need to evolve and grow with the times, and this includes addressing new crimes and working towards preventing them. By learning from change and adapting to it, the metaverse will affect businesses and be the next big chapter in many of our lives. Ultimately, businesses entering the metaverse will only find success by staying ahead of all white-collar crimes and adapting to new changes that may come their way to create a safe environment for every stakeholder involved. ■

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HOW DO VIRTUAL REALITY AND BLOCKCHAIN TECHNOLOGY IMPACT THE CREATION AND GOVERNANCE OF DECENTRALIZED COMMUNITIES WITHIN THE METAVERSE?

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AUTHOR NOTE

This paper is a speculative glance at the dangers of the metaverse.

ABSTRACT

This paper explores the impact of virtual reality (VR and blockchain technology on the creation and governance of decentralized communities within the metaverse. The metaverse is a virtual world constructed using blockchain and other digital technologies. Decentralized communities are a fundamental part of the metaverse, and they are typically organized around a particular theme or interest. The paper analyzes the qualitative and quantitative datasets to investigate the impact of VR and blockchain technology on decentralized communities within the metaverse.

Key words: virtual reality, dangers, blockchain, technology, decentralized communities, metaverse

Introduction

The concept of a metaverse, or a virtual universe, has been around for decades. However, it was not until the emergence of virtual reality (VR) and blockchain technology that the metaverse became a tangible reality. The metaverse is a decentralized and interconnected virtual world where people can interact with each other and engage in various activities (Gillett, 2018). Decentralized communities are an essential part of the metaverse, and they are typically organized

around a particular theme or interest, such as gaming, socializing, or commerce. This paper aims to analyze the impact of VR and blockchain technology that the metaverse became a tangible reality. The metaverse is a decentralized and interconnected virtual world where people can interact with each other and engage in various activities (Gillett, 2018). Decentralized communities are an essential part of the metaverse, and they are typically organized around a particular theme or interest, such as gaming, socializing, or commerce. This paper aims to analyze the impact of VR and blockchain technology on the creation and governance of decentralized communities within the metaverse.

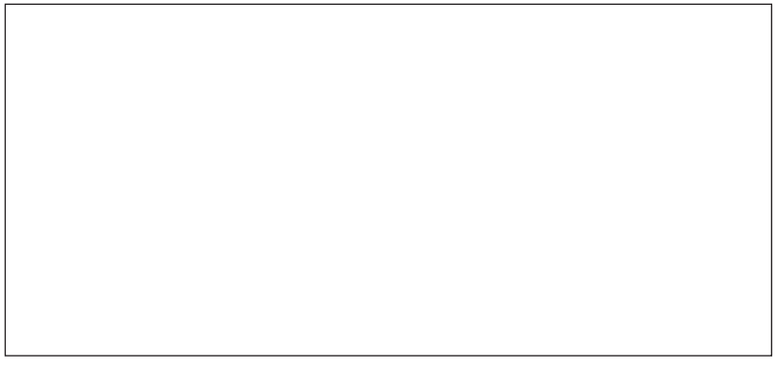
Stakeholders

Virtual reality companies are a key stakeholder in the impact of VR and blockchain technology on the metaverse. They are responsible for creating the hardware and software that enable users to access and interact with the metaverse. These companies are invested in ensuring that the technology is accessible, intuitive, and engaging for users. One example of a virtual reality company with a stake in the metaverse is Oculus, which is owned by Facebook. Oculus has been working to create a social VR experience that allows users to interact with each other in a virtual space (Chen et al., 2020). This has the potential to create a more immersive and engaging experience for users, which could lead to greater adoption of the technology.

Blockchain companies also have a significant stake in the creation and governance of decentralized communities within the metaverse. They are responsible for developing the underlying technology that powers these communities and for ensuring that they are secure and transparent (Werbach, 2018). One example of a blockchain company with a stake in the metaverse is Decentraland, which is a decentralized virtual world that is powered by the Ethereum blockchain. Decentraland allows users to buy and sell virtual land and assets using cryptocurrency, creating a decentralized economy within the metaverse. Decentraland has also implemented a governance system that allows users to vote on changes to the platform, promoting transparency and community engagement (De Filippi & Loveluck, 2016).

