



2021 Metaverse Real Estate Report





Republic Realm 2021 Metaverse Real Estate Review

About Republic Realm

Republic Realm is one of the most active investors in and developers of the metaverse real estate ecosystem and owns over 3,000 real estate NFTs across 24 different metaverse platforms. Republic Realm invests in, manages, and develops assets including NFTs, virtual real estate, metaverse platforms, gaming, and infrastructure.

For more information visit: www.republicrealm.com.

Realm Portfolios: Customizable Metaverse Real Estate Ownership Packages

Republic Realm is a leader in metaverse real estate. Republic Realm creates customized, diversified metaverse real estate portfolios and metaverse real estate developments projects across 24 different metaverse platforms. Let Republic Realm create a custom metaverse real estate portfolio for you.

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Introduction

2021 was a groundbreaking year for the entire metaverse ecosystem. Metaverse land and asset prices approached real-world levels as the metaverse entered mainstream interest. Celebrity and brand partnerships, surging valuations of metaverse tokens, and the growth of the play-to-earn gaming space contributed to the metaverse's ascension.

Today, Republic Realm is tracking more than 180 metaverse projects and has invested in 24 of them.

The Republic Realm 2021 Metaverse Real Estate Review provides an overview of the metaverse real estate ecosystem and discusses key trends related to mainstream adoption, commercial applications of metaverse technology, including gaming and commerce, and the impact of non-fungible tokens (“NFTs”) on the overall metaverse landscape.

The report is comprised of three parts:

1. The macro trends shaping the metaverse industry.
2. A comprehensive review of four blockchain-based metaverse platforms which we consider to be the “pioneer platforms.” These platforms are among the first blockchain-based metaverses to launch and have attracted a significant user base resulting in significant land value. These pioneer platforms include Decentraland, Somnium Space, Cryptovoxels, and The Sandbox.
3. A qualitative review of other metaverse platforms, many of which have not yet launched.

Metaverses: An Introduction

Virtual worlds are not new. Both Second Life and Eve Online, virtual worlds designed for adults, launched in 2003 and attracted millions of users at their peak. Players built complex economies within those games. Both games rose to popularity when the real world was still very much rooted in real-life interaction, but have since declined in popularity as new crypto-based upstarts have been growing. Those games may have been just a bit too early.

In 2004, Ailin Graef, better known by her avatar's name, Anshe Chung, began amassing virtual real estate in Second Life. She started with less than \$10, and became famous for becoming the first avatar to achieve a net worth of more than \$1 million from business dealings conducted entirely inside a virtual world. Much of today's excitement about virtual real estate and NFT speculation can be traced back to the mythology surrounding Anshe Chung.

Since then, human interaction and socialization have become overwhelmingly virtual; most people have moved their social and business relationships to their phone or laptop. If ever there was a tipping point when people would choose *en masse* to socialize on computers rather than in person, it is now, during a global pandemic that has driven us all online. These new habits have caused permanent behavioral and cultural shifts, irrevocably changing what we consider normal.

What is metaverse real estate?

The “metaverse” refers to expansive and interactive virtual worlds built like video games that reflect an alternate digital reality where people socialize, work, play, and transact. Metaverses built on the blockchain are self-contained virtual cities and economies that simulate real-world interactions. Metaverse real estate refers to the “land” assets in these worlds. When they are built on the blockchain (which is the case of all metaverses that we will review in this report), the “land” within the metaverses can typically be bought and sold in the form of non-fungible tokens, or NFTs. This is “metaverse real estate.”

Enough people believe that this virtual real estate is scarce and holds value that they are spending meaningful amounts of money on it. For this reason, its ownership has become something of a status symbol among early adopters.

Beyond status, ownership represents something greater – a contribution to the fabric of the metaverse community. Where and how metaverse real estate is developed has an enormous impact on how players will interact with it. They

become spaces where people can engage, explore, build, and socialize, mimicking real-life social interactions while also driving up the land's value.

Investment in virtual real estate occurs through the purchase and exchange of nonfungible tokens (NFTs), a special type of cryptographic token that represents something unique; non-fungible tokens are thus not mutually interchangeable. This is in contrast to cryptocurrencies like Bitcoin that are fungible in nature. Each NFT is distinct; it is indivisible and is not interchangeable.

Although not as liquid as some cryptocurrencies that trade on larger exchanges, virtual real estate NFTs are exchangeable on NFT marketplaces through transactions that are much more streamlined and transparent than real-world real estate transactions. Instead of a traditional deed or title, which is cumbersome to transfer, ownership of virtual real estate NFTs are recorded on a decentralized blockchain ledger. Holders are the perpetual owners of their digital items, even if a game's servers are down.

Prospective buyers of land in the virtual world must learn the new rules. What matters in the virtual world is bringing humanity and life to something digital, drawing players together, and then encouraging them to return and interact. (These settlements are often called "clusters of content.") In the virtual world, ingenuity and design matter even more than location and budget.

Although the number of active daily users in metaverses is still relatively minimal, when users do start populating metaverses in meaningful numbers, selling real-world or digital products to people in those virtual worlds will become a very cost-effective marketing strategy. In fact, this marketing may accelerate mass adoption of the metaverse as consumers log on to collect virtual products from their favorite brands. The convergence of real-world spending in virtual world environments is nothing new. Players have been buying "skins" and extra lives in video games for years. (Amazon is a fascinating case study in the increasingly intertwined relationship between e-commerce and brick and mortar retail.) All of this metaverse commerce will happen on metaverse land.

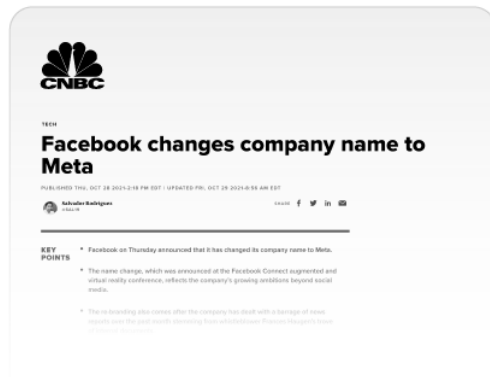
Imagine the possibilities for a company like Nike. Instead of having a store on every Main Street in America, Nike could build one jaw-dropping virtual retail experience in a metaverse that could sell to, quite literally, anybody anywhere at any time. At some point, every company will realize it needs to have a virtual presence in a metaverse like Decentraland, just as they have all learned they must have a website on the internet.

The results are self-fulfilling. As the content inside the metaverses becomes more compelling, more people will show up, thus attracting more corporate sponsorships.

What's more, participants in this virtual economy will see that it is an exhilarating time to participate. The possibility of escaping to a new world and reinventing yourself will always hold an allure, even to the stodgiest among us. When coupled with colorful graphics, art, music and new friends from around the world, it's easy to understand why the metaverse is a trending topic.

