Real Estate in the Metaverse

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1 Introduction

The concept of the metaverse has garnered significant attention in recent times, with many futurist scenarios envisioning a future where humanity will exist within this virtual realm. However, the exact nature of the metaverse and the influential forces that will shape it remain uncertain. Currently, it serves as a canvas for divergent visions held by big tech, investors, early adopters, and various other actors. To effectively engage with and understand this evolving technological phenomenon and its future implications, a systematic comprehension of the forces driving its development is essential. Researchers argue for an alternative perspective that recognizes the social dynamics intertwined with emerging technological phenomena (Dwivedi et al., 2022; Kim et al., 2021).

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The metaverse can be understood as a proposed evolution of the internet, transforming it into a unified and immersive virtual world. This transformation is facilitated by the utilization of virtual reality (VR) and augmented reality (AR) headsets. Within the metaverse, users can interact with one another and with digital content in a manner that surpasses the current limitations of the internet, providing a more realistic and engaging experience (Schöbel & Tingelhoff, 2023). What does "Metaverse" mean? Meta describes it as "a set of virtual spaces where you can create and explore with other people who aren't in the same physical space as you." (Bosworth, 2021) Starting from the etymology of the word, the prefix "meta," which signifies "more complete" or "transcending," comes from the Greek language, while the word "Verse" stands for "universe," which signifies a space-and-time container (Gadekallu et al., 2022).

Metaverse was not so popular until October 2021, when Facebook suddenly changes its name to "Meta" leading to its conversion into a Metaverse company, it suddenly catches public attention, becoming the subject of numerous discussions, gaining sympathy, and reaching the peak of its notoriety (Nakavachara & Saengchote, 2022). The metaverse is currently in its early developmental stages, but it holds tremendous potential to revolutionize our internet interactions and social dynamics. One area where the metaverse could make a significant impact is in gaming. Players can enter fascinating virtual worlds, engage in thrilling battles with other players, and complete difficult objectives by using virtual reality (VR) headsets, making for more engaging and dynamic gaming experiences.

Additionally, the metaverse has intriguing social networking opportunities. By using VR headsets, people can attend virtual concerts, parties, and even business meetings, encouraging novel and creative ways of connecting with others. People can interact with one another in creative ways thanks to the extended virtual space, which allows them to transcend geographical borders and create special shared experiences (Mystakidis, 2022).

The metaverse may also transform the way that people learn. Students can go on educational adventures using VR headsets where they can investigate historical locations, conduct experiments in virtual settings, and acquire immersive insights into various cultures. By utilizing the powers of the metaverse, learning is made more interactive, interesting, and accessible, enabling people to learn and develop their talents in exciting and intriguing ways (Hwang & Chien, 2022).

The metaverse can also be advantageous to businesses. Companies may train their staff in precise virtual environments, deliver outstanding customer service, and even enable virtual product sales with VR headsets (Mystakidis, 2022). Through immersive and engaging virtual platforms, the metaverse offers new ways for firms to conduct business while boosting efficiency, innovation, and client engagement. The metaverse is a promising modern technology with the potential to change the way we live, work, and play. As the metaverse continues to develop, it will be interesting to see how it is used by individuals and businesses (Ning et al., 2023).

Currently, the metaverse is made up of a multiplicity of platforms, where you can build everything, "from miniature games in haunted cemeteries to advertising billboards or commercial districts and metaverse HQs for businesses already established in the real world" (Waterworth, 2022). The platforms can be divided into two big distinct categories:

Virtual spaces - These platforms help navigate projects and small areas, which are not placed in an open world, but in virtual rooms where people can visit, play, and interact. This means that each space is disconnected from the others. One of the most famous is Spatial2, which is a virtual and augmented reality platform that lets users create their virtual 3D space/workspace and collaborate inside it (Péruch et al., 2018).

Virtual worlds - A whole different concept of the platform, they are just like digital cities, where it is possible to buy real estate, build projects and interact with the users like in the real world. While a large number of platforms allow the purchase of real estate, the most notable ones are mainly four: The Sandbox, Decentraland, CryptoVoxels, and Somnium Space (Deloitte, 2022; Gadekallu et al., 2022; Waterworth, 2022).

Key Features of Metaverse

- **Technology**: The metaverse relies on several key technologies, notably virtual reality (VR), augmented reality (AR), and blockchain. VR headsets enable users to immerse themselves in virtual environments, while AR headsets superimpose digital content onto the real world.

- **Cost**: At present, the entry cost for the metaverse remains relatively high. VR headsets can carry price tags in hundreds of dollars, and AR headsets tend to be even more expensive. Nonetheless, as time progresses, the cost of these technologies is anticipated to decrease, making them more accessible to a wider range of individuals.
- **Regulation**: The regulatory landscape surrounding the metaverse is currently underdeveloped due to its nascent nature. As a result, issues concerning security and privacy may arise. Nevertheless, governments and industry organizations are actively collaborating to establish regulatory frameworks and guidelines that address the unique challenges of the metaverse. These efforts aim to ensure the responsible and safe development of this emerging technology.

2 Virtual Real Estate

Virtual property is a type of real estate found in a metaverse. The world can be anything from a plot of land to an entire virtual universe. A variety of purposes can be served by virtual real estate, including gaming, socializing, and business activities. The concept of digital real estate exists within virtual worlds, each of which has its own national identity and system of property rights that are clearly defined and irrevocable. Buying virtual land now is similar to buying land in Manhattan a long time ago. It is also safe for People are talking about whether virtual land is worth a lot or not, but more and more people are becoming curious about it. In 2021, a piece of land was sold in Decentraland for $2.4 million Decentraland is a popular virtual world. This is an example of how much people pay for fake land online of the uncertainty caused by COVID in the real estate industry. The value of virtual real estate is still being debated, but there is a growing interest in this new asset class. In 2021, a plot of land in Decentraland, one of the most popular metaverses, sold for $2.4 million. This is just one example of the soaring prices that are being paid for virtual real estate.