Investors are another stakeholder in the impact of VR and blockchain technology on the metaverse. They are looking for investment opportunities in this rapidly growing field and are invested in ensuring that these technologies are adopted widely. One example of an investor with a stake in the metaverse is venture capitalist firm Andreessen Horowitz, which has invested in several blockchain and VR companies, including Coinbase, OpenSea, and Improbable (Kshetri, 2018). These investments demonstrate the firm's belief in the potential of these technologies to transform industries and create new opportunities for users and investors alike.

Users are a direct stakeholder in the impact of VR and blockchain technology on the metaverse. They are the ones who will be using the technology and experiencing the benefits and drawbacks of these technologies firsthand. One example of users with a stake in the metaverse is gamers, who are increasingly using VR and blockchain technology to enhance their gaming experiences (Chen et al, 2020). Games like CryptoKitties, which are powered by blockchain technology, allow users to buy, sell, and breed virtual cats using cryptocurrency (Nakamoto, 2008). This creates a decentralized economy within the game that is controlled by the users, promoting greater engagement and investment in the platform (See Figure 1).



Regulators are also a key stakeholder in the impact of VR and blockchain technology on the metaverse. They are responsible for ensuring the safety and security of users within the metaverse and for regulating the use of these technologies (Werbach, 2018). One example of a regulator with a stake in the metaverse is the European Union, which has implemented regulations on the use of virtual currencies and blockchain technology (Kshetri, 2018). These regulations seek to promote transparency and prevent fraud within the industry, while also ensuring that users are protected from potential risks associated with these technologies.

Content creators are another stakeholder with a stake in the impact of VR and blockchain technology on the metaverse. They are able to create and monetize content within the metaverse, which has the potential to create new revenue streams and opportunities for creators (Kshetri, 2018). One example of content creators with a stake in the metaverse is virtual musicians, who are using VR technology to create immersive music experiences for fans. Musicians like Travis Scott and Lil Nas X have performed virtual concerts using platforms like Fortnite and Roblox, reaching audiences of millions of users and creating new opportunities for engagement and monetization (De Filippi & Loveluck, 2016).

Decentralized Communities

Virtual reality technology has had a significant impact on decentralized communities within the metaverse. VR technology has made it possible for users to interact with each other in a more immersive way. Users can create avatars that represent themselves in the virtual world and interact with other users in real-time (Chen et al., 2020). This has led to a more social and engaging experience for users within decentralized communities. For example, Second Life is an online virtual world that allows users to create their own avatars, own property and engage in various activities. The platform has a vibrant community that includes socializing, gaming, and commerce (Chen et al., 2020). However, despite the potential benefits, there are also potential issues associated with the use of VR in decentralized communities. One issue is that the use of VR technology may create a sense of disconnection between users and reality. Users may become too immersed in the virtual world, which may lead to negative consequences in the real world.

Another example of arising issues is the game, Decentraland, which is a blockchain-based virtual world that allows users to create, experience, and monetize content. In Decentraland, users can create and own virtual real estate, create and sell virtual assets, and host events. The platform has a vibrant and engaged community, which showcases the potential benefits of VR technology in decentralized communities (Chen et al., 2020).

However, there have been instances of failed decentralized communities in the past, where VR technology played a significant role. For example, Blue Mars was a virtual world that was launched in 2009. It was designed to be a platform where users could create and own virtual real estate, participate in various activities, and engage with other users. However, the platform failed to attract a significant user base, and it eventually shut down in 2018 (Gillett, 2018). The failure of Blue Mars highlights the importance of community engagement and the need for a compelling value proposition in decentralized communities (See Figure 2).

