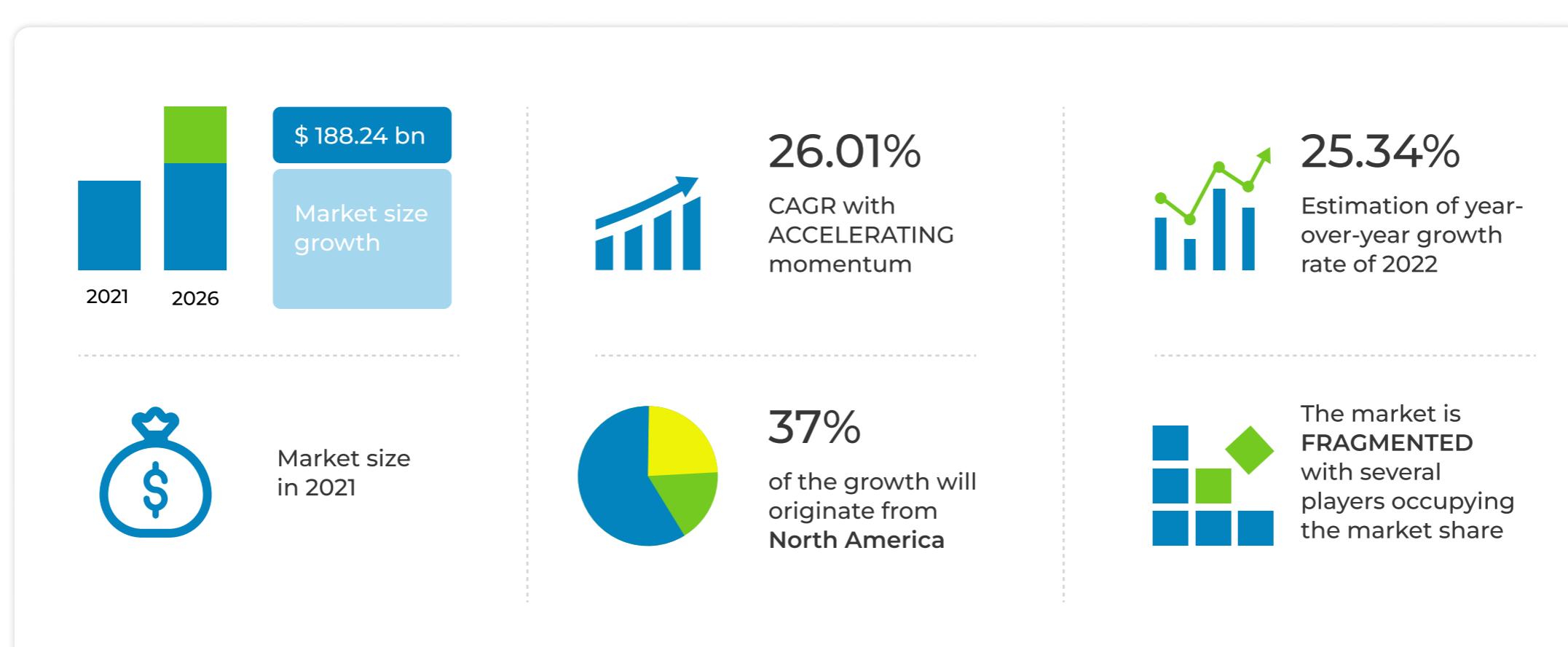


By employing the metaverse for virtual tours of the hotels or venues, travelers and travel planners might schedule vacations and activities. The metaverse can assist by providing interactive floor plans, virtual tours of hotel rooms, meeting rooms, and wedding locations.

Increasing the Metaverse's Tourism Industry's Revenue

Examples of how the metaverse has affected the travel industry point to additional revenue-boosting potential beyond marketing options. The metaverse could be used by hotels to boost weekday bookings and boost the amount of extended-stay reservations. Along with supporting various hotel revenue management objectives, the metaverse can assist hotels in attracting business and leisure tourists.

The metaverse can also be used by hotel industry experts to expand their clientele. For instance, revenue managers might advise prospective clients to look into extra product options, optional bundles, and improved lodgings. The metaverse could be used by event organizers to promote premium ticket sales, such as through a virtual tour of VIP event areas. A wonderful platform for selling tickets to virtual events like seminars and business networking gatherings may also be found in the metaverse.



Increasing the Metaverse's Tourism Industry's Revenue

The greatest method to foresee the benefits of metaverse tourism in the future would undoubtedly be to concentrate on the current scenarios. You may get a general idea of how metaverse tourism will develop in the future by taking a look at the various examples of the phenomenon.

■ Travel and Tourism NFTs

Numerous household names have tapped into the potential of NFTs to strengthen their marketing tactics, including McDonald's. One of the key components of the metaverse are NFTs, or non-fungible tokens, and brand NFTs may increase consumer participation. Marriott Bonvoy, which showcased three NFTs at Art Basel Miami Beach 2021, is one of the most impressive examples of a travel NFT. The three NFTs marked Marriott's entry into the metaverse and were part of the "Power of Travel" promotion. A cryptocurrency auction was held for the digital art NFTs, and interested buyers won them.

The success of loyalty programs is suggested by Marriott's metaverse tourism overview with regard to an example of tourism NFTs. In order to promote interest in and knowledge of their loyalty program, Marriott also launched an NFT countdown clock. The focused NFT marketing strategy unmistakably shows Marriott's competitive advantage in metaverse marketing.

■ Modernizing Tourism Daily Operations

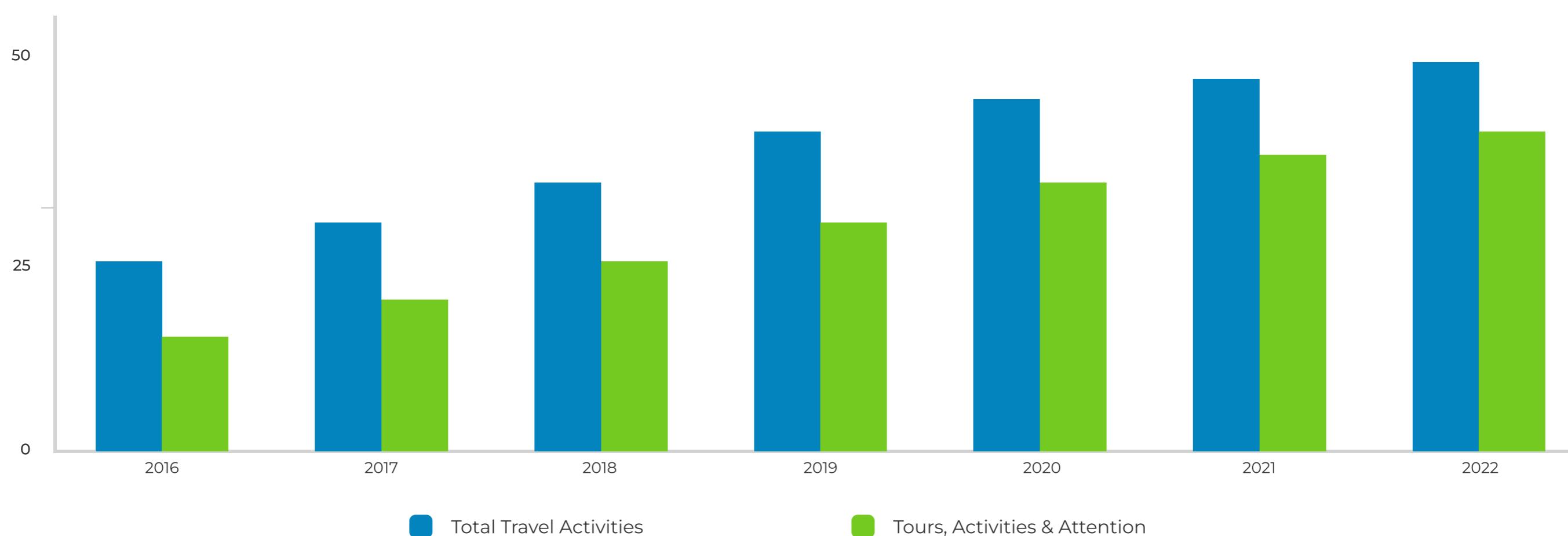
Innovative avenues of communication between tourist industry professionals and their target market may be made possible via the metaverse. The metaverse can also provide fascinating tools for improved internal communication. Tourism and hospitality experts can engage with team members, corporate supervisors, remote employees, and off-site teams virtually with ease thanks to the metaverse. In this situation, Roomza Hotels is one of the top metaverse tourist examples. The tech-based hospitality business intends to launch a "rooms-only" hotel concept that combines digital and metaverse travel trends.

Keyless hotel rooms are available in mixed-use structures that support green business practices. The intriguing feature of Roomza Hotels is that there are no actual meeting rooms or lobbies to explore. On the other side, visitors may use the metaverse to connect with public hotel areas without ever leaving their rooms.

The illustration implies that technology would only be a supplement to the essential component of tourism and hospitality, i.e., people. Through automation of procedures for customer booking and purchases, Metaverse can assist many tourism and hospitality organizations in overcoming their inefficiencies. Businesses in the tourism industry, for instance, might assess changes in labor prices to see if their presence in the metaverse can reduce costs. The benefit of automation working in your favor with tourist metaverse is the most significant of all.

Source: *Experiences 2019. U.S Travel Activities Market Opportunity & Consumer Behaviour. 2019 PhocusWright Inc.*

U.S Total Travel Activities Market (US \$B), 2016-2022



Note: "Tours and Activities" is a subset of "Travel Activities", excluding portions of the activities market such as event and ground transportation.
Please reference PhocusWright's Travel Activities Taxonomy

Augmented reality adoption

The function of augmented reality in tourism would be another key point in a metaverse tourism overview. The field of metaverse tourism can benefit from several practical advancements thanks to augmented reality. For instance, smartphone augmented reality applications could be used to gather information on actual locations and their surroundings.

The development of AR-based tourist attractions and interactive hotel features would be aided by the usage of augmented reality in metaverse tourism. Most importantly, the usage of augmented reality in metaverse tourism can rely on beacon technology to provide timely appropriate push alerts.

Best Practices for Using Metaverse in the Travel Industry

The information on the effects of the metaverse on the tourism and hospitality sectors provides a clear picture of the potential for metaverse travel. It's crucial to understand how to take advantage of the advantages that the metaverse for tourism has to offer. Here is a summary of the best methods for implementing a metaverse in the travel and tourism sector.

By laying forth a precise set of goals for the metaverse project, prove the importance of metaverse tourism.

Make an estimate of the costs associated with implementing metaverse technology and a budget for metaverse marketing.

- Try to keep an eye on competitor projects and look for a competitive edge while implementing metaverse solutions.
- Seek out chances in group marketing and transitory travel to create targeted and unique metaverse experiences.
- Create a virtual schedule for interacting with visitors and conveying critical information via the metaverse.
- Promote the collection of brand NFTs and other virtual treasures by travelers so they can keep them as keepsakes in the metaverse.
- Integrate loyalty programs with play-to-earn games so that visitors can receive prizes for accomplishing various metaverse tasks.

Use Cases For Metaverse Travel

Even if a fully developed metaverse travel experience is decades away, the key players in the business are very ambitious to embrace Metaverse's promise. In order to establish themselves as top service providers and differentiate themselves from the competition, several travel businesses are utilizing VR and AR.

Let's examine a couple Metaverse travel use scenarios.

■ First Airlines

A Japanese company, provides domestic and international two-hour virtual flights that let consumers fly to Paris, New York, Hawaii, and a number of other states without really taking off. This metaverse journey is significantly less expensive than a traditional tour, costing only 5,980 Yen in first class. You would take your seat for your simulated flight after boarding. You will be surrounded by the same furnishings and decor inside the airplane as outside. A delectable dinner, drinks, snacks, etc. will be provided by the flight attendant. After the aircraft touches down, the travelers will have a 360-degree metaverse tour of their location.

■ Vueling Airlines

It is the first airline to recently declare that it will sell flights online. By the end of 2022, a brand-new metaverse sales channel will be up and running. Customers will buy tickets in the Metaverse for usage in the physical world. Vueling has teamed up with "Next Earth," one of the biggest metaverse platforms, to develop its metaverse strategy. Users of this site will be able to visualize actual journeys. In addition to offering a virtual tour and booking, Vueling and Iomob have collaborated to develop a metaverse app to provide last-mile transportation services to its clients (like Uber, scooter, etc.).

■ Emirates Airline

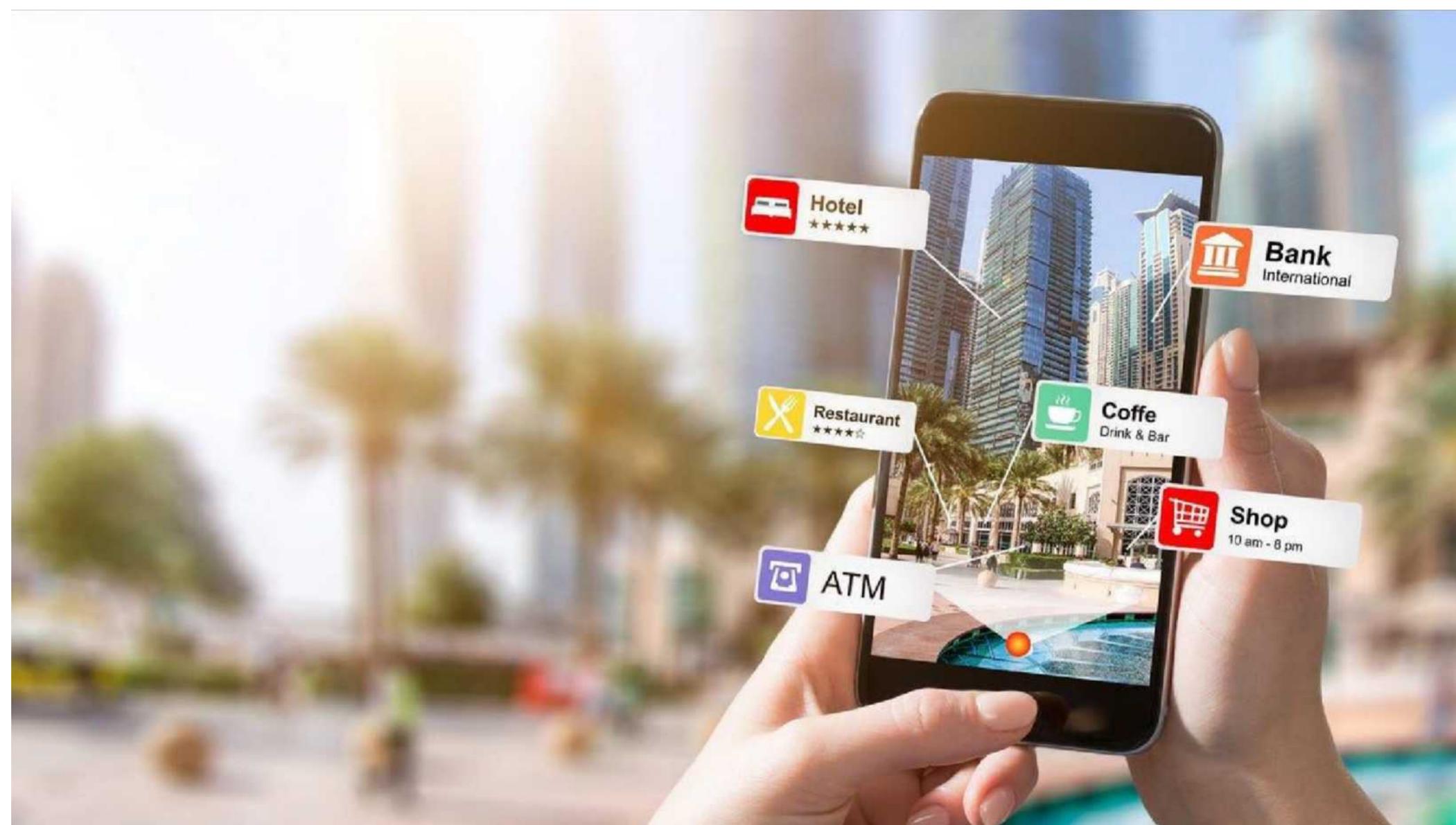
Recently, the airline announced that it would be implementing NFTs and a metaverse travel experience for its clients and staff. Soon they would use airplane services in the Metaverse. The customers will be able to choose a seat on the aircraft, digitally tour the airport and hotel room, and make duty-free purchases while still in their homes thanks to Emirates Metaverse.

■ Qatar Airways

This year, Qatar Airways entered the Metaverse by unveiling Qverse, a virtual reality (VR) experience for website visitors. They can have a virtual tour of the plane and HIA (Hamad International Airport). They can even communicate with "Sama," a 3D human figure that serves as the "MetaHuman Cabin Crew." Sama guides the viewer through this virtual tour while highlighting the cabins' unique features. The corporation is aware that customers desire immersive content to learn more about the plane and the check-in environment before making a purchase. Through the Oculus Quest VR technology, the airline hopes to make this metaverse experience available to the public.

■ Travelzoo

A provider of travel services, enters the metaverse in March by establishing a division dubbed "Travelzoo Meta." It is a brand-new service offered by the corporation that requires monthly fees. Members of Travelzoo who sign up for this new service have access to and can use metaverse travel.