3 The Volume of Virtual Real Estate

In 2022, the sale of virtual real estate reached an extraordinary $1.4 billion, which was a staggering increase. These exceptional figures show an incredible increase of 180% when compared to last year's revenues

amounting to $0.5 billion. The minting and secondary sales of vacant land on the other side were a major factor which contributed significantly to overall sales volumes in the second quarter of 2022, becoming an important driver for this increase. Let's examine the top five virtual estate platforms in more detail based on projected sales in 2022 (Fig. 1):

- A plot of land in Decentraland sold for $2.4 million.
- A plot of land in The Sandbox sold for $1.7 million.
- A plot of land in Otherside sold for $1.6 million.

The growth in virtual real estate values may be attributed to a variety of factors, including the metaverse's growing popularity, a scarcity of accessible virtual land, and the market's speculative nature. It is critical to recognize that the value of virtual real estate is very volatile, and investors cannot be confident of generating money. Investing in virtual assets can be risky since their prices can fluctuate dramatically.

Demand for virtual property is expected to rise in the coming years as the metaverse grows in popularity. Analysts expect that the market will be valued at $5.37 billion by 2026. However, it is vital to note that the market has just had a significant cooling-off period. This can

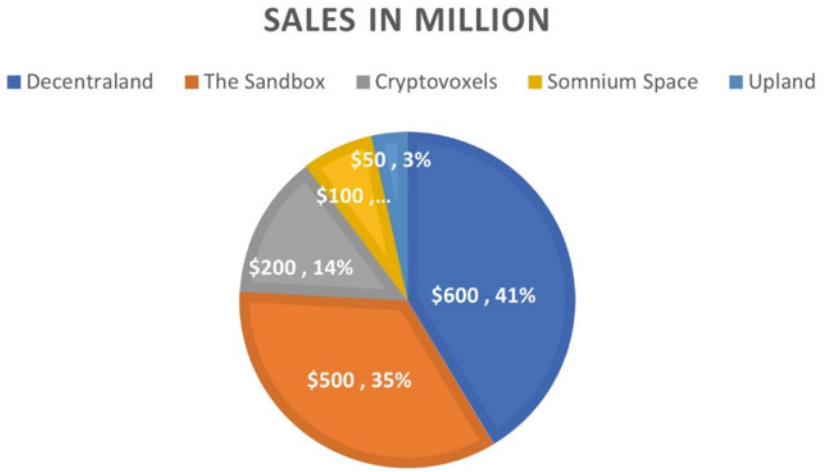

Fig. 1 Top five virtual estate platforms

be attributed to a variety of factors, including a general downturn in cryptocurrency values and the lack of apparent uses for virtual property. Despite the current dip, it is important to remember that the metaverse real estate business is still evolving. The market may rebound in the future as more individuals and businesses begin to use the metaverse. However, it is crucial to approach this market with caution and evaluate the risks associated with investing in virtual real estate.

4 Examples from the Metaverse

Samsung, the widely acclaimed electronics giant, has taken a bold leap into the metaverse by launching a virtual store within the dynamic realm of Decentraland. This groundbreaking step showcases Samsung's entry into the immersive digital landscape, teeming with boundless possibilities and engaging experiences. With its presence in Decentraland, Samsung positions itself at the forefront of the metaverse revolution, captivating the interest and inquisitiveness of global users (Fig. 2).

The Sandbox metaverse has forged groundbreaking partnerships with influential Korean leaders, aimed at amplifying the global influence of K-Culture. As part of the thrilling K-verse LAND Sale, you now have an

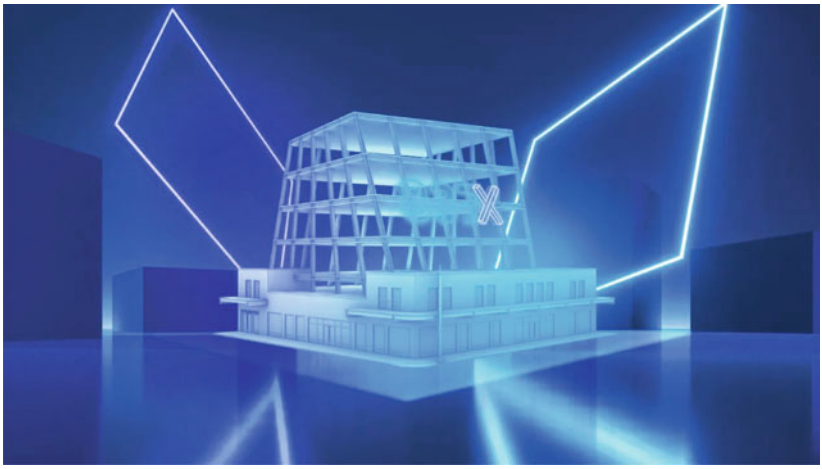

Fig. 2 Samsung's 837X virtual store as it will appear in Decentraland (*Image* Samsung)

exclusive opportunity to acquire adjacent LAND plots for these visionary partners. Prepare to immerse yourself in the expansive and dynamic realm of K-content, where limitless exploration awaits (Fig. 3).

