



**Multi**  
Metaverse



# WELCOME TO **METaverse**

WHITEPAPER 1.0

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## **Abstract**

The Multi-Metaverse is a grouping of all sub-universes 1. We start with a dream to create a Multi-Metaverse ecosystem to empower people to realize where players and creators could have an equal opportunity to participate. Existing metaverse projects are not fair to players, as creators have high control over or hold a considerable portion of tokens, making them virtual worlds' Gods. People have high hope for bitcoin; however, its drawback is the inconvenience of exchanging with other metaverse tokens. What is needed is a coin connecting all metaverses that provides a decentralized way to store, account, and exchange values. The Multi-Metaverse ecosystem we attempt to create has the Multi-Metaverse coin and Multi-Metaverse NFT, where the NFT is the miner to mine the Multi-Metaverse coin. The coin mining mechanism is similar to bitcoin, except the hash power is replaced by holding stakes of NFTs. One might consider power or electricity a limited resource on earth. Bitcoin is an earth coin because its mining consumes earth resources. In the Multi-Metaverse, resource and scarcity can only be defined by NFT; thus, Multi-Metaverse NFT is the resource to mine the Multi-Metaverse coin. The value of the coin should be correlated with the value of the NFT. Therefore, the coin's value goes up when more consensus is reached on the scarcity of the NFT and vice versa. By connecting all metaverses, the Multi-Metaverse coin is the one coin to traverse the entire Multi-Metaverse.

## **1. Introduction**

Ever since bitcoin (Nakamoto, 2009) in 2009, blockchain technology has drastically evolved and changed the world. While DeFi applications aim to replace traditional financial systems, such as banks and exchanges, the idea of metaverse emerges even to recreate our world in virtual reality on the internet. Though the idea might sound aggressive, as the graphics, sounds and VR devices evolve, the gaming experience becomes more and more realistic. People began to question what is real and what is virtual?

The human quest for the truth of our world dates back to the inception of human history. The bible said, "In the beginning, God created the heavens and the earth. Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters. And God said, 'Let there be light,, and there was light.'" In Tao Te Ching (Laozi et al., 2007), Lao Tzu talked about his view on the origin of our world, "There was something undefined and complete, coming into existence before Heaven and Earth"; "The Dao produced One; One produced Two; Two produced Three; Three produced All things." Recent successful movies like the Marvel Cinematic Universe, the Matrix Trilogy (Wachowski et al., 1999) and Rick and Morty (Genovesi, 2020) have all talked about the creator, dimensionality, and Multi-Metaverse from different perspectives. Today, scientists found that the quantum mechanics has reached

1 Metaverses in various domains, such as game, art, social, gamble, film, work, education, event, and festival. Every metaverse is a sub-universe inside the Multi-Metaverse. Metaverse usually runs on a blockchain or virtual reality.

beyond the known physical realm that consciousness is a fundamental component of the nature of our world. Shockingly, one might find the quantum theory shares similar aspects with the ancient buddha's views on the universe and mindfulness. For thousands of years, we have been kept seeking the answer to the question: what is our reality? Let us for now call the world we live in real and the world we create virtual.

The definition of the metaverse is the hypothesized next iteration of the internet, supporting decentralized, persistent online 3D virtual environments, according to (Ondrejka, 2004). Metaverses have become increasingly popular among millions worldwide due to there being an endless amount of possibilities to whom a person can be and what they can do in them. The lure of escapism is one of the main drivers that attracts so many to want to be completely different from what they are like in the real world. Numerous entertainment and social media companies have invested in metaverse-related research and development and expanded the use of metaverse spaces to social, games, business, education, and retail applications.

## **1.1 Drawbacks of Centralized Metaverses**

The problem of existing metaverse projects is that their currency is highly centralized or controlled by the metaverse creators. Players are at high risk due to mainly these reasons,

The creator has the power to mint new tokens depreciating players' assets.

