JURNAL

WAWASAN YURIDIKA

Vol. 7 | No. 1 | March 2023 | Page: 86-105

Nationally Accredited Journal Decree No. 36/E/KPT/2019, Dated 13rd December 2019

http://ejournal.sthb.ac.id/index.php/jwy

Virtual Land: Deciphering Blockchain-Based Property Transactions and Their Legal Implications

Muhammad Asrul Maulana[1], Mochamad Tanzil Multazam[2]

[1 2] Faculty of Law, Universitas Muhammadiyah Sidoarjo, Sidoarjo, Indonesia

✉ Corresponding Author: asrulnaa7@gmail.com

Info Artikel:

DOI: 10.25072/jwy.v7i1.574

Diterima: 11 January 2023 | Disetujui: 16 March 2023 | Dipublikasikan: 30 March 2023

Kata Kunci:

Blockchain; Buy and sell; Electronic Transactions; Virtual Land.

Abstract

This study aims to investigate the scheme of virtual land transactions based on blockchain technology and the legal relationships among parties involved in such transactions. This research is descriptive, with the type of normative juridical research, using statutory and conceptual approaches, data collection techniques in the form of literature studies, then the data are analyzed qualitatively. The results reveal that the transaction process on platforms like Decentraland and The Sandbox includes registering a digital wallet, purchasing virtual land, managing and developing the land, reselling it as an NFT asset, and exchanging cryptocurrencies for local currency. The legal relationships between sellers, buyers, and platform owners are also identified. This research contributes to users' understanding of virtual land transactions and intellectual property ownership in the digital realm.

A. INTRODUCTION

Just like in the real world, land assets can also be bought and owned in the virtual world. Major companies in the world such as Facebook, Token.com, and Tesla, have recently purchased virtual plots of land. For example, the company Token.com announced that it bought a 116-plot plot of land in the center of the fashion district in Decentraland, a blockchain-based virtual world.[1]

Interestingly, in a written statement, the company Token.com announced that the digital land was purchased for 618,000 MANA (digital currency in Decentraland), equivalent to IDR 42.6 billion, through a

[1] Farida Agustin *et al.*, "Blockchain-Based Decentralized Distribution Management in E-Journals," *Aptisi Transactions on Management (ATM)* 4, No. 2 (7 April 2020), https://doi.org/10.33050/atm.v4i2.1294. 107–113, hlm. 109.

subsidiary called Metaverse Group.[2] It was the largest purchase to date. Not only that, during a meeting between the President of the Republic of Indonesia, Joko Widodo and Facebook owner Mark Zuckerberg, it was revealed that companies in Indonesia were asked to compete in keeping up with the times. For this reason, the Digital Generation Acceleration movement must be inaugurated. In addition, Mark revealed, the next 10 years will be developed more deeply, so that later there will be virtual businesses, virtual offices, virtual shopping centers, virtual games, and virtual tours. There are still relatively few companies that facilitate this blockchain-based virtual world. Among the largest are the Decentraland platform and The Sandbox.

Virtual worlds are not new, they have long been recognized in online games such as Grand Theft Auto 5 Online, PUBG, Ragnarok Online, Genshin Impact, and so on.[3] Online games that provide avatars in the game world can already be said to be a virtual world. Because you can chat, play, and transact with other players online. The difference between the concept of a virtual world in previous online games and the concept brought by The Sandbox or Decentraland is that all transactions are recorded on the public blockchain.[4] The recording of the transaction in the blockchain causes the scale of this world to be wider. In addition, it is different from games that have a storyline. The blockchain-based virtual world has no storyline and is a free place, where players can create freely and interact with anyone who is there without limiting the number of users at one location, and in online games it is usually limited due to server constraints. Items purchased in the virtual world can also be permanently owned in the form of NFTs (non- fungible tokens) and recorded on the blockchain.[5]

---

2 Galuh Putri R, "Perusahaan Ini Beli Tanah Digital Senilai Rp 42 Miliar," *Kompas.com* (25 November 2021), https://tekno.kompas.com/read/2021/11/25/16080017/perusahaan-ini-beli-tanah-digital-senilai-rp-42 miliar#:~:text=Dalam%20keterangan%20tertulisnya%2C%20Token.com,perusahannya%20yang%20bernama%20Metaverse%20Group.&text=Setiap%20bidang%20tanah%20digital%20yang,4%2C8%20meter%20persegi), hlm. 1.

3 Khairuddin, "Hukum Bermain Game Online Player Unknown's Batlegrounds (PUBG) Menurut Fatwa MPU Aceh Nomor 3 Tahun 2019," *DIKTUM: Jurnal Syariah dan Hukum* 18, No. 1 (11 Juli 2020), https://doi.org/10.35905/diktum.v18i1.1357. 17-32, hlm. 20.

4 Muhamad Oka Augusta *et al.,* "Penggunaan Teknologi Blockchain Dalam Bidang Pendidikan," *Produktif : Jurnal Ilmiah Pendidikan Teknologi Informasi* 5, No. 2 (3 Januari 2022), https://doi.org/10.35568/produktif.v5i2.1259, 437–442, hlm. 440.

5 Matthias Lehmann, "National Blockchain Laws as a Threat to Capital Markets Integration," *Uniform Law Review* 26, No. 1 (1 Maret 2021), https://doi.org/10.1093/ulr/unab004. 148–179, hlm. 167.

Current blockchain research still focuses on technology development, and is still lacking when viewed from a legal perspective. Based on data in the LENS indexing institution (lens.org, 2022), legal research is not even included as a top field of study. As can be seen in Figure 1.