Early movers in virtual real estate have the ability to get in at prices that are still relatively affordable compared to real-world markets. Like early movers in fast-growing places in the real world (Florida's The Villages; Austin, Texas; Las Vegas), those who invest early and hold for the long term may benefit the most.

The Meta Effect



In late October, Facebook announced it was changing its name to “Meta.” This announcement immediately increased public awareness of the metaverse. Overnight, the metaverse became a buzzword. News outlets around the world began asking, “What is the metaverse?” Facebook’s signal to the world was clear: one of the most influential tech giants deemed the metaverse to be the future of the internet.

While the Facebook announcement increased metaverse land sale numbers, the so-called “Meta Effect” resulted in a significant increase in the token prices for all the various blockchain metaverse platforms.

For example, SAND, which was trading at \$.099 prior to the announcement, traded up to a 2021 high of \$8.40, a 748% increase, while Decentraland’s MANA increased from \$.076 to \$5.79, a 662% increase. These price increases resulted in a fully diluted market capitalization (value of all coins to ever be minted) of SAND to north of \$18 billion and \$7 billion for MANA.

Gaming metaverse tokens also saw considerable runs during the same period. Star Atlas' ATLAS token rose 133% from \$0.09 to \$0.21, while Gala Games' GALA rose 953% from \$0.08 to \$0.82.

Metaverse NFT Index (\$PLAY) Performance Since Inception



Comprised of SAND, AXS, MANA, ILV, ENJ, GALA, YGG, and AUDIO

As metaverse token prices rose, other investors turned to metaverse land as a way to invest in the metaverse trend. Between the Meta announcement and the time of this publication, average land prices in The Sandbox increased by 349% from \$2,702 to \$12,136, while virtual land prices in Decentraland increased by 26% from \$10,755 to \$13,602.¹

In-game NFT assets also benefited from this explosion of interest in the metaverse. Republic Realm's Fantasy Islands, a development project in The Sandbox, sold for 5 ETH each (~\$15,000 at the time of sale) in August 2021. These islands have sold recently for as much as 62.9 ETH (\$283,000), or about the same price as the average home in the United States. Additionally, a digital yacht from the same series called The Metaflower Super Mega Yacht sold for 149 ETH (\$650,000).² Meanwhile, homes in the Wilder World metaverse sell for upwards of

¹ Prices recorded as the average during that month. Data Source: Meta Metriks, a source for metaverse land analytics available at www.metametriks.xyz

² Chow, Aaron. "The Metaflower Super Mega Yacht' NFT Sells for a Record \$650,000 USD." Hypebeast, 24 Nov. 2021.

\$160,000.³ In Star Atlas, a Solana-based space game in which all assets are tokenized, buyers have paid up to \$3 million for spaceships.⁴

The Merging of Physical and Digital Lives

In the metaverse, each user is represented by an animated “avatar.” Users may dress and design their avatars to their preferred aesthetic, and just like in real-world fashion, clothing and accessories vary in price, while some hold more social value than others. As people’s physical identities become inextricably linked to their digital identities, the value of NFT accessories have increased in importance across the metaverse ecosystem. Popular NFT avatar projects such as Meebits, CloneX, and Bored Ape Yacht Club further underscore the convergence of NFTs, metaverse real estate, and digital wearables. While these NFT collections now exist as PFPs, or “profile picture projects,” each of their roadmaps point to metaverse utility where these avatars can be played as 3D characters in metaverse games, VR, and in metaverse social interactions. They also intend to build metaverse gathering spaces in games like The Sandbox.

Luxury and exclusivity have already begun to migrate to the digital realm in the form of digital wearables. As one of the first-movers among established companies, Adidas recently launched their own avatar initiative, partnering with Bored Ape Yacht Club to create a series of NFT wearables.⁵ Leading virtual shoe creator RTFKT (recently acquired by Nike) has sold NFT metaverse sneakers for up to \$10,000 a pair.⁶ Digital fashion houses such as Tribute Brand, DRESSX, and The Fabricant have also launched successful digital wearable collections.

Ultra-luxury brands have also embraced the metaverse. A virtual Gucci handbag sold in May 2021 for 350,000 Robux (\$4,115), which is \$700 more than the physical bag (\$3,400).⁷

While in-metaverse assets are garnering high price tags, it is important to note the difference between decentralized metaverse assets and centralized metaverse assets. In centralized metaverses, such as Fortnite, only the game’s developer,

³ @SpartanBlack_1. “[This unit just got sold for a cool 36.9ETH...for those that are sleeping on @WilderWorld.](#)” *Twitter*, Nov 30 2021, 10:32 p.m.

⁴ Nicole Chainplay Blog. “[Star Atlas Sells \\$3 Million Worth NFT Spaceships To Animoca Brands.](#)” *Chainplay*, 23 Dec. 2021.

⁵ McDowell, Maghan, and Kati Chitrakorn. “[Adidas reveals new NFT project with Bored Ape Yacht Club.](#)” *Vogue Business*, 17 Dec. 2021.

⁶ Servantes, Ian. “[\\$10K for a virtual shoe? NFTs are here to create more sneakers you can't get.](#)” *Input*, 3 Mar. 2021.

⁷ Kelly, Dylan. “[A Virtual Gucci Bag Sold For More Money on Roblox Than The Actual Bag.](#)” *Hypebeast*, 26 May 2021.

Epic Games, profits from sales—and can make more than \$50 million from just one set of Fortnite Skins.⁸ Alternatively, in blockchain-based metaverses, profits and sale royalties are generally distributed to product creators, promoting an environment of collaboration and co-creation aligned with the decentralized ethos of cryptocurrency.



Gucci's Luxury handbag, physical (left) and virtual (right)

Celebrities Enter Metaverse Real Estate

While Facebook's name change to Meta was certainly a major contributor to the rise in interest in the metaverse, there were other significant milestones that brought the metaverse to the mainstream. As celebrities and influential figures began to enter the metaverse to expand their brands, social media and press headlines amplified this activity. For example, news of a plot of land selling next to Snoop Dogg's development in The Sandbox for \$450,000 (to which Snoop Dogg tweeted "that's a bargain").⁹