The creator holds a considerable portion of tokens, having the possibility to dump their holdings, thus triggering a panic selling or rug pull (abandon the project and run away with funds).

The tokenomics is not transparent. The exact token mechanism and distribution might not be apparent to the public.

Project intrinsic risk. The developers might choose a very wrong path causing its metaverse to lose players' interests; or generate a severe bug causing a financial crisis.

To tackle these problems, the Multi-Metaverse ecosystem is proposed. The model consists of two components, a Multi-Metaverse coin and a Multi-Metaverse NFT.

## **2. One Coin Traverses all Metaverses**

We highlight the key features of the Multi-Metaverse coin:

First, the coin is decentralized. All coins are in circulation on the market.

Second, only specific amounts of coins are generated and mined per block, giving the coin a deflationary model with a fixed max supply, similar to bitcoin.

Third, the coin is bridged with all metaverses, making the exchange fast and straightforward.

The first and second features ensure that the Multi-Metaverse coin is safe and a good store of value. The third feature provides flexibility and convenience. Users can exchange the coins for tokens when they participate in certain metaverses and change their tokens back to the coins at any time, in a second, when they decide to lock the profit.

By connecting all metaverses into a Multi-Metaverse ecosystem, the Multi-Metaverse coin is the medium of exchange. Players and creators are free to exchange and store value for the first time without worrying about a third party.

### **3. Philosophy in Multi-Metaverse NFT**

Non-fungible tokens (NFTs) are cryptographic assets on blockchain with unique identification codes and metadata that distinguish them from each other (Ante, 2021). The NFT can be associated with a particular digital or physical asset and a license to use the asset for a specified purpose. Traditionally, NFT has been used in including digital art, games, virtual festivals, music, films. More advanced applications include property rights, real estate, particular privileges, and identities.

One could think of NFT as a one-to-one mapping that maps X to an NFT. The next question that comes to mind is about NFT's value. Who exactly sets the price is a common question for those who have never dealt with NFTs or blockchain technologies before. Historically, the economic value of a good or service has puzzled economists since the beginning of the discipline. Among the competing schools of economic theory there are differing theories of value. In classical economics, the value of an object or condition is the amount of discomfort/labor saved through the consumption or use of an object or condition (Desai, 2010). In neoclassical economics, the value of an object or service is often seen as nothing but the price it would bring in an open and competitive market. It is determined primarily by the demand for the object relative to supply in a perfectly competitive market. The idea of value has evolved throughout human history.

NFTs are not restricted to typical assets such as conventional paintings with a real-world value attached to them. They also extend to virtual content such as social media posts that usually come without a price tag. According to (Chang, 2020), NFT can be valued as a function of four components: utility, ownership history, future value, and liquidity premium. The key takeaway is that NFT creates many new ways for values to be created for both developers and asset owners.

#### **3.1 Fundamental Elements in Multi-Metaverse and Scarcity**

Here, we elaborate from one perspective that valuation is driven by scarcity of supply and speculation. Scarcity means that the demand for a good or service is greater than the availability of the good or service (Society, 2020). Things on earth that are considered limited, like gold, diamonds, or certain kinds of knowledge, are more valuable for being scarce because sellers of these goods and services can set higher prices. Sellers know that because more people want their goods or services than goods and services available, they can find buyers at a higher cost. As a result, the price or value goes up.

In the Multi-Metaverse with all metaverses, we define the Multi-Metaverse NFT as the fundamental element, a limited original resource. A Multi-Metaverse coin provides the utility to store and exchange value. Together, the coin and NFT, just like Yin and Yang (Wong, 1997) serve the decentralized currency in the Multi-Metaverse.

### **3.2 Proof of NFT Stake and Environmental Impact**

Bitcoin is thought to consume 707 kWh per transaction (Gallersdorfer et al., 2020). In addition, the computers consume additional energy because they generate heat and need to be kept cool. A University of Cambridge analysis estimated that bitcoin mining consumes 121.36 terawatt hours a year. This is more than all of Argentina consumes, or more than the consumption of Google, Apple, Facebook and Microsoft combined.