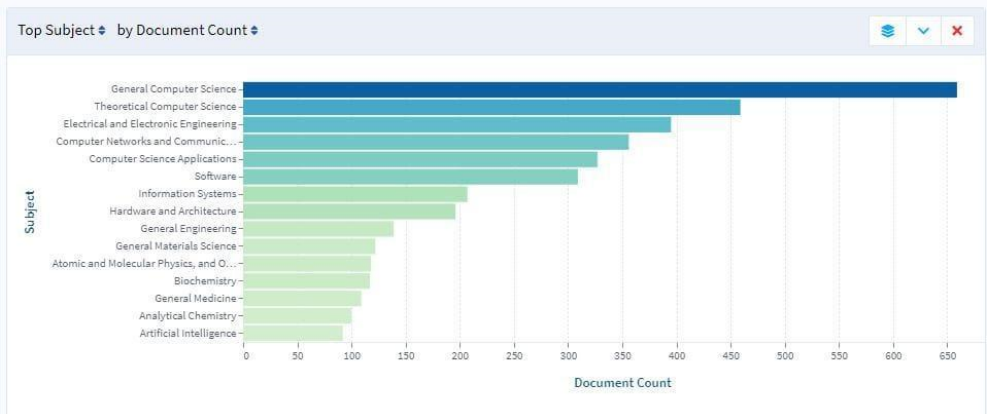

Figure 1. Current blockchain-related research (lens.org 2022)

The current state of research found that blockchain technology is a data center that stores a variety of information in digital format. In a blockchain, transaction data or decentralized records can be stored, depending on the use of the blockchain. For example, in the Bitcoin blockchain, information related to transaction details such as the number of coins, coin selection, and acceptance is stored.[6]

Blockchain technology can have a positive impact on accelerating Indonesia's economy. Granular, connected, and open access to data is invaluable in decision-making, improving the efficiency of the business sector, and supporting the government in determining the right policies.[7] From an NFT (non fungible token) perspective, blockchain is a technology used to validate the ownership of goods that can be purchased with cryptocurrency and exchanged for official currency. Blockchain itself is an important component of the crypto ecosystem, as are Crypto Punks' NFTs. The rapid development in the UK between 2018 and 2021 makes Crypto Punks a focus in technological development. Blockchain became a

6 Mario Galatovic, "Securing the blockchain for fintech companies," *Computer Fraud & Security* 2022, No. 1 (1 Januari 2022), https://doi.org/10.12968/s1361-3723(22)70009-7. 54-72, hlm.64.

7 Isma Maulani *et al.,* "Penerapan Teknologi Blockchain Pada Sistem Keamanan Informasi," *Jurnal Sosial Teknologi* 3 (Februari 2023), https://doi.org/10.36418/jurnalsostech.v3i2.634. 99–102, hlm. 100.

necessary means to optimize the launch of Crypto Punks in 2021.[8]

The first various types of blockchain are private blockchains, where only one party can access the data and can control it entirely, then there are consortium blockchains where only a few parties can control it, and finally there are public blockchains that are open to everyone and are also transparent.[9] In the crypto world, the blockchain used is the public blockchain type, the way blockchain works in the crypto context is actually simple, because the point is that blockchain is a place where all crypto transactions move and are recorded, recording these transactions will later form blocks or blocks that are connected to each other, with the name chain and form a network, so it is called blockchain. as for how blockchain works can be seen in Figure 2.

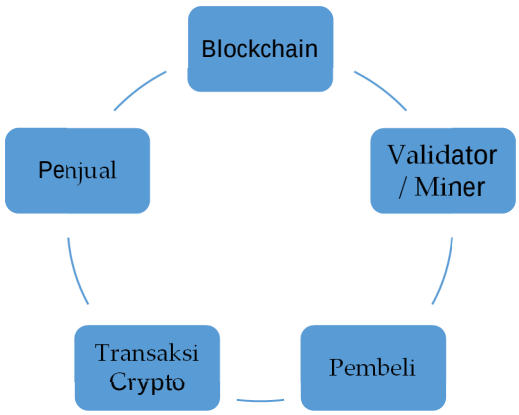

Figure 2. How Blockchain-Based Crypto Transactions Work

Blockchain is driven by validators who are usually known as miners or miners, these miners are the ones who ensure that the transactions that occur are valid and worthy of being recorded in a block, and miners who have validated will get rewards or rewards in the form of crypto currency, for example someone requests to make a transaction, then it is approved and considered valid, so that the transaction can automatically occur between the seller and the buyer.[10]

---

8 Edoardo Beretta, "Cryptocurrencies, Evolution of Means of Payments and Validity of Monetary Principles," *Credit and Capital Markets – Kredit und Kapital: Volume 54, Issue 3* 54, No. 3 (1 Juli 2021), https://doi.org/10.3790/ccm.54.3.469. 469–498, hlm. 480.

9 Firmansyah Ashari *et al.,* "Smart contract and blockchain for crowdfunding platform," *International Journal of Advanced Trends in Computer Science and Engineering* 9, No. 3 (25 Juni 2020), https://doi.org/10.30534/ijatcse/2020/83932020. 36-41. hlm.39.

10 Pablo Agnese, "On blockchains, cryptos, and media of exchange. Not there (yet)," *International Journal of Intellectual Property Management* 11, No. 1 (2021), https://doi.org/10.1504/ijipm.2021.10035785. 81-94. hlm.90.