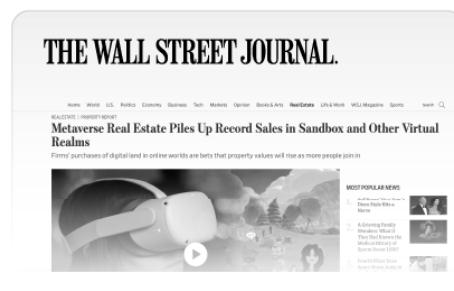
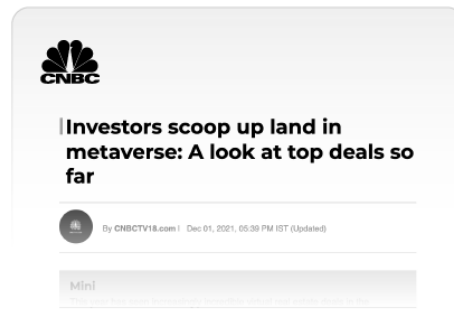
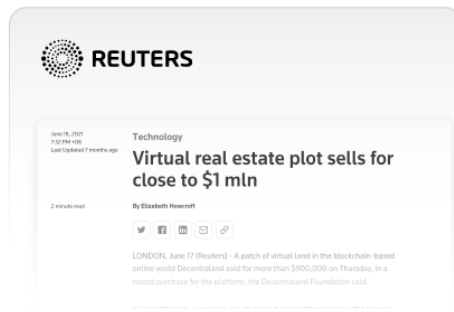


Snoop Dogg took to Twitter to tell his fans the news

⁸ Tassi, Paul. "Epic Reveals It Made \$50 Million From One Set Of 'Fortnite' Skins." *Forbes*, 11 May 2021.

⁹ @SnoopDogg. "That's a bargain." *Twitter*, 3 Dec. 2021, 4:02 p.m.

Coverage of the metaverse expanded from chiefly crypto-native news outlets to renowned international news outlets such as [Reuters](#), [CNBC](#), [The New York Times](#), [Bloomberg](#), [CNN](#), and [The Wall Street Journal](#), particularly as land sales started to approach real-world values. In November 2021, the Wall Street Journal reported that Republic Realm made the most expensive virtual land purchase in history with a \$4.3 million acquisition of The Sandbox land from gaming giant Atari.¹⁰



¹⁰ Putzier, Konrad. "Metaverse Real Estate Piles Up Record Sales in Sandbox and Other Virtual Realms." *Wall Street Journal*, 30 Nov. 2021.

The Pioneer Metaverses

The four pioneer metaverses: Decentraland, The Sandbox, Cryptovoxels, and Somnium Space share a number of defining characteristics, including:

- They have seen significant user interest and game asset sales figures.
- They are free to play.
- They have a finite quantity of tokenized (NFT) land.¹¹
- Their land can be bought and sold in primary and secondary sales on marketplaces like OpenSea and Rarible.
- Virtual landowners are free to determine what to develop on their digital property.
- They have no stated objective. Players can spend time in the metaverse however they desire.

Land owners have developed a wide range of activities in the pioneer metaverses, including a casino in Decentraland, The Museum of Crypto Art in Somnium Space, and a variety of interactive video games are under development in The Sandbox.

Decentraland



One of Decentraland's feature-filled streets

¹¹ However, options to increase total area have been exercised in the past. Prior to its gameplay release, Decentraland's community in February of 2019 voted to increase parcel size from 10x10 meters to 16x16, 156% increase in total land area.

Decentraland is a multiplayer role-playing game developed by two Argentine software engineers, Estaban Ordano and Ari Meilich. The world centers around a plaza, called Genesis City. It shares similarities with early virtual games like SimCity and Second Life, and newer multiplayer games like Minecraft and Fortnite.

Decentraland is distinguished from predecessors like SimCity by its cryptocurrency-based economy. All of the parcels (called “LAND” in the game) except for roads and plazas can be bought, sold, and developed by the users of the game using “MANA,” Decentraland’s own crypto-token. MANA has a fully diluted market capitalization of about \$7 billion, a more than 322-time increase since its 2017 ICO figure of about \$20 million.

Decentraland has seen significant brand and influencer involvement. Last July, Sotheby’s launched a virtual art gallery replica of its London gallery in the Voltaire Art District of Decentraland, and Paris Hilton headlined a virtual concert with musical guests Deadmau5, Alabaster dePlume, and 3lau.



Sotheby's Location in Decentraland

The Sandbox



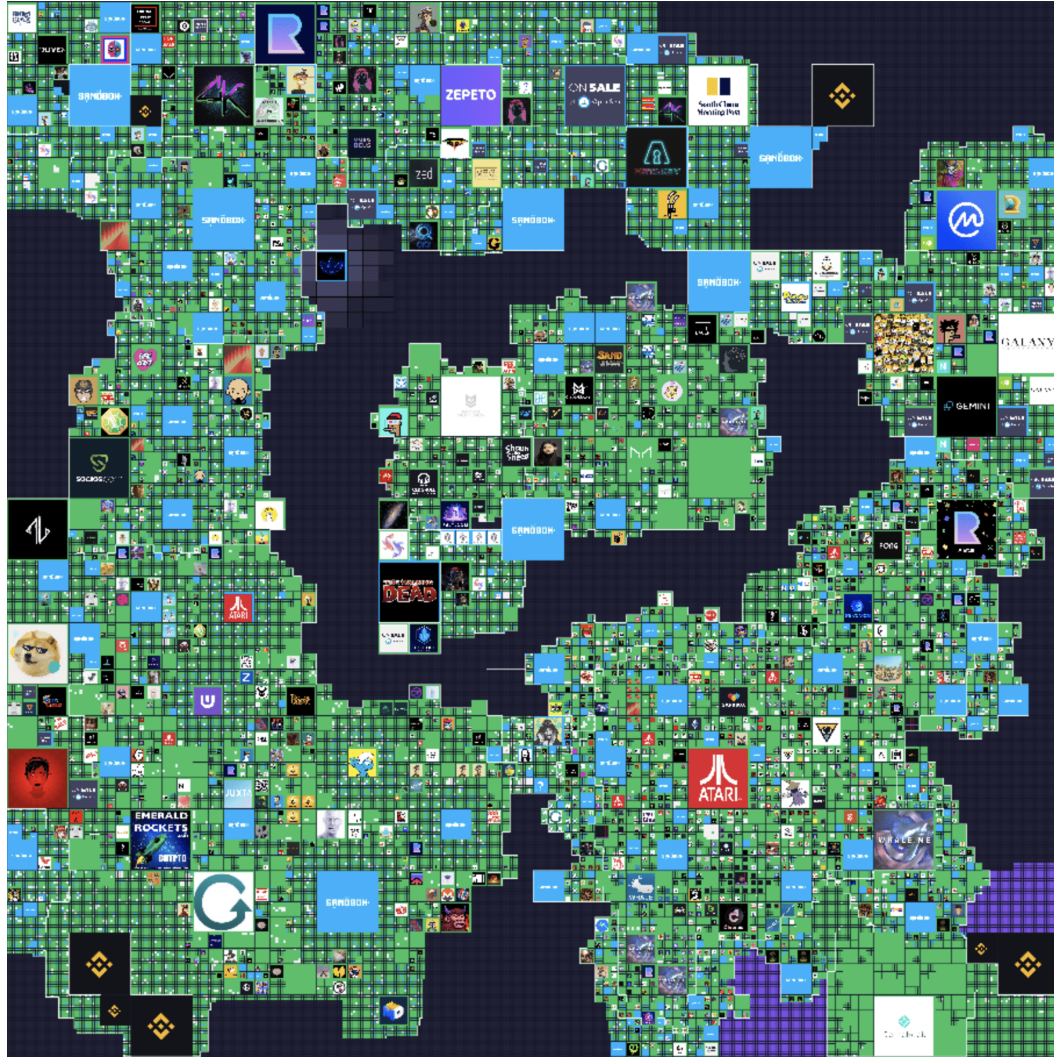
One of many vibrant locations in The Sandbox