The Multi-Metaverse ecosystem solves the energy problem by mapping resources and mining machines to Multi-Metaverse NFTs. Proof of NFT Stake does not require computational power to solve puzzles for the right to verify transactions. Rather it works like a lottery. To be considered, potential validators stake their Multi-Metaverse NFTs; the more they stake, the greater their chances of being selected randomly by the system to be the validator. The system ensures security because if validators cheat or accept false transactions in the block, they lose their NFT stakes and are banned from the network.

## **4. Tokenomics and Mining**

The max supply of the MMDa(Multi-Metaverse coin) is 33333. 100% coins are locked in liquidity pools as the initial circulation. Initial liquidity is added 100 percent; there is no presale, private unlocks, or dev holdings. At the same time will be injected 20W TRX is provided as initial liquidity.

MMDa token uses 2 simple functions:

Transfer Destruction/Transaction Destruction

Transfer transaction fee (10%)

10% of MMDa tokens will be destroyed for every transfer in the TRON network

Purchase fee (lossless)

Get 100% tokens

Sales fee (10%)

- 10% of black hole addresses

With the operation of the entire network, MMDa will continue to deflate and eventually only 3333 will remain (Figure 1)

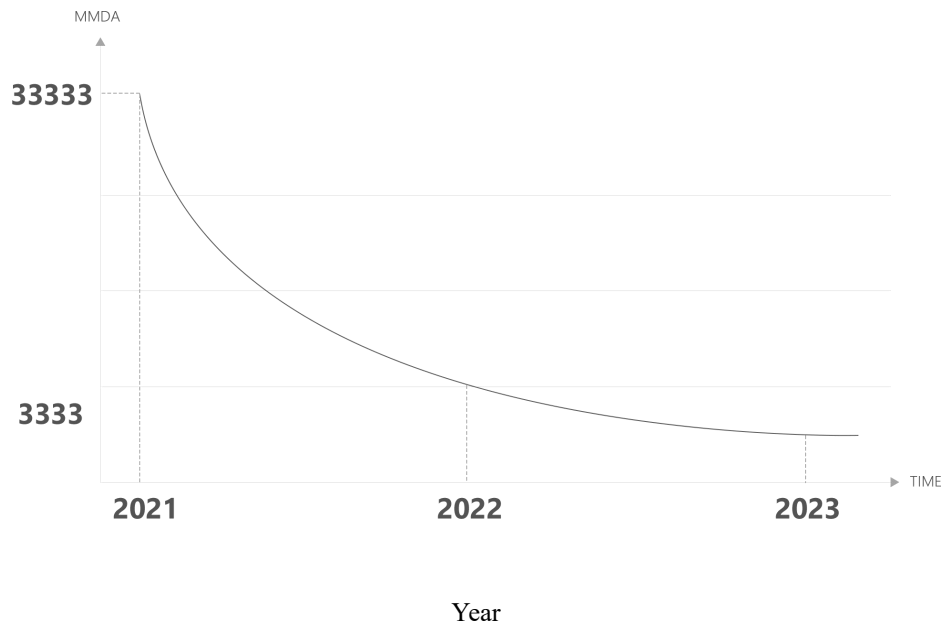


Figure 1: MMDa Circulation and Mine

Multi-Metaverse NFT is the resource in the Multi-Metaverse. By staking Multi-Metaverse NFTs, users can mine Multi-Metaverse coins.

Each Multi-Metaverse NFT has a computation power of 1.

Mining rewards are distributed to staked NFTs.

Multi-Metaverse NFT is free to be traded and exchanged on the market.

Compared with bitcoin proof of work mining, Multi-Metaverse coin mining does not compete in hash rate or cost electricity. This proof of NFT stake mining has several advantages,

- Zero Energy Consumption.

Much of the impetus for Multi-Metaverse coin mining is avoiding the tremendous amount of energy proof of work demands while preserving the same profit level.