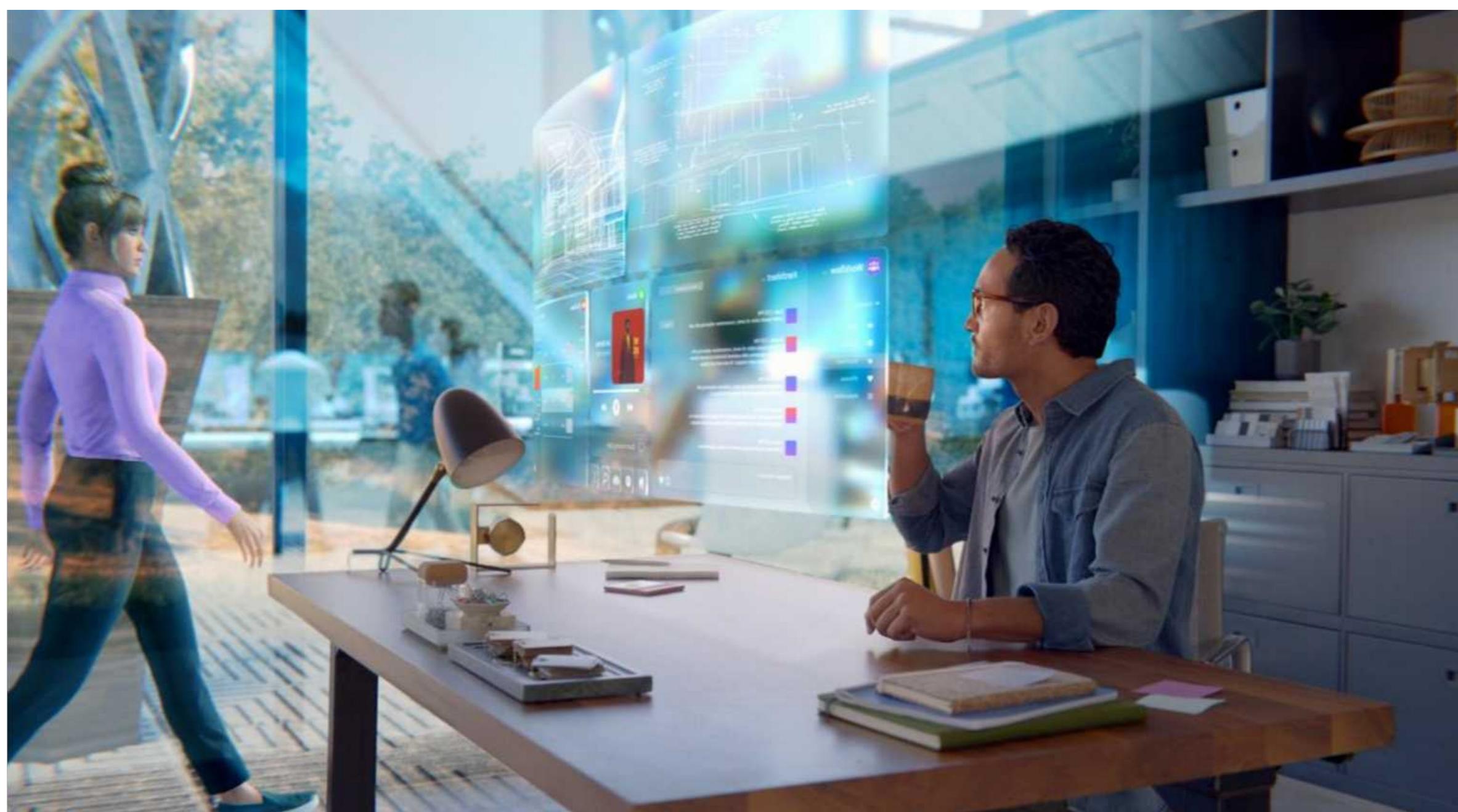


Conclusion

The tourist and hospitality industries have benefited greatly from the opportunities generated by the metaverse. By engaging in a brand-new, more immersive type of virtual travel, customers can profit from the advantages of metaverse tourism. Additionally, hotels and other hospitality businesses can leverage the metaverse to boost operational effectiveness, including event planners.

The metaverse offers a superb platform for enhancing the marketing efforts of travel and hospitality companies. Future novel marketing techniques in metaverse tourism can be launched using the examples of tourism and travel NFTs. Learn more about the metaverse and its potential applications to the tourism industry.

17. METAVERSE IN PUBLIC SECTOR



The Metaverse is the system that connects Virtual Reality (VR) and Augmented Reality (AR) applications. Individuals can interact with each other, work, transact business, learn, and even play games to entertain themselves and experience things or activities as they would in the real world. However, governments around the world must step up their efforts to embrace this new technology. Individuals in this highly interconnected world will be meeting, working, learning, entertaining themselves, and possibly using citizen services and applications in the Metaverse very soon. The future Metaverse would be similar to the real world, even substituting a few real-world activities (like working or socializing).

The government can take advantage of the numerous opportunities that the Metaverse provides. The Metaverse has a knack for making services and applications available to citizens via avatars that are available 365/24/7 anywhere and at any time. During the pandemic, the mobility of people was severely restricted, posing a direct challenge to citizens' use of services and applications. The Metaverse could be a platform for citizens to seamlessly access services and applications using technology that mimics the three-dimensional world we live in.

Government services may become available in virtual worlds such as the Metaverse in the near future, allowing users to perform tasks such as paying taxes and voting from within VR/AR experiences.

This creates new opportunities for governments to provide services in novel ways, potentially transforming how governments interact with citizens and provide public services, increasing transparency and efficiency while decreasing costs and complexity.

Virtual embassies have been established by governments all over the world, including the Maldives, Sweden, Estonia, Serbia, and Kazakhstan. Many governments have begun virtual voting simulations, interactive learning, and even conferences. There are numerous prominent and elaborate examples on the federal, state, and local levels of government in the United States. MuniGov is one of these local examples. MuniGov is a coalition of federal, state, and municipal governments, as well as international governments, that is investigating the use and principles of Web 2.0 in order to improve citizen services and communication through technology.

A Virtual Polling Station was set up in Alameda County, California, USA, to help people understand the voting process.

As a result, the Metaverse could be re-envisioned as a viable option for delivering services and applications to citizens. Furthermore, it allows for improved communication and engagement between the government and its citizens. Furthermore, the Metaverse can help the government accelerate its efforts to resurrect trade and commerce that has been harmed by the pandemic.

The Metaverse is still in its early stages. Because it is an online-enabled space, the Metaverse may be vulnerable to new security and privacy issues for individuals as well as institutions. Thus, privacy and security concerns are major issues, and some people appear to be concerned about their health as a result of excessive 5G exposure. Furthermore, this technology is an energy hog and a high-cost proposition, which may isolate the vast majority of the world's population living in developing countries.

South Korea is investing heavily in both financial and human capital in order to build the Metaverse and provide services and applications to its citizens. This is possible because South Korea is one of the world's most technologically advanced and digitally connected countries, with free and fast WiFi available on public transportation, as well as in public buildings and streets.

This example poses a difficult challenge to overcome, particularly for developing countries seeking to be early adopters of Metaverse. In order to make the services and applications accessible to all of its citizens, the government must have the necessary resources in terms of large budgets and massive amounts of energy. Governments should build the network, financial, and technical capabilities needed to make the Metaverse a reality for citizens. Governments should be prepared to address issues such as data protection, cyber security, digital identity, and other digital policy concerns. These issues must be addressed in a manner that strikes a proper balance between the physical and virtual worlds.

The Use Cases of Metaverse in the Public Sector

Metaverse impacts are vast, ranging from virtual entertainment events to social apps that bring people together in the same digital space to remote workplaces.

Local governments and businesses will be (and should be) the most affected.

They stand to benefit greatly from the Metaverse. The technology underlying this Internet-based virtual reality will enable completely new ways of doing business and interacting with one another.

They stand to benefit greatly from the Metaverse. The technology underlying this Internet-based virtual reality will enable completely new ways of doing business and interacting with one another.

From payment processing to identity verification, recruiting, ad distribution, content development, and security, virtual reality will be the next big thing in organizations.

Education, voting, healthcare, tourism, culture, and many other areas will be drastically altered from what we currently know.

Furthermore, the technology behind Metaverse could assist city planners in addressing traffic congestion and other issues by creating digital replicas of urban areas.

A digital twin of New York City, for example, would allow officials to test policy ideas on virtual streets before putting them to the test on real ones.

Before attempting to extinguish a fire in the real world, it could be virtually extinguished on the digital model. Governments are joining the Metaverse and making their services available online.

In today's world, citizens have come to expect their government to have an online presence.

Because having a Facebook page or a website isn't enough; many people want to be able to interact with their government on a daily basis through virtual means.

That is why governments are now embracing Virtual Reality (VR) as a means of providing public services.

Anyone with a headset or a home computer (and an internet connection) will be able to join Metaverse on a daily basis.

Everything is possible, from hosting town hall meetings and live speeches by government officials to providing citizens with services like voting, registration, and even information about local laws and regulations.

Cities are meeting their constituents where they spend their time as the Metaverse expands.

Seoul, South Korea, was one of the first major cities to join the Metaverse.

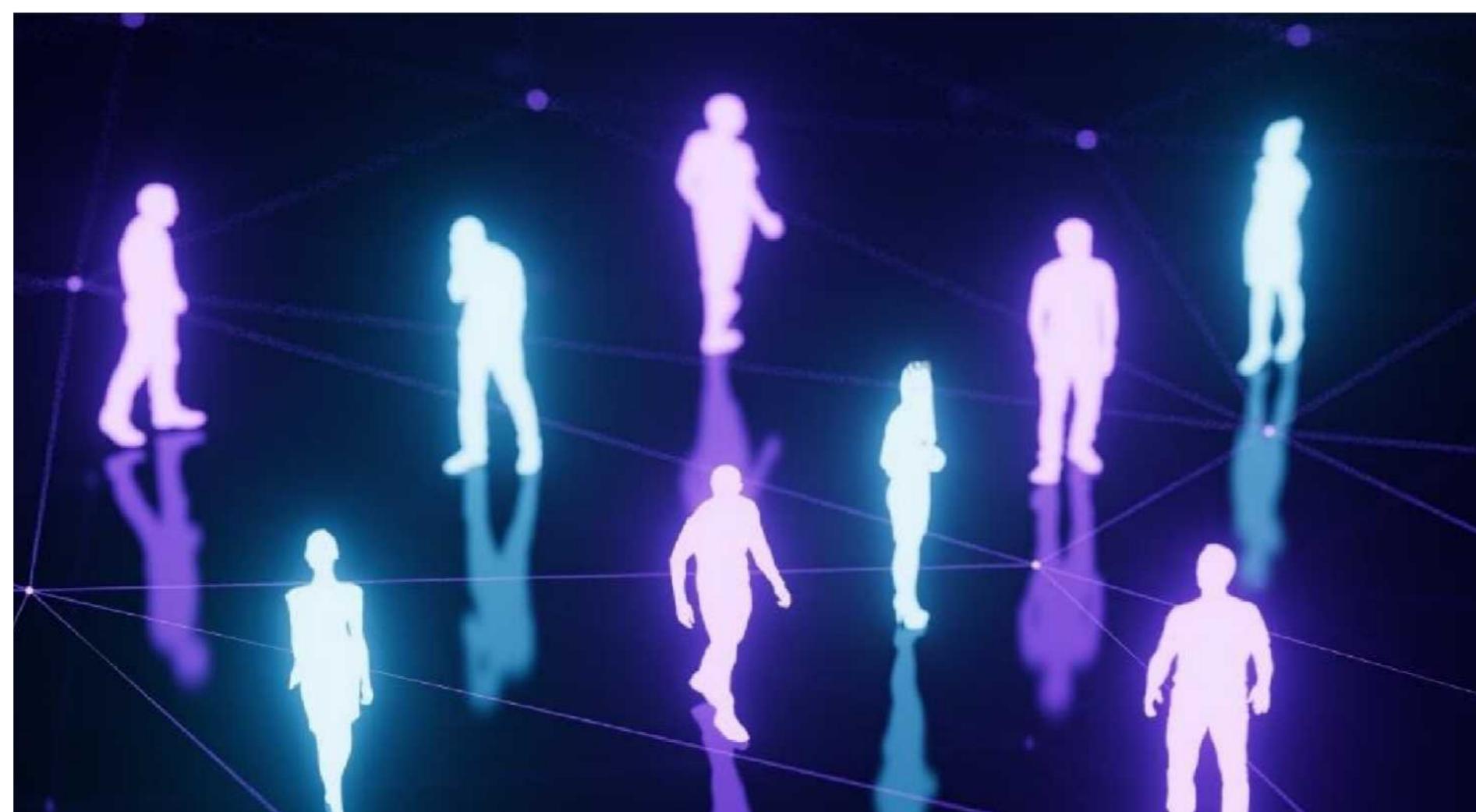
The city is developing its digital public service platform, which will include a virtual city hall, a space for public gatherings, and digital community services.

This platform, which was announced in November, will host entertainment and cultural events as well as provide a space for civil complaints and services.

Furthermore, South Korea's science ministry published a five-year strategy in an effort to lead the global metaverse race, as well as a \$186.7 million investment in this technology.

Meanwhile, Barbados intends to become the first country in history to build an embassy on the Decentraland platform.

The small island nation has been a pioneer in digital currency adoption, and it intends to build on that success by expanding its network of physical embassies to other virtual platforms.



Furthermore, the UAE is looking to capitalize on the opportunities presented by this emerging technology. Dawood Abdul Rahman Al Hajri, the director-general of Dubai Municipality, stated this week at the World Government Summit 2022 (WGS2022) that Dubai is attempting to capitalize on the possibilities created by the metaverse.

Dubai Municipality has announced a collaboration with private companies and investors to build 'One Human Reality,' a futuristic, human-centered city in the metaverse.

The Metaverse virus is spreading to other countries as well. The US military has created a Metaverse platform that allows fighter pilots to practice dogfighting against virtual opponents such as Chinese and Russian planes. Indonesia has already begun to adopt Metaverse technology.

Jakarta Governor Anies Baswedan formed a strategic partnership with WIR Group, Southeast Asia's leading provider of augmented-reality technology. The collaboration aims to support Jakarta's Smart City vision by utilizing a Metaverse platform. Shanghai also unveiled a five-year Metaverse development strategy, which includes Metaverse use in government and business offices.

All of the examples given above demonstrate why governments everywhere cannot ignore the Metaverse. Indeed, governments are eager to capitalize on the Metaverse's potential to improve the efficiency and quality of public services, as well as collaboration between local and national government agencies.

The Metaverse has the potential to provide seamless and frictionless citizen services and applications via digital avatars that are available 24 hours a day, 7 days a week, anywhere and everywhere. It can also improve communication and engagement between the government and its citizens. Metaverse has applications for governments that go beyond citizen engagement; it can help build public-private partnerships. In support of this, the World Economic Forum (WEF) recently announced the creation of a 'Global Collaboration Village,' positioning it as the virtual future of public-private collaboration in collaboration with Accenture and Microsoft.

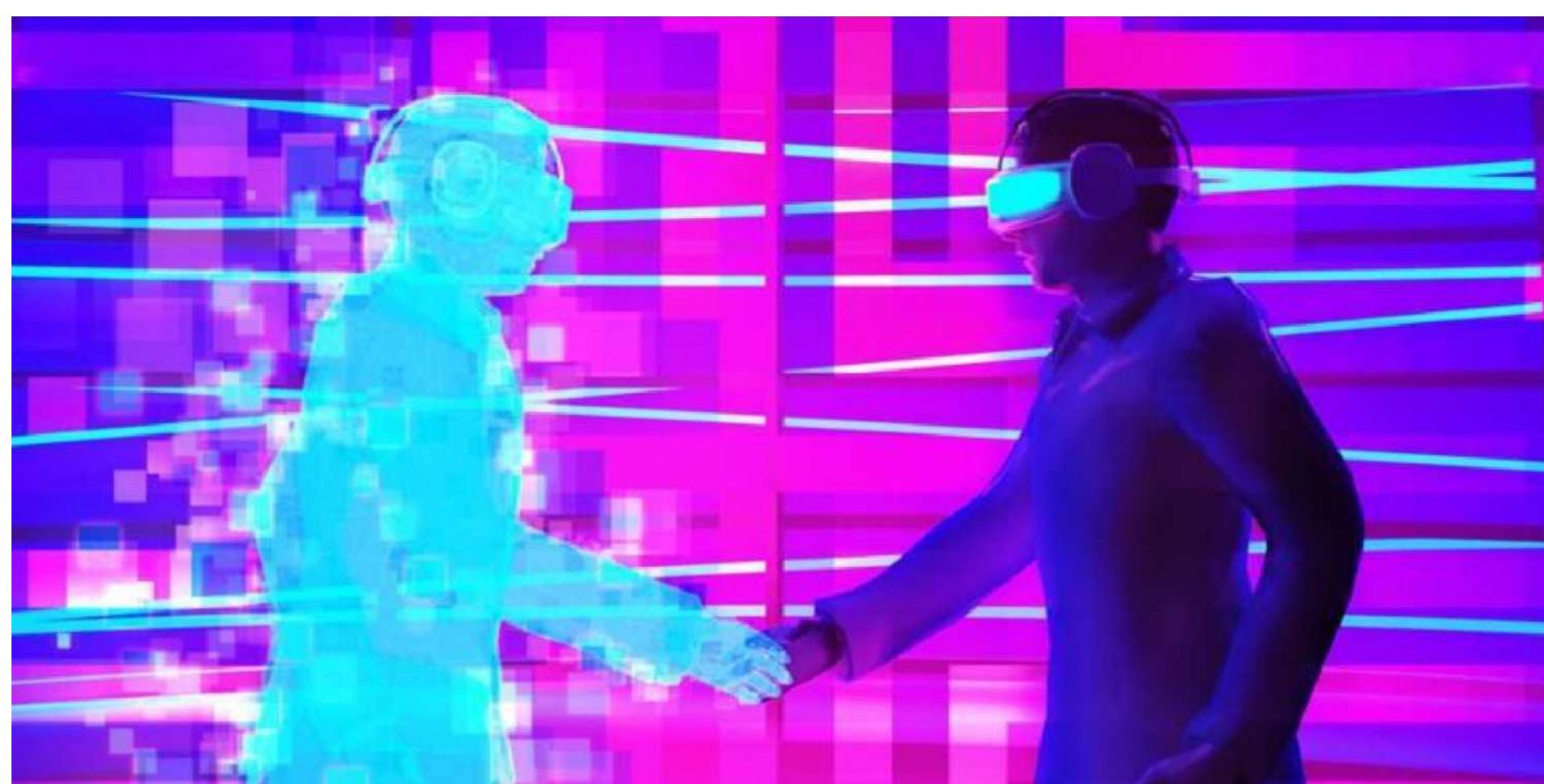
"We've seen governments use augmented reality, virtual reality, blockchain, and cryptocurrency, which we see as the foundation of a larger metaverse," Geraghty said.

She cited a project in Massachusetts led by the Boston Planning and Development Agency that has created a digital twin that maps the city's physical landscape, "from water and sewer systems to tree canopies," according to the report. "In the case of one contentious development proposal, the digital twin was used to assess shadows that a proposed new building would cast on a popular park, prompting (the agency) to modify the building plans and minimize the impact on the park" while the project was still in the planning stages.

Digital twins—a virtual model designed to accurately reflect a system or location—are clearly beneficial to governments in areas ranging from urban planning to climate change and natural disaster mapping. Another aspect of the metaverse that can clearly be leveraged for the public's benefit is the internet-ofthings, a term that refers to devices loaded with artificial intelligence and edge-computation.

Administrators in Pittsburgh, Pennsylvania, for example, have installed "adaptive traffic signals that change the lights based on actual traffic to reduce commute times and fuel consumption." "The smart traffic system has reduced travel delays in Pittsburgh by approximately 20%," according to the report.

In Austin, Texas, homeless people can get a digital identity that is stored on blockchain so they don't have to carry around a physical identification card, according to Geraghty.



Other applications of metaverse-related technologies include a virtual reality town hall where constituents can conduct business from afar, in addition to driving tourism with three-dimensional virtual reality tours that users can experience before visiting.

"Improved access to information will be critical," Geraghty added. "Sometimes it can be really difficult to find what you need" when visiting local government websites. A virtual advisor could "point people in the right direction" in this case.

According to the report, Santa Monica, California was the first city in the United States to join the metaverse.

"Through FlickPlay, a Santa Monica-based metaverse social app company, the city now offers a virtual way to experience its downtown district." According to the report, "FlickPlay's partnership with Santa Monica provides users with an interactive map of the city's retail district where they can collect tokens as they move around the city." "Some tokens can be redeemed for physical items at local retailers while others can be used to unlock digital experiences in the app."

The venture, which goes beyond a pilot program to test an emerging technology, drives foot traffic to local businesses and underutilized spaces, according to the report.

As local leaders begin to navigate this unprecedented next step in the digital universe, Geraghty believes they should "feel empowered" to investigate further.

