



Gmatrixs

Gmatrixs White Paper

Omni-Chain Game Publishing Platform

**Stand-alone Chain Accelerate Game Ecology
Middleware Energizes the Reform of Chain Game**

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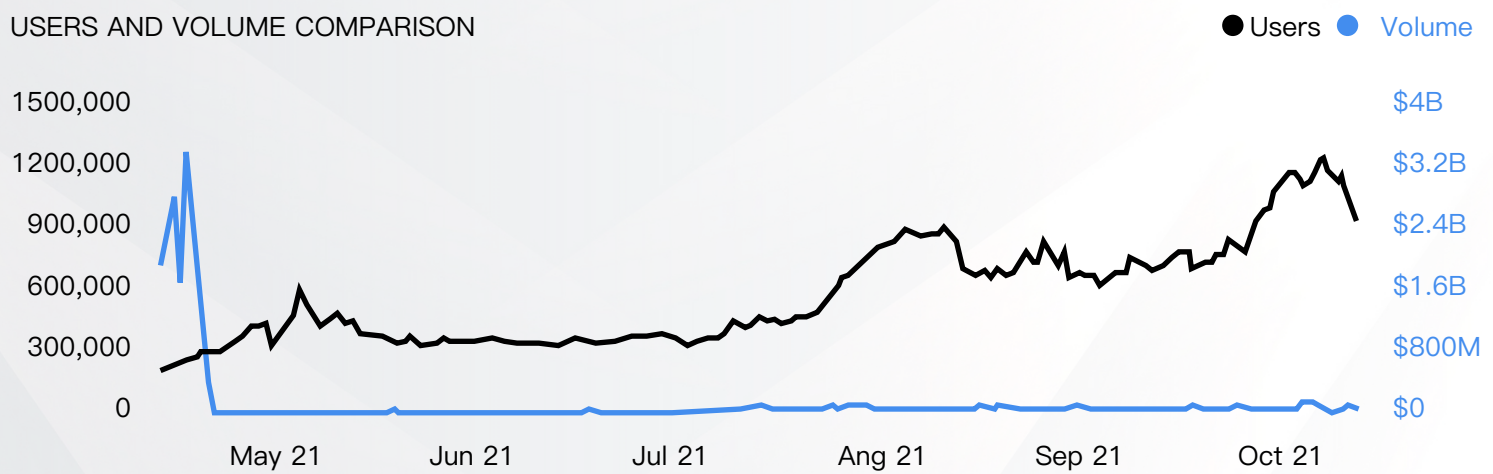
Foreword

In modern life, games are developed into different forms of presentation according to different requirements. With the gradual maturity of technologies, people's demands to virtual life is also growing. The concept of metaverse has also attracted the attention and expectation of all parties. The deployments of the traditional Internet tycoons in the world, such as the brilliant performance of Roblox after its listing and the release of a brand new strategy of Facebook for its transformation, also prove the transformation and development of the digital economy towards a new virtual world.

Blockchain is the most innovative and revolutionary technology at present. With the gradual maturity of the technology, people have more and more understanding on the technology, and it has been applied in all walks of life bit by bit. As a field with a wide range of users and a low threshold, game has become a new cycle breaking approach for its natural compatibility with blockchain. Using the blockchain technology and the token incentive mechanism to solve problems such as uneven profit distribution among developers, ownership of users' and players' assets, etc. has always been the goal assiduously sought by game developers engaged in blockchain. Centered on NFT, metaverse and play-to-earn, GameFi has become very popular this year, offering a large room of imagination for blockchain based games and bringing along surging innovative impetuses.

If 2020 was the first year of DeFi outbreak, 2021 is undoubtedly the first year of outbreak of GameFi blockchain game. According to the statistics of DappRadar, the transaction amount in the blockchain game sector reached USD480.7 billion on April 18, 2021. The number of users of the blockchain game sector exceeded 1.2 million as of October 1, increased by over 260 times than the beginning of the year, and the number of GameFi daily active wallets increased by 700% from March to July. As of July 30, 2021, the blockchain game market attracted nearly USD1 billion investment, which is 13.88 times the investment throughout 2020.





Forms 0. USERS AND VOLUME COMPARISON

A game Publishing Platform is one of the essential links of the traditional game industry, helping game developing companies to put less efforts on game operation and devote all of their energies to developing the best game. Having the game developers and the game operators doing their job respectively is an operation method of the game industry proved by the market, worthy of reference by the blockchain game sector. With the development of metaverse, NFT and blockchain games, a decentralized game Publishing Platform has become an essential link, to reduce the difficulty in developing blockchain games.