Blockchain technology currently has applications in various sectors, such as banking, commerce, and government. In the banking sector, blockchain technology can help maintain the security of transaction data.[11] In the trade sector, blockchain technology can be used to ensure the authenticity of traded goods. Meanwhile, in the government sector, blockchain technology can be used to verify election results.[12] Meanwhile, blockchain technology is also related to cryptocurrencies.[13] Cryptocurrency is a product of blockchain technology and can be used as a means of barter. The development of blockchain itself is based on a new technology called blockchain. It is a distributed and peer-to-peer technology that can help strengthen the security and validity of transactions.

Research related to the sale and purchase of virtual land on the Metaverse platform shows that formally, the pillars and conditions for the formation of a contract have been fulfilled. However, there are problems with the elements that complete the contract which are still speculative.14 Another problem is the absence of strict and clear regulations from the government, so that there is no legal certainty in virtual land sale and purchase transactions on Metaverse.15 Providing legal certainty and protection is important for business actors who use the blockchain-based Metaverse platform as a means of buying and selling virtual land, such as on the Decentraland and The Sandbox platforms. Therefore, this research focuses on the blockhain-based virtual land sale and purchase scheme and the legal relationship between the parties in the transaction on the Decentraland and The Sandbox platforms. This is to find out the sale and purchase of blockchain-based virtual land on the Decentraland and The Sandbox platforms and their legal relationships.

B. RESEARCH METHODS

The specification of this research is descriptive research, with a type of normative juridical research, using a statutory approach and a conceptual

[11] Wei Cai *et al.,* "Decentralized Applications: The Blockchain-Empowered Software System," *IEEE Access* 6 (2018), https://doi.org/10.1109/access.2018.2870644. 19-33, hlm. 27.

[12] Bambang Irawan *et al.,* "Pengenalan Teknologi Blockchain Dan Perkembangannya Bagi Masa Depan," *Indonesia Jurnal Pengabdian pada Masyarakat (J-PMas)* 1 (November 2022), https://doi.org/10.37606/jpmas.v1i2.21. 75-80, hlm. 76.

[13] Joseph Lee *et al.,* "A Regulatory Framework for Cryptocurrency," *European Business Law Review* 31, No. Issue 3 (1 Mei 2020), https://doi.org/10.54648/eulr2020018. 423-446, hlm. 435.

approach. Data in the form of primary legal materials consists of Law of the Republic of Indonesia Number 11 of 2011 concerning Electronic Information and Transactions, Law Number 19 of 2016 concerning amendments to Law Number 11 of 2008 concerning Electronic Information and Transactions, and Minister of Communication and Information Regulation Number 5 of 2020 concerning the Implementation of Private Scope Electronic Systems. While the conceptual approach focuses on the principles of the validity of the agreement which will be seen on two platforms, namely Decentraland and The Sanbox. The data collection technique is in the form of a literature study by searching for secondary legal materials in the form of journals and books at the lens.org indexing institution, and the data analysis method is carried out qualitatively, so that conclusions can be drawn using the deductive method which produces a general conclusion to the problems and research objectives.

C. RESULTS AND DISCUSSIONS

1. Blockchain-based Virtual Land Buying and Selling on Decentraland Platform and The Sandbox

Purchasing virtual land on Decentraland, as with virtual property on other platforms, involves the risk of speculation. The price of virtual land can vary dramatically and may not always increase in value. Users should be aware of these risks before making an investment in virtual land. Just like physical property in the real world, ownership of virtual land on Decentraland may provide opportunities for capital gains if its price increases over time. However, increases in value are not guaranteed and can be affected by complex economic and market factors.

The success of Decentraland as a virtual world depends on the active participation of the user community. The more people involved in exploration, interaction, and content development within the platform, the more interesting and lively the virtual world becomes. Decentraland offers exciting potential for the creative development of content and projects within the platform. Users can produce unique artwork and content that can be expressed and traded in NFTs.[14]

While Decentraland offers many exciting opportunities, this virtual world is also faced with the challenge of remaining

[14] M. Tanzil Multazam, "Exploring the Legal and Policy Implications of Non-Fungible Tokens," *Jurnal Politik danPemerintahan Daerah* 4, no. 2 (Desember 2022), https://doi.org/10.36355/jppd.v4i2. 293-303. hlm 297.

relevant, secure, and attractive to future users. Developers and token holders must constantly innovate and adapt to the needs and expectations of their community.[15] Using blockchain technology that has transparency and a guaranteed level of security, Decentraland provides users with the opportunity to own and invest in an exciting form of virtual land. On this platform, users can explore the market, negotiate with other landowners, and enjoy the amazing sensation of digital property ownership.

Decentraland can bring people together around the world, Decentraland can decorate and explore. There are various facilities ranging from plazas, shops, malls, watching concerts, to casinos. The world is no longer in the palm of our hands. Instead, we own the world through Decentraland. Because Decentraland is controlled by the Decentralized Autonomous Organization (DAO) system. MANA tokens are used for transactions in this virtual world. It can be used to buy items, play casinos, and even to buy virtual land. The proof of ownership of virtual land is the NFT, which can also be traded. The MANA token is built on the Ethereum network. It is also currently running through Polygon.[16]

Decentraland itself means a decentralized world. Those who own MANA Tokens rule and use the DAO system. So, every decision will be decided by all MANA token holders. Decentraland was created by two Argentinians, Ariel Meilich and Esteban Ordano. In addition, MANA is used as the governance token of Decentraland. Each holder has the right to vote, MANA is also used to build virtual land that has been purchased. For example, the use of certain items that must be purchased with MANA. The amount of virtual land in Decentraland is only 90,600 plots in the Decentraland metaverse. The number is very limited and each plot of land is an NFT on Etherium and on Polygon Matic.