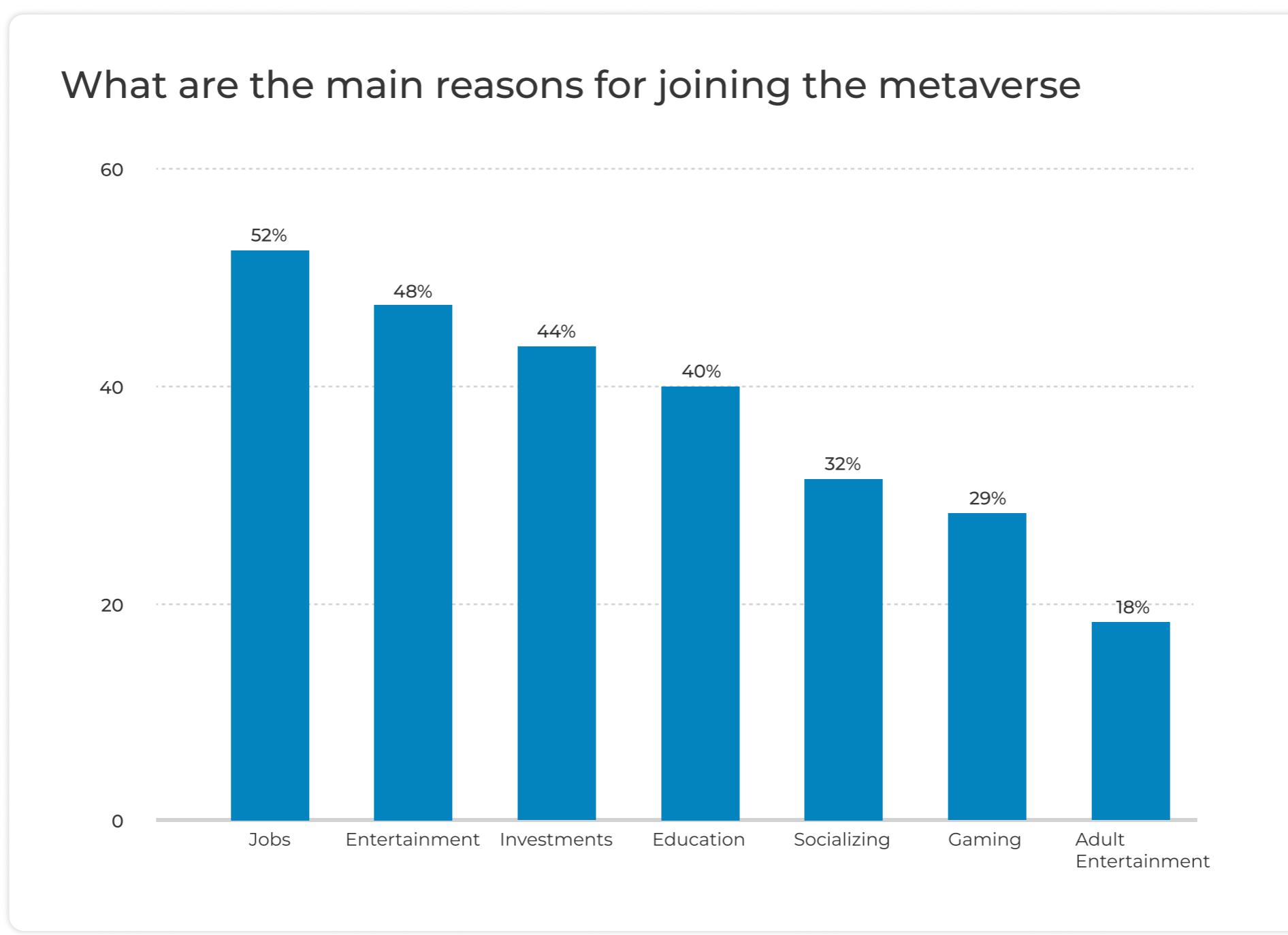
"We're still in the early stages of having these conversations," she explained. "How local governments are utilizing these technologies, and how local governments may engage with the metaverse in the future, is an excellent first step."

18. METAVERSE IN ENTERTAINMENT

The future is now in the metaverse. The metaverse lowers physical barriers to allow millions of people to enjoy immersing themselves in live gigs without leaving their homes by taking your virtual self - your avatar - and using it to enjoy and achieve the things you want on the internet rather than in the actual world.

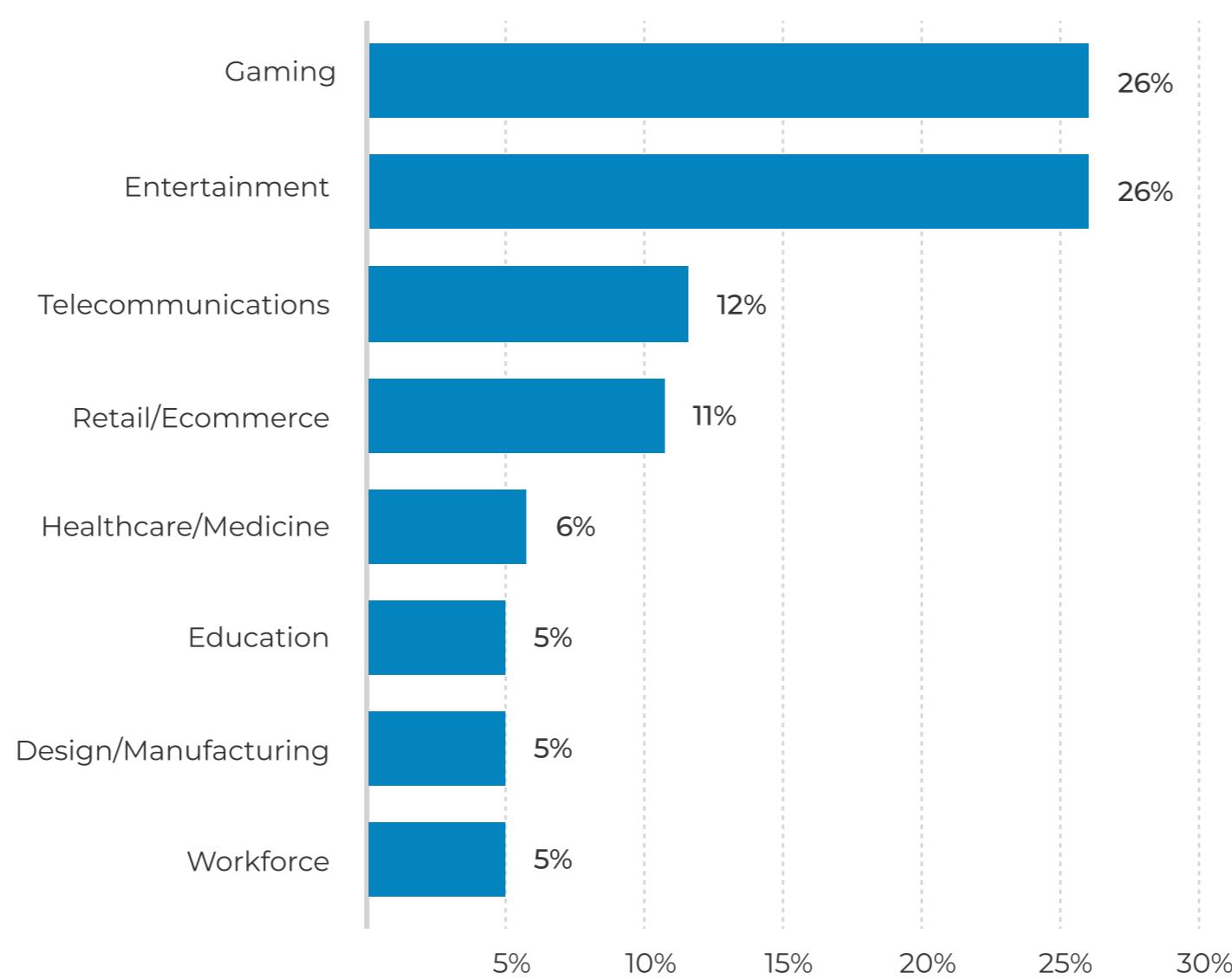
The future is now in the metaverse. The metaverse lowers physical barriers to allow millions of people to enjoy immersing themselves in live gigs without leaving their homes by taking your virtual self - your avatar - and using it to enjoy and achieve the things you want on the internet rather than in the actual world.

Source: [Tidio Survey](#)



48% joined Metaverse for the sake of entertainment and art (live virtual concerts, exhibitions, movies)

Industries that will benefit the most or experience the greatest positive impact from Metaverse



When asked which industry will benefit the most or have the biggest beneficial impact from the metaverse, the developers polled ranked gaming and entertainment first, with 26% each.

The Use Cases of Metaverse in Entertainment

Online gaming in the metaverse

Gaming was the first form of entertainment to penetrate the metaverse. As such, it is the foundation of everything in the metaverse.

Despite the fact that the word "metaverse" was coined in 1992 with Neal Stephenson's dystopian novel Snow Crash, it was a game called The Sims that provided a glimpse into this virtual environment in 2000. Three years later, another gaming franchise, Second Existence, technically gave birth to the metaverse by allowing players to live a second life in a virtual environment.

As we can see, games have progressed enormously over the last two decades, to the point where the graphics displayed by engines are nearly indistinguishable from live-action movies recorded on 4K cameras.

Naturally, gaming and the metaverse are nearly synonymous. Roblox and Fortnite are recognized as forerunners in providing the best metaverse gaming experience to their fans. And these platforms don't just end with missions, 'battles,' or side-quests. They let gamers create a world of their imagination by using blockchain technology and digital trading assets like non-fungible tokens (NFTs).

While Fortnite is primarily a battle royale game in which players shoot each other down, it also conducts music and dance events within its own virtual environment. Roblox, on the other hand, allows its users to create mini-games such as Adopt Me within the Roblox realm. Roblox players can even engage in trading, which, subject to certain conditions such as age, can be changed into real money.

Rec Room and Ember Sword, two recent games, have been acclaimed for their broad metaverse experiences.

Illuvium, a role-playing NFT-based game, is expected to be released on the Ethereum blockchain in either Q4 2022 or Q1 2023. The game allows players to explore a vast virtual landscape in search of unusual species known as Illuvials. Though most metaverse games have cartoon-like graphics, Illuvium has received plaudits for its high-end graphics, as seen in trailers. By playing the game, participants can earn cryptocurrency known as ILV, the game's token. Land ownership is also an important aspect of the game. Fans of metaverse games have a bright future ahead of them.

Online concerts

Virtual concerts are music concerts that take place in the metaverse. Anyone with a VR/AR device or a computer that can connect to the metaverse can watch their favorite musicians shout out songs in a virtual setting where all players are represented by avatars.

Several well-known musicians are planning to play on various metaverse platforms. Among the many musicians who have already built a name for themselves in the virtual world are Marshmello, Travis Scott, Ariana Grande, and Indian singer Daler Mehndi.

Claire Elise Boucher, better known as Grimes, made headlines recently when she performed on the final day of Metaverse Fashion Week (MVFW) in March 2022 with a DJ performance for everybody in attendance.

The MVFW was the metaverse's first fashion week, showcasing various renowned fashion labels such as Bulova, Tommy Hilfiger, and Dolce & Gabbana, among others. It was hosted on Decentraland, a platform where users may trade and develop anything ranging from a little store to a full metropolis using virtual plots known as LAND.

Of course, everything at MVFW was digital – while Grimes' hologram figure was a lady with two white ponytails, everyone else was a stylized version of themselves.

Grimes wasn't the only one that took the stage at the MVFW. Nicki Nicole, an Argentine rapper and vocalist, and DJ Bob Sinclair also performed. Indeed, Sinclair's DJ set was the "first-ever dancing competition in the metaverse," according to Sinclair.

The Sandbox, a popular virtual game platform that allows players to create their own worlds, is expanding its metaverse appeal by holding music events on the site.

In April 2022, rapper Snoop Dogg released an exclusive metaverse music video for his song "House I Built" from his album B.O.D.R on The Sandbox. The video, which also features DJs Steve Aoki and Blondish in virtual avatars, is part of Snoop Dogg's own virtual reality experience, known as Snoopverse, within The Sandbox.

The music video is a prologue to Snoop Dogg's metaverse concert on The Sandbox later in 2022.

In January 2022, The Sandbox announced a collaboration with Warner Music Group (WMG) to build the "first music-themed environment" in the gaming platform's metaverse.

According to a WMG announcement, performances and musical experiences starring WMG roster artists will be included in WMG LAND in The Sandbox. According to WMG, the entire experience will be a "mix of musical theme park and concert arena."

Nothing else is known about the collaboration at this time, but artists on WMG's roster such as Dua Lipa, Ed Sheeran, and Green Day are likely to play.

However, one of the most significant advances in metaverse concert experiences occurred as recently as May 2022, with the ABBA Voyage. What distinguishes this concert from others is that it may be seen in the ABBA Arena in Queen Elizabeth Olympic Park in London without the use of an external device or a computer.

The four ABBA performers take the stage, but instead of their authentic selves, they are represented by virtual avatars known as 'ABBAatars.' They also appear to be younger versions of themselves, thanks to the innovative technology of Industrial Light and Magic (ILM), the George Lucas company responsible for the outstanding special effects of several blockbuster films, including the Marvel Cinematic Universe (MCU) and Star Wars franchise.

As a result, the ABBA Voyage performance is a one-of-a-kind synthesis of the virtual and actual worlds. The experience is similar to viewing hologram talks from MCU and Star Wars movies in real life.

■ Amusement Parks

In May 2022, one of the most significant theme park news broke. AstroWorld, which was dismantled in 2005, will reopen in the metaverse as a virtual theme park in Q3 2022. Its map and official website were released in Q1 2022, while exchange listings and the AstroWorld Beta were revealed in Q2 2022.

According to a press release, the virtual AstroWorld will be identical to a genuine amusement park and will be the first amusement park constructed exclusively on the blockchain.

Visitors will be able to visit the virtual park by purchasing tickets with an AstroWorld NFT or an AstroWorld token. Visitors to the AstroWorld NFT will have limitless access to the virtual theme park.

The virtual park is modeled after the actual AstroWorld. Roller coasters such as the single-loop Viper, the suspended XLR-8, and the Texas Cyclone are among them.

Walt Disney patented a technology in December 2021 that will allow visitors to its theme park to interact with Disney characters virtually while physically present at the location. The "virtual-world simulator" invention allows individuals to observe 3D pictures and effects in real-world settings without the use of AR gadgets.

The Walt Disney Business's CEO, Bob Chapek, stated at a fourth-quarter meeting that the company hopes to combine physical and digital worlds for "storytelling without limits in our own Disney metaverse."

There is yet no definite information on how Disney will bring its theme park into the metaverse.

Furthermore, according to several media reports, Universal Studios Hollywood will import a Mario Kart-themed ride from Japan in late 2021, which allows all customers on a ride to interact with virtual characters and things in real time using AR using visor-like glasses.

Ready Player One (2018) is regarded as a seminal film because it depicts a future in which individuals are connected to — and live in — the metaverse. Tron (1982), Tron: Legacy (2010), and the dystopian British anthology TV series Black Mirror are among the others set in a similar future or depicting a metaverse-like environment (2011–2019).

However, if metaverse cinema is defined as exclusively immersive experiences created with or viewable on an AR/VR device, none of the aforementioned can be labeled "metaverse cinema" because they were created in the classic filmmaking technique with visual effects.

However, the convergence of video game and filmmaking technological developments, such as ILM's ground-breaking successes and the expanding usage of motion capture, is transforming the media industry and swiftly making the experience of watching movies in the metaverse has become a reality. As a result, we have animated shorts created in VR that are best enjoyed with extended reality equipment.

Animated VR experiences like *The Line* were already well-known before Facebook's rebranding made the phrase "metaverse" sound cool. It is a love narrative centered on two characters set in 1940s So Paulo, created by game developer ARVORE.

In 2020, *The Line* was awarded the Primetime Emmy for Outstanding Innovation in Interactive Programming. Unlike most films, spectators in *The Line* can interact with the surroundings to aid in the flow of the 20-minute plot.

Furthermore, notable Hollywood stars are already immersed in the VR experience. The voice cast of Baobab Studios' VR animated interactive story *Baba Yaga* included Kate Winslet, Daisy Ridley, Glenn Close, and Jennifer Hudson. Colin Farrell narrated the English version of *Gloomy Eyes*, another well-known VR short about a human girl and a zombie boy.

Lustration, an animated series whose teaser was released by Meta Quest in May 2022, is another excellent example of metaverse cinematography. The film allows viewers to observe the story from several perspectives and outside the basic plot. This means that spectators feel immersed in the film's environment, as if they were present in the scenario and listening to the characters speak like we do in real life.

In fact, more efforts are being made to bring the full cinematic experience into the metaverse. In July 2022, Meta Hollywood stated that it will collaborate with The Sandbox and the Planet Hollywood Group to develop "a first-of-its-kind virtual Hollywood-themed backlot movie studio in the metaverse."

Visitors to Meta Hollywood's LAND in The Sandbox will be able to see thematic sets such as action and horror, as well as see red carpet premiere events and a memorabilia museum, just like in a real Hollywood backlot studio.

19. REMOTE VIRTUAL OFFICE



When it comes to remote virtual offices and digital office space, the Metaverse gives up a world of possibilities. We've seen huge changes in the workplace over the last few years, particularly since the effects of the global pandemic in 2020. Many employees around the world have the option of working from home. However, while remote work has numerous advantages, it also has one major drawback: connectivity.

The Metaverse may be able to alleviate this problem by providing a solution for virtual collaboration in workrooms, team-building exercises, virtual meetings, and other similar activities. Employees might use digital avatars to attend virtual work events and meetings, visit virtual help desks, and communicate with colleagues and management.

Businesses may do a lot more with access to a virtual universe, such as training and onboarding. BMW Group, for example, has already investigated this possibility by designing a future digital factory using NVIDIA's Omniverse (a 3D collaborative metaverse platform) to teach and remotely connect its personnel.

The Use Cases of Metaverse in Remote virtual office

■ Metaverse Teamwork and Collaboration

The metaverse promises to provide new levels of social engagement, mobility, and collaboration in a world of virtual work. NextMeet is an avatar-based immersive reality platform based in India that focuses on interactive working, collaboration, and learning solutions. Its objective is to eliminate the isolation and workforce separation that might occur as a result of remote and hybrid employment. "With the trend to remote working from the pandemic, keeping employees engaged has been a key concern for many firms," noted Pushpak Kypuram, Founder-Director of NextMeet. You can't keep 20 people engaged in a video call's flat 2-D world; some individuals don't like being on camera; and you're not imitating a real-life scenario. That is why businesses are increasingly resorting to metaverse-based systems."

Employee digital avatars can walk up to a virtual help desk, deliver a live presentation from the dais, chill with colleagues in a networking lounge, or tour a conference center or exhibition utilizing a customisable avatar with NextMeet's immersive platform. Participants enter the virtual world using their desktop computer or mobile device, choose or build their avatar, and then traverse the space using keyboard buttons: arrow keys to walk around, double click to sit on a chair, and so on. "If you're onboarding 10 new employees and present or give them a PDF document to promote the organization, they will lose concentration after 10 minutes," Kypuram says. Instead, we have them go through a 3-D hall or gallery with 20 interactive stands where they can learn about the company. You make people want to walk down the virtual corridor rather than read a text."