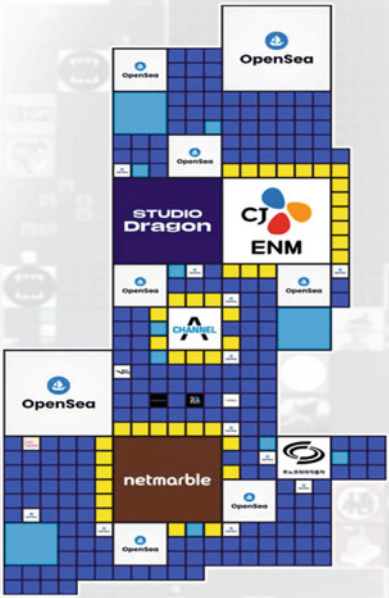

Fig. 3 Hallyu Rising K-verse community

5 Benefits of Investing in Virtual Real Estate

Digital property is now recognized as a valuable thing for investors to consider, and I think it will greatly increase in value soon. Digital real estate has the potential to make big profits and be an effective way to save money, just like real-world real estate and art. This is because more and more people are interested in investing in cryptocurrency.

Users can connect with people virtually in a variety of ways thanks to metaverse real estate. Individuals can use their digital properties for gaming and socializing, while content producers can make money from them by giving their customers exclusive access to online events. Owning virtual land on various web3 games and platforms is now conceivable thanks to the arrival of Web3 technology. These plots are represented as non-fungible tokens (NFTs), and investors in NFTs, Play-to-Earn participants, and fans of the metaverse have grown fond of them. Although some people might find the idea of owning digital land confusing, there are several advantages to it.

When you buy digital real estate on a platform, you take exclusive ownership of that space. The strength of digital ownership enabled by NFTs makes this ownership conceivable (Smith, 2022). You, as the owner, can completely alter and modify your digital asset to suit your tastes. You can also host virtual events, creating new opportunities for promotion, ownership, and business (Cifrino, 2014).

As a result, investors should now give digital real estate serious attention as a valid asset class. It is a desirable investment due to its potential for exponential growth and affiliation with the fast-growing cryptocurrency ecosystem. The metaverse's attraction is further increased by the possibility for individuals and content producers to own and personalize virtual territory (Baur et al., 2018). Its high compatibility with the developing crypto-investment market presents the possibility of large rewards (Dowling, 2022). Additionally, digital real estate in the metaverse enables people to interact, participate in a variety of activities, and investigate business opportunities, making it a significant asset in the developing world of Web3 technologies.

In the realm of futuristic assets, one particular phenomenon has captivated the attention of not just gamers and investors, but also some of the most prominent brands in the world. Adidas, for instance, has recently formed a partnership with The Sandbox, where they acquired a plot of virtual land. The allure of purchasing such virtual real estate stems

from two primary motivations. First, individuals hope to create revenue streams by constructing games or interactive experiences on their virtual land, thereby earning income from visitors. Second, they anticipate the opportunity to resell the land at a higher price in secondary markets like OpenSea, a peer-to-peer marketplace for NFTs. Notably, several renowned companies including Adidas, Atari, PwC Hong Kong, Binance, and South China Morning Post, as well as notable celebrities such as Snoop Dogg and Pranksy, have been reported to own land within The Sandbox. The highest recorded sales thus far have reached a staggering $4.3 million.

The scope for metaverse real estate is broad, brands can use their virtual properties to advertise their services, create product launches, and provide unique customer experiences through VR and AR technology. For real estate investors, these parcels of digitized land offer a lucrative opportunity, in which assets can be developed, flipped, or leased just like in our daily lives. The use cases for metaverse real estate are endless and can be leveraged further through a certain immersive technology known as virtual reality (VR). With the metaverse, these experiences can be developed in conjunction with VR and will provide brands, investors, and other stakeholders with the clarity they need to make informed investing decisions. Another benefit of metaverse real estate is the potential for significant capital appreciation (Anderson & Rainie, 2022). The demand for virtual land and property within the metaverse is rapidly increasing, driving up the value of digital assets. As a result, early investors in metaverse real estate can potentially benefit from substantial capital gains.

Investing in digital real estate offers unique advantages like derivative trades, such as high rewards compared to associated risks, but without the downsides of recourse margin or debt. Also, it serves as an uncorrelated asset class that can help mitigate market volatility effects. While cryptocurrencies, particularly Bitcoin (BTC), were once compared to digital gold, thorough back testing has revealed that crypto assets behave differently from traditional assets like gold, bonds, or equity (Anderson & Rainie, 2022). As a result, investing in digital real estate becomes an excellent tool for diversifying one's portfolio. Although the user base of metaverses currently stands in the tens of thousands, once these virtual worlds attract a substantial number of users, selling real-world items within them could emerge as a highly cost-effective marketing strategy.

Real estate, digital, and art meet dematerialization in the cosmic void under the roof of Mars House, the hyper-futuristic house designed by

Krista Kim and sold exclusively on super rare, in Ntf, for 288 Ether, the second most valued cryptocurrency, for now, after Bitcoin.

Returning for a moment with our feet on Earth and trying to understand, as mere mortals, what happened, we can rewrite the story as follows: the space-accented villa, virtually designed by the artist who founded the Techism Movement, was purchased by the collective "Art On the Internet" on the revolutionary platform dedicated to the trading of digital works of art for a sum equaling $ 514,557.79 (about 431,000 euros). The house is there but it does not exist, it is all true.

6 Reach a Global Audience

One of the key benefits of metaverse real estate is the ability to create a digital presence that can cater to a global audience. According to an article published by Polygon (2022), owning metaverse land provides individuals with the opportunity to create a digital version of their physical business or store, without the limitations of a physical location. This enables businesses to reach a wider audience, without incurring the costs associated with setting up a physical location.

metaverse to reach a global audience:

- **Decentraland** is a virtual world where users can buy, sell, and build land. The company has partnered with several brands, including Atari and Sotheby's, to create virtual experiences for their customers. Decentraland stands out due to its economy built on blockchain technology. Within the game, players can purchase, sell, and construct virtual parcels called "LAND," utilizing the game's native cryptocurrency known as "MANA." The significance of Decentraland's blockchain foundation is evident in the secure and transparent nature of these transactions. With a market capitalization of approximately $225 million, MANA has experienced remarkable growth, increasing more than fivefold since its inception in 2017. An impressive surge of 321% in MANA prices was observed in the preceding year, as of February 2021.