The Sandbox, developed by a team in France, is designed to resemble Minecraft, the world's best selling video game, surpassing 228 million copies sold since its release.¹² Though The Sandbox game is not fully live, on November 29, 2021, an alpha version was released to many users who were able to experience the earliest version of gameplay.¹³

One of the most notable features of The Sandbox is its map of parcels, which allows buyers to place a graphic over their holdings. Over the past 12 months, the map has been populated with a wide variety of popular company logos, ranging from Atari to the Walking Dead to the Smurfs.

¹² Trayanov, Stoyan. "10 best-selling video games of all time." *USA Today*, 7 Nov. 2021.

¹³ Reviews were positive, with crypto insiders such as [Bitcoin.com](https://www.bitcoin.com) noting they "truly enjoyed the gaming experience"



The Sandbox game map, owners are free to imprint on their lands any image, often used for logos. Note the Atari estate in the bottom right and CoinMarketCap's estate in the top right.

The Sandbox has secured over 165 partnerships to date, including with Adidas, Snoop Dogg, the Walking Dead, Care Bears, Atari (Rollercoaster Tycoon, Pong), CryptoKitties, Shaun the Sheep, and Square Enix (creators of Tomb Raider and Final Fantasy). Each partner intends to develop content on their land, such as multiplayer gaming and social experiences, as brands look to establish themselves in the metaverse permanently.¹⁴ Meanwhile, NFT projects like Bored Ape Yacht Club, CyberKongz, Party Degenerates, and Solana Monkey Business have

¹⁴ Joseph, Melwyn. "Sandbox Metaverse: How Many IP And Brands Has The Sandbox Partnered With?" *Stealth Optional*, 6 Dec. 2021.

purchased land in The Sandbox, with each intending to develop their estates for community spaces, games, and events.

Cryptovoxels



Several players gather together in Cryptovoxels

Cryptovoxels is a virtual world built on the Ethereum blockchain by Nolan Consulting, an independent game developer based in Wellington, New Zealand. The main area is a large square continent called "Origin City," which is further subdivided into neighborhoods with names like "Memes," "Mars," and "Kitties." The avatars in this world have a distinct mannequin-like appearance that players can further customize and dress up to achieve their desired look.

Cryptovoxels allows players to display their own NFTs on their property. Many enthusiasts in the budding "digital art" ecosystem have taken to Cryptovoxels for this reason. Digital art galleries are a common sight here. Cryptovoxel's interface, too, allows users to view and bid on live listings of these pieces.

Somnium Space



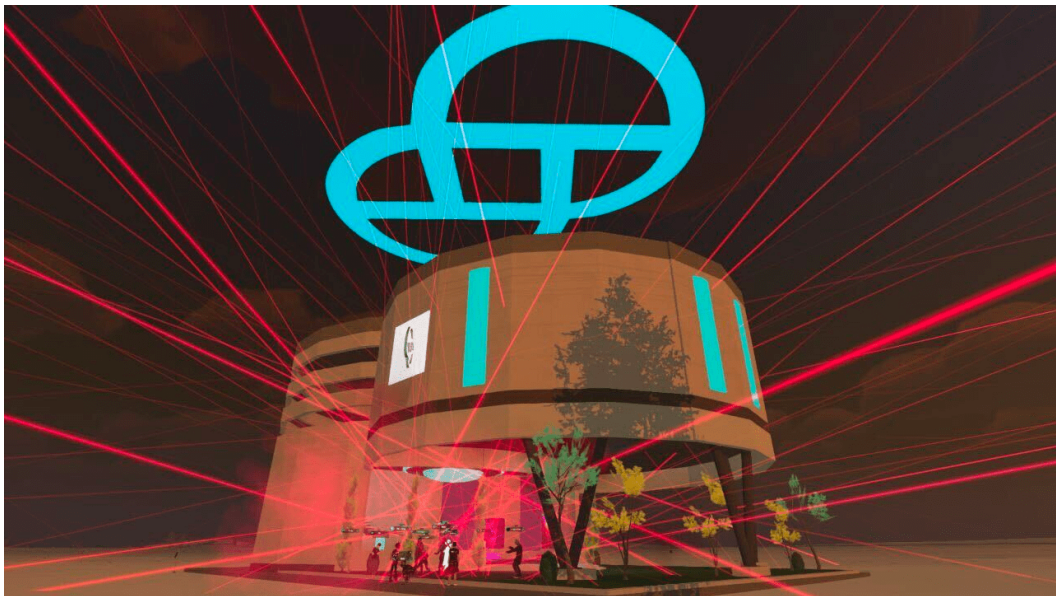
Somnium's photo realistic world

Somnium Space, founded by a Czech Republic-based team in 2017, has both desktop and VR compatibility. Rather than the typical grid layout, Somnium Space's land parcels are located along its river system and are of varying sizes, ranging from small to large. Several mountaintops populate the map that offer views of the expansive world.

Somnium Space has also had success in forging partnerships in its metaverse. Landowners include notable entities like crypto exchange Gemini, which erected a joint HQ with Nifty Gateway. Crypto exchange FTX launched a Somnium Space HQ, adding itself to a growing list of companies defining what it means to be present in both the physical and virtual worlds. Republic Realm built Republic Realm Academy in Somnium Space, providing its metaverse educational initiative with a virtual classroom, HQ, and gathering space.



FTX's Somnium Space Headquarters



Gemini's Somnium Space Headquarters



[Republic Realm Academy, the educational arm of Republic Realm, recently built a campus in the Somnium Space metaverse.](#)

Pioneer Metaverse Land Sales

Illustrated by the movement of average monthly prices of land parcels in each metaverse, the market is indeed volatile—something any cryptocurrency investor is well-acquainted with.

In June 2021, the average price per parcel for land in each of the four pioneer metaverses was approximately \$6,000. By December 2021, their average prices reached \$12,000. While Decentraland and Somnium Space saw average prices regularly over \$10,000 during the two-year period, Cryptovoxels and The Sandbox land sale prices have only recently seen land prices in excess of \$10,000, a trend that began in November 2021.

Land Scarcity

Similar to land in the real world, a core driver of metaverse land value is perceived scarcity.