The purpose of buying virtual land in Decentraland is to showcase the art collection of NFTs, create galleries and sell them at high prices. Not only NFTs, fashion items made for use by characters in Decentraland are also more expensive than

[15] Multazam, M. T., Huzairin, R. A., Pratama, S. P., & Irwansyah, "Is It Legal to Provide Liquidity on the Vexanium Decentralized Exchange in Indonesia?," *Yustisia* 12, no. 1 (1 April 2023), https://dx.doi.org/10.20961/yustisia.v12i1.69007. 29–46. hlm 35.

[16] David Wicki-Birchler, "NFT und Metaverse: Ausgewählte Aspekte im Schweizer Recht," *Jusletter-IT*, No. 31-Mai-2022 (2022), https://doi.org/10.38023/45a71a1a-6bd5-4c14-999d-2c296710c856. 10-23, hlm. 15.

the price of fashion in the real world and can be rented out to other parties. There may be other parties who want to hold a concert, want to hold a fashion show, etc. who don't have a plot of land. Some big celebrities have held events in Decentraland, such as Paris Hilton.

Virtual property can be used for advertising space. Buildings in Decentraland can also be rented out for advertising space just like buildings in the real world. Also, to rent out to others who want to sell their NFTs, but don't have a gallery or land in Decentraland. The most interesting thing is to buy virtual land to benefit from capital gains, the increase in land prices.

There are 5 processes of buying and selling virtual land on the Decentraland platform, namely E-Wallet (digital wallet) registration, buying virtual land, managing and building virtual land, then reselling it in the form of NFT assets, and finally exchanging crypto to rupiah currency, by withdrawing or withdrawing. The first flow is E- Wallet registration, creating an E-Wallet account and choosing a Blockchain network (cryptocurrency), which is Ethereum Mainnet and Polygon Mati. The second flow is Token Import (MANA), by purchasing Polygon Matic and making a MANA crypto deposit, in order to purchase virtual land.

The third flow is to log in to Decentraland and buy virtual land after the MANA is sufficient and the price is appropriate, then the purchase is made or you can also make an offer, and when it has been purchased, you can build virtual land. The fourth flow is to sell virtual land, virtual land in the form of NFT assets is resold to the same network, namely Polygon Matic, and enters the E-Wallet balance, before exchanging it into rupiah currency. The fifth flow is to change the crypto balance or crypto exchange to the local bank account, by withdrawing, then linking the local bank account, and the crypto money can be transferred into the local bank account.

In the buying and selling of virtual land, Decentraland must ensure that all MANA token holders have equal rights in the decision-making of the DAO system. Decision-making should be transparent and fair, ensuring active participation from all token holders. In an increasingly vast virtual ecosystem like Decentraland, user security and privacy should be a top priority. The blockchain technology used must be continuously updated and strengthened to protect users' personal data

and prevent information leaks or cyber attacks.

Decentraland should continue to look for creative ways to expand the use of MANA tokens within its platform. In addition to the purchase of virtual land and game items, the use of MANA can be expanded to various aspects, including but not limited to funding innovative projects within Decentraland, incentive programs for active users, and support for creative content development. Decentraland should develop partnerships and collaborations with various parties, including artists, brands, and companies, to improve the ecosystem and attract more users into the platform. Partnerships with famous artists or leading brands can enhance Decentraland's image and attract more people.

Similar to the Decentralannd platform, The Sandbox platform should continue to encourage and empower users to express their creativity by building engaging content within this virtual metaverse. They should be given easy-to-use tools and adequate support to create unique and diverse experiences. The Sandbox must maintain equality and open access for all users. All players should have the same opportunity to own and build on their virtual land, without any discriminatory restrictions. In a metaverse controlled by blockchain technology, security and protection of user data should be the top priority. Platforms should continuously improve security measures and keep users' personal information confidential.

The Sandbox should continue to develop and improve its platform with new and innovative features. In addition, the platform should listen to input and feedback from the user community to continuously improve the gaming experience. The Sandbok is a virtual metaverse world, players can self-build and monetize experiences, and empower artist creators with the goal of building a platform that always provides the means to unleash players' creativity in The Sandbox games as they wish.

These different experiences are what users can indulge in, they can include party event games, and other small adventures that can be played inside The Sandbox, all the experiences that will be available inside The Sandbox will be created by the users who play them. This is what they call user-generated content, so users are the builders who build the games, build the events, and

build the structures that will be placed inside The Sandbox. One of the early beginnings of the metaverse on the blockchain and all the assets that will be available in this game such as avatars, in-game assets, clothing, swords, as well as land and buildings are NFTs that provide true digital ownership of assets.

The land inside the Sandbox is a digital piece of real estate in the metaverse The Sandbox allows players to build experiences on it, once someone owns a piece of land, it will be able to fill it with different games and assets, each of these pieces of land is a unit of non-redeemable NFT tokens that are based on the Ethereum blockchain.

In The Sandbox there are only 166,464 land plots, and based on data in the Market there are 12,000 landowners who currently occupy all the land plots in The Sandbox, one land plot in The Sandbox is 96 by 96 meters and one meter is equivalent to 32 by 32 voxels so it will give players a clear vision of how big this land plot is in The Sandbox, and the main mission of The Sandbox platform is to introduce blockchain technology in the game with the digital currency SAND (currency in The Sandbox). The following is the process of buying and selling blockchain-based virtual land on The Sandbox platform, which can be seen in Figure 3.