Flexible Design.

Unlike bitcoin mining, which often requires enormous effort to set up mining machines and

infrastructures, Multi-Metaverse coin mining can be highly flexible. Miners choose to stake or unstake; trade in or out, instantly.

Strong Incentives.

Due to the hash rate competition and bitcoin reward reduction, the infrastructure demand is way higher than before but with less profit. The economic interest makes Multi-Metaverse coin mining much more attractive.

## **5. Multi-Metaverse Road Map**

The dream is to create a Multi-Metaverse where players can traverse metaverses easily. We start with the launch of the Multi-Metaverse coin and NFT. Next, by staking Multi-Metaverse NFTs, miners are mining Multi-Metaverse coins as a reward. The Multi-Metaverse NFT market provides the trade and exchange of Multi-Metaverse NFTs. To further publish and spread the Multi-Metaverse ideology, DAO is the core of our community.

A decentralized autonomous organization (DAO) (Chohan, 2017) is an entity with no central leadership. Instead, decisions are governed by a community and organized around a specific set of rules enforced on a blockchain. DAOs are internet-native organizations collectively owned and managed by their members. The Multi-Metaverse team will utilize its coin and NFT to eventually launch a process allowing all holders to vote on the project's future direction or changes that will be implemented as the ecosystem evolves. DAO will ensure that the Multi-Metaverse remains relevant and enjoyable for the people it serves and maintains the core tenant of decentralization.

For every patch of Multi-Metaverse NFT, 90 percent directly goes into circulation; 10 percent donates to the Multi-Metaverse community to develop the ecosystem.

The Multi-MetaverseSwap is the bridge for metaverses to communicate with each other. DeFi (Zetzsche et al., 2020) is the key component in Multi-Metaverse financial system. To prosper the ecosystem, the Multi-Metaverse Investment Fund is established at this stage for expansions to entertainment, NFT museum, art, finance, technology, and the Proof of NFT Stake practice.

### **5.1 Multi-Metaverse Coin and NFT**

- Launch of the coin and NFT
- Development of the mining and market
- DApp (Cai et al., 2018) entrance and websites ready
- Marketing push to spread Multi-Metaverse ideology
- Multi-Metaverse DAO (Chohan, 2017) and community



## 5.2 Multi-Metaverse Bridge and Swap

- Launch of the Multi-MetaverseSwap
- Development of the Multi-Metaverse Bridge.
- This includes exchange, liquidity, farm, pool, vault, and bridge
- Multi-Metaverse NFT museum
- Influencers marketing push
- Listing on major exchanges
- Third party audit

## 5.3 Multi-Metaverse Ecosystem

- Launch of the Multi-Metaverse Investment Fund
- Investment and development on more metaverses
- Expansion of Multi-Metaverse to art, finance, entertainment, technology, etc
- 1T market cap
- Proof of NFT Stake
- Multi-Metaverse ETF and trust

# 6. Technical Report

Blockchain is the fundamental technology to support the Multi-Metaverse economic system. The decentralization of MMDa ensures that users' virtual assets can be stored and circulated across various sub-universes.

MMDa has applied numerous state-of-art blockchain technologies, NFT, DAO, smart contracts, and DeFi. The Multi-Metaverse team's mission is to effectively provide a decentralized Multi-Metaverse ecosystem that is fair, stable, efficient, transparent, deterministic, and sustainable.

All of our applications are implemented by smart contracts technology. **Every operation, including transfer, transaction, trade, numerical randomization, stake or unstake, is recorded on the blockchain forever.**

MMDa contains three layers of blockchain applications:

- Application Layer.

DApp (Cai et al., 2018) (Decentralized Application) connects users' wallets and assets. This is the

entrance to the Multi-Metaverse.

- Logic Layer.

BSC, BEP20, BEP721, ERC20, ERC721, smart contracts, decentralized algorithm and data structures.

- Data Layer.

Assets and data are stored using state-of-art techniques, IPFS, ERC721, cryptography, ChainLink Oracle (Breidenbach et al., 2021).