Each metaverse has a different number of total land parcels, which is outlined in the metaverse's white paper, something analogous to a company's corporate charter. Conceptually, the greater the quantity of land in a particular metaverse, the more potential players and projects can be built. However, more parcels mean that a metaverse can look scant and uninhabited without a deep user base to develop and activate the land parcels.

Scarcity is an underlying driver of value in all virtual worlds. At the outset of any metaverse project, the developers state the total number of land parcels that will ever be created. This is something like "fully diluted shares outstanding," which is used to calculate market cap in a public equity valuation. The total value of all the land in a metaverse is roughly equal to the average price of a parcel multiplied by the total number of parcels. This metric is useful for approximating, and thus comparing, the total value of the different metaverses.

Because the team that develops a metaverse typically holds a significant amount of that metaverse's land in treasury, the founding team is motivated to support the value of those holdings by encouraging development and selling new blocks of land slowly so as not to flood the market and erode their price.

The table on the next page illustrates total land and other figures for each of the pioneer metaverses.

Figure 1

Metaverse Land Parcels



	Number of Parcels	Parcel Size m ²	Total Land Area m ²
Decentraland	90,601	256	23,193,856
The Sandbox	166,464	9,216	1,534,134,132,224
Cryptovoxels	6,554	~250*	1,638,500
Somnium Space	5,026	200 to 1500	4,285,400

	Floor Price per Parcel Dec 2021		Floor Price per m ² Dec 2021		Imputed Value of All Land	
Decentraland	3.8 ETH	\$14,440	0.01484 ETH	\$56	344,284 ETH	\$1,308,278,440
The Sandbox	3.34 ETH	\$12,692	0.00036 ETH	\$1	555,990 ETH	\$2,112,761,088
Cryptovoxels	2.19 ETH	\$8,318	0.00876 ETH	\$33	14,353 ETH	\$54,542,388
Somnium Space	3.59 ETH	\$13,642	0.01795 ETH	\$68	24,676 ETH	\$93,769,522

*Estimated median size

Meta Metriks

There are a total of only 268,645 total parcels in the four pioneer metaverses, compared to about 19 million total Bitcoin in circulation. While the number of metaverses (and thereby supply of possible land parcels) cannot be limited, nor can the number of BTC competitors. Through fierce competition to unseat BTC as a digital store of value, its prominence has not faltered. Metaverses like The Sandbox and Decentraland may be replicated many times in the future, but their unique gameplay, partnerships, and playership will not frictionlessly migrate to the next competitor. Their dominance is not guaranteed, but doubters must prove future metaverses can sufficiently compete with their advantages as first-movers.

Consider the case of Manhattan. Manhattan's real estate is not valuable because its geography is superior. In fact, there are many islands along the eastern coastline of the United States that have similar topographic features and perhaps even better weather, but none are as valuable as Manhattan. Why is that?

Manhattan is valuable because millions of people, over several centuries, have built things there: offices to work in, theaters and restaurants for entertainment, schools, housing, and so much more. Manhattan derives its value because of the quality of its development (equivalent to content in the metaverse) and the collective societal belief that the real estate there is valuable.

Different Sizes, Different Prices

The Sandbox's parcels have a uniform size, 96x96m, and are much larger than Decentraland parcels, which are 16x16m. Cryptovoxels and Somnium Space have parcel types with varying sizes. Somnium Space's parcel sizes include small, medium, and extra large, ranging from 200m² to 1500m², while Cryptovoxels' parcel sizes vary considerably. While the price for one of The Sandbox's parcels is comparable to land in the other metaverses (about \$10,000), its price per square meter is 41x cheaper than land in Decentraland and 24x cheaper than land in Cryptovoxels.

2021 Land Sales Numbers

Despite the increase in interest in the metaverse over the past several months, the actual number of land parcels sold in 2021 is less than what was sold in 2020, largely due to The Sandbox's intermittent public land sales that took place in 2020. Meanwhile, 5-figure price floors have priced out many buyers.

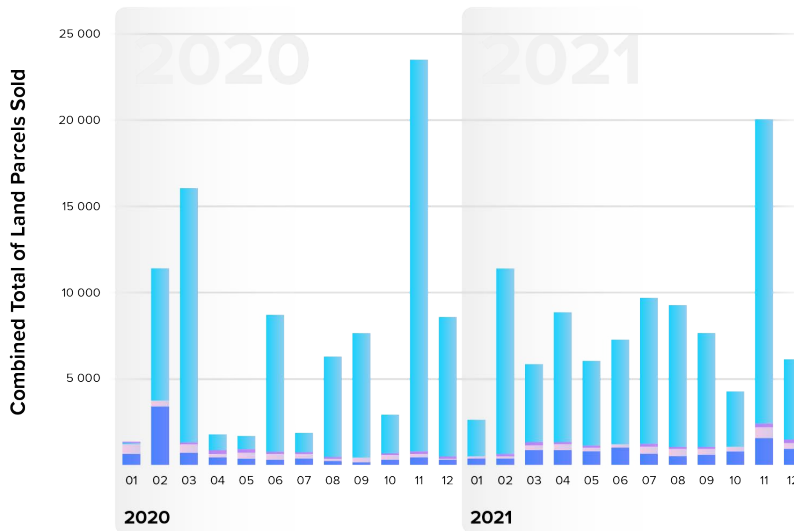
Figure 2 displays the total land parcels sold per month in 2020 and 2021. As shown, the bulk of land sales have been for land in The Sandbox.

Figure 2

Total Land Parcels Sold



- The Sandbox
- Cryptovoxels
- Decentraland
- Somnium Space



Sales figures in November of both 2020 and 2021 for The Sandbox were noticeably higher, with sales exceeding 20,000 parcels following announcements and releases near those periods. In November of 2020, the Sandbox concluded its “presale 4.3,” the last of its kind. This event featured over 1,800 “premium lands” for sale, each positioned near holdings owned by prominent partners like Binance.¹⁵ The more recent November 2021 spike is largely due to Facebook’s late October name change to Meta, which fueled a surge in sales volume across all four metaverses.