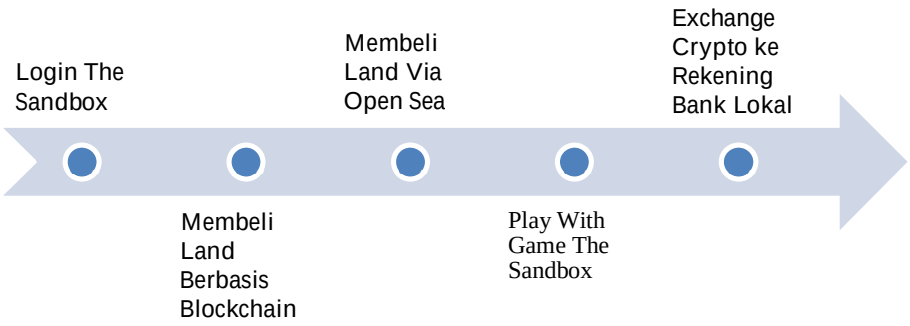

Figure 3. stages of the virtual land buying and selling process on The Sandbox platform

The picture above shows that there are 5 processes, namely logging in The Sandbox, buying blockchain-based land, buying land via open sea, then playing by building, managing, and reselling in the form of NFT assets, and finally exchanging crypto to rupiah currency, by withdrawing or withdrawing. The first flow is to log in to The Sandbox platform, register an E-Wallet and create a player avatar. The second flow is to buy blockchain-based land on The Sandbox market by buying SAND currency through the etherium mainnet network, then buying land as desired, after making a purchase it can be seen in My Inventory.

The third flow is to buy virtual land via open sea on The Sandbox platform by depositing crypto, then exchange ethereum and select the same network in the Metamask E-Wallet, then select the land according to the desired price, then the land can be purchased, after the purchase can be seen in My Inventory. The fourth flow is to play with The Sandbox game by being able to create and build land, in the form of NFT assets, in Voxedit, and can be resold. The fifth flow is to sell land by exchanging crypto to a local bank account, by linking an E-Wallet, the Crypto Balance can be exchanged / withdrawn into rupiah currency.

The Sandbox has successfully created an ecosystem that allows users to create diverse content and experiences within its virtual metaverse. Users have created an exciting variety of games, events and structures. The limited amount of land in The Sandbox creates value and exclusivity for landowners. However, in order to prevent monopoly and for all players to have the opportunity to own land and participate in the development of the platform, the digital currency in The Sandbox, has become the main means of payment in the platform. Users can use SAND to make transactions, purchase assets, and invest in virtual land.

2. Legal Relationship between Parties in Blockchain-Based Virtual Land Transactions

a. Legal Relationship in Virtual Land Sale and Purchase Transaction on Decentraland Platform and The Sandbox

The legal event in question is a virtual land sale and purchase agreement on the Decentraland and The Sandbox platforms, the legal basis of which is Article 1457 of the Civil Code (Kitab Undang-Undang Hukum Perdata) in which one party binds himself to deliver a property and the other party to pay the promised price. Based on Article 1320 of the Civil Code, the validity of the virtual land sale and purchase agreement occurs when the user signs electronically by pressing the approval box (smart contract).

In addition, users' trade-related information and personal data may be stored and processed in any country where the platform owner has facilities or engages service providers. In using such Services, users should understand that their information may be transferred to countries outside their country of residence, including the United States, which may have different

data protection rules from the user's home country.

In certain circumstances, courts, law enforcement agencies, regulatory bodies or security authorities in such other countries may be entitled to access the Personal Information of such users. It is important to remember that the provisions regarding the storage and processing of this data must comply with the data protection legal regulations applicable in the countries involved in the transaction. Users must understand and agree to the legal consequences of data transfer and the treatment of their personal data in accordance with the rules applicable in the destination country.

In electronic transactions, buying and selling virtual land requires digital data security protection so that transactions and ownership of digital assets remain guaranteed. Blockchain technology can be used as a distributed data base to provide a high level of security. In Article 17 to Article 22 of the Electronic Information and Transaction Law (ITE Law), rules related to the implementation of electronic transactions are regulated.

Article 17 paragraph (2) emphasizes that implementers and users of electronic transactions must act in good faith. This means that in every transaction, the parties involved are expected to act honestly and trust each other. Furthermore, Article 18 of the ITE Law explains the legal settlement applicable to international Electronic Transactions which is based on the principles of International Civil Law. This means that if there are disputes or legal issues arising from electronic transactions involving parties from various countries, the settlement will follow the principles of international civil law that apply universally. This gives rise to a legal relationship between the seller and the buyer.

Legal relationship (rechtsbetrekking) is the existence of a relationship between two or more legal subjects, there are rights and obligations that one with the rights and obligations of the other can meet. Legal relations can occur between fellow legal subjects, and can also be legal subjects with objects, such as occurring between people, people with legal entities, legal entities with legal entities. While the legal relationship between legal subjects and objects can be in the form of what rights are controlled by legal subjects over these objects, whether tangible objects, movable or immovable objects, and the condition for the emergence of legal relations is the existence of legal

events. The legal relationship between the parties can be seen in Figure 4.

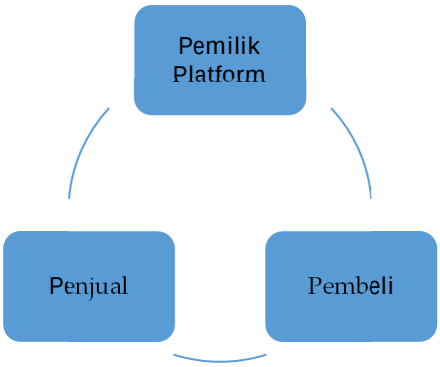

Figure 4. The relationship of the parties in a Blockchain-based electronic transaction

Transactions carried out by the parties give birth to ownership rights as evidenced by proof of ownership. Ownership and intellectual property rights are exclusively owned by the platform owner, in the form of copyright ownership of NFT (non-fungible tokens) and brand rights in the form of logos and land names owned, and the holder of these intellectual property rights for the benefit of society as a whole. Users must acknowledge and agree that the site and tools contain proprietary and confidential information protected by intellectual property in the electronic contract clause.