In contrast, successful decentralized communities such as Ethereum and Decentraland have been able to attract a large user base by offering a compelling value proposition and engaging the community through active development, community building, and partnerships. Ethereum is a decentralized platform for building decentralized applications, and it has become a popular platform for developers and users who are interested in blockchain technology. Decentraland is a virtual world where users can create and own virtual real estate, participate in various activities, and engage with other users (Chen et al., 2020).

Blockchain technology has also had a significant impact on decentralized communities within the metaverse. Blockchain technology is a decentralized ledger system that is used to record transactions and other data (Werbach, 2018). This technology is ideal for decentralized communities because it allows for a transparent and secure system of governance. Decentralized communities can use blockchain technology to record votes and other governance decisions. This has led to a more decentralized and democratic system of governance within the metaverse (Chen et al., 2020). For example, the Ethereum blockchain is a popular platform for decentralized applications, and it enables the creation of smart contracts that can be used to automate various processes within decentralized communities (Chen et al., 2020).

In conjunction, blockchain technology has made it possible for decentralized communities to create their own currencies and economies. For example, gaming communities within the metaverse can create their own virtual currencies that are used to purchase in-game items and services (Dourish & Bell, 2011). This has led to a more vibrant and dynamic economy within the metaverse. However, there are also potential issues associated with the use of blockchain technology in decentralized communities. One issue is that the decentralized nature of blockchain technology can lead to challenges in achieving consensus and decision-making. Additionally, the anonymity of users within the blockchain network can lead to the possibility of

fraud and illicit activities (Dourish & Bell, 2011). Examples of failed decentralized communities that utilized blockchain technology include the DAO (Decentralized Autonomous Organization) and BitConnect. The DAO was a decentralized organization that was created on the Ethereum blockchain. The organization aimed to create a decentralized venture capital fund that would allow investors to vote on investment decisions (Dourish & Bell, 2011).

Decentralized currencies have faced various challenges and limitations leading to their failure. A common issue is their scalability as they struggle to process transactions quickly compared to traditional payment methods. Inadequate security measures have also made some currencies vulnerable to theft resulting in loss of user funds (See Figure 2). Additionally, regulatory oversight has been limited, leading to legal ambiguity, and hindered mainstream adoption (Gillett, 2018). For instance, in 2014, Mt. Gox, a Japan-based Bitcoin exchange, filed for bankruptcy due to security vulnerabilities, leading to the loss of millions of dollars in user funds (Nakamoto, 2008). Another example is the BitConnect cryptocurrency, which was found to be a Ponzi scheme, leading to its collapse in early 2018 (De Filippi & Loveluck, 2016).

These incidents highlight the challenges faced by decentralized and the importance of addressing these challenges to ensure their long-term viability. However, a flaw in the smart contract code allowed a hacker to steal approximately $50 million worth of Ether from the organization (Gillett, 2018). The incident highlighted the need for secure and audited smart contracts in decentralized communities (See Figure 3 on the next page).

On a similar note, BitConnect was a decentralized cryptocurrency exchange that was accused of being a Ponzi scheme. The platform promised high returns on investments and operated a lending program that was suspected of being a fraudulent operation. The platform eventually collapsed, leading to significant losses for investors (Nakamoto, 2008)

Conclusion

The impact of virtual reality and blockchain technology on decentralized communities within the metaverse is significant. VR technology has made it possible for users to interact with each other in a more immersive way, leading to a more social and engaging experience within decentralized communities. Blockchain technology has also enabled a more transparent and secure system of governance and the creation of vibrant and dynamic economies within the metaverse. However, there are also potential issues associated with the use of VR and blockchain technology in decentralized communities, such as disconnection from reality and challenges in achieving consensus and decision-making. The examples of failed decentralized communities, such as Blue Mars, the DAO, and Bit Connect, highlight the importance of community engagement, a compelling value proposition, secure and audited smart contracts, and transparency in governance in the success of decentralized communities within the metaverse. The metaverse has the potential to revolutionize the way people interact with each other and conduct business, and the impact of VR and blockchain technology on decentralized communities will play a significant role in shaping its future (Shaheen, 2023). ■

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