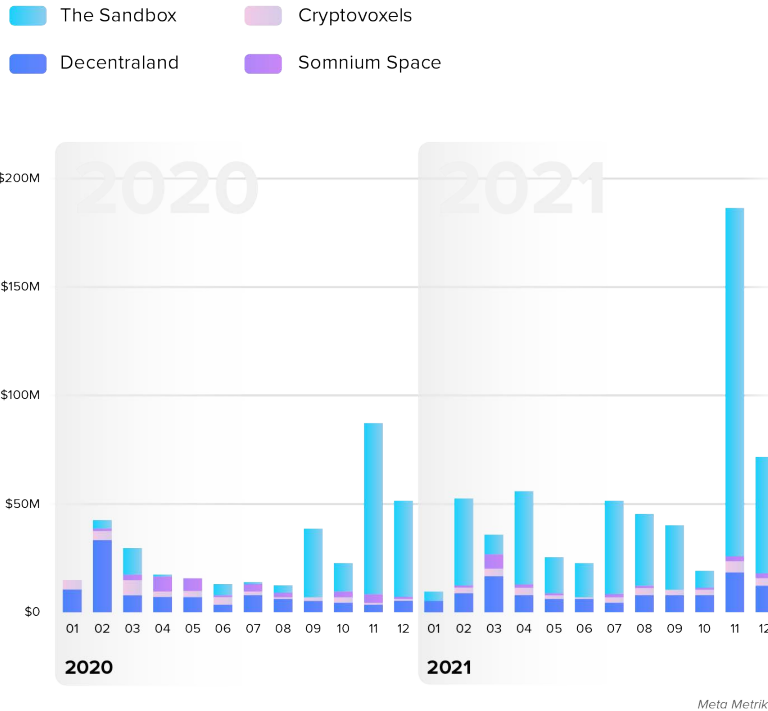
Taken together, land unit sales data across the four metaverses provides one of the clearest indications of how much stronger interest in The Sandbox land is than in other metaverses, which is particularly conspicuous on account of it being the only one of the four pioneer metaverses that has yet to launch.

While the number of land parcels in The Sandbox represents only 62% of all land in the pioneer metaverses, The Sandbox land sales accounted for at least 73.5% of total volume during every month of 2022.

¹⁵ Tsagkarakis, George. “[The Sandbox Last Discounted Land Sale.](#)” *egamers*, 11 Nov. 2021.

Figure 3

Value of Land Sales



Meta Metriks

When the total dollar value of land sales is considered, the Sandbox is even more of an outlier. For example, in early 2020, The Sandbox land represented 0.79% of total sales, but by December 2021, The Sandbox land was routinely accounting for >70% of total land sales volume each month.

In November 2020, a total of \$87,114,159 in virtual land was sold across the four pioneer metaverses. One year later, in November 2021, the total was \$186,302,763, an increase of 114% year-over-year.

As of this writing on December 19, 2021, December 2021 is already the third highest month by total value at over \$70 million.

In 2020, total sales volume for Decentraland and The Sandbox was roughly equal. Since 2020, the total value of The Sandbox land sold has been steadily

encroaching on the land sale records once held by Decentraland. (The Sandbox averaged 64% of total value traded each in 2021 compared to Decentraland's 25%.)

As the newest metaverse platform of the four, The Sandbox's success seems at least partially attributable to its release during a time of high mainstream interest in the metaverse. The significant degree to which it has outpaced the others, however, indicates that there's more than The Sandbox's timing and newness contributing to its success.

More Buyers Entering the Market

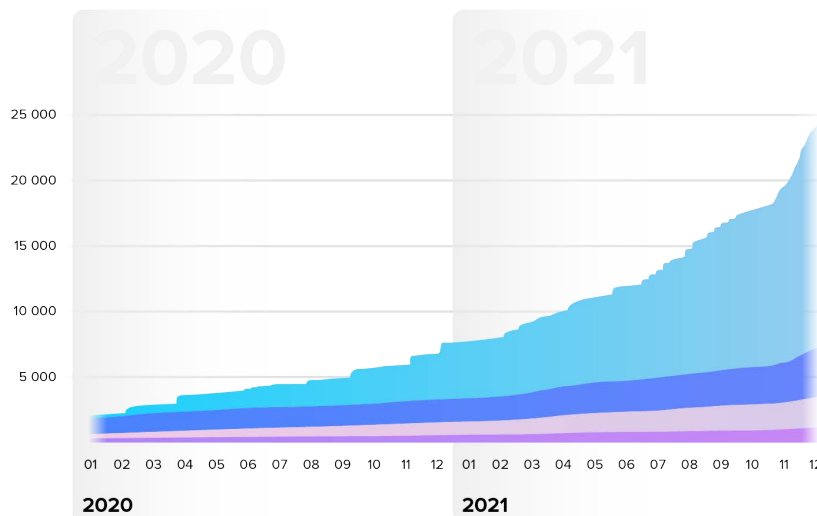
More companies and individuals are buying metaverse land than ever before.

Figure 4

Number of Land Owners



- The Sandbox
- Decentraland
- Cryptovoxels
- Somnium Space



Meta Metriks

Since the beginning of 2020, the cumulative number of unique owners in the four pioneer metaverses increased by 1,132% to a mid-December 2021 total of 24,598. **Only 24,598 people own metaverse real estate!**

Like other metrics discussed, this figure is largely influenced by The Sandbox, which accounts for nearly 70% of that total, while the platform accounts for 62% of the total land parcel count. Meanwhile, Decentraland owners made up about 15% of total unique owners across the metaverses, compared to Decentraland's proportion of the total land parcel count of 30%. The different parcels-per-owner ratios in each metaverse may have important ramifications for future land prices, as land in some metaverses is concentrated in fewer hands than others.

Conclusions Drawn from Pioneer Metaverse Research

Virtual land in The Sandbox has seen a breakout year in 2021. Across several metrics, the platform showed an undeniable dominance over the other three pioneer metaverses. While we also share enthusiasm for The Sandbox, we believe that there are some interesting buying opportunities for land in the other three metaverses, especially Somnium Space and Cryptovoxels, where land is so much more scarce.

The average price per parcel of land in these four metaverses is currently between \$10,000 and \$15,000. We attribute the convergence of price to buyers not being equipped to assess whether land in one metaverse is more valuable than land in another.

Thus far, land scarcity in metaverse real estate does not equate to higher land value. On the contrary, a greater amount of land has translated to greater total value in the metaverse. While a single parcel in the Sandbox may not be more valuable than owning a parcel in its counterpart metaverses, the aggregate value of all Sandbox real estate is worth more than the three other pioneer metaverses combined.

As more metaverse platforms launch, we expect new land transaction patterns to emerge that favor metaverses with strong content, engaged communities, dynamic gaming mechanics, and user-focused experiences. For now, The Sandbox is the clear winner in the space.

Beyond the Pioneer Metaverses

The pioneer metaverses seem relatively crude compared to most video games and certainly when compared to Ready Player One, the futuristic immersive metaverse depicted by Ernest Cline.

Metaverses are, at their core, video games, and video games take a long time to develop—years, not months. That means that the more photoreal, interactive metaverse projects that will fulfill our long-term visions for this category may take a while to develop. There is a lag between the current metaverse hype and the technological reality that we are all awaiting. But there are many exciting projects in various different stages of planning that point to a very rosy future for metaverse technology.

Today, Republic Realm is tracking more than 300 metaverse projects and has invested in 24 of them. We see hundreds of new projects, and are excited for what is coming next.

The upcoming projects that we are paying close attention to are photorealistic, multiple use-case platforms built by both blockchain and industry-familiar behemoths. Platforms like Star Atlas, Pixelynx, SPACE, and Big Time will shake the world once released. Virtual economies will emerge with robust economies of their own, e-commerce will be a valued experience, and social cooperation through community will be redefined.