Multi-Metaverse NFT is a significant resource in the Multi-Metaverse. To make a fair and transparent market, binary search algorithms and ChainLink oracles (Breidenbach et al., 2021) are in the contract to calculate the probability in NFT blind boxes.

## 6.1 CodeSnap (ChainLink Oracle)

```
1 import "@chainlink/contracts/src/v0.8/VRFConsumerBase.sol";
2
3 contract Random is VRFConsumerBase {
4     bytes32 internal keyHash;
5     uint256 internal fee;
6
7     constructor()
8         VRFConsumerBase(
9             0x747973a5A2a4Ae1D3a8fDF5479f1514F65Db9C31, // VRF
              Coordinator
10            0x404460C6A5EdE2D891e8297795264fDe62ADBB75 // LINK
              Token
11        )
12    {
13        keyHash = 0
14            xcaf3c3727e033261d383b315559476f48034c13b18f8cafed4d871abe5049186
15            ;
16        fee = 0.2 * 10**18;
17    }
18
19    /**
20     * Requests randomness
21     */
22    function getRandomNumber() internal returns (bytes32 requestId)
23    {
24        require(LINK.balanceOf(address(this)) >= fee, "Not enough
25            LINK - fill contract with faucet");
26        return requestRandomness(keyHash, fee);
27    }
28
29    /**
30     * Callback function used by VRF Coordinator
31     */
32    function fulfillRandomness(bytes32 requestId, uint256
33        randomness) internal virtual override {}
34 }
```

## 6.2 CodeSnap (Binary Search Randomization)

```
1      function getBunnyIdByRandom(uint256 random) public view returns
      (uint8) {
2          uint8 left = 0;
3          uint8 right = bunnyCount - 1;
4          uint8 mid;
5          while (left <= right) {
6              mid = (left + right) / 2;
7              if (random < bunnyIdToProp[mid].weight[0]) {
8                  right = mid - 1;
9              } else if (random >= bunnyIdToProp[mid].weight[1]) {
10                 left = mid + 1;
11             } else {
12                 return mid;
13             }
14         }
15         return 255;
16     }
```

## 6.3 CodeSnap (ChainLink Oracle Blind Box)

```
1      function fulfillRandomness(bytes32 requestId, uint256
      randomness) internal override {
2          uint8 bunnyIndex = getBunnyIdByRandom(randomness %
      totalAward);
3          require(bunnyIndex != 255, "error");
4          while (bunnyIdToProp[bunnyIndex].amount == 0) {
5              bunnyIndex++;
6              if (bunnyIndex == (bunnyCount - 1)) {
7                  bunnyIndex = 0;
8              }
9          }
10         bunnyIdToProp[bunnyIndex].amount--;
11         uint256 tokenId = nft.mint(
12             requestIdToAddress[requestId],
13             bunnyIdToProp[bunnyIndex].uri,
14             bunnyIdToProp[bunnyIndex].bunnyId
15         );
16         emit OpenBoxWithOracle(requestId, requestIdToAddress[
      requestId], tokenId, bunnyIdToProp[bunnyIndex].bunnyId)
      ;
17     }
```

## 6.4 Mining Mechanism

By staking Multi-Metaverse NFTs on cloud mining pools, Multi-Metaverse coins are mined as a reward. Smart contracts make sure security and transparency: computation power, rewards are calculated on the BSC blockchain. **The number of block rewards, the halving cycle, the releasing algorithm logic is all constant parameters in smart contracts, thus unchangeable.**

On BSC, a new block is generated every 3 seconds. Every year generates about 10,512,000 blocks. Each block releases 120 coins as reward. The number of rewards is reduced by half every 42,048,000 blocks (about 4 years).