  The ownership of LAND parcels in Decentraland is represented by non-fungible tokens (NFTs) registered on the Ethereum blockchain, adhering to the ERC-721 standard, similar to CryptoKitties. This registration ensures the easy transferability of LAND ownership and provides enhanced protection against fraudulent

activities. The developers of Decentraland have established a fixed total of 90,061 LAND parcels that will ever be created. Each parcel is unique, possessing distinct (x, y) coordinates, further emphasizing their non-fungible nature.

- **Sandbox** is another virtual world that allows users to create and monetize their own content. The company has partnered with several brands, including Adidas and Warner Music Group, to create virtual experiences for their customers. The Sandbox is a game about blockchain. It is its simplest definition, but it also is the one that makes less justice to the complexity of this project, which could impact the virtual real estate industry. Nowadays, The Sandbox is reaching its peak of notoriety and success. The platform is a set of products and services to create, manage, and enjoy experiences and adventures using the blockchain as a permanent ledger to give value and uniqueness to creation. It is difficult to describe everything that can be done on The Sandbox. There are just 166,464 pieces of LAND available in Sandbox. The size of each plot of land is 96 × 96 m. Since there will not be much land left to purchase on the open market, some investors are considering purchasing LAND tracts and holding them for potential capital gains.
- **Roblox** is a gaming platform that allows users to create their games and experiences. The company has over 40 million daily active users, and it is growing rapidly in popularity. These are just a few examples of the many businesses that are using the metaverse to reach a global audience. As the metaverse continues to grow, we can expect to see even more businesses adopt this technology to reach new customers and grow their businesses.

7 Reduce Costs

Each of the metaverse real estate platforms has its own currency to buy and land. Hence, the transactions in metaverse real estate are not like traditional banking transactions, in this way, investors are enjoying the cost-free transactions through different cryptocurrencies (Gadekallu et al., 2022).

The significance of this property lies in the fact that we are moving from sales within closed marketplaces to the possibilities offered by a marketplace that has an open and free economy. The ease with which

users can create and then trade NFTs around the world through the blockchain is impressive and can bring many changes to the real estate industry. Transferability allows NFTs to be sold at a higher price than the real thing:

- Digital property can be sold in minutes without the need for a broker.
- Registration is self-contained.
- The property needs no maintenance.

The real estate industry has historically been slow to embrace innovative technologies, but it holds immense potential for blockchain applications. Real estate's inherent characteristics, such as immobility and easy accessibility to third parties, make it an ideal candidate for leveraging blockchain-based solutions like collateralized claims. As the digital asset landscape continues to expand, we are witnessing a transformation of everyday activities and business processes into computer-readable formats. Money itself has largely become digital, with only a small fraction existing as physical cash. By incorporating blockchain technology, real estate transactions, exchanges, and sales can benefit from enhanced efficiency and reduced issues. Digitized platforms enabled by blockchain will pave the way for numerous advantages for key stakeholders. Faster transaction processing, reduced costs, and increased availability of data are among the primary benefits. Transparency in transactions is crucial for creating a healthy environment that instills trust among buyers, sellers, and real estate agents. Simultaneously, privacy protection measures ensure that sensitive information remains secure (Kiong, 2022).

The affordability of virtual real estate surpasses that of physical property, with costs ranging from a few hundred to several thousand dollars. Fractioning high-yield properties such as luxury apartments, villas, and hotels in the form of tokens will allow small and micro-investors to enter a market hitherto precluded to them while also providing additional benefits that ultimately open a new era in the real estate market.

Virtual real estate transactions offer a remarkable departure from traditional property transactions, which often entail lengthy processes spanning months. By leveraging Ethereum's blockchain technology, these transactions can now be completed swiftly, typically within minutes. The adoption of Ethereum enables buyers and owners of substantial real

estate assets to sidestep the exorbitant costs associated with intermediaries and overcome the time-consuming obstacles imposed by national and supranational regulations.

One notable advantage of virtual real estate lies in its exemption from state or federal tax laws (Friedberg & Arendt, 2022). Consequently, property owners are not obligated to pay capital gains taxes when selling their virtual assets. Furthermore, there exists no imposed limit on the number of properties an investor can acquire within the metaverse, as there are no governing regulations on land ownership in this digital realm.

The rise of virtual worlds presents a logical progression for major corporations to establish virtual stores within these immersive environments. Prominent brands like Domino's have already embraced this trend, offering the convenience of ordering pizza from their Metaverse Decentraland store, and having it delivered to customers' real-world addresses. Collaborations between companies such as Adidas and Karlie Kloss within Decentraland further exemplify the growing integration of virtual and real-world experiences. Attendees of these corporate-sponsored virtual gatherings were even rewarded with complimentary virtual Adidas shoes for their avatars.

The cost-effectiveness of virtual events has not gone unnoticed by businesses. They recognize that hosting virtual gatherings can yield substantial savings compared to their real-world counterparts. For instance, envision the possibilities if Nike were to create a breathtaking virtual shopping experience within the metaverse, eliminating the need for physical stores on every Main Street in America. Such a virtual store would offer unparalleled accessibility, allowing anyone, anywhere, at any time to engage in seamless shopping experiences.