As insiders in the metaverse ecosystem, Republic Realm is often able to acquire land parcels long before metaverse projects launch. Getting in very early at a relatively low basis is one way to significantly de-risk the metaverse real estate investment strategy.

In the recent months, Republic Realm has made investments in the following projects:

- **Aavegotchi** - Aavegotchis are crypto-collectible avatars used to explore Aavegotchi's digital universe. Each Aavegotchi is ascribed a rarity score, derived from its combination of unique traits. Drawing on the success and popularity of Tamagotchi, Aavegotchi brings a classic favorite back on the blockchain.
- **BigTime** - BigTime is a multiplayer action role-playing game (RPG) founded by the former CEO of Decentraland, Ari Meilich. Touted as an AAA NFT Action RPG, the first of its kind, the game combines RPG game dynamics with crypto and blockchain integration. Leveraging talent from past game successes, including the former concept artist of World of Warcraft, Carlo Arellano, and the former concept

artist of League of Legends, Tom Zhao, Big Time marks a historic first for a popular genre.

- **Bit.Country** - Bit.Country is a platform that enables users to build their own metaverses, such as for social groups. Utilizing 3D worlds, NFTs, and play-to-earn dynamics, creators can take community engagement to the next, decentralized level. With no technical skills required, creators can even launch their own social tokens to be used in the virtual worlds of their design.

- **BYOVerse** - BYOVerse has imagined the novel “consumables of the metaverse.” Built around BYOPills – an NFT that provides different utility when “consumed” – they plan to sell BYOLand, which are the land units that make up the BYOVERSE. A user’s BYOPill ingredients and properties have important effects on their BYOLand’s terrain and resources.

- **Cradles** - Cradles is a fantasy RPG game with VR compatibility set in prehistoric times. Separated into a main city and an adventure zone, the inhabitants of which are extinct animals from Earth’s Triassic Age, Cradles transports players to another time before human civilization. Players can even play as these creatures, whether they are soaring in sky as a pterodactyl or stomping through the terrain as a mammoth. Using materials obtained in-game, players can even create NFTs to sell to other players.

- **DeHorizon** - DeHorizon intends to build a cross-chain virtual carnival in which metaverse users can play other user-generated games. DeHorizon is governed by the DEVT (Decentralized Eternal Virtual Traveller) governance token, which allows owners to make decisions on the future of its game development. Its gaming ecosystem currently includes a Battleroyale “DeTournament,” Dragon-racing “DeQuidditch,” and more.

- **Dvision** - Dvision’s metaverse is made up of Meta-Spaces, the land units available for sale. In the Meta-City, users can play games, win NFT prizes, and trade NFTs at the NFT Market. Using \$DVI, an in-game currency, players can transact with a connected wallet, such as MetaMask.

- **Embersword** - In the world of Thanabus, players fight each other (PVP) and the game (PVE) to claim tokenized rewards. Built on Matic, EmberSword’s economy includes land and item sales on the blockchain. Across four nations, plates can take ownership of plots, settlements, towns, and cities.

- **Highstreet** - Highstreet is building the future of ecommerce by connecting established physical brands to the metaverse. Marketed as a springboard for brands to establish a virtual presence, Highstreet intends to connect brands and users in one metaverse place. Game items and storefronts in this interface represent brands from the real world, in this new digital-physical “phygital” product offering space.

- **Mirandus** - Developed by blockchain gaming house Gala Games, Mirandus brings medieval times to the future in a play-to-earn MMORPG. Divided into 1625 separate deeds, Mirandus has a collection of tradable real estate, including barns, majestic temples, tanneries, stables, and more.

- **Nifty Island** - Pioneering the newest type of social media, the social metaverse, Nifty Island is building an ecosystem for creators and collectors to display artwork, play games, and engage with their chosen communities. Rather than opting for scarcity in its land distribution, all players are granted an island at the outset of their gameplay.
- **Pixelnyx** - As every medium of entertainment is coming to the metaverse, Pixelnyx is building technology to improve the experience of audio and music in the metaverse. Betting on the blockchain as the ultimate way to optimize both gaming and music, Pixelnyx has made a series of company and equity acquisitions in teams bringing music to Web 3.0.
- **Star Atlas** - Star Atlas is a futuristic virtual gaming metaverse with space itself as the setting. Three factions rule the explorable universe, (1) MUD, governed by humankind, (2) ONI, governed by various alien races, and (3) Ustur, governed by sentient robots. As an AAA NFT game on Solana, players can both own their own spaceships as NFTs and use them to find valuable resources across the universe.
- **SPACE** - Space is building a commerce metaverse optimized for trading goods as well as socializing and building unique experiences. The service is mostly geared towards art, music, and fashion, leveraging the blockchain's utility in assigning digital authorship as well as royalty payouts to creators. Their metaverse is divided into "Spaces," which organize the user-owned economy.
- **Treeverse** - Treeverse is targeting the demand for improved community engagement opportunities. While NFT communities are mostly concentrated on Web 2.0 platforms like Discord and Twitter, Treeverse hopes to bring these communities to the Web 3.0 metaverse and gamify the community experience.
- **Wilder World** - Wilder World brings the open world feel of the Grand Theft Auto games to Web 3.0 with DAO hubs, play-to-earn dynamics, and a marketplace with tokenized real estate or luxury items, like supercars. Life in Wilder World's city of "Miami" is one filled with entertainment, luxury, and leisure.

New metaverses mean diversification across various different blockchains. In recent months, Republic Realm has reviewed projects built on many different chains, including Ethereum, Solana, Binance Smart Chain, Polygon, Immutable X, Avalanche, Harmony, Near, Cosmos, Polkadot, Aave, Terra, Enjin, Flow, and Wax.

So far, projects built on Ethereum (+ sidechains), Solana, and BSC have garnered the most users, but the battle for the dominant chain of metaverse gaming is far from over. One of the most successful growing games of the year, DeFi Kingdoms, was built on Harmony, with an upcoming bridge to Avalanche. This 2D fantasy project is taking the gaming space by storm with its nostalgic RPG elements, solid DeFi components, and immersive world. If DeFi Kingdoms stays on its current trajectory, we will undoubtedly see many more realms emerge through EVM compatible chains. Games built on Binance Smart Chain include Black Eye Galaxy, where some of the inconveniences of the physical world are purposely mapped

onto its gameplay to produce more familiar economies, such as transportation costs. The cost of fuel used for transporting resources to marketplaces on other planets influence the price of mineral-rich planets according to their relative distance from a marketplace.