Copyright Law in Indonesia has included provisions related to security technology in Law No. 28 of 2014 concerning Copyright (UUHC). Although it has not been explicitly explained about the method and its use, the concept of security technology in Indonesian positive law already includes the protection of the creator's exclusive rights, moral rights, and economic rights.

The use of security technology to protect moral rights is regulated in Articles 6 and 7 of the UUHC. Article 6 states that to protect moral rights, a creator can have Copyright management information and/or Copyright electronic information. Article 7 then explains further about the information included in Copyright management information and Copyright electronic information, and prohibits deletion, alteration, or damage to such information.

Meanwhile, the use of security technology to protect economic rights is regulated in Articles 52 and 53 of the UUHC. Article 52 states the prohibition of damaging or eliminating technological control facilities used as protection of

Creation or Related Rights products as well as Copyright or Related Rights security, except for the interests of national defense and security, or in accordance with the provisions of laws and regulations.

Basically, a computer program is a set of instructions created to enable a computer to perform a specific function or achieve a specific result. The digital world is the result of computer systems and computer programs are a crucial element in the digital world. These two things are closely intertwined and cannot be separated.

If we refer to Article 40 paragraph (1) point p in the Copyright Act, then the compilation of digital data that can be read by a computer program is the object of copyright protection. In this context, a "virtual building" is a structure that is read by a computer program from an array of electronic codes. Therefore, what is protected by copyright is this electronic code array.

If another virtual "building" is found that has the same electronic code structure, this can be considered as copyright infringement of the electronic code structure. The compiler of the code array has economic rights as stipulated in Article 9 of the Copyright Law. Thus, copyright infringement occurs if someone copies or uses the code array without the permission of the copyright owner.

Meanwhile, the platform owner itself has a non-exclusive right to ownership of the user's NFT assets, which is royalty-free, perpetual, irrevocable, sublicensable (through various tiers), transferable to use, reproduce, publicly display, distribute, and adapt the publicly shared assets and games for the purpose of developing, distributing, providing, improving, and promoting the services, platform activities, and publicly shared assets and games of the user. The user further grants the platform owner the right to use the name and trademark.

The platform owner does not control the content of any parcel of land and is not responsible or liable for it. All uploaded content must comply with the established content policy. The platform owner owns the intellectual property rights to Decentraland's smart contracts with users, but does not own the rights to the content uploaded by users. Therefore, ownership of virtual land is considered a movable object that can only be owned through possession.

The work in the form of an NFT belongs to the user who created it. Neither the platform owner nor the DAO has any intellectual property rights over user content. Content creators may set their own

terms, conditions and licenses to access and use the content. Granting of Copyright license is subject to the terms and conditions of the agreed license.[17]

Further, the grant of a patent license is also subject to the agreed terms and conditions of the license. However, if the user files patent litigation against another entity claiming that the work or contribution constitutes patent infringement, the patent license granted to the user may be terminated. Users are allowed to distribute copies of the work or derivative works in various mediums, provided that they comply with the terms put forth by the platform owner.

The legal relationship between the seller and the buyer in the virtual land transaction with the owner of The Sandbox platform is seen from after making a purchase and already building virtual land, which includes all image content, text, information, data, audio, video, graphics, and other materials included in, or provided through the service, excluding user assets. Unless otherwise stated in the terms do not claim ownership of user assets.[18]

b. Limitation of User Rights and Responsibilities in the Legal Relationship of Virtual Land Transactions on Decentraland Platform and The Sandbox

Users are prohibited from copying, modifying, renting, transferring, lending, selling, distributing, publishing, displaying, or creating derivative works based on Decentraland's sites and tools, either in whole or in part. The platform owner's exclusive ownership includes all elements of the site and tools, as well as all intellectual property rights therein, such as visual interfaces, graphics, designs, systems, methods, information, computer code, software, look, feel, organization, content compilation, code, data, and all other elements of the site and tools. However, this ownership does not extend to content submitted by users. The sites and tools are protected by copyright laws, trade secrets, patents, trademarks, international conventions, and other relevant intellectual

[17] Muhammad Asrul Maulana dan Shilla Hasmara Santosa, "Explaining Legal Implications: Ownership Analysis Of Intellectual Property Rights On Cryptokitties Platforms," *Wacana Hukum* 29, no. 1 (Juli 2023), https://ejurnal.unisri.ac.id/index.php/Wacana/article/view/9153, 1-13. hlm7.

[18] Muhammad Asrul Maulana dan Niken Nurcahyani, "Tinjauan Hukum Hak Atas Kekayaan Intelektual Pada Platform Roblox," *Jurnal Analisis Hukum* 6, no. 1 (25 April 2023) https://doi.org/10.38043/jah.v6i1.4205, 68-84, hlm 70.

property and proprietary rights in accordance with applicable law.

Consequently, a user's use of Decentraland's sites and tools does not confer any ownership rights regarding the content, code, data, or other materials accessible through such sites and tools. Further, any purchase of virtual land, whether through the tools or other means, does not grant the user any rights or licenses to the underlying materials, including Decentraland's copyright on art and images associated with the tools and the content therein. Users also have no right to reproduce, distribute or commercialize any element of Decentraland without the prior written consent of the platform owner, and such consent is absolute.