8 Experiment with Innovative Designs and Structures

The rise of Web3 and the metaverse is bringing about a significant revolution in many industries, including real estate, design, and architecture. As technological breakthroughs open fresh and exciting opportunities for digital real estate, leasing, advertising, and undertakings within the metaverse, these disciplines are on the verge of a paradigm change. The metaverse provides an environment where architects can experiment with and redefine their designs in novel ways, pushing the limits of form and space. It offers architects a rare chance to display their ideas that have

not been put into action yet. Through an improved request for proposal (RFP) process, architects can now interact with a large audience in any country. As a result, it is anticipated that the value of digital assets in the metaverse would skyrocket, providing architects with new opportunities and recognition in this digital environment.

Ideas that began during the epidemic have evolved into the concept of the house, which transcends conventional architectural design and embodies the canonical essence of a work of art. In this context, the limitless nature of space becomes apparent, offering endless possibilities for architectural exploration and innovation. Like a virtual canvas, it is an empty place to be filled and bridged. A viewpoint change and the development of new abilities are required considering the advent of the metaverse. It includes several technological layers, such as 3D modeling, augmented reality cloud technologies, character design, NFTs, blockchain, geospatial mapping, and more. Consequently, the definition of "architecture" expands to encompass a broader range of specializations and talents.

When it comes to developing real estate in the metaverse, certain aspects are simpler compared to the physical world. There is no need to navigate planning and zoning regulations or address utility concerns. Nevertheless, the excitement of creating something from scratch remains intact. Unlike in the real world, where architects are almost always required to design stable structures that will not unexpectedly collapse, architectural plans are optional in the metaverse. For small structures or billboards, it may not be cost-effective to hire an architect. However, for projects that demand visual impact and warrant additional investment, a metaverse architect becomes a crucial asset. They can bring your vision to life efficiently, requiring minimal involvement from you, the client. Below are some of the prominent architects in the metaverse who have made significant contributions to the field (Fig. 4).

The sale of the House on Mars (SOLD MARCH 14TH, 2020 FOR 288.0 ETH ON SUPER RARE) marked the beginning of a new era that some scholars have called "hybrid reality" (Fig. 5).

This year, an internationally renowned architectural firm made headlines by unveiling its ambitious project to construct a metaverse of its own, known as the Liberland Metaverse. Embracing a libertarian ethos, this virtual city envisions a bustling hub replete with a grand city hall, captivating NFT galleries, diverse shops, modern office spaces, and an innovative startup incubator catering to the cryptocurrency industry.

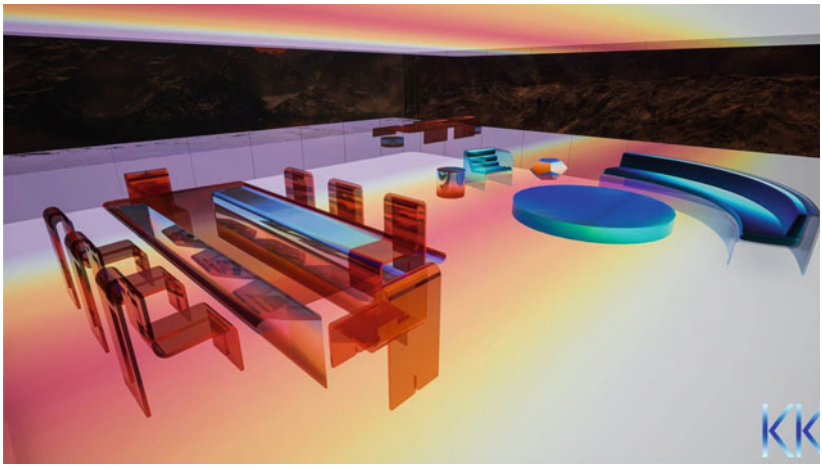

Fig. 4 Mars House by Krista Kim Studio Inc.

Fig. 5 Liberland metaverse (*Photo* Zaha Hadid Architects)

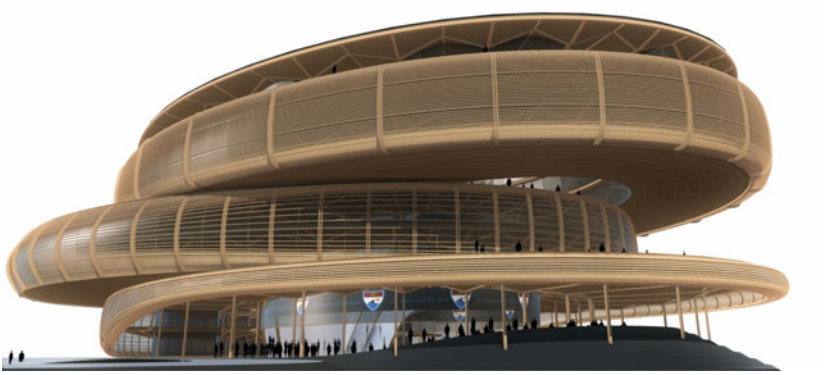

Fig. 6 Zaha Hadid Architects

Drawing inspiration from the distinctive design language pioneered by its esteemed founder, Zaha Hadid, the structures within the metaverse exhibit a harmonious blend of fluid curves and striking angles, embodying the firm's celebrated aesthetic (Fig. 6).

The architectural designs of Zaha Hadid Architects, known for their futuristic and undulating structures, are prominently featured in the construction projects within the Liberland Metaverse. These virtual spaces, accessible to all, serve as venues for social, cultural, and business activities, while the remaining land is leased or sold to developers and businesses. In this digital realm, the conventional rules of real-life architecture do not necessarily apply. Facilities deemed essential in physical buildings, such as kitchens or bathrooms, are not replicated in the Liberland Metaverse. Moreover, weather conditions are no longer a constraint, enabling outdoor spaces to be utilized in versatile ways. Nonetheless, like physical constructions, architects must prioritize the social functionality of the spaces, in addition to their aesthetics, recognizing the significance of space in facilitating social interactions.