This white paper introduces our omni-chain game Publishing Platform Gmatrixs (hereinafter referred to as GMS) with independently developed middleware and Stand-alone Chain products, and describes in detail the SDK offered to games by GMS to facilitate games to quickly access the decentralized GMS game Publishing Platform and the functions provided to game developers, including blockchain based modification of games, middleware technical support, release of game assets, transaction of game props, traffic ecology sharing, platform arena, etc. A modular, universal and flexible framework is built with Ethereum based public blockchains.

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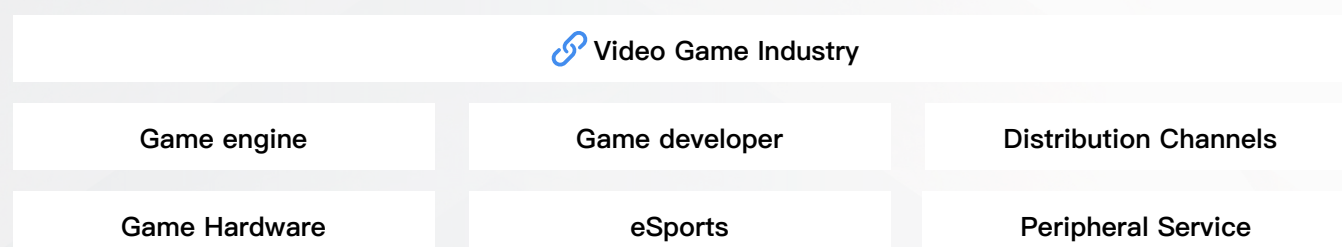
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1. DEVELOPMENT STATUS AND BACKGROUND OF BLOCKCHAIN GAMES

Electronic game is a new mode of entertainment generated with the occurrence of computers. Since the occurrence of electronic games in 1950s, a complete industrial chain comprising of six core sectors has come into being in the electronic game industry after decades of ups and downs, including game engine, game developer, game distribution channel, game hardware, electronic sports, and peripheral services. During the course, the core business logic of the electronic game industry has also changed: pay per hardware/software – pay per time – free game.

According to Newzoo Global Games Market Report 2021, the total number of global game players will exceed 3 billion in 2021, grown by 5.3% than 2020 on a year-on-year basis. The total global revenue from games will be USD175.8 billion in 2021. With a market scale of USD88.2 billion, the Asian Pacific Region has become the region having the highest revenue from games in the world, while the revenues in the North American, Europe and Latin American regions have dropped due to the influence of the epidemic situation. According to Newzoo, the number of game players will reach 3.32 billion and the global revenue from games will amount to USD218.7 billion by 2024.

Though the growth curve of the race track of games is superb, there are inherent potential risks, no matter how the innovation is implemented, and the traditional game industrial seemingly is facing increasingly apparent severing.



Form 1.1 video game industry

● Severing of developers from players

In a traditional game, numerical planning is the core concerning the game experience of players. Under the premise of compliance with gameplay rules, the understandability, visibility and income difference of game values are critical.

However, though the numerical planning of a game offering good experiences must be good, the core algorithm behind the planning is not transparent. Additionally, the numerical planning right of traditional games is totally controlled by game manufacturers, players have no right to design, and game data are stored in a centralized sever and not open to the public. One of the potential result is that, when a game manufacturer changes the gameplay rules or the gameplay rules are more favorable to those recharge players, the real hardcore players would have to choose to accept passively and be hurt, even when the game operation is stopped.

● Severing of developers from channel and release party

The traditional game industry chain comprises of three core participants, namely developer, publisher and distributor. A developer is responsible for game manufacturing; a publisher is responsible for marketing and promotion of a game; a distributor is the channel that a game is finally disclosed to players. In a long-tailed market, having the most users means occupying the high ground of the industry. As large distributors grasp the traffic and publishers are familiar with channels, they are in the right place at the right time in the game industry chain, and take large amounts of revenues from games. In the mobile end sector, large distributors share revenues approximately in the proportion of “40% to distributor (including 10% for refund of various taxes and charges) + 30% to publisher + 30% to developer = 100% (all transactions). While in the PC end, a 30% share of revenues from game transactions is also charged to game developers. In this background, the revenue of developers of high-quality game sources, especially independent developers, can hardly be guaranteed, and it is difficult for them to make a figure. They can only survive by making a way to large channels. However, not all games can be distributed through a large channel smoothly, as there are many affecting factors, including whether a game is compliant with the channel requirements and up to the standard of Class S and its interests bonding depth with the channel platform. Game development has become a business with large investment and the highest level of uncertainty, while the monopolistic distributors and publishers take most of the revenues.

● Severing of virtuality from reality

In the traditional Internet era, virtual assets in games, including game outfits, skins, animals for riding, etc., actually belong to game manufacturers, instead of users. Therefore, for game manufacturers, outfits and other game items are only a string of codes that can be randomly modified. Usually, users are only allowed to convert real assets to virtual assets in a one