On the other hand, users may provide comments, error reports, ideas or other feedback regarding the site or tools, including ways to improve them. In this case, the user shall agree that the platform owner shall be entitled to use such reports at the platform owner's discretion and without additional compensation to the user. In addition, users grant Decentraland and DAO a perpetual, irrevocable, non-exclusive, worldwide license to incorporate and use user reports for any purpose.

Users shall not use third parties in sending, posting, uploading, transmitting, distributing, disseminating or otherwise making available any content that violates the content policy approved by DAO, but not limited to content that violates intellectual property rights only, but acts that contain content related to hatred or violence or SARA (Suku, Ras, Agama, dan Antar Golongan) are various views and actions based on identity sentiments concerning descent, religion, nationality or ethnicity and class, are not allowed.

c. Licensing Intellectual Property Rights in Virtual Lands on Decentraland and The Sandbox Platforms

On grant of a trademark license, the license does not authorize the use of the trade name, logo, or product name of the licensee and/or its licensors, except as provided in the terms of use for Decentraland's logo and name. Contributors' liability to users is limited by applicable law, and excluded for direct, indirect, special, incidental, or consequential damages arising as a result of the license.

All such content, its licensors are US and international copyright laws, trademark laws and other proprietary laws. Users with their licensor platform owners

own and retain all ownership rights and interests in the service, all licensed content including all copyrights, trademark rights, trade secret rights, patent rights, database rights and other intellectual property and proprietary rights therein.

Once granted a license, all logos and trademarks, service marks, logos and trade names displayed are registered trademarks and service marks are still the owner of the platform, except for the limited license that the platform owner grants to the user, under the terms, the use of the service does not grant the user any license or permission under copyright, trademark or other intellectual rights.

The platform owner grants only a limited, non-exclusive, non-sublicensable and non-transferable license to use the service as provided to players, and prohibitions such as reproducing, distributing, adapting, modifying, translating, creating derivative works from, publishing or using any part of the service for any purpose without the prior written permission of the platform owner or applicable rights holder. Not only that, users must agree that the platform owner may update the software without notice, at any time and at the platform owner's sole discretion, and this provision will apply to any updated version.

In addition to content ownership, there is also asset and game ownership, which includes virtual land, buildings, NFT assets. In the operation of the service, users can upload certain assets and games that users have created into The Sandbox in accordance with the conditions. The user remains the owner of the assets and games at all times, and the platform owner does not claim any ownership rights to the assets and games.

Users are solely responsible for ensuring that any assets and games submitted to the service shall comply with applicable laws and third party rights, not limited to intellectual property rights, privacy rights, and publicity rights. That any information included in users' assets and games may be used in accordance with the privacy policy. The platform owner always reserves the right, at its sole discretion, to accept or reject any user-submitted assets and games. By using the service, users grant the platform owner a worldwide, non-exclusive, royalty-free, perpetual, irrevocable, sublicensable (through multiple tiers) right and license.

The sublicenses include reproducing, publicly displaying, distributing, and adapting publicly shared assets and games for the purpose of developing, distributing, providing, improving, and promoting services, and may grant platform owners the right to use the names and trademarks of users' publicly shared NFT works. Thus, the NFT works in Decentraland and The Sandbox are movable objects, evidenced by ownership control in the form of voxels, where users can edit metadata to customize titles, descriptions, URL links, preview images, and logos and can make assets and games available for purchase.

Each asset is a non-redeemable token NFT on the blockchain. When a user uploads an asset and makes it available for sale on the marketplace, the user can retain ownership of all intellectual property rights associated with the asset, but the user must agree to make a certain number of assets available for sale as NFTs. Thus, if any other user wants to purchase an asset on Decentraland and The Sandbox, the creator of the asset retains the copyright to the asset, which means it cannot use the asset for commercial purposes in any form except acquiring the right to display and resell the asset.

D. CONCLUSIONS

Research on blockchain-based virtual land buying and selling schemes on the Decentraland and The Sandbox platforms confirms that the implementation of blockchain technology presents new dynamics in legal aspects, especially regarding the understanding of ownership and exclusive rights in the digital context. The existence of smart contracts that regulate the period of use and the platform owner's non-exclusive rights to the user's NFT assets shows the need for adjustments and improvements to the current legal regulations to accommodate this phenomenon. In addition, users' exclusive rights to NFT copyrights and brand rights, as well as prohibitions on duplication, modification, and transfer of assets reflect the complexity of legal relationships in this scenario. However, this kind of shift from physical to digital assets signifies a growing trend that will become an integral part of the economy and law in the future.

REFERENCES

Agnese, Pablo. “On blockchains, cryptos, and media of exchange. Not there (yet).” International Journal of Intellectual Property Management 11, No. 1 (2021): 81-94.

https://doi.org/10.1504/ijipm.2021.100355785.

Agustin, Farida, Syafnidawati Syafnidawati, Nuke Puji Lestari Santoso, dan Oktika Gita Amrikhasanah. "Blockchain-Based Decentralized Distribution Management in E-Journals." Aptisi Transactions on Management (ATM) 4, no. 2 (7 April 2020): 107–113. https://doi.org/10.33050/atm.v4i2.1294.

Ashari, Firmansyah, Tetuko Catonsukmoro, Wilyu Mahendra Bad, null Sfenranto, dan Gunawan Wang. "Smart contract and blockchain for crowdfunding platform." International Journal of Advanced Trends in Computer Science and Engineering 9, No. 3 (25 Juni 2020): 36–41. https://doi.org/10.30534/ijatcse/2020/83932020.