Architectural pursuits within the metaverse have transcended niche interests and have been embraced by established firms. Liberated from the limitations of physics, material properties, and construction costs, the metaverse has unlocked a new realm of architectural expression. The profession engages with this expanding field of digital environments in numerous ways. One noteworthy example is "The Row," a

renowned members-only, master-planned virtual world real estate development. Artists who are currently shaping culture have designed a range of virtual buildings for The Row, which is situated in the Monaverse—a decentralized virtual world platform built on the Ethereum blockchain. Among these creations are a house converted from a giant statue by Daniel Arsham and a residence that changes color throughout the day. Such architectural masterpieces are rare finds on Earth.

"The Row" comprises 30 distinctive landmarks, each designed by a different artist. These landmarks are available for purchase as non-fungible tokens (NFTs). Buyers of NFTs obtain the right to deploy their landmarks on virtual world land within The Row District, subject to a fee. Recognizing the continued importance of physical spaces for companies, the firm strongly advocates for the synergy between virtual and physical environments. Consequently, architects, rather than graphic designers, should be entrusted with the task of designing these sites (Figs. 7 and 8).

Sygnum, a Swiss bank, officially launched its metaverse hub in Decentraland on September 27, 2022. The launch of Sygnum's metaverse hub is a significant milestone for the bank and the metaverse industry. It is the first time that a traditional financial institution has opened a branch in the metaverse, and it signals the growing importance of the metaverse as a financial and economic hub. There is ongoing and intense debate

Fig. 7 Ares, the Greek god of war, was turned into a house by Daniel Arsham

Fig. 8 Sygnum: the first Swiss bank to open a metaverse hub

surrounding the metaverse, with differing views on its potential impact. Some envision it as the future of architecture, while others see it as a speculative phenomenon driven primarily by monetization. The extent to which the metaverse will create new revenue streams for architects or fundamentally transform the architectural profession is still uncertain.

9 Challenges and Risks of Investing in Virtual Real Estate

Investing in virtual real estate carries inherent risks that investors need to be aware of. The unique nature of the metaverse has created an environment where scams can thrive. Although more corporations and individual investors are purchasing virtual land, it is high stakes endeavor suitable only for those with substantial financial resources and a willingness to take risks. Experts strongly advise retail investors against venturing into this realm, as the value of virtual land is contingent upon finding a willing buyer at a given price. If the price suddenly plummets, investors may lose their entire investment. Certain areas within the metaverse, such as the Fashion District in Genesis Plaza or WonderMine Crafting, are bustling with activity, while others resemble ghost towns. Experts caution retail investors to view the metaverse as a form of entertainment rather than

a viable investment asset. Furthermore, they emphasize the absence of regulation, noting that the metaverse is a technology and innovation that necessitates regulatory measures to protect investor interests. They argue for a collaborative effort involving tech companies and government entities to safeguard investors, rather than placing blame solely on technological advancements.

10 Platform Operators Control Virtual Real Property Rights

Traditional and virtual real estate differ significantly from one another, creating special dangers for investors. Virtual real estate only exists on a digital platform, as opposed to physical real estate, which can be immediately sensed through our senses. As a result, owners of virtual real property on a platform are left with no property rights and no remedy if the platform operator restricts an owner's access or deletes the platform entirely.

Platform operators have the freedom to draft terms of use as they see fit, and virtual real property owners must accept these terms without negotiation. Most metaverse platforms incorporate terms of use that shield the operator from liability and grant them broad discretion over virtual real property rights. For instance, Decentraland's terms of use state that the platform operator has no obligation to ensure the platform's longevity and may cease its operation in the future without any liability. Similarly, The Sandbox's terms allow the operator to block an owner's access to the platform and terminate their content creation and upload rights at any time, solely at the operator's discretion. Although a banned or restricted owner may still retain the title, their ownership rights are severely restricted (Jentzsch, 2016).

Consequently, platform operators exert more influence over virtual real property rights compared to government counterparts in the traditional real estate realm. This results in virtual real property owners inherently possessing fewer property rights. Moreover, the lack of substantial regulation grants platform operators' significant discretion with limited liability, thereby increasing the likelihood of potential misconduct. Unfortunately, this risk is unavoidable since there is no insurance industry for virtual real property, preventing owners from transferring the risk to another party.

11 DAOs Are Useful But Create More Complexity

A DAO, short for decentralized autonomous organization, is an innovative organizational structure enabled by blockchain technology. It is often likened to a crypto co-op, a "financial flash mob," or a "group chat with a bank account." In essence, DAOs are groups formed for a common purpose, such as investing in startups, managing stablecoins, or acquiring NFTs. According to ConsenSys, a blockchain organization, DAOs are governing bodies responsible for allocating resources to affiliated projects and ensuring their long-term success. As the concept of the Metaverse continues to evolve, DAOs are increasingly focusing on leveraging and investing in this virtual realm. With Goldman Sachs valuing the sector at $8 trillion, attention has turned to the potential for accessibility, usability, and monetization of these digital worlds (Jentzsch, 2016).

Prominent players in the Metaverse, including Adidas, Nike, Snoop Dogg, and JPMorgan, are acquiring digital land to connect with consumers in the realm of Web3. However, the prohibitive cost of entry remains a major barrier to widespread participation in the digital land rush. DAOs are actively seeking ways to create more equitable opportunities for investing in and utilizing these virtual worlds. By facilitating the sharing, renting, and investment in digital land within the Metaverse, DAOs have the potential to significantly assist in onboarding new participants to Web3, making engagement with digital land more accessible to all.