From 1-4 year, every block generates 120 coins as a reward, totally 5B.

$$4 \times (60/3 \times 60 \times 24 \times 365) \times 120 = 4 \times 10512000 \times 120 \text{ M } 5\text{B} \quad (1)$$

From 5-8 year, every block generates 60 coins as reward, totally 2.5B.

$$4 \times (60/3 \times 60 \times 24 \times 365) \times 60 = 4 \times 10512000 \times 60 \text{ M } 2.5\text{B} \quad (2)$$

## 6.5 CodeSnap (Mining Constants)

uint256	Public	MMDa_NFT_HASH_RATE = 1
uint256	Public	MMDa_BLOCK_TIME = 3
uint256	Public	BLOCKS_PER_YEAR = 10512000
uint256	Public	MMDa_HALVING_PREIOD = BLOCKS_PER_YEAR * 4
uint256	Public	REWARD_PER_BLOCK = 120

## 6.6 CodeSnap (Reward and Halving)

```
1 // Each block rewards number
2 function getRewardTokenPerBlock(uint256 blockNumber)
3     public
4     view
5     returns (uint256)
6 {
7     uint256 _phase = _phase(blockNumber);
8     // Half cycle
9     return rewardPerBlock.div(2**_phase);
10 }
11
12 // The halving period of current block
13 function _phase(uint256 blockNumber) internal view returns (
14     uint256) {
15     if(MMAD_HALVING_PREIOD == 0) {
16         return 0;
17     }
18     if (blockNumber > startBlock) {
19         return (blockNumber.sub(startBlock).sub(1)).div(
20             MMAD_HALVING_PREIOD);
21     }
22     return 0;
23 }
24
25 function getRewardTokenBlockReward(uint256 _lastRewardBlock)
26     public
27     view
28     returns (uint256)
29 {
30     uint256 blockReward = 0;
31     uint256 lastRewardPhase = _phase(_lastRewardBlock);
32     uint256 currentPhase = _phase(_getCorrectBlock(block.number));
33     while (lastRewardPhase < currentPhase) {
34         lastRewardPhase++;
35         uint256 height = lastRewardPhase.mul(MMAD_HALVING_PREIOD).add(
36             startBlock);
37         blockReward = blockReward.add(
38             (height.sub(_lastRewardBlock)).mul(getRewardTokenPerBlock(
39                 height))
40         );
41         _lastRewardBlock = height;
42     }
43     blockReward = blockReward.add(
44         (_getCorrectBlock(block.number).sub(_lastRewardBlock)).mul(
45             getRewardTokenPerBlock(_getCorrectBlock(block.number))
46         )
47     );
48     return blockReward;
49 }
```

## 6.7 Multi-Metaverse NFT Market

The vitality of decentralized API service and graphics technology ensures fairness and complete

decentralization; smart contracts are used to process NFT transaction operations, such as transaction NFT, purchase NFT, cancel the sale, modify the price, purchase matchmaking for other businesses. Thegraph is used to synchronize events in the block for DApp to display the records of transaction activities and provide data services. All transactions are decentralized in the Multi-Metaverse Market.

```

1  /**
2   * @notice Buy nft by matching the price of an existing ask
      order
3   * @param _collection: contract address of the NFT
4   * @param _tokenId: tokenId of the NFT purchased
5   * @param _price: price (must match the askPrice from the
      seller)
6   */
7  function buyNft(
8      address _collection,
9      uint256 _tokenId,
10     uint256 _price,
11 ) internal {
12     ...
13     Ask memory askOrder = _askDetails[_collection][_tokenId];
14     ...
15     _tokenIdsOfSellerForCollection[askOrder.seller][_collection]
        ].remove(_tokenId);
16     delete _askDetails[_collection][_tokenId];
17     _askTokenIds[_collection].remove(_tokenId);
18     ...
19     IERC20(WBNB).safeTransfer(askOrder.seller, netPrice);
20     ...
21     IERC721(_collection).safeTransferFrom(address(this),
        address(msg.sender), _tokenId);
22
23     emit Trade(_collection, _tokenId, askOrder.seller, msg.
        sender, _price, netPrice);
24 }

```

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