Other metaverse startups are stressing workplace solutions to combat video meeting weariness and the social isolation that comes with distant work. PixelMax, a UK-based startup, assists businesses in creating immersive workspaces that improve team cohesion, employee wellness, and collaboration. Their virtual workspaces, which can be accessed through a web-based system on your computer without the use of headsets, include features such as:

■ “Bump into” experiences

PixelMax's immersive technology allows you to see your coworkers' avatars in real time, making it easier to stop and converse with them when you run into them in the virtual office. "Informal and impromptu chats make for a large amount of corporate connections — up to 90% in fields such as R&D, according to research — and during the outbreak, we missed a lot of this vital communication," said Shay O'Carroll, co-founder of PixelMax, in a recent interview.

■ Well-being Spaces

These are designated areas where users of the globe can relax and try something new. "We have constructed well-being environments intended as forests or aquariums," Shay O'Carroll explained. They could even be on Mars. On-demand content such as guided meditations and/or exercise sessions can be found in these categories."

■ Delivery to your physical location

Clients can add features like the ability to order take-out food, books, and other products from the virtual world and have them delivered to your physical location (e.g., home).

■ Live status tracking

Just as in the physical workplace, you can walk around and get that panoramic sweep of the office floor, see where colleagues are located and free, drop in for a quick conversation, and so on.

According to Andy Sands, co-founder of PixelMax, the ultimate goal is to connect many virtual workspaces. It is now building a virtual workspace for a consortium of 40 leading interior design manufacturers in Manchester, England. "It's about building community, having conversations, and communicating." We want worker avatars to be able to go between a production world and an interior design environment, or to attend a concert in Roblox or Fortnite."

Working from home can be challenging. According to Nuffield Health research, nearly one-third of UK remote workers find it difficult to separate home and work life, and more than a quarter find it tough to switch off after the work day finishes. Virtual workspaces can help to develop a larger border between home and work life by simulating the experience of going into the workplace each day and then leaving and saying goodbye to colleagues when your work is done. At the virtual office, your avatar signals your status (in a meeting, out for lunch, etc.), making it easier to stay connected to colleagues without feeling tethered to the computer or cellphone, which is a common source of stress in traditional remote work situations.

Better collaboration and communication will undoubtedly be important drivers of the virtual workplace, but why stop there? The metaverse introduces elements of adventure, spontaneity, and surprise into the office and work environment, opening up new opportunities for rethinking the office and work environment. Why not a beach setting, an ocean cruise, or even another world as a virtual office site? Gather, a worldwide virtual reality platform that allows people and businesses to "create their own office," was inspired by this notion. These fantasy workplaces can range from "The Space-Station Office" with views of Earth to "The Pirate Office," which includes ocean vistas, a Captain's Cabin, and a Forecastle Lounge for socializing. For the less daring, there are options such as the virtual Rooftop Party or gathering in the Zen Gardens.

Introducing Your Digital Colleague

Our work colleagues in the metaverse will be more than just avatars of our real-world counterparts. We will increasingly be joined by a slew of digital companions – very realistic, AI-powered, human-like bots. These AI agents will serve as advisors and assistants in the metaverse, performing much of the heavy lifting and, in theory, freeing up human labor for more productive, value-added jobs.

Conversational AI systems — computers that can read text and audio interactions and converse in natural language — have made remarkable development in recent years. Such algorithms are gradually evolving into digital humans capable of sensing and interpreting context, displaying emotions, making human-like gestures, and making judgments. UneeQ, an international technology platform that focuses on generating "digital humans" capable of working in a wide range of disciplines and roles, is one example. Nola, a digital shopping assistant or concierge for New Zealand's Noel Leeming stores; Rachel, an alwayson mortgage consultant; and Daniel, a digital twin of the UBS Chief Economist who can meet numerous clients at once to provide individualized wealth management advice, are among UneeQ's digital workforce.

Emotions are the metaverse's next frontier. SoulMachines, a New Zealand-based technological start-up, is combining developments in artificial intelligence (AI) with independent animation (like expression rendering, gaze direction, as well as real-time gesturing) to build lifelike, emotionally responsive digital humans. Its digital persons are working as cosmetics advisors, a covid health adviser, real-estate agents, and educational tutors for college candidates, among other things.

For people and companies, digital human technology brings up a world of possibilities. Digital humans are very scalable — they don't stop for coffee — and can be deployed in several locations at the same time. In the metaverse, they can be assigned to more monotonous, dull, or dangerous tasks. Human employees will increasingly be able to design and develop their own digital coworkers, who will be personalized and adapted to work side by side them. However, digital humans will cause risks, such as increased automation and displacement of human work for lower-skilled workers who have very few opportunities to switch to alternative roles, or potential erosion of cultural and behavioral norms if humans become less inhibited in their interactions with digital humans, behavior that would then carry over to their real-world interactions.

■ Faster Learning in the Metaverse

The metaverse has the potential to revolutionize training and skill development by substantially shortening the time required to develop and acquire new talents. AI-enabled digital coaches could be available to help with staff training and career counseling. Every object in the metaverse, such as a training manual, machine, or product, might be made interactive, with 3-D displays and step-by-step "how to" manuals. Virtual reality role-playing and simulations will become more frequent, allowing worker avatars to learn in highly realistic "game play" scenarios like "the high-pressure sales presentation," "the demanding client," or "a hard employee interaction."

Virtual-reality technology are already being used to speed skill development in a variety of industries: Medivis, a surgical technology company, is using Microsoft's HoloLens technology to train medical students by interacting with 3-D anatomy models; Embodied Labs has used 360-degree video to help medical workers experience the effects of Alzheimer's Disease and age-related audiovisual impairments, to aid in diagnosis; and manufacturing giant Bosch and Ford Motor Company have introduced a VR-training tool, using the Oculus Quest headset, to train technicians on. Metaverse Learning, a UK-based company, collaborated with the UK Skills Partnership to develop a series of nine augmented reality training models for front-line nurses in the UK, using 3-D animation and augmented reality to test learners' skills in specific scenarios and reinforce best practices in nursing care.

The metaverse, with its deep roots in online gaming, can begin to leverage the promise of gamified learning technologies for easier and faster skill acquisition. According to PixelMax's O'Carroll, "the game becomes the learning activity." We've utilized gamified technologies to train lab personnel in the medical field; you'll break out into different groups and then go to, instance, a virtual PCR testing equipment where you'll go through stages of learning about how to operate that machine, with your training outcome then recorded." PixelMax is developing games for the UK's first responder community — police, fire fighters, medical crew, and so on — that combine physical training with immersive gamification, allowing first responders to repeat training, try different strategies, see different outcomes, and consider different ways of working as a team.



The metaverse, with its deep roots in online gaming, can begin to leverage the promise of gamified learning technologies for easier and faster skill acquisition. According to PixelMax's O'Carroll, "the game becomes the learning activity." We've utilized gamified technologies to train lab personnel in the medical field; you'll break out into different groups and then go to, instance, a virtual PCR testing equipment where you'll go through stages of learning about how to operate that machine, with your training outcome then recorded." PixelMax is developing games for the UK's first responder community — police, fire fighters, medical crew, and so on — that combine physical training with immersive gamification, allowing first responders to repeat training, try different strategies, see different outcomes, and consider different ways of working as a team.

What are some advantages of functioning in the metaverse?

Many of the advantages of traditional remote working are available and enhanced in the metaverse. It also keeps some of the benefits of on-site working methods and extends them to remote workers, thereby increasing motivation and engagement.

Benefits include:

- Rental and operating expenditures are reduced.

Companies who operate a virtual office do not need to rent as much office space in the actual world, nor do they need to pay real-world expenditures for utilities, furniture, office supplies, and so on.

One of the primary advantages of offering virtual offices to employees will be convenience. There will be no reason to travel because all interactions will be replaced by digital counterparts that are equally effective. People will be able to work more efficiently from remote areas, but as if they were in an office setting, because they can model their work site to seem like their office environment, which all of their coworkers will be able to relate to and communicate with more readily

- Employees save money and time.

Workers attending a virtual workplace will not have to pay commute charges or spend time traveling between the office and their home. This time and money savings could improve staff work-life balance and engagement.

■ Intuitive interaction

Workers and clients can engage with 3D models of things, places, and people in 3D virtual settings in a simple and direct manner. This is a more rich and intuitive experience than existing remote working can offer.

■ Efficiency and visibility

Seeing colleagues and bosses move around in virtual form might help people feel more connected to a company and team. This visibility also enables for spontaneous interaction, questions, and responses, exactly like in an on-site office, allowing issues to be promptly resolved or assignments to be allocated right away.

■ More spontaneous socialization

Conversations as well as meetings are typically scheduled and included into online workflows when working remotely. Team building and social gatherings must be staged (e.g. online quizzes and other team events). Remote workers can engage in more natural social contact thanks to the metaverse. A worker's avatar, for example, might turn and talk with someone "seated" next to them, or they might naturally join an informal work huddle in the corner.

■ Managing Remote Work Challenges

The Metaverse has the ability to address all of the current issues associated with remote work. It gives managers a virtual environment in which they can meet employees (through avatars), chat with them, analyze their body language, and maintain in-person connection. Furthermore, by keeping track of the team inside a virtual office, the employer may handle issues such as time theft and goldbrick at the workplace.

20. METAVERSE IN TELECOMMUNICATION

Metaverse differs from other technological tools or solutions; it is an alternate virtual universe, and thus service providers and telecoms would need to establish a clear and well-defined monetization model in order to see a return on their investment.

Telecoms require a two-pronged strategy that addresses two critical issues: first, how would they sell metaverse to end users? Second, what technology would be required to implement the monetization model that telecoms are attempting to establish?

Metaverse, unlike traditional telco service bundles, is not a simple usage-led model. Its complexity must be understood in the context of the required knowledge, application scenarios, and expertise on how to curate various elements including usage rating, usage billing, and much more.

In this case, technology solution providers such as Amdocs can help telecoms build comprehensive, efficient monetization models by laying down tools and solutions across various aspects such as charging components, promotions, and packages, among others, that can help telecoms charge end users for using metaverse.

How metaverse influences telecom

GSA confirmed that as of August 2021, the number of launched 5G networks stands at 176, with a presence in 72 countries and territories. This figure is expected to rise as 461 operators in 137 countries/territories invest in 5G trials, license acquisition, planning, network deployments, and launches.

Mobile carriers have invested billions of dollars in 5G networks, so it is not strange that they are betting on a futuristic concept that will provide them with a fair share of returns over time. GSMA Intelligence forecasts \$720 billion in global spending on 5G networks between 2021 and 2025.

Telcos have begun to explore metaverse-based platforms, which combine multiple technologies to bring the internet to life. Why so? Because 5G and the metaverse are inextricably linked. "What 5G is going to do is really turn that metaverse experience into something that reaches out into your daily life," said Sarah Gilarsky, a Verizon business development lead.

Identifying the business potential, China Mobile, Verizon, and SK Telecom have jumped in to build platforms based on blending the digital and real-life worlds. With such innovative 5G applications, operators could potentially earn \$712 billion in revenue by 2030, creating a win-win situation. Considering this, while cutting-edge metaverse applications are still in the conceptual stage, once they become popular, various ICT players such as service providers, MVNOs, and cloud hyperscalers can capitalize on the demand for fast connectivity, data storage, and reliable connectivity.

While it's difficult to predict how much money metaverse-related applications will make in the long run, early metaverse applications like enhanced and immersive media will account for 40% of the 5G-enabled application market by 2030. In this regard, Fuad Siddiqui, a senior partner and vice president of Nokia Oyj's research arm Bell Labs, stated that telcos would require funding partners to pull off these platforms as they continue to heavily invest in 5G over the next few years.

Considering this, while cutting-edge metaverse applications are still in the conceptual stage, once they become popular, various ICT players such as service providers, MVNOs, and cloud hyperscalers can capitalize on the demand for fast connectivity, data storage, and reliable connectivity.

While it's difficult to predict how much money metaverse-related applications will make in the long run, early metaverse applications like enhanced and immersive media will account for 40% of the 5G-enabled application market by 2030. In this regard, Fuad Siddiqui, a senior partner and vice president of Nokia Oyj's research arm Bell Labs, stated that telcos would require funding partners to pull off these platforms as they continue to heavily invest in 5G over the next few years.

How to monetize with Metaverse in telecommunication?

Telecommunications companies are potential participants in the metaverse economy. Telecommunication companies are ideal players in the metaverse domain due to their large subscriber base, ability to charge, bill, and collect payments, and ability to deliver any digital content to their users.

They can not only offer their own services and bundle them in the metaverse, but they can also handle transactions and provide the best experience to their metaverse subscribers.

We can see how drastically different the next decade will be from today. In the information age, new technologies, access methods, and concepts will shape our existence. The metaverse appears to secure its place in this new world. It will also evolve as a result of new capabilities and technologies every day.

The Use Cases of Metaverse in Telecommunication

■ Digital Twins

Instead of being an application on their own, digital twins could be integrated into the Metaverse. This approach is most likely the most cutting-edge technology available today for both slashing expenses and improving performance. The administration and design of networks must now take into account an expanded number of parameters that must be optimized as a result of the evolution of wireless communications. Operators can significantly improve the deployment and upgrading of their networks with a lesser requirement for re-optimization, similar to its uses in healthcare and other industries.

■ Meeting and Training Rooms

When used in conjunction with online collaborative systems like Microsoft Teams and Zoom, the Metaverse might create a virtual workspace that is analogous to the real one. In that way, the interaction between individuals would likewise be more realistic. Trainings that are expensive and time-consuming can occur more naturally. Additionally, the requirement for moving and traveling equipment would disappear in favor of digital avatars. As a show of strength that its telecom infrastructure is prepared to welcome the next revolution, Korean telecom provider SK Telecom introduced its Metaverse platform "ifland," which generates social and virtual meeting environments utilizing its cutting-edge 5G network. Even the German operator Deutsche Telekom opted to introduce the Korean platform to Europe last month.

Decentralized Telecommunication Operator is a Metaverse-focused operator that was established earlier in May. The meta-company has created a way to swap phone numbers as non-fungible coins using blockchain technology, which should be the foundation of Web 3.0. (NFTs). The creation of TCTx by another company, Telephony Communications Technology, intends to create smart cities in the Metaverse.

Client Services

Another significant application of the Metaverse will be in customer support. The virtual platform could offer a straightforward method where any maintenance can be performed through extended reality applications that combined a digital twin of the phone with a loosely holographic form of communication, as opposed to relying on phone support, chatbots, and time-consuming trips to repair facilities.

Another significant application of the Metaverse will be in customer support. The virtual platform could offer a straightforward method where any maintenance can be performed through extended reality applications that combined a digital twin of the phone with a loosely holographic form of communication, as opposed to relying on phone support, chatbots, and time-consuming trips to repair facilities.

21. METAVERSE IN CONSTRUCTION

The usage of the metaverse in the construction industry will significantly help designers and architects create spaces in an increasingly efficient manner as it will provide an opportunity for them to experience the space as it is being built.

Traditionally, architects and designers have been dependent on 3D modelling and visualisations to design spaces; however, the advent of the metaverse and the unique capability of the technology to help individuals walk through a near-real representation of the space, can benefit them. Architects and designers can collaborate on the design concepts remotely by being part of the building design in the metaverse.

Additionally, for construction project managers, it is extremely important to be fully aware of the building design and construction – while they cannot be present at every corner, building managers can keep a steady check on everything going on during the construction stage thanks to the virtual representation of the construction surroundings

Furthermore, it is critical to comprehend the significance of the metaverse at all three stages of building: design, development, and construction. Through AR and VR, the concept delivers a near-real experience of the eventual result during various stages.

While architects, designers, and project managers will surely benefit from the metaverse, they will also contribute to its creation. Architects and designers are critical in creating any area in the virtual environment, from interior to outdoor environments, which they also handle in the physical world.

Still nascent, the metaverse's capabilities are yet to be seen and explored. However, as the world is becoming more and more aligned towards advanced technology, it is only a matter of time before it becomes a commonly used resource in the world.

Metaverse in construction is only the beginning in the built environment, and the industry is yet to see and experience the full potential of what futuristic concepts can achieve by opening up a world of possibilities.

Metaverse construction mandates new skills and a change in perspective. With the young generation of architects inoculated with the knowledge of both digital and 3D technology, construction in Metaverse is likely to achieve new heights with the construction of indistinguishable sites which will remain unharmed from the natural causes and thus preserve the credible structure. Building Information Modelling (BIM) is the upgraded version of Computer-Aided Design (CAD) methods. It is a space of VR world that offers the greatest amount of activity for the construction as well as engineering sector.

The Use Cases of Metaverse in Construction

Metaverse is a remarkable 3D evolution of the internet. There is still a lot that has to be defined in this VR world, but it has major implications for how we collaborate and work together in the Architecture, Engineering and Construction (AEC) industries. AEC industries will have to keep up with changing client expectations, fierce competition and constant pooling of talent while embracing work. The use of VR and AR in the Metaverse has greatly influenced the construction industry.

Quick Remote Actions/Collaboration

Working in the Metaverse will actively allow the construction teams and clients to stay aligned from any place or time in the world. This will result in less time spent traveling, faster approvals, and fewer meetings. This will expedite the process.

The metaverse will be most useful to engineers, designers, and architects who need to collaborate. Augmented and virtual reality can be extremely valuable in our transition away from traditional office-based employment, as we have experienced over the last two years of the epidemic. Engineers can utilize virtual reality and augmented reality to communicate with clients, present models remotely, and reduce the need to visit. Collaboration in virtual reality is far more powerful and beneficial than a Zoom call.

The Wild and IrisVR have built a software platform that taps into the potential of the new Meta Quest 2 headset. Architecture firm LEO A DALY has been using The Wild's collaboration tools and had plenty of good things to say about them. "Working at home presented a challenge for us because we wanted to roll up our sleeves and create drawings, bleed all over the paper, and experiment with different sorts of pens" all different colors, and then bring in computers and iterate. And so, we had the challenge of not being able to get together and hear each other, see each other, and take visual cues from one another.

Not being able to hear people's voices, see their reactions, and experience things visually together was a huge challenge. But with The Wild, we were able to enter an environment where we had a lot of content. We had the model at our disposal, whether we were looking at it as a scale model or getting inside the model; we weren't limited by the platform. We could do SketchUp, Revit, AutoCAD sketches, or even our own massing. Being able to throw things on the wall like we do in a charrette type of scenario, and then respond to it graphically, and hear one another agree or disagree; those are the things "We were able to traverse things easier with The Wild than with other platforms like Zoom, Microsoft Teams, or Webex," stated Ryan Martin, director of Design.

Framework

More effective material utilization as architectural variants and site layout can be personally experienced with necessary changes. This will aid in the rapid completion of final versions.

Design Prototyping

Working throughout the design process of a brand-new product, building, or bridge becomes much easier when you can physically feel it in your hands without investing the time, money, or materials on actually making a physical model. Volkswagen created the Nivus, a small SUV for the Latin American market, solely with virtual prototypes. The company's design team was able to operate safely during the pandemic, prototype faster, finish the design in less than a year, and substantially decrease expenses without sacrificing quality.

BIM Coordination

BIM coordination provides more opportunities for modular construction. It shortens project lifecycles by issue tracking and providing transparency.