In their short lifespans, DAOs have experienced both explosive growth and catastrophic failures, espousing admirable ideals of equality on paper yet often falling woefully short when the rubber meets the road. At their best, DAOs represent an exciting alternative to traditional forms of human organization. At their worst, they are pyramid schemes. Certain DAOs achieve wide representation through collaborative decision-making, but others run the danger of replicating quasi-oligarchic patterns by centralizing governance tokens among a limited group of influential participants, such as venture capitalists and early insiders. The monetary value of membership tokens can also incentivize corruption from within, as in the case of MetaDAO, whose members were robbed of $3.2 million in a rug pull scam run by the group's founders. DAOs also suffer from a lack of accountability and transparency. In many DAOs, participants are allowed to be anonymous, which opens the door to potential abuses at high levels of power.

12 Security Concerns

The security issues surrounding the metaverse are of utmost importance and greatly impact the dynamics of this virtual space. While numerous enterprises are exploring the possibilities offered by the metaverse, it is essential to consider potential concerns that come along with it. The technologies powering metaverse platforms, namely Augmented Reality (AR) and Virtual Reality (VR), serve as the interface for this immersive experience. However, these technologies also bring forth significant risks in terms of security and privacy, which can extend into the metaverse environment (Nelson, 2009).

With the emergence of the metaverse as a novel concept, many individuals lack sufficient understanding of its intricacies. Exploiting this information gap, unscrupulous individuals are taking advantage of the situation by generating counterfeit links to popular metaverse platforms. Once these fraudulent links are activated, scammers gain unauthorized access to the user's virtual wallet, enabling them to initiate fund transfers using smart contracts. Regrettably, these transactions are exceedingly challenging to reverse, leaving the stolen cryptocurrency nearly irretrievable. Shockingly, cryptocurrency-related crimes amassed an astonishing $14 billion in 2021 alone. The profitability of these deceptive metaverse links has led to their wide availability for sale on the dark web (Wu et al., 2023).

13 SecurityRisks of Augmented Reality

Augmented Reality (AR) plays a crucial role in shaping the metaverse and offers exciting possibilities for data gathering. However, along with these advancements come potential security risks that can significantly impact user privacy. It is important to reflect on these risks and understand their implications for both the metaverse and AR technology.

The hacker compromise of AR gadgets is one of the crucial issues. In the event of such a breach, classified information and sensitive data may be made available, raising the possibility of their misuse or illegal access. Users' privacy should be protected at all costs, and steps must be taken to stop and correct any violations (Cifrino, 2014).

Additionally, AR businesses must put in place robust security to safeguard the user data they collect. It is crucial to protect user data and make sure that privacy laws are followed. This entails putting in place

strict security procedures, encryption methods, and safe storage options for the AR data they gather. AR firms may preserve user privacy and stop illegal access to user data by giving priority to safe storage solutions that use strong encryption methods. Another critical area that requires investigation is the sharing of AR data with outside parties. It is critical to comprehend the scope of user data sharing undertaken by AR companies and the objectives for which this sharing occurs (Roesner et al., 2014). To guarantee that users have control over their data and understand how it is being used, transparent policies and unambiguous permission methods should be in place.

These privacy risks within the metaverse, stemming from AR technology, raise concerns such as social engineering attacks, credential theft, and denial of service. AR companies must address these risks through robust security measures. By doing so, they can mitigate potential threats and protect user privacy, fostering a more secure and trustworthy metaverse experience (Wu et al., 2023).

14 Credentials

In recent months, a surge of phishing scams has targeted investors, specifically those who have purchased virtual property. These scams operate by luring individuals to click on seemingly legitimate links, often through emails, which redirect them to websites that closely resemble popular metaverse platforms such as Decentraland. Unfortunately, once the unsuspecting victim enters their login credentials, the hackers gain access to their personal information, allowing them to swiftly drain their digital wallets of funds and valuable NFTs. Tragically, by the time victims realize the theft, it is often too late to recover their assets due to the irreversible nature of blockchain transactions (Wu et al., 2023).

The decentralized nature of the metaverse poses additional challenges for those who fall victim to property theft. Without a central authority to turn to for assistance or to seek restitution, victims are left without recourse. The absence of regulatory oversight in this virtual realm creates an environment akin to a new frontier—both exhilarating and perilous—making it an ideal breeding ground for malicious scammers.

15 Smart Contracts

The execution and enforcement of contracts in the context of virtual real estate transactions is another crucial factor to consider. Smart contracts, which are self-executing contracts created using blockchain technology, are crucial in this area. By removing the need for middlemen, these smart contracts make it possible to facilitate virtual property sales, leases, and other transactions seamlessly (Levi & Lipton, 2018). But there are issues with contract creation, fulfillment, and enforcement in the metaverse, which cause legal uncertainty. It may be difficult to apply conventional contract law to digital transactions, especially when resolving disputes resulting from smart contracts. Such issues can call for the interpretation of complex codes and might fall under several different legal jurisdictions (Bouachir et al., 2022).

16 Copyright

In addition, virtual real estate includes digital possessions like' model homes, landscapes, and other artistic elements that might be protected by copyright, trademark, or other intellectual property laws. However, these assets virtual form creates issues with ownership, licensing, and infringement. It can be difficult to recognize and uphold intellectual property rights in the virtual world, for instance, because unauthorized reproduction or use of virtual assets may occur within the metaverse (Bouachir et al., 2022).

To counteract such fraudulent activities, investors in virtual real estate should implement two-step authorization as an additional layer of security for their virtual wallets. Several blockchain-based businesses are beginning to integrate features that enable the reporting of stolen cryptocurrencies. This reporting mechanism disables the reported cryptocurrency, preventing it from being bought or sold, thus discouraging phishing scams.