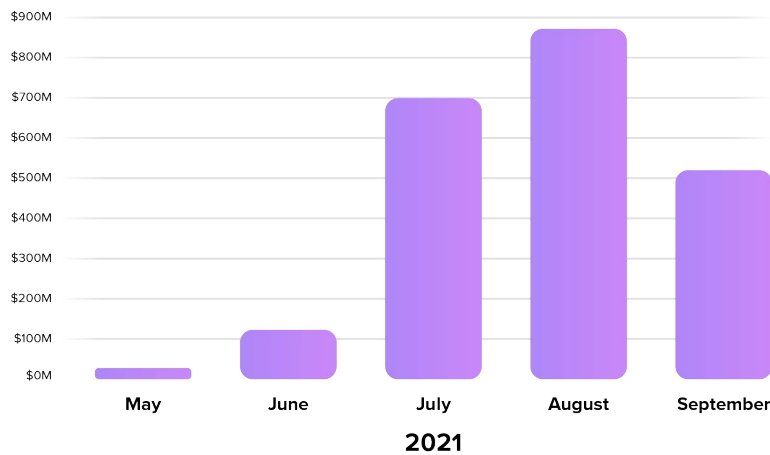
Metaverse Real Estate Meets Play-To-Earn

Digital real estate intersects with crypto gaming.

The most notable play-to-earn game in the metaverse space is Axie Infinity, which experienced record-breaking growth in 2021. In Axie Infinity, players battle creatures called “Axes” and acquire in-game tokens AXS and SLP that can be traded on crypto exchanges like Binance and Coinbase. In October, Axie Infinity was reported to be worth \$30 billion as its Q3 performance made it the most traded NFT collection ever, surpassing NBA Top Shot and CryptoPunks.¹⁶ It accounted for \$2.08 billion in NFT sales volume in Q3 of 2021, almost 20% of the whole NFT trading volume during the same time period. The platform surpassed 2 million daily active users this year, a figure that gave the nascent play-to-earn space accreditation in the colossal gaming industry.

Figure 5

Axie Infinity: Trading Volume



Source

¹⁶ Herrera, Pedro. “BGA Blockchain Game Report Q3 2021.” *DappRadar*, 14 Oct. 2021.

In addition to the NFT and gaming component, players can buy digital land inside the game. Land in Axie Infinity, called Terra, incorporates traditional real estate economic principles, like location and the ability to rent out or develop the plot, while also utilizing in-game components such as being able to receive assets that spawn (or appear) on the plot. Today, gamers are prospecting land in the Axie Infinity metaverse, where Terra parcels have sold for as much as \$2.5 million.¹⁷ While metaverses without stated objectives like The Sandbox and Decentraland offer landowners the prospect to build out their parcels as they wish, Axie Infinity offers an intriguing alternative, as landowners must navigate digital real estate by understanding land value in the greater context of the game.

Gaming, at its core, is a simple transaction between player and platform—time in exchange for enjoyment. As blockchain developers have begun to explore the gaming industry over the last few years, innovative solutions such as roll-ups and sidechains have come to fruition through the ideation and creation of different games. Sky Mavis developed Ronin specifically for Axie Infinity, offering a more flexible blockchain gaming solution than Ethereum could offer. After reaching unprecedented popularity, Gods Unchained crafted Immutable X, a layer-2 Ethereum protocol with instantaneous and gasless transactions. Both projects reaped larger benefits because of their technological breakthroughs. Developments of this type continue to pique our interest and include expansive NFT protocols, projects built on emerging blockchains, EVM compatibility, and non-gaming platforms.

Other breakthrough developments include EIP-3664, a new NFT standard constructed by the upcoming blockchain gaming project Cradles. It outlines a new modular system for NFTs, allowing individual components of a digital gaming asset to be removed, sold, or added to another asset, reminiscent of past RPG mechanics gamers know and love. In theory, this allows for infinite expansion of items without having to repeat work, and could quite possibly open many doors to cross-chain collaboration and “remixing.”



¹⁷ @AxieInfinity. “Yesterday, an Axie Genesis Plot sold for 550 ETH! This was the largest sale ever for a single plot of digital land Learn about Land Down.” *Twitter*, 25 Nov. 2021, 9:26 a.m.

Conclusion

2021 was largely a year of solidifying the metaverse as one of the most promising uses of technology, including VR and Web 3.0. Total land value sold year-over-year increased by 114% in November, certifying an upward trajectory for a nascent industry with more records to come.

The metaverse is not isolated from the increased interest in the greater Web 3.0 and NFT verticals. Fundraising between these two areas made up \$1.8 billion of the total \$8.2 billion raised for crypto ventures in the third quarter of 2021. Crypto and blockchain usage were on the rise in 2021.¹⁸ Active daily unique addresses that sent or received Ethereum reached a peak of 905,234 during April, from a start of 511,250 at the beginning of the year, an increase of 77%.¹⁹ The success of these metaverses cannot be separated from the expansion of the cryptoverse, while the metaverse itself has now become an integral, defining feature of the cryptoverse.

If the growth of metaverse interest and development continues, it may soon constitute a substantial portion of the entertainment and gaming industry. Metaverse games currently generate revenue not only for metaverse developers but for the thousands of teams developing games within these metaverses, too. Grayscale estimates that revenue from virtual gaming worlds could reach \$400 billion in 2025, up from a figure of \$180 billion in 2020.²⁰

Emergen Research, meanwhile, projects a CAGR through 2027 of 43.3% on metaverse revenue. Having reached a market size of \$47.69 billion in 2020, their projections put a revenue figure of \$828.95 billion as soon as 2028.²¹ As Metaverse related coins reached a total market cap of a staggering \$37 billion in December, growth along these projections will introduce many more billions of dollars of capital into this space.

While the metaverse is a nascent space, in the coming years, content and user engagement will likely become the metrics that determine each platform's relative success. The projects able to secure and provide interesting partnerships,

¹⁸ Grider, David and Matt Maximo. "[The Metaverse, Web 3.0 Virtual Cloud Economies.](#)" *Grayscale*, Nov. 2021.

¹⁹ Best, Raynor de. "[Ethereum Active Addresses 2016-2020.](#)" *Statista*, 7 Dec. 2021.

²⁰ Robertson, Harry. "[The Metaverse Is a \\$1 Trillion Opportunity. Crypto Giant Grayscale Says as Virtual Land Sales Boom.](#)" *Business Insider*, 25 Nov. 2021.

²¹ "[Metaverse Market, By Component \(Hardware, Software\), By Platform \(Desktop, Mobile\), By Offerings \(Virtual Platforms, Asset Marketplaces, and Others\) By Technology \(Blockchain, VR & AR, Mixed Reality\), By Application, By End-Use, and By Region Forecast to 2028.](#)" *Emergen Research*, Nov. 2021.

interactive content, and gamified experiences are those that will benefit from user stickiness and subsequent land price appreciation.

There are bigger and better things coming to this space known only now as the pseudo-singular “metaverse,” and they are coming soon.

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