Building information modeling (BIM) is essentially an upgrade on older CAD methods. VR takes it a step further with robust digital twins that replicate a physical asset and can add an incredible level of detail. This is perhaps the space of the VR world with the greatest amount of activity for the engineering and construction industry. Digital twins are the next logical step in the CAD/plan evolution and provide a means to develop a more complete picture of existing bridges, buildings and even cityscapes. Unity Software, Bentley Systems and Cupix are leaders in the development of digital twin applications. Unity and Hyundai partnered to develop a digital twin of a major car factory. Bentley, a leader in software for the infrastructure industry, has deployed its digital twin technology to create virtual models of large, complex bridges to help accelerate the inspection, maintenance and repair process. Meanwhile, Cupix focuses its technology on deployments on construction sites to monitor real-time progress, update BIM models and track work progress.

Finishing

Clients are presented with different finishing options for their buildings so that they can see how a particular feature will look once finished. This will terminate costly rework and delays.

You can present clients with different finishing options for their buildings like architectural treatments, types of glass and facade designs. This is a great way to help clients understand how their project will appear upon completion and ensure that the finished product aligns with their vision without costly rework, delays and change orders. Matterport works in the digital twins space as well, but its product is visually appealing and is loaded with tools geared toward creating immersive environments that can be manipulated by real estate agents, photographers, event planners and homeowners to showcase how a space will look when a project is completed.

Presentation

VR/AR allows teams to curate full sensory presentations. The architect can take a real-life review of its design to make required adjustments. This increases efficiency and benefits in winning new clients. Virtual reality is far preferable to a PowerPoint presentation. A fully immersive virtual presentation brings viewers right into the middle of the project. Using virtual reality in presentations is a surefire way to capture an audience's attention.

22. METAVERSE IN FOOD AND BEVERAGES



OneRare is a metaverse dedicated to all things food-related.

Paytronix and PYMNTS have surveyed over 2,500 consumers about technological integrations in the restaurant business. It found that 20% were familiar with the Metaverse, and 34% of Millennials had participated in the virtual world. Additionally, 38% who had already entered the digital domain would be willing to make restaurant purchases in this environment. Interesting.

According to Wunderman Thompson's Metaverse report "New realities," 76% of respondents believe restaurants and bars will be affected by the Metaverse, and 74% believe the food and beverage industry will also be affected.

New consumer preferences and contact methods have infused brand marketing with a plethora of creativity. Food brands that have appeared in the Metaverse World have engaged in online contact and brand promotion with Metaverse fans/players in a variety of ways, including packaging design, virtual display, advertisement placement in game scenes, game plot interactivity, and NFT virtual transactions

Kraft, the world's second largest food manufacturer, filed trademark applications for Metaverse, NFT, and cryptocurrencies for its trademarks KRAFT, JELL-O, KOOL-AID, LUNCHABLES, PHILADELPHIA, and others on June 13, etc., covering Media, digital money, NFT marketplaces, virtual restaurants, and food and beverages are all examples of virtual restaurants. Following the debut of Coca-first Cola's Metaverse concept product in February, the food industry behemoth "involved yuan" once more. Coca-Cola is a market leader in this category among food and beverage brands.

Last month, Coca-Cola celebrated its one-year anniversary in the metaverse by dropping a new digital collectible, of which there are now more than 4,000. People who own these digital collectibles have access to special perks, like Coke Studio experiences, gaming events, and early access to limited-edition product launches. Earlier this year, Coca-Cola launched the limited-edition "Coca-Cola® Zero Sugar Byte", a gaming-inspired sparkling beverage that "[brings] the flavor of pixels to life."

Providing these kinds of experiences may be key for food brands to re-engage consumers who have become more interested in private label since pandemic-related shortages meant they couldn't find their normal brands, EY senior analyst Jon Copestake told Food Navigator.

Restaurant chains are also taking to the metaverse. McDonald's, Wendy's, and Chipotle have opened up virtual locations on Facebook's metaverse, and several other restaurants, including Burger King, Yum Brands, and Chick-Fil-A have filed trademarks to join.

Other restaurants jumping on the Metaverse bandwagon include Applebee's, Panera Bread, Wingstop, Chuck E. Cheese, Chick-fil-A, Hooters, Bareburger, and Yum Brands.

The Use Cases of Metaverse in Food and Beverages

■ Bringing virtual worlds to life

Eating is a co-presentation of multi-sensory experiences that are difficult to replicate in a digital environment. So, how do food and beverages show their proper color, flavor, and shape in the virtual world?

In the Metaverse, games are the most intuitive and most friendly expression carrier. Many cutting-edge technologies designed to enhance the interactive experience of games have also increased the delicacy and fidelity of people's whole-body sensory experience to an unprecedented level, becoming the technical support for the realization of indulgent eating in the Metaverse. From early gamepads, to VR eyes, to haptic gloves recently developed by Meta, which reproduce human sensations including texture, pressure, and vibration.

However, the vast majority of technological devices are still aimed at traditional entertainment dimensions such as hand feel and stereo vision, and how to simulate physical sensations such as taste, smell, and oral chewing during the eating process is the key to realizing virtual eating.

Smell simulation has become the first goal of the technology industry.

In 2022, OVR (Olfaction Virtual Reality) technology company in Vermont, USA has developed a bluetooth-enabled white snap-on ink cartridge with nine compounds pre-installed in the box, which can combine hundreds of scents to be released through digital programming prompts . At the University of Chicago, a group of computer doctoral students developed a Bluetooth device that can be worn on the head, which can convert the visual image seen by the wearer into specific odor information, and then convert it into tiny electrical pulse signals to stimulate the trigeminal nerve. Let the human body finally acquire odor perception. The technology won the “Experimental Design of the Year” award from Fast Company.

Around the world, olfactory virtual reality technology has become a research hotspot of many technology companies. UK-based OW Smell Digital raises \$1.2 million to develop AI-powered ‘Scent Photoshop’ cloud service. The Spanish company Olorama Technology has developed a scent library with 400 scents, and the user can activate the scent box by voice to complete the release.

Although these technologies have not yet been applied to the in-game eating experience, they have shown great potential.

In addition to smell, taste perception in the mouth is also an essential element of the eating experience.

A team from Carnegie Mellon University has developed a virtual reality device that simulates the sense of touch in the mouth. The device houses a phased array of 64 tiny ultrasound transducers that create a realistic tactile sensation on the user's lips, teeth and tongue. Such as drinking from a fountain, brushing your teeth, raindrops, or even the feeling of a breeze brushing your lips.

In contrast, the handheld “lickable screen” device developed by Meiji University in Japan in May 2020 makes the taste simulation more comfortable and smooth. When the user inserts the stick-shaped device into the mouth, all taste sensations associated with food can be reproduced. The device relies on electrolytes inserted into five gels to control the intensity of the five basic taste sensations (sour, sweet, bitter, salty, umami). Although it seems a bit “deliberate” to obtain the simulated food taste, Foodaily believes that with the continuous deepening of research and the improvement of the size and shape of the equipment, one day, when you have a ” lollipop ” in your mouth”. When tasting food from various places in the game, even oneself may be difficult to distinguish between true and false.

■ Farming, brewing, collecting...

Many early testers have said that getting into the Metaverse was initially just for marketing reasons. In the Metaverse, many things can be reinterpreted and presented in a new way, making it an excellent way for traditional brands to connect with the new generation of game groups.

Well-known beer brand Heineken took the lead in taking an unexpected step towards the Metaverse, playing a wave of reverse output. On March 17, 2022, Heineken built a virtual brewery on its immersive digital platform Decentraland and held a launch event to launch a fully computer-generated “pixel” beer, “Heineken Silver”. The virtual beer is brewed “from binary coded hops grown by NPC farmers on Decentraland”, the A-yeast required for beer brewing has been replaced by “A-Pixels”, and the entire brewing process is supervised by Heineken’s virtual brewing assistant.

On the surface, the launch of virtual bars by alcohol brands is meaningless, but as a traditional brand that has long been eyeing Generation Z, Heineken has made no secret that our marketing strategy is to use the Metaverse to approach them.

“What we found: This generation sees the Metaverse as a place for more fun and more social experiences. They can experience our Heineken Silver like never before the physical product.” said Rob van Griensven, Global Digital Director, Heineken.

Holding the virtual launch, Heineken wanted to express a “Metaverse-obsessed” attack on numerous brands because people can’t taste the pixels and bytes at the moment. “So we wanted to make a joke and remind everyone that nothing beats the taste of a refreshing beer in the real world, not even our own new Heineken Silver.”

Although consumers understand that this is Heineken’s way of hyping into the Metaverse, this self-deprecating attitude and new marketing methods have triggered a large number of media reports one after another, gaining a good voice and public relations influence for it. Through media promotion, social media and KOL channels, Heineken virtual beer has received nearly 2 billion online clicks, which is a successful brand marketing.

Unlike Heineken’s refusal, McDonald’s has expressed its importance to the Metaverse in a positive and positive way. Since 2021, McDonald’s has submitted more than 10 Metaverse-related trademark applications for its products, chain restaurants, and cafes. Chinese New Year and fashion designer Humberto Leon Liang Guowei launched the online “Metaverse Virtual Zodiac Hall” to provide the public with a VR 12 zodiac artwork experience inspired by the Chinese zodiac. Although it is only in the stage of virtual marketing, it also highlights The determination of this traditional old brand to take a share in the Metaverse.

When it comes to embracing change and the digital frontier, fast food chain Wendy's is definitely a brand to try. In Horizon Worlds, a virtual social experience, Wendy's created a virtual meeting place for fans, Wendyverse. Players start at a virtual Wendy's restaurant and enter an interactive world where they can order their own virtual fries at the Wendyverse City Center Plaza or at the Wendyverse Mall. Participate in games with special Wendy features.

Although the virtual restaurant is more of a brand implant in the game and cannot provide the essential functions of the actual restaurant, Wendy's believes that the virtual restaurant, as the "first stage" of its brand Metaverse strategy, is a project worth trying.

"The possibilities for the Metaverse are endless," said Jimmy Bennett, vice president of media and social at Wendy's. "It's important to find real opportunities for brands to enter the burgeoning digital space or fall behind the competition."

■ Integration of virtual and real: brand experience is improved in deep participation

The various Metaverse ideas that focus on play look interesting and diverse, but the experience that only stays in the virtual world can at best be regarded as an introduction to the Metaverse, or an extension of existing game concepts. To enter the true Metaverse, the fusion of the virtual world and the real world is essential.

Also a beverage brand, Coca-Cola has taken the exact opposite approach of Heineken – step by step the concept of the Metaverse is turned into a real product.

In February this year, The Coca-Cola Company released its first limited product inspired by space – "Coca-Cola Starlight", and simultaneously launched the global creative platform behind it – "Coca-Cola Creations", aims to closely link young consumers with trendy and innovative products and experiences.

There is a beautiful vision behind the development of "Star Walk"-in a world full of infinite possibilities, somewhere in the universe, there may be another kind of [Coca-Cola], and there is another way to connect with each other. If this product with "outer space" elements is the first connection between Coca-Cola's Metaverse and reality, then its "Pixel Flavor-Rhythm Cube" Zero Sugar Byte Coke launched in April goes beyond the digital and physical worlds. Limit, bring the taste of pixels to life.

Oana Vlad, Senior Director of Global Strategy at Coca-Cola, said: "Zero Sugar Bytes is inspired by the playfulness of pixels, rooted in the creativity of games that make experiences possible. Just as pixels power digital connectivity, Zero Sugar Bytes will People come together and share Real Magic moments."

In addition to the “monetization” of the product, the beverage giant wants to provide an immersive digital experience. Consumers will be able to use Starlight AR filters on social media and have an immersive audio ASMR experience. Scanning a can or bottle of a new flavor through the Coca-Cola Creative website will open an AR concert by American singer and brand ambassador Ava Max; or join an AR game by Byte-BYTE.

Coincidentally, on June 14, 2022, Chobani, the leading brand of yogurt in the United States, also announced its entry into the Metaverse, launching “Chobani™ Oatmilk Cosmic Race” on Roblox . Participants compete through a virtual galaxy in the Chobani™ Oatmilk spacecraft to deliver oat milk to planets. Completing the race, winning, will be eligible for experience rewards, including custom Chobani™ merchandise.

Chobani uses food as a force for good, and his forays into the Metaverse are a positive reflection of this philosophy. Runners who complete the track will earn points, which will be counted on the charity chart, and when the projected goal is reached, Chobani will donate \$75,000 to Hunger Free America. Let the participants’ game achievements be transformed and realized in the real world, giving players a unique experience and a sense of achievement, and making Chobani more closely linked with consumers.

■ **Virtual deals: helping brands outline the possibilities**

For seasoned gamers, going back and forth between virtual and reality, jumping in and out, can never feel immersive enough. So, how should food brands design product experiences for users who want to make a difference in the Metaverse? Can you create an immersive experience that runs through the entire industry chain?

On March 24 this year, OneRare, the world’s first food Metaverse (Foodverse) project, was officially launched in the United States .Developed by real-life husband-and-wife team Gaurav Gupta and Supreet Raju, it brings the global restaurant industry to a unique Web3-based source-to-table virtual food experience for the first time, building a bridge to interact with foodies around the world.

In OneRare, the food world is designed similar to the real world, with various geographic areas such as beaches, forests, and lakesides, and users can explore the open world at will. There is also an exclusive gaming area where players earn NFTs by exploring and fighting.

OneRare allows users to create exclusive dishes by collecting ingredients and following recipes, including global favorites, holiday specials, keto and vegan-friendly recipes, and signature recipes from celebrity chefs and restaurants. OneRare CEO Supreet Raju said: "As the project matures, users can also transform these virtual dishes into real food, thereby merging real and virtual life."

In addition, OneRare also partners with food brands such as Trufflin NYC to promote ingredients and recipes, creating unique opportunities for food businesses around the world to explore new technology and use it for marketing, growth, and social impact.

"Because OneRare is a food-based platform, the social value of the project cannot be expressed without contributing to the problem of world hunger. By partnering with numerous food and catering businesses, we aim to sell and sell through special NFTs. Food market events to raise money."

■ Business Opportunity or Gimmick

On May 22, 2010, Laszlo Hanyecz purchased two Papa John's pizzas for 10,000 BTC, the first recorded commercial Bitcoin transaction. In this sense, the seemingly unrelated Metaverse is indeed closely linked to the food industry.

From the early online virtual restaurants, to today's food companies galloping across the Metaverse in a variety of ways, the Metaverse has become the fastest way to approach them due to the growing number of young game groups .

23. METAVERSE IN HOTEL AND HOSPITALITY INDUSTRY

Stella Artois is one of the first hospitality-related brands to explore metaverse hospitality sponsorship. The brand has partnered with the Zed Run platform, which allows users to buy virtual race horses using NFTs. As part of the agreement, Stella Artois sponsored a race track and auctioned off virtual horses.

What role does the metaverse play in hospitality?

With the advent of the metaverse arrives a new challenge for the hospitality industry: virtual guests. An industry primarily based on service and the physical reception of guests is now being transformed into an experience-based industry, and hotels must be up to the challenge to make these experiences just as memorable as the physical ones.

There are many different roles the metaverse can play in hospitality, but one thing's for sure: with the advent of new technology, hotels now have the possibility to create a metaverse hotel. Think of it as a virtual chain. You can have your physical location and your virtual location, and both should provide equally memorable experiences.

Traditionally, the hospitality industry has been associated with the physical reception of guests, but this has changed with the emergence of new technology and the birth of the hospitality metaverse. In the sections below, you will find examples of some of the ways the hospitality industry can be included within the metaverse.

Hotels in the Metaverse

One of the biggest ways in which the hospitality industry is already starting to present itself within the metaverse is through the development of metaverse hotels and there are a number of ways to think about this concept. For one, hotels can provide virtual reality tours, or options to explore their hotel with an avatar during the booking process.

This allows guests to get a clear sense of what to expect before they commit to booking a hotel room. However, it is not the only way hotels are exploring the metaverse. Some, for example, are providing their guests with access to virtual spaces, allowing them to host virtual birthday celebrations, or hold virtual business meetings.

Restaurants in the Metaverse

The hotel industry is far from the only hospitality sector exploring the metaverse. Through the use of virtual reality technology, cutting edge restaurants can provide the tools necessary for customers to fully explore their menu prior to booking, including options to see how a meal is prepared, or to check out the facilities.

Some of the biggest hospitality marketing trends right now are focused on the idea of bringing outdoor experiences into the home environment. Through the metaverse, takeaway restaurants could allow users to place their order in a virtual restaurant, interacting with restaurant employees who are represented by avatars of their own.

Entertainment in the Metaverse

Entertainment companies are capitalizing on the concept of metaverse hospitality by recreating realistic experiences that customers can enjoy from the comfort of their own home, primarily through the use of virtual reality technology and VR headsets. In fact, this can actually be an extremely cost-effective solution.

For instance, rollercoasters are expensive to develop in real life and there are strict safety concerns. With a virtual reality experience, however, realistic rollercoasters can be enjoyed in a virtual world, without the costs or risk attached. Of course, VR experiences can also defy the laws of the natural world, and some of the other options that could be created include virtual experiences like walking on the moon or mars, or visiting virtual tourist destinations.

Nightclubs and Casinos in the Metaverse

Nightclubs are another part of the industry where metaverse hospitality options are starting to emerge. Virtual recreations of nightclubs can allow people to experience many of the benefits of visiting a nightclub, including music, dancing, and interacting socially, without having to leave their home. Virtual nightclub providers can then monetise the experience, offering options for users to improve their avatars and access new music.

Casinos can also operate in a similar space, allowing customers to play games like poker, roulette and blackjack in a virtual casino, where they can interact with people, and explore a realistic recreation of the real experience.

Concerts in the Metaverse

An area where metaverse hospitality has already started to show its potential is with concerts that take place in the metaverse. There are different approaches here, from concerts taking place within video game worlds, to virtual reality concerts, where users are placed in a realistic, virtual recreation of a music venue.

The potential here is almost limitless. Not only does it mean an almost unlimited number of people can attend the same virtual concert at the same time, it also means the ordinary barriers can be broken down. For example, customers could potentially attend a virtual concert from The Beatles, Elvis, or other artists who are no longer touring in the real world.

The Use Cases of Metaverse in Hotel and Hospitality Industry

Metaverse trends reflect real life technology trends

Just like in real life, the metaverse mirrors the technology that is already widespread in the hospitality sector, like virtual reality and augmented reality. Both of these technologies are used as a way of interacting with this alternative universe, but in real life can also be used to alter the way guests interact with their surroundings.

On the other hand, VR technology can be used to create virtual tours, booking processes, and other travel experiences in the metaverse to enhance and complement your hotel's in-person offerings.

Artificial Intelligence

Artificial Intelligence, or AI, is used in the metaverse to understand words, images, video and text, and understand how to respond to these stimuli while overcoming language barriers. Many of the 3D images, animation, speech and artwork are generated by AI. In the hospitality metaverse, AI can improve customer service, data analysis and other technology offerings at your hotel.

Virtual Hotel Experiences

Hotels can use the benefits of the metaverse to create virtual hotel experiences both for guests and for potential guests, providing new ways to interact with your hotel brand without leaving their homes.

Inside this virtual world, visitors can reserve your hotel's restaurant, take a tour of your facilities or surrounding visitor attractions, compare hotels, attend meetings and conventions and even go to museums. This provides a new target group for which to consider creating customized experiences to turn virtual clients into real-life paying clients.