17 Speculations

The unpredictable trajectory of the metaverse is simultaneously its most thrilling and daunting aspect. It presents numerous possibilities, but investors face the risk of allocating funds to the wrong ventures and ending up empty-handed. In essence, it resembles a gamble at its current

stage. The gamble extends beyond acquiring virtual property; it also involves taking a chance on the specific metaverse platform chosen. Presently, there is not a single unified metaverse, but rather multiple platforms offering metaverse technologies. While many envision a future where the metaverse functions as a connected space, it remains fragmented, necessitating the selection of one or more platforms to invest in for land ownership. Should the platform housing one's metaverse real estate falter, the risk of losing it entirely becomes a reality (Hari Lal & MK, 2022).

The creation of legal frameworks and laws tries to manage the legal issues related to virtual real estate as the metaverse develops. Through the usage of virtual worlds, users from various nations can communicate and engage in the same virtual space. Given the differences in rules and regulations among jurisdictions, this raises concerns regarding the applicable legal framework governing virtual real estate transactions. Legal issues such as jurisdictional disputes, international legal complications, and conflicting laws may arise; these issues must be carefully considered and resolved inside the metaverse (Mackenzie, 2022).

Currently, determining which metaverse platforms will succeed or fail remains uncertain. Popular options like Decentraland or The Sandbox may appear cartoonish and pixelated, with vast expanses of empty, unused space. Critics argue that the real deception lies in convincing companies that purchasing land in such places represents a sound investment for the future, despite the limited time users spend there (Hari Lal & MK, 2022).

18 Lack of Regulation

For the metaverse to become a viable place to live and conduct business, it will require real-world controls to safeguard users against abuse, fraud, and loss. However, implementing global regulations is a time-consuming and challenging task. In the meantime, the metaverse creators must take proactive measures by establishing their code of conduct, referred to as meta code.

The metaverse is no longer confined to science fiction; therefore, it is essential to consider the potential threats it poses to individuals and businesses. To ensure the safety of users, regulators and architects of virtual spaces should work together without delay. Technological innovation often outpaces regulatory frameworks, resulting in a lack of supervision over the metaverse's operations at present (Rosenberg, 2022).

First, the currencies used in virtual worlds are unlike real money. They mostly consist of digital money or in-game money like Fortnite V-Bucks. There is no government-backed protection against loss or fraudulent activity, even though accounts or wallets can be used to store these assets.

Secondly, in contrast to the real world, the value of virtual goods bought and exchanged in the metaverse is less palpable. An NFT or virtual piece of real estate may seem valuable, but that value may not necessarily hold. Furthermore, there are not enough safeguards for consumers, such as return rights or other comparable provisions.

Currently, the metaverse is home to approximately 160 businesses, and many more are sure to follow. These independent operators might continue operating indefinitely without a regulatory framework. Furthermore, there may be few ways to stop an offshore investment organization from setting up shop in a region of the metaverse that is accessible to users from other virtual worlds, without worldwide control of the metaverse. The most likely consequence is that some virtual worlds will be governed by laws, perhaps pertaining to asset transferability or privacy. Fraud and financial gain could both be concerns in unregulated online environments.

19 Virtual Worlds with Real Financial Services

The metaverse relies on technologies such as blockchain and distributed ledger systems, which inherently minimize transaction risks and reduce the need for financial regulation. However, this conflicts with the core essence of the metaverse, which values anonymity and the ability to assume different identities in a virtual world. While anonymity is a key attraction for many users, it poses challenges for implementing regulations, as proving one's identity becomes less straightforward. Privacy concerns are prevalent among metaverse users, with 41% globally and 55% of U.S. internet users worrying about the tracking and misuse of personal data.

Strong ties between online and offline personalities and adherence to rules that guarantee financial safety are necessary for financial regulation in the metaverse to be effective. In the developing virtual reality world, important requirements like "know your customer" (KYC), tax regulations, risk management techniques, and comparable frameworks will find their place. As the metaverse becomes increasingly realistic, there will be a greater need for regulation. The emergence of asset classes within the

metaverse could eventually hold significant value, requiring robust supervisory and governance frameworks akin to those in the physical world. As more is at stake, there is a greater necessity for protection.

20 Law Recommendations

The metaverse, overseen by a 'Metarules Compliance Officer' within firms, should prioritize four essential elements. First, it must enforce Know Your Customer (KYC) requirements, ensuring that users verify their real-world identities. This includes implementing a robust process to register minors and minimize abusive behavior. Second, it should provide safe spaces for mental well-being and employ AI (Artificial Intelligence) tools to monitor addiction and post-traumatic stress disorder (PTSD). Third, users should have the ability to opt into specific levels of content and frequently confirm their comfort with it. Lastly, there should be a cross-industry database of bad actors and their real-world identities to maintain a secure environment.

Virtual assets like NFTs may be governed by conventional financial laws governing securities, banking, money transmission, and commodities in the metaverse. Some blockchain-based assets might meet the definition of "investment contracts" and as a result be subject to securities legislation. A complicated system of rules would need to be put in place for sales, trading, and other operations to comply with securities laws.

To effectively manage financial risks in the metaverse, well-defined processes are crucial. For instance, when independent stablecoins are transferred into or out of meta wallets, exchange fees should be transparently published. Additionally, significant loans or trades should require real-world collateral. It makes sense to contract out ID verification to a dependable third party and offer insurance against individual loss or third-party damage. Supporting these processes and enabling embedded finance, securitization, wealth creation, and taxes will need leveraging technologies from the real financial sector.

An industry body could introduce a quality stamp that signifies virtual worlds as self-regulating and adhering to prescribed standards, guaranteeing safety for visitors. Metaverse users would then have the choice to stick to approved areas or venture into clearly unregulated environments. In addition to external controls, self-regulation will be critical and can be achieved through enhanced transparency, credibility, and accountability,

backed by best-practice processes. Crises will inevitably occur, but collectively, governments, businesses, and consumers can learn from them. How we respond as a collective will shape the metaverse of the future, making it a complementary and enriching extension of our real lives.

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