Augusta, Muhamad Oka, Celline Putriana Oktaviandi Syeira, dan Angga Hadiapurwa. "Penggunaan Teknologi Blockchain Dalam Bidang Pendidikan." Produktif : Jurnal Ilmiah Pendidikan Teknologi Informasi 5, No. 2 (3 Januari 2022): 437–442. https://doi.org/10.35568/produktif.v5i2.1259.

Beretta, Edoardo. "Cryptocurrencies, Evolution of Means of Payments and Validity of Monetary Principles." Credit and Capital Markets – Kredit und Kapital: Volume 54, Issue 3 54, No. 3 (1 Juli 2021): 469–498. https://doi.org/10.3790/ccm.54.3.469.

Cai, Wei, Zehua Wang, Jason B. Ernst, Zhen Hong, Chen Feng, dan Victor C. M. Leung. "Decentralized Applications: The Blockchain-Empowered Software System." IEEE Access 6 (2018): 19–33. https://doi.org/10.1109/access.2018.2870644.

Galatovic, Mario. "Securing the blockchain for fintech companies." Computer Fraud & Security 2022, No. 1 (1 Januari 2022): 54-72. https://doi.org/10.12968/s1361-3723(22)70009-7.

Herdayani, Iswatun Hasanah. "Tinjauan hukum ekonomi syari'ah terhadap jual beli tanah virtual pada platform Metaverse." Digital Library UIN Sunan Gunung Djati, (2022), https://etheses.uinsgd.ac.id/id/eprint/63108.

Irawan, Bambang, Kundang Juman, dan Budi Tjahjono. "Pengenalan Teknologi Blockchain Dan Perkembangannya Bagi Masa Depan." Indonesia Jurnal Pengabdian pada Masyarakat (J-PMas) 1 (November 2022): 75–80. https://doi.org/10.37606/jpmas.v1i2.21.

Jin, Pengfei, Delin Fang, dan Bin Chen. "Accounting the Virtual Water and Virtual Land Based on Input-Output Analysis-- A Case Study of Zhangye City." DEStech Transactions on Environment, Energy and Earth Sciences, no. iceee (4 Februari 2019): 1-3. https://doi.org/10.12783/dteees/iceee2018/27913.

Khairuddin;, Khairuddin; "Hukum Bermain Game Online Player Unknown's Batlegrounds (PUBG) Menurut Fatwa MPU Aceh Nomor 3 Tahun 2019." DIKTUM: Jurnal Syariah dan Hukum 18, No. 1 (11 Juli 2020): 17–32. https://doi.org/10.35905/diktum.v18i1.1357.

Lee, Joseph, dan Florian L'heureux. "A Regulatory Framework for Cryptocurrency." European Business Law Review 31, No. Issue 3 (1 Mei 2020): 423–446. https://doi.org/10.54648/eulr2020018.

Lehmann, Matthias. "National Blockchain Laws as a Threat to Capital Markets Integration." Uniform Law Review 26, No. 1 (1 Maret 2021): 148–179. https://doi.org/10.1093/ulr/unab004.

Maulana, Muhammad Asrul, dan Niken Nurcahyani. "Tinjauan Hukum Hak Atas Kekayaan Intelektual Pada Platform Roblox." *Jurnal Analisis Hukum* 6, no. 1 (25 April 2023): 68–84. https://doi.org/10.38043/jah.v6i1.4205.

Maulana, Muhammad Asrul, dan Shilla Hasmara Santosa. "Explaining Legal Implications: Ownership Analysis Of Intellectual Property Rights On Cryptokitties Platforms." *Wacana Hukum* 29, no. 1 (Juli 2023): 1–13. https://ejurnal.unisri.ac.id/index.php/Wacana/article/view/9153.

Maulani, Isma, Tedi Herdianto, Dwi Syawaludin, dan Medika Laksana. "Penerapan Teknologi Blockchain Pada Sistem Keamanan Informasi." Jurnal Sosial Teknologi (3 Februari 2023): 99–102. https://doi.org/10.36418/jurnalsostech.v3i2.634.

Multazam, M. T., Huzairin, R. A., Pratama, S. P., & Irwansyah,. "Is It Legal to Provide Liquidity on the Vexanium Decentralized Exchange in Indonesia?" *Yustisia* 12, no. 1 (1 April 2023): 29–46. https://dx.doi.org/10.20961/yustisia.v12i1.69007.

Multazam, M. Tanzil. "Exploring the Legal and Policy Implications of Non-Fungible Tokens." *Jurnal Politik danPemerintahan Daerah* 4, no. 2 (Desember 2022): 293–303. https://doi.org/10.36355/jppd.v4i2.

Putri R, Galuh. "Perusahaan Ini Beli Tanah Digital Senilai Rp 42 Miliar," Kompas.com (25 November 2021). 1 https://tekno.kompas.com/read/2021/11/25/16080017/perusahaan-ini-beli-tanah-digital-senilai-rp-42-miliar#:~:text=Dalam%20keterangan%20tertulisnya%2C%20Token.com,perusahannya%20yang%20bernama%20Metaverse%20Group.&text=Setiap%20bidang%20tanah%20digital%20yang,4%2C8%20meter%20persegi).

Wicki-Birchler, David. "NFT and Metaverse: Ausgewählte Aspekte im Schweizer Recht." Jusletter-IT, No. (31 Mei 2022): 10-23. https://doi.org/10.38023/45a71a1a-6bd5-4c14-999d-2c296710c856.