Day-to-Day operations in the metaverse

The metaverse is an exciting new resource hospitality professionals can use to communicate with their audience members, but it is also a powerful tool for internal communications. Through the metaverse, professionals can now connect with team members, remote employees, corporate managers, off-site teams, and industry executives at the highest levels — all virtually.

Roomza Hotels, a tech-enabled hospitality brand, is launching a new “rooms-only” hotel concept in 2023 that fully embraces metaverse travel and digital tourism trends. The keyless hotel-style rooms “with a metaverse twist” will be available for booking inside mixed-use buildings and fueled by ecofriendly business operations. At Roomza Hotels, there are no physical lobbies or meeting spaces for guests to explore. Instead, guests will have the opportunity to connect to communal hotel spaces virtually in the metaverse, all without ever actually leaving their rooms.

“The novelty is when you’re in a Roomza, you can go to our (digital) lobby bar, and you can sit next to someone and have a drink and they’re in Dusseldorf and you’re in New York City,” founder Curtis Crimmins explained. “There could be a cool interactive drink menu that floats in front of you and you could make the same cocktails (in your room) and have a global experience, right from the comfort of your room.”

While tech will never replace people as the true heart of hospitality, it can help struggling businesses increase efficiency by further automating customer booking and purchasing processes. Shortstaffed hotels, restaurants, event venues, and other businesses can utilize advances in digital technology to help balance the increased labor costs affecting the hospitality industry.

■ Metaverse increases hotel revenue

The metaverse is still evolving and what it is today is by no means what it will be tomorrow, so while the potential is infinite, it still can be argued whether your hotel can actually use it to increase revenue. Let's look at some of the hypothetical ways this tool can be used.

■ Sales and Marketing

This new universe unlocks a new marketing channel with the possibility to reach a larger audience without having to invest money, only resources. Here, you can use the available technology to reach new potential guests that would have been otherwise difficult to reach. Sales representatives can even use this channel to search for potential clients, employing new strategies for reaching clients.

■ Upselling

In the real-world, upselling is a powerful marketing technique that helps accomplish revenue objectives. And, the metaverse is a great mechanism through which hoteliers can invite guests to visit different upgraded room options, explore different possible experiences, see different product and service offerings, and even get a sample of the hotel's restaurant menu, all of which are great for driving ancillary revenue.

■ Events and Meetings

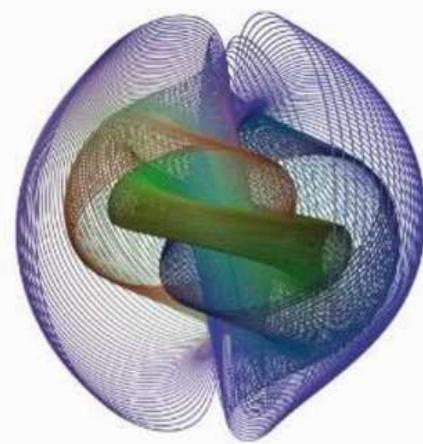
In the real world, many meetings and events have geographical constraints that make it so that not all possible attendees are able to attend. Event planners and conference organizers can capitalize on this world free of geographical barriers to create parallel events for networking, seminars, guided tours and more, available worldwide and with no need to travel.

These offerings can be complementary to the real-world offering and used to generate additional revenue. For example, you can offer VIP events, gatherings, tours or sell tickets to other virtual events that run in parallel and provide the opportunity to maximize revenue potential from events and meetings.

■ A new kind of loyalty program

Loyalty programs are a great way to keep guests coming back to your hotel. But what if you used the metaverse to create a new kind of loyalty program? Invite your guests to participate in activities in the metaverse or to participate in events and challenges to be eligible for special rewards, promotional codes or exclusive deals. This is a great way to give new benefits to loyalty program members while at the same time encouraging non-members to sign-up for the program.

24. METAVERSE IN SUPPLY CHAIN



METAVERSE SUPPLY CHAIN SOLUTIONS

The metaverse has the power to create new Supply Chain experiences in a digital world, one we have never experienced before.

Most top Supply Chains are involved in a digital transformation of parts of their organizations. Will the shift of digital products and experiences weaken the Supply Chain significance as we know it? Or, will the metaverse open doors to new opportunities and new potential?

The metaverse is an edge technology, working from the bottom to the top. While the goal of digital operations is to enhance the physical Supply Chain digitally, the purpose of the metaverse is to generate a digital space and translate it into the physical world.

There are several Supply Chain areas and considerations that the metaverse can enhance:

The Use Cases of Metaverse in Supply chain

- **WebMe : supply and demand, transformed**

The metaverse is bringing together what customers want with what companies have. By providing better visibility into processes, facilities, inventory and capacity, it is helping companies remove supply constraints. By providing an increased understanding of what customers want, it makes demand fully “knowable.” Getting insights from both sides could help harmonize supply and demand.

The metaverse is bringing together what customers want with what companies have. By providing better visibility into processes, facilities, inventory and capacity, it is helping companies remove supply constraints. By providing an increased understanding of what customers want, it makes demand fully “knowable.” Getting insights from both sides could help harmonize supply and demand.

■ Programmable world : products, evolved

In the metaverse, people will design their environments to meet their needs and expect seamless digital and physical navigation. These changes will pave the way for richer interactions in a new kind of world.

For example, imagine an aluminum beverage can that “knows” two important things about itself: its location and its inventory status. Using edge computing, the programmable can could trigger automatic replenishment and routing decisions. This solution would ensure customers get the product when and where they need it. The solution could also help shape demand and automatically adjust prices based on changes in what customers want—which would enhance margins and overall profitability.

■ The unreal: perfect data, realized

In the metaverse, data will likely take on a new meaning because AI will be able to generate synthetic content that’s “perfect data.” Such data does not have historical context; therefore, it can be instantly adapted to the current situation.

For instance, during the pandemic, companies couldn’t accurately forecast supply or demand. They were banking on past data to get them through an unprecedented situation. The same holds true for data from the pandemic years (2020–21), which cannot be used to forecast for 2023 and beyond. With AI-generated synthetic data, companies can develop forecasts that perfectly reflect where they and the market are at that moment.

■ Computing the impossible: the unsolvable, solved

Emerging machines are helping address the limits of current computing power. These machines will enable supply chain networks to improve processes, plans and inventory. Using the new compute capability, companies will be able to reduce costs, better meet customer demands, and drive greater resilience and sustainability.

For example, with previously unimaginable computing capacity and the metaverse's ability to "bend the time and space continuum," companies can get rid of the gap between supply chain planning and execution. They will be able to view the entire supply chain network—from suppliers to end customers—to continually balance supply and demand in real time. This kind of power will be especially needed to take advantage of the metaverse's ability to bring in increasingly more granular customer and supplier data.

■ Warehouse operations

The limitless collaboration opportunities proposed by the metaverse means that every participant, from workers to logistics teams, will be able to consider sustainability and Environmental Social & Governance (ESG) matters through intelligent planning tools. Warehouse planning can be improved, experienced, and simulated in the metaverse before the physical form is built, saving time and money from concept to reality. This will drive better and more efficient warehouse designs and more favorable work environments.

When city governments and local organizations embrace meta technologies, they can assess and back up new strategies and propositions in the metaverse to replicate a final version to their files for accountability and continued learning.

The metaverse will afford a practical environment where strategic operator training can occur without disrupting daily operations. The checking of any warehouse flow and outlining of modifications can be modeled first before committing significant CapEx funds. Further benefits will originate from better space utilization through active space modeling, and greater location and shelving optimization as the volume of SKUs grow. While optimization and slotting are always important, they are even more critical due to the trend towards reduced and even micro-fulfillment centers, where storage capacity is most valuable.

25. METAVERSE IN DEFENCE



The core technologies required for the metaverse—augmented and virtual reality, head mounted displays, 3D simulations, and AI-powered virtual environments—are already in use in the military. The helmets for the new F-35 fighter jet already include an augmented reality display that provides telemetry data and target information on top of video feeds from around the aircraft.

The military's principal training strategy is synthetic training environments, in which simulated worlds interact with and supplement real training to represent the full complexity of the physical world. Simulation and virtual training allow people to train in a wide range of scenarios and dangerous locations without exposing them to the risk of such scenarios, decreasing equipment wear and tear, and lowering the carbon footprint of training.

The military has long been employing virtual worlds for training, creating SIMNET which used simulation technology to conduct training, analysis, and advanced concept exercises. SIMNET stands for SIMulator NETworking. It was the first "shared virtual reality" distributed simulation system, launched in 1983. In 2014 the military showcased Project BlueShark, a virtual reality project that demonstrated a virtual world that allowed sailors to drive a ship with 3D situational awareness, repair ships while working remotely with the ship designer and command and control forces

Diverse simulated training environments have recently been merged, allowing the military to experience the "fog and friction" of warfare within a single synthetic arena. The desire to smoothly train in a realistic immersive reality reflects current metaverse conceptions, and the transition from synthetic training to the metaverse is both natural and rational. VRAI, a Dublin-based virtual reality simulation startup, has teamed up with BAE Systems to leverage the potential of virtual reality (VR) and artificial intelligence (AI) to speed next-generation training for develop a "training metaverse" for "future armed forces"

A defensive metaverse might connect numerous virtual training environments, guaranteeing that lessons learnt from training and instruction can be used. It could also potentially collect data that can provide insight into things such as morale, which might then be used to guide force design or training.

Military services agencies frequently acquire their own tools and technologies, and a defense metaverse could allow technology reusability, lowering procurement costs, at the very least for virtual training solutions. By uniting distant individuals in a digital environment, a defensive metaverse could supplement physical contacts of military members.

Military services agencies frequently acquire their own tools and technologies, and a defense metaverse could allow technology reusability, lowering procurement costs, at the very least for virtual training solutions. By uniting distant individuals in a digital environment, a defensive metaverse could supplement physical contacts of military members.

Many defense companies and contractors in the United States are taking notice of a military Metaverse. In 2018, the US military announced a collaboration with Microsoft to build Integrated Visual Augmentation System (IVAS) mixed-reality headsets based on Microsoft's HoloLens technology (IVAS) – This will let soldiers to see through smoke and around corners, use holographic graphics for training, and have 3D terrain maps projected onto their field of vision with the push of a button.

The Use Cases Of Metaverse In Defense

■ Attracting and retaining talent

Defense organizations worldwide have real concerns about their talent pipelines. That's not surprising given the difficulty in recruiting and retaining in-demand expertise. They should be creative in order to attract recruits in fresh and significant ways. The metaverse could provide an exciting pathway. It allows for hyper-personalization of recruitment to drive engagement.

Imagine being able to show a prospective recruit what military life is truly like. Exciting experiences may help to attract potential candidates. This could be akin to Accenture's virtual campus on the "Nth floor." Through an immersive experience, it delivers employee onboarding, learning, and teamwork.

Simultaneously, AI has the potential to increase the skill pool. AI can recruit from a variety of communities and demographics. This is the so-called "hidden workforce." Intelligent search could be the key to help defense compete for top talent.

The other part of the equation is to improve employee retention and the working environment. One example? Currently, armed forces personnel frequently work across many systems at the same time. This could imply using a single system to monitor what's going on in the field. Then another to identify equipment faults, order replacement parts, and track repairs. These scenarios could be combined in the metaverse to create a single, cohesive, and engaging experience. As a result, employee engagement and retention may improve.

■ Training and Simulation

For decades, the defense industry has used virtual reality. Typically, it occurs in limited virtual worlds created for a specific purpose (like training someone to operate a plane, tank or submarine). Currently, armed forces personnel frequently work across many systems at the same time. This could imply using a single system to monitor what's going on in the field. Then another to identify equipment faults, order replacement parts, and track repairs.

It could empower organizations to create a highly realistic virtual world that would better prepare personnel for challenging scenarios. Consider our Accenture Virtual Experience Solution (AVEnueS). Organizations could use that to transport trainees into simulated realistic situations or create common synthetic environments for individual or group training. Both would be effective methods of preparing recruits for challenging situations.

Our tactical training vehicle simulation technology provides another chance to develop shared synthetic surroundings. It could aid recruits in developing situational awareness during individual training. It could also aid in the training of soldiers in tactical-level units or multi-domain collective exercises.

Harnessing the metaverse could also help break down the legacy siloes between land, air, sea, space and cyber defense. This has the potential to significantly boost national security. And by ensuring seamless interoperability, the metaverse help organizations collaborate more effectively with their allies.

■ Command and control

The metaverse can assist commanders in making the correct judgments at the appropriate moment, hence lowering operational risk. How? By simulating and analyzing every potential scenario.

Beyond this, defense organizations could use the power of the metaverse in high-risk situations to better integrate intelligence from multiple sources. The aim? To ensure each commanding officer has highly personalized insights at their fingertips every time they make a decision.

■ Procurement and supply chains

The metaverse also offers great potential to procurement and supply chain operations in defense. A few examples? It could be used to assist ensure supply security through comprehensive scenario planning. It could help organizations trial and select equipment. Or it could help them optimize equipment allocation.

26. METAVERSE IN AGRICULTURE



Metaverse is expected to have a significant impact on indoor farming in the next years, with a market value of \$24.8 billion by 2026. Many indoor farmers are investing in cutting-edge technology to conduct sustainable and trouble-free agriculture.

The South Korean Ministry of Agriculture contains well-established articles based on the computer game Minecraft. The metaverse-based game includes virtual tours to agriculture museums, smart farms, and government organizations with the hopes of promoting the value of agriculture to the millennial and Z generations. Digital agricultural implementations have already begun in the metaverse in the form of intelligent farms and agriculture museums with the hopes of glamourizing it so that the millennial and Z generations will participate.

Plato Farm, an NFT platform, has developed an immersive farming metaverse in which participants must grow crops and raise cattle. They are rewarded with MARK and PLATO coins for their efforts.

The Use Cases of Metaverse in Agriculture

■ The Association of Equipment Manufacturers

The Association of Equipment Manufacturers says the construction, agriculture and manufacturing sectors are poised to be greatly affected in this technological shift. In the agricultural sector, farmers have the potential to create an authentic digital replica of their farms —everything down to the pickup truck and the dog. Consider it a cross between the old SimFarm video game and James Cameron's film "Avatar." The advantages could be substantial and quick. Farmers, for example, might assess how new farm equipment would improve efficiency before purchasing. Are you considering purchasing a new high-speed planter? Allow your avatar to lead the way to the field in the metaverse.

■ Sharing Farm Stories

The metaverse may also give agriculture a way to connect with its city cousins and better tell the story of where our food comes from. QR codes are already appearing on food containers that can connect consumers to the farm where the basic ingredients were grown, whether it's a corn farm in Illinois or a dairy farm in Wisconsin. This virtual experience allows us to bring the farm closer to today's dinner table and communicate our story directly.

■ Trying out different crops before implementing in real-life

Just think if you could experiment with a different cropping practice before actually trying it in the real world. Advances in sustainability practices, carbon sequestration, water quality, soil health, plant genetics, and machine efficiency can all be tested in the metaverse in a matter of days, weeks, or months, with hundreds of various scenarios tried. You are not required to wait years.

■ Metaverse in Indoor Agriculture

According to Markets, the indoor farming technology industry would be valued at \$24.8 billion USD by 2026. Indoor farmers are investing in technology to simplify and optimize the entire indoor growing process, from seed to consumption, while also improving sustainability.

With more producers entering the business and an increased emphasis on food security and the need for more sustainable agriculture, the virtual world has the potential to offer a lot to Indoor Agriculture.

■ Indoor farming education reimagined and widespread with the Metaverse

AR (augmented reality) technology are already being used by indoor farmers to digitize and monitor plant biology, growth, and data. The metaverse might be a tremendous tool for making that tracking available at any moment, and it could be transformed into intricate instruction on the indoor farming sector. Augmented reality minimizes training time and allows farmers to learn on the go by providing micro-learning information in real-time.

Indoor farmers can be trained and instructed in a more immersive, participatory, and clear manner from anywhere in the world.

Furthermore, new entrants into the industry or simply buyers of indoor ag equipment may see a future in which they can experience their new container farm, hydroponics farm, etc., virtually but realistically from anywhere, a step up from the virtual tours that companies like Urban Crops Solutions already provide. The Metaverse's technology could help farmers comprehend the workings of their farming purchases, their demands, and the functions early on. Designing and developing your farm while tracking prices, space and storage, and equipment requirements in real time. It may later be used to train much-needed plant scientists, regardless of where they are located.

■ Trade shows, conferences and communities

One of the key possibilities that companies and sectors are investigating is community development in the Metaverse. Nike and Skechers, which recently filed eight trademarks indicating the sale of virtual goods, are betting on the idea of developing communities through their brand and products.

However, community building for Indoor Ag may take a different form. Trade exhibitions and conferences may be able to transfer their community-building and learning roles to the Metaverse. Hosting trade exhibitions, seminars, and live panels within the Metaverse increases their accessibility and availability. Investors and newcomers can access and participate in these trade fairs even after they have occurred, from anywhere in the world.

27. METAVERSE IN PHARMACEUTICAL COMPANIES

According to industry analysts, metaverse breakthroughs have opened new doors of potential and developments in the fields of research, technology, and healthcare - including pharma. For example, some early bets in the metaverse and pharmaceutical business include integrating Augmented Reality and Virtual Reality to better demonstrate how a medicine works and helps patients irrespective of any major illness or the appearance of Parkinson's disease tremors.

The future of the metaverse is still largely unexplored, however, it is presenting lucrative avenues for pharmaceutical industry. The metaverse is the next significant shift in how we connect and interact with the entire environment around us, leapfrogging existing digital advancements and technology.

Pharma businesses, for example, can build patient communities and social groups within the metaverse. Instead of communicating and connecting with one another online or over Zoom, patients from all over the world can virtually sit out and congregate in a metaverse room with others who have similar medical issues to share their experiences.

Furthermore, as telehealth in the midst of the COVID-19 pandemic shifts the patient-healthcare provider interaction from in-person to remote, the metaverse, in collaboration with AR/ VR development solutions, is redefining how healthcare is given.

The metaverse provides pharmaceutical businesses with several opportunities, such as how to incorporate more channels for HCP engagement and patient care. For example, the FDA has already designated an immersive VR system as a breakthrough technology to treat fibromyalgia and low back pain, and the application of metaverse in pharma is profoundly virtual, mirroring real-life settings.

The Use Cases of Metaverse in Pharmaceutical Companies

■ Drug Development in Metaverse

According to a 2020 study published in the Journal of the American Medical Association (JAMA), the average investment required to bring a new drug to market is \$1.4 billion USD. Designing, staffing, and running clinical trials is one of the most expensive and time-consuming stages of drug research. Clinical trials can account for up to 60% of the entire cost of bringing a novel medication to market. It requires a significant amount of time and resources to recruit a sufficient number of clinical trial volunteers with the necessary disease, genetic, gender, age, and other characteristics for a clinical trial.

The Metaverse opens up the incredible possibility of using digital twins to drastically cut the cost and time required to undertake reliable clinical studies. A digital twin is a virtual replica that is intended to accurately represent physical items, processes, or even a real-life person. "Any number of useful simulations can be done in order to explore multiple processes," according to digital twins. The use of a digital twin would allow the experiment or trial to be done and studied considerably faster and safely. Furthermore, unlike a traditional data analytics tool, the Metaverse would allow for an immersive or augmented reality visual portrayal of the proposed therapy's effects on a digital twin, which may be a full person or certain organs and systems. A clinical researcher would benefit from a more user-friendly and potentially more informative visual three-dimensional and interactive representation.

Although the technology to construct an identical digital twin of a human being has not yet been established, pharmaceutical corporations are aggressively researching it. When such technology becomes a reality, pharmaceutical companies will be able to complete clinical trials for a fraction of the cost and in a matter of weeks, rather than months or years.

One of the great opportunities that the Metaverse is providing to the Pharma industry is to overall "get closer" to the patient – Let's face it, this is something the industry has typically struggled with.

Metaverse for Drug Trials and Patient-centricity

According to McKinsey's research about the impact of decentralization on Clinical trials, typically, 70 percent of potential participants live more than two hours from trial sites (data from Sanofi). As a result, decentralization broadens trial access to a larger and presumably more diverse pool of patients. Traditional site operations (such as medication administration, assessments, and data verification) can also be handled remotely by others or by trial participants themselves, reducing the workload for trial investigators. A plethora of evolving technologies and services have enabled the shift of clinical-trial activities closer to patients: tools such as electronic consent, telehealthcare, remote patient monitoring, and electronic clinical-outcome assessments (eCOAs), as well as the Metaverse, allow investigators to maintain links with trial participants without in-person visits.

Before the pandemic, an Industry Standard Research survey in December 2019 found that 38% of pharma and contract-research organizations (CROs) expected virtual trials to be a major component of their portfolios, and 48% expected to run a trial with the majority of activities conducted in participants' homes. McKinsey's Clinical Operations Roundtable asked the identical questions a year later, and the responses were 100% and 89 percent, respectively.

Current drug trials have 4 shortcomings:

- They do not accurately reflect reality.
- Few trials recruit the needed patients on time (recruitment challenges delay almost 80% of all trials);
- Not every patient in a trial is given the new treatment (typically half are given a placebo);
- Not all experimental drugs operate as safely as they should.

In the Metaverse, digital twins can solve all of this thanks to some of their unique characteristics: Infinite coverage (digital twins can simulate a wide range of patient characteristics, providing a representative view of a drug's impact on a larger population), speed (AI can simplify trial design by providing visibility into patient availability for a range of inclusion and exclusion criteria), predictability (with digital twins predicting patient response, there will be no need for placebos or dummy drugs), so that each patient in a trial can be assured of the new medication) and, finally, safety (by reducing the number of patients who need real-world testing, digital twins can minimize the hazardous impact of earlystage drugs).

Here are some major features that demonstrate the advantages of deploying metaverse technologies in the pharmaceutical industry:

■ Supportive communities for patients

Purpose-built patient communities in the metaverse can connect, engage, and share the experiences of patients from all around the world. With smart contract development tools, rules and regulations for such communities may be deliberately designed while keeping safety and data security in mind.

■ Rep-HCP virtual interactions

Virtual or remote calls make up to 20% of rep interactions and this has massively increased in the past few years, mainly due to the pandemic. Reps may use Metaverse to effortlessly communicate with HCPs in the virtual realm and develop digital relationships.

■ Interactions with brands and events

Medical training, disease cure programs, educational programs, and specialized pharmacological advantages in connected conditions are some of the most significant and early use cases of a metaverse in pharma. Brands and pharmaceutical businesses can create virtual industry events for HCPs, patients, and consumers using intuitive metaverse platforms.

■ Brand Marketing

Pharma businesses can reach new audiences and patients in the metaverse by utilizing new marketing opportunities such as sponsored content, virtual billboards, virtual gaming experiences, and digital conferences.

■ Telemedicine 2.0

The metaverse has the ability to transform telemedicine indefinitely by combining technologies such as vitals tracking, haptic touch, and body scanning within the virtual world to make digital HCP consultations more hyper-realistic, personalized, and human-like. It will very certainly open up new avenues for remote care via telemedicine.

28. METAVERSE IN INSURANCE INDUSTRY



The metaverse as it currently exists is in its infancy. Most insurers will not see the benefit of entering the metaverse because it provides little return on investment. The investment here is primarily in terms of time and money.

To effectively meet the needs of those who use the metaverse, insurers will need to think beyond traditional products and services. Insurance companies should collaborate with manufacturers to foster the responsible development of new technologies and solutions.

Insurers will need to devise a strategy for transferring their activities to the virtual world in order for their business to be compatible with the upcoming virtual reality.

Not to mention that in as little as three years, we will see a massive increase in the number of jobs across thousands of industries in the metaverse. Many of these industries will be new, but they will all necessitate insurance. Insurers, on the other hand, have the potential to make trillions from the boom, but only if they are first.

At the moment, the strategy appears to be centered on creating a metaverse around your brand. This entails developing user-driven engagement through an immersive digital experience. To put it simply, insurers will want to automate, streamline, and digitize every step of the process. Many insurers are already taking this approach, and those who do will be ahead of the competition.

Creating a virtual analogy of an insurance product could be considered the first step toward selling insurance as a product rather than a service in the metaverse. As a result, firms that establish themselves in the metaverse or individuals looking for personal insurance can purchase the insurance product depending on how effectively it is packaged to deliver the best bang for their buck.

The Use Cases Of Metaverse In Insurance Industry

Insurance companies benefit from the metaverse business opportunities.

The metaverse as it currently exists is in its infancy. Most insurers will not see the benefit of entering the metaverse because it provides little return on investment. The investment here is primarily in terms of time and money.

Some of the business opportunities that the metaverse brings to the insurance value chain are as follows:

Revenue

Avatars are the primary players in the metaverse. Potential customers interact with other people's avatars and participate in metaverse events through their avatars. As a result, insurance companies are likely to conduct sales activities directly with avatars in a variety of ways in the future.

To begin, insurance companies could use the metaverse as a venue for marketing and branding activities to increase brand awareness. Because there are no physical constraints in a virtual space, they can try new and innovative marketing activities, such as placing ads in mid-air. Branding activities in the metaverse may also be a more effective way of reaching younger generations, many of whom are drawn to the metaverse's game-like aspects.

Second, 'immersive experiences' in the metaverse may allow customers to gain a better understanding of the worth of insurance products. Until now, insurance salespeople have simply explained the importance of insurance as a contingency plan to potential customers using statistical data and their own professional experience. However, in a virtual space, insurance companies could allow people to experience situations in which insurance would be used, allowing them to better understand the value of insurance. Insurance companies can provide their potential customers with the opportunity to realize and recognize risks that they were previously unaware of by allowing them to experience the simulated impacts of certain potential catastrophes, such as vehicle accidents and fires (non-life insurance) or illnesses (life insurance). However, in order to put this into practice, insurance companies will need to address practical issues related to customer protection, such as taking steps to ensure that these simulations do not cause emotional harm to the customer.

Finally, in the metaverse, all customer behavior is recorded as data. If insurance companies could analyze an avatar's activity history, purchase history, and relationships with other avatars, they might be able to offer more natural risk protection products to the user. However, from the standpoint of personal data protection, this type of corporate behavior may not be appropriate. Individuals, rather than a specific platform provider, would have discretion and control over their own data in an ideal metaverse state. As a result, insurance companies must closely monitor changes in legislation and platform provider policies concerning personal data protection.

■ **Contract execution, billing and collection, contract administration, and claims payment**

For some time, insurance industry players have been working to digitize their administrative procedures. They will need to digitize their processes from contracting to claims payment, as well as their sales activities, as they begin selling insurance products to cover risks that users face in virtual spaces. In a world where insurance policies cover digital assets, contracts are issued using NFT technology, and premiums and payouts are paid using cryptoassets, all matters related to such insurance products will need to be converted to data, and tasks that can only be performed in a physical space may almost disappear. With some insurance companies building digital twins of physical spaces in the metaverse to train their employees in damage investigation, we believe that an increasing number of operations that were previously performed in physical spaces will be able to be handled in virtual spaces. In other words, the emergence of the metaverse and related technologies will hasten insurance companies' digitization.

■ **Combining assets and products for insurers**

With the use of avatars, 3D models, spatial environments, and mixed reality, we've seen market innovation racing towards the evolution of asset classes. The asset classes and metadata can collaborate to create profiles of businesses and individuals, which will then populate the metaverse.

Undoubtedly, many of the formats are understandably proprietary or platform-specific. While these will rapidly scale innovation, the metaverse will also become portable, necessitating asset and content interoperability.

The publishing and transparency of documentation, uniquely identifies for businesses, and risk assessment being ported to the metaverse will be critical aspects of portability in the commercial insurance industry, for example.

All of this must work seamlessly, allowing businesses to apply for things like workers' compensation insurance or business liability insurance almost entirely through the metaverse because all necessary information is already available.

The ability to transfer assets directly from one platform to another without the use of intermediary services will be a major driving force in the metaverse, particularly when it comes to providing insurance products.

Insurance underwriters will have to collaborate with enhanced artificial intelligence that employs the metaverse's common data model. The improved common data model, like the one developed by Microsoft, adds a holistic approach to data management in the metaverse, which, if adopted by others, will aid in the expansion of the ecosystem.

The metaverse has the potential to change commercial insurance by requiring greater cooperation and collaboration among the government, insurance companies, non-profits, banks, and other major entities.

The metaverse must also be cross-platform, which means it must be able to work seamlessly across partners. Only after that will business owners be able to apply for insurance, get approved, and file a claim without leaving the metaverse.

Insurance companies, on the other hand, will be able to work with large amounts of data, analyzing risk and assigning a premium based on the amount of risk involved. This will work faster than it does now when combined with artificial intelligence.

■ Enhancing insurance processes

In addition to creating new demand for insurance products, insurers may use metaverse technology to develop new products and processes. The following areas may be affected:

■ Claims

Metaverse headsets could be used to conduct property assessments by superimposing new damage information over pre-damage images to validate claims data.

■ New Realities

New realities in talent Technology has the potential to bring all aspects of the claims profession to life, assisting the sector in addressing its skills shortage by attracting new talent.

■ Underwriters

Property and casualty underwriters could use the new technology to examine assets remotely, reducing costs.

■ Brokers

In a virtual representation of their premises, brokers could analyze a client's risk profile and needs. This data could be used to develop risk management strategies, which they could then apply to real-world assets.

■ Product Developers

Innovative insurance policies that target specific demographics, such as Seguro GO (created specifically for Pokémon Go players), could assist insurers in reaching a new generation of customers.

■ Exposure managers could use the technology to visualize models and scenarios

Insurers could use the metaverse to bring real-world scenarios to life, enhancing sales or marketing experiences with emotional engagement.

■ Loss adjusters

Training with new realities technology could help agents, adjusters, and risk assessors develop skills wherever they are based, reducing reliance on expert availability and administrative costs.

As technology advances, the loss adjuster of the future may be able to access real-time and objective visual information, as well as claim history, legal precedents, validated third-party information, and historical records of similar scenarios, to inform decision-making.

According to the AR/VR journey, this could accelerate claim settlements, improve customer satisfaction, and reduce fraud.

The virtual items marketplace will be worth more than a hundred billion dollars.

Given that it is already worth around \$50 billion, failing to capitalize on the metaverse potential would mean that insurance companies, like in the past, would struggle to keep up with technology.

The Probable Impact Of The Metaverse On Insurance Firms

Each user interacts with the metaverse via an avatar, which is a kind of 'second self' that represents the user in a virtual space. Insurance companies will be able to approach customers' avatars with their own avatars and provide experiences free of the physical constraints of reality (for example, simulated experiences such as fire, natural disasters or hospitalization).

By a 'new economic sphere,' we mean a thriving virtual economy in which blockchain-based transactions involving virtual assets like cryptocurrencies and non-fungible tokens (NFTs) occur more frequently and at higher volumes than ever before, eventually reaching a scale comparable to financial transactions in the real world. Digital data representing virtual land, buildings, and other property will be considered a regular part of an individual's economic assets in this future economy, necessitating the need for such assets to be insured. In addition, insurance companies will be able to incorporate NFTs and crypto assets into their own investment portfolios.



29. METAVERSE IN PHOTOGRAPHY



Photography in the metaverse gives you previously unimaginable freedom to experiment with light, color, perspective, and output. In a culture where content creators are grappling with the "move fast, break things" fallout of Web 2.0, this new digital frontier provides an opportunity to ask: How can we reclaim visual storytelling in a manner that encourages connection? What artistic ethics rules will we have to rewrite? What would we do differently if we can just do it all over again?

The Use Cases Of Metaverse In Photography

- Metaverse photography will bring a new creative category to life.

Photography can and will evolve beyond the still images we share today. Metaverse photography, with 3D layers embedded with sound (and even smell), will enable perception well beyond eyes, forging a new category of art, a new kind of sensory experience.

This shift to immersive imagery is visible in pioneering artists like REO, who have combined photography and digital art skills to create non-fungible, genre-bending work.

It's difficult to fully comprehend the creative possibilities of the metaverse at this early stage, but consider a flight simulator for a moment. You're taking in the sights in an unfamiliar world dotted with stars in highlighter colors. You exit the cockpit safely and drift into the twinkling sky, weightlessly capturing multidimensional frames with only your "eyes." While a robust, connected metaverse experience could be decades away, it has already begun to expand our vision for image creation, leveling the playing field for new types of creators.

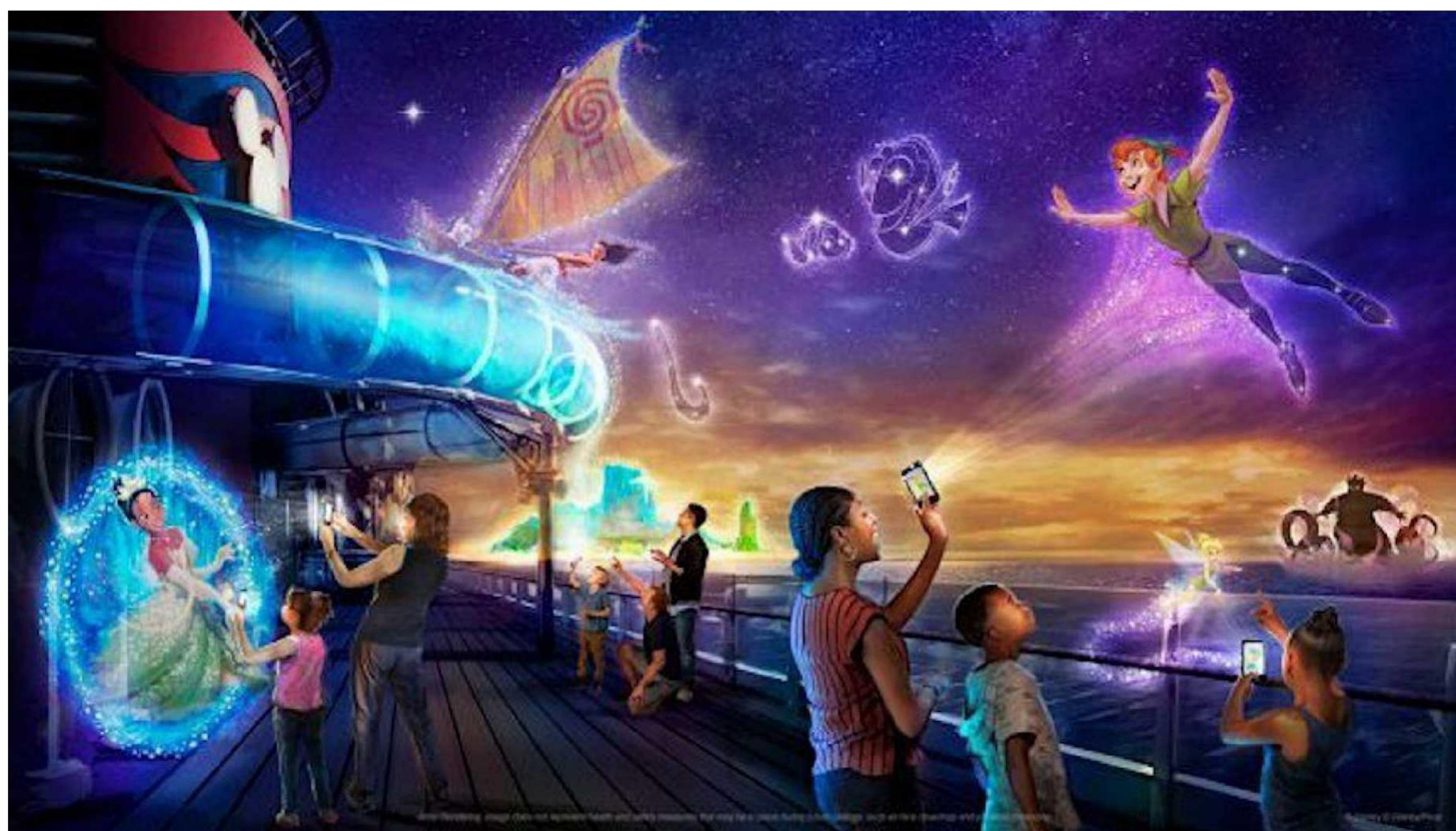
■ The metaverse will bridge the gap between photographer and spectator.

Photography will play an important part in the creation of new virtual experiences and as a link between worlds, from shared digital places that serve as an extension of our own reality (think floating shopping mall) to the development of existing multiplayer realms.

However, image capture across planes raises unanswered questions about the photographer-photographer-observer relationship: Is it possible to take a photograph inside a photograph? What do you call an image that combines real and virtual elements?

While the methods by which we capture what we see may evolve, our desire to remember, interpret, and re-imagine will endure, inspiring even more personalized and immersive viewing experiences. Metaverse photography not only opens up uncharted possibilities for creative expression, but it also provides a new means of communication and connection, whether you're an artist or art collector, a customer or a brand. Photographers will be able to transport viewers, and viewers will become participants in the photos they view.

30. THE METAVERSE FOR SOCIAL NETWORKING



In comparison to social media and other mainstream products, the metaverse is now considered a niche product. Nonetheless, this digital environment has the potential to provide interesting, influencercentric capabilities.

Brands such as Samsung have staged product launch events in existing metaverse platforms, providing consumers special NFTs in exchange for their participation. Given that we live in a COVIDaffected world, these events allow users and companies to meet without the fear of spreading the virus, while still ensuring that the event is accessible to users all over the world. Although these firms can publicize the event on social media, only those who participate in the metaverse profit.

Similarly, for the same reasons, influencer parties can be held virtually entirely in the metaverse. In the metaverse, partygoers are only restricted by their online connections, not their physical location. Access may easily be restricted to NFT ticket holders, prohibiting random visitors and bad actors from breaking in.

We must also take into account the fact that conversations in the metaverse are simply more personable than those on social media. Conversations are held virtually in-person rather than via text or a one-way video call, bringing with them the nuances of natural dialogue that social networking platforms lack.

Influencers Can Monetize Their Metaverse Activity

Aside from hosting events, influencers can and are actively seeking to monetize their metaverse activities in a variety of ways. According to the IZEA research, 51% of influencers are interested in benefiting from the metaverse, and 21% are currently generating money there.

Holding virtual land within the space to arrange ticketed events or even rent it out to others is one way to earn money in the metaverse.

Influencers can also collaborate with large brands that are already prominent in the metaverse or want to do so in the future. Companies such as Puma and Calvin Klein are already developing metaverse avatars for this purpose, and additional brands are sure to follow.

Metaverse Will Replace Social Networks?

While it is impossible to predict when the metaverse will replace social networks, I believe it will. As previously said, it unleashes unprecedented social and economic benefits. As more influencers discover the benefits of the metaverse, they will tell their friends, and word of mouth will keep new users coming.

However, we must also consider technological adoption. While most metaverse platforms may be accessed via a desktop computer, complete immersion requires a virtual reality headset. Companies such as Meta are striving to produce consumer-priced headsets, and have made progress with the Oculus Quest 2, but widespread adoption is still a long way off.

However, the lengthy timescale isn't necessarily a bad thing. Metaverse platforms, on the other hand, have years to flesh out their systems and staff to produce a reliable offering. In addition, influencers and businesses can set up monetization mechanisms so that new entities know how to monetize immediately away.

There remains a lot to figure out with such new technology. However, with a slow and steady adoption rate and devoted development teams, the metaverse can become a place to be and interact.

CONCLUSION: THE FUTURE OF METAVERSE

Many people believe that the Metaverse is a passing fad that will fade away soon. In reality, it is more likely a long-term, tectonic, and paradigm-shifting trend that is just getting started. However, the requirements for maintaining the same are enormous. For the transition of citizen-centric services and applications to Metaverse, 5G networks and other cutting-edge technologies such as AR/VR, AI & ML, and Blockchain will be required. To protect users in this virtual world, legal frameworks and regulatory rules must be strengthened. Renewable energy resources to power the Metaverse are also required. All of this, and more, must be put in place in order to provide innovative services to developing-country populations at a fraction of the cost.

Although governments may need to recognize the importance of Metaverse and jumpstart it, it will need to be developed and sustained with the help of 5G enterprises, the majority of which are in the private sector. This places a great deal of responsibility on both the government and the private sector; perhaps a public-private partnership is a viable option.

India could play a critical role in the development of the Citizen-Centric Metaverse. Governments are frequently chastised for being too slow to address emerging technologies and their implications for national growth and development, the advancement of its people, business in particular, and society at large. In this context, Metaverse should be regarded as a positive development. One thing is certain: the Indian technology governance and regulatory policy landscape is evolving, as global best practices are bound to influence policymakers' strategic decisions.

To participate in the digital revolution, all people, regardless of socioeconomic status, need access to the Metaverse.

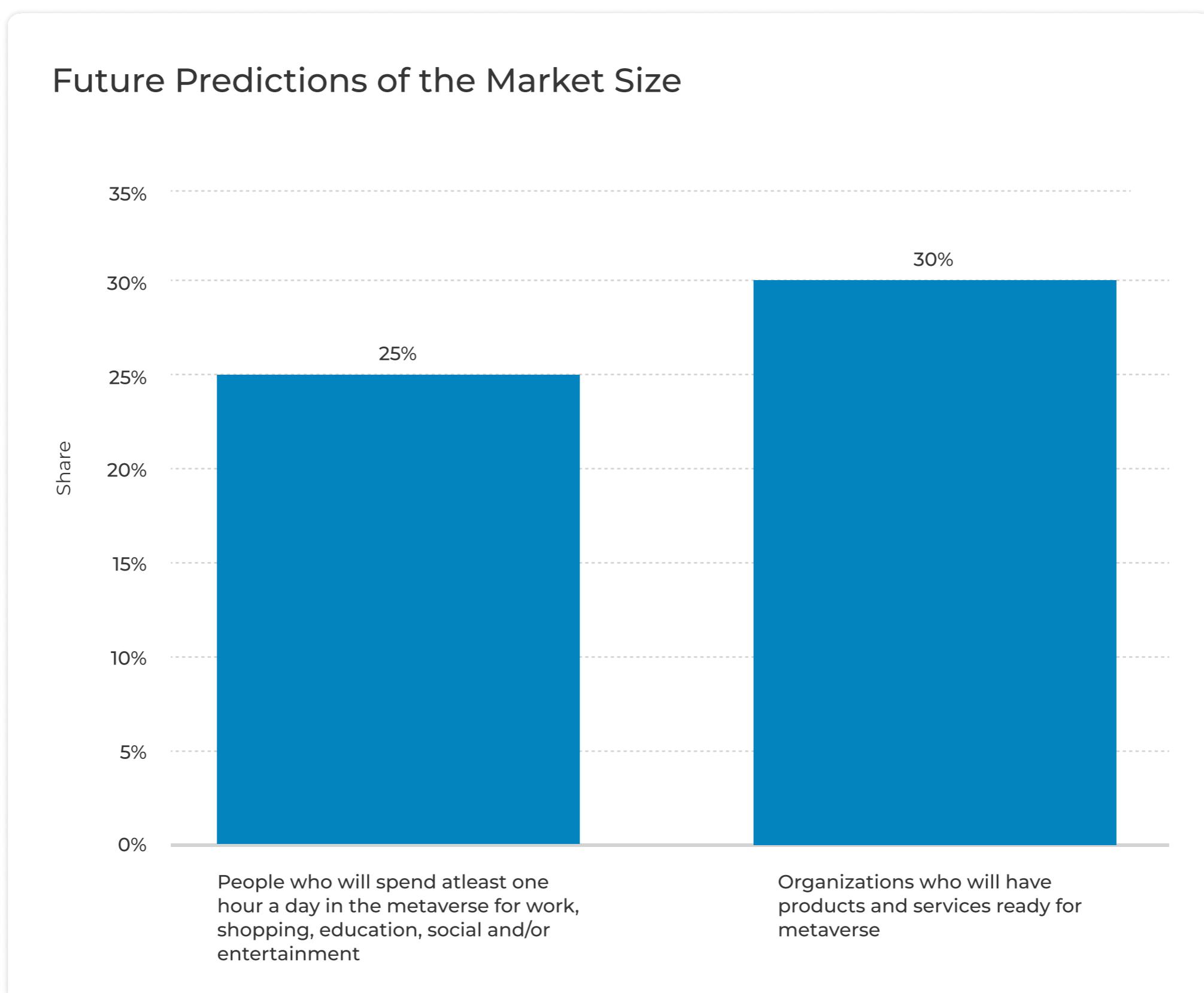
So, imagine the newlyweds from Tamilnadu in their "Digital Avatars" appearing in front of the authority (again, in his Digital Avatar) for the marriage registration formality!

Metaverse, as a secure and bankable infrastructure for citizen services, provides the leap of faith required to transform governance. It is based on blockchain technology and provides a means for governments to improve transparency and accountability. Metaverse's future prospects are brimming with opportunities. And governments must take Metaverse seriously because it provides novel ways to generate employment, impart education, provide healthcare, and map urban planning. Governments can use Metaverse to blend the surreal and the real. What appears enigmatic will become palpable as this Extended Reality universe matures and evolves fully. "The Metaverse could serve as a type of bridge that, until very recently, would have been difficult to grasp," says Omar Sultan Al Olama, UAE's Minister of State for Artificial Intelligence, Digital Economy, and Remote Work Applications. That bridge is now a work in progress, with the promise of transporting governments and the governed far and wide.

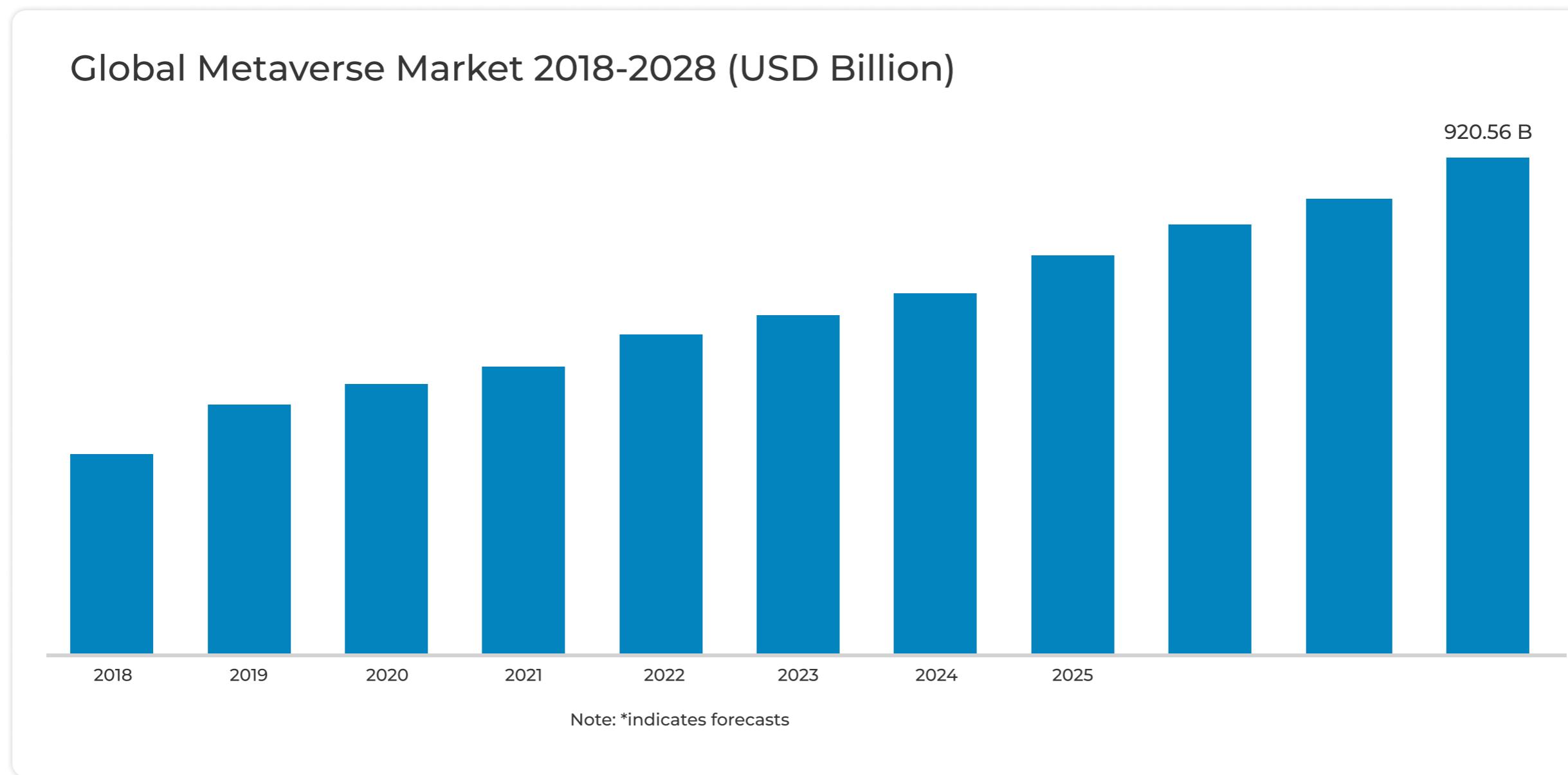
Future Of The Metaverse

The Metaverse will be one of the key technologies that will reshape the digital world in the coming years. According to a recent survey conducted by the technology company Ciena, 78% of business users worldwide are interested in leveraging the metaverse. That is why it is critical for businesses to prepare for this technology, strengthen blockchain capabilities, mitigate Metaverse and blockchain security risks, and embrace a new internet era.

It is estimated that by 2026, 25% of the world's population will spend at least one hour per day in the metaverse for digital activities such as work, shopping, education, social interaction, or entertainment. Furthermore, nearly a third of global businesses are expected to have metaverse-ready products and services by then.



Source: [A droit Market Research 2021](#)



REFERENCES

1. <https://www.bizzabo.com/blog/metaverse-in-the-events-industry/>
2. <https://program-ace.com/blog/metaverse-for-the-event-industry/>
3. <https://www.legalserviceindia.com/legal/article-8439-metaverse-and-the-law.html>
4. <https://thinkml.ai/how-can-metaverse-be-used-in-the-travel-and-lifestyle-industry/>
5. <https://www.eternityinsights.com/report/metaverse-in-travel-and-tourism-market>
6. <https://101blockchains.com/metaverse-tourism/>
7. <https://www.prestigeonline.com/th/pursuits/tech/metaverse-entertainment-future/>
8. <https://www.eternityinsights.com/report/metaverse-in-travel-and-tourism-market>
9. <https://www.telenity.com/metaverse-and-telecommunications/>
10. <https://constructkonnект.com/metaverse-impact-on-construction/>
11. <https://www.engineering.com/story/how-can-the-metaverse-help-the-aec-industry>
12. <https://emerging.com/what-is-the-metaverse-and-how-will-it-affect-your-restaurant/>
13. <https://coinyuppie.com/in-the-world-of-the-metaverse-how-can-food-brands-expand-their-territory/>
14. <https://www.mews.com/en/blog/metaverse-hotelindustry#:~:text=And%2C%20the%20metaverse%20is%20a,great%20for%20driving%20ancillary%20revenue>
15. <https://www.revfine.com/metaverse-hospitality/#how-can-hospitality-industry-be-included-inmetaverse>
16. <https://www.accenture.com/us-en/blogs/business-functions-blog/metaverse-supply-chainnetworks#:~:text=The%20metaverse%20is%20bringing%20together,helping%20companies%20remove%20supply%20constraints>
17. <https://blog.board.com/bi-analytics-reporting/metaverse-supply-chain/2191/>
18. <https://www.defenceweb.co.za/cyber-defence/militarising-the-metaverse/#:~:text=A%20defense%20metaverse%20could%20enable,inform%20force%20design%20or%20training>

19. <https://www.accenture.com/us-en/blogs/voices-public-service/why-the-metaverse-is-a-biggamechanger-for-defence>
20. <https://www.gulfoodmanufacturing.com/factories-of-the-future/future-metaverse-indooragriculture#:~:text=The%20metaverse%20could%20be%20a,to%20learn%20on%20the%20go>
21. <https://www.agweb.com/news/business/technology/13-trillion-reality-virtual-farming>
22. <https://www.oodlestechnologies.com/blogs/pharma-companies-in-the-metaverse:-it-is-now-possible/>
23. <https://www.afslaw.com/perspectives/alerts/drug-development-the-metaverse>
24. <https://i-brokers.com/metaverse-insurance/>
25. <https://www.pwc.com/jp/en/knowledge/column/metaverse-impact-on-the-insurance-industry.html>
26. <https://www.nic.in/blogs/the-metaverse-the-start-of-a-new-era-of-government-services/>
27. <https://timesofindia.indiatimes.com/readersblog/blogger-park/why-governments-cant-miss-the-bus-onmetaverse-44670/>
28. <https://influencermarketinghub.com/metaverse-virtual-real-estate/#toc-5>
28. <https://www.rollingstone.com/culture-council/articles/the-basics-virtual-real-estate-in-the-metaverse-1368820/>
29. https://academy.binance.com/en/articles/what-is-themetaverse?utm_campaign=googleadsxacademy&utm_source=googleleadwords_int&utm_medium=cpc&ef=HDYAHEES&gclid=CjwKCAjwkaSaBhA4EiwALBgQaEQpDUaJAtstsEFXtN4_pyVseQERRoYnvvwjpHYtTAzFhY1JpLFxoCnZEQAvD_BwE
30. <https://www2.deloitte.com/cn/en/pages/technology-media-andtelecommunications/articles/metaverse-report.html>
31. <https://www.ingentaconnect.com/content/intellect/mecr>
32. <https://www.itsnicethat.com/features/creativity-in-the-metaverse-creative-industry-040422>
33. <https://www.fastcompany.com/90767915/the-metaverse-and-the-future-of-creativity-what-it-meansfor-creators>
34. <https://www.tidio.com/blog/metaverse/>

35. [https://www.leewayhertz.com/metaverse-and-socialmedia/#:~:text=The%20Metaverse%20is%20a%20virtual,participating%20in%20virtual%20social%20experiences\).](https://www.leewayhertz.com/metaverse-and-socialmedia/#:~:text=The%20Metaverse%20is%20a%20virtual,participating%20in%20virtual%20social%20experiences).)
36. <https://www.socialmediatoday.com/news/what-is-the-metaverse-exactly-and-how-will-it-change-digital-and-social-c/619174/>
37. <https://www.antiersolutions.com/harnessing-metaverse-for-creating-a-robust-social-media-platform/>
38. <https://medium.com/javarevisited/how-does-metaverse-powers-the-future-of-gaming-5b97213f647>
39. <https://www.analyticsinsight.net/metaverse-gaming-is-the-talk-of-the-town-know-more/>
40. <https://www.lifewire.com/how-the-metaverse-could-be-the-next-virtual-marketplace-5235317>
41. <https://bernardmarr.com/how-will-manufacturing-companies-use-the-metaverse/>
42. <https://www.supplychainbrain.com/blogs/1-think-tank/post/35362-how-the-metaverse-has-changed-manufacturing>
43. <https://rsmus.com/insights/industries/manufacturing/metaverse-manufacturing-trends.html>
44. <https://www.automate.org/industry-insights/5-ways-the-industrial-metaverse-will-impact-manufacturers>
45. https://101blockchains.com/metaverse-for-advertising/?gclid=Cj0KCQjw166aBhDEARIsAMEyZh7zg4G5aDp98Efk2UIrRXL7FQ9vix74EpXwlWBkuPHNjQPalmzPPwYaAIWHEALw_wcB
46. <https://www.techtarget.com/whatis/feature/Marketing-in-the-metaverse-What-marketers-need-to-know#:~:text=The%20metaverse%20allows%20companies%20to,immersive%20experience%20than%20traditional%20advertising.>
47. <https://qz.com/africa/2170022/africas-virtual-designers-are-already-preparing-for-metaverse-fashion/>
48. <https://www.tg3ds.com/blog/digital-trends-in-fashion-and-the-metaverse>
49. <https://www.fibre2fashion.com/industry-article/9352/fashion-in-metaverse>
50. <https://cointelegraph.com/news/how-the-metaverse-can-revolutionize-the-fashion-industry>
51. <https://www.pwc.in/assets/pdfs/emerging-tech/metaverse/the-future-of-the-retail-industry-in-the-metaverse.pdf>

52. <https://www2.deloitte.com/us/en/pages/consulting/articles/metaverse-for-the-future-of-retail.html>
53. <https://www.analyticsinsight.net/retail-and-metaverse-virtual-showrooms-are-the-future-of-retailindustry/>
54. <https://www.bizzbuzz.news/markets/20-allocation-in-gold-etf-a-better-investment-strategy-quantumamc-1174317?infinitescroll=1>
55. <https://www.analyticsinsight.net/metaverse-is-revolutionizing-healthcare-are-you-ready-for-change/>
56. <https://www.globenewswire.com/en/news-release/2022/08/24/2503869/0/en/Metaverse-in-Healthcare-Market-Size-to-Hit-USD-72-10-Bn-by-2030.html#:~:text=Applications%20of%20the%20metaverse%20in,creating%20profitable%20market%20expansion%20potential.>
57. <https://www.statista.com/statistics/1033162/healthcare-ar-and-vr-market-forecast-worldwide-byregion/>
58. <https://www.prnewswire.com/news-releases/metaverse-in-healthcare-market-to-grow-at-a-cagr-of-33-83-by-2026--advantages-of-metaverse-in-healthcare-to-boost-growth---technavio-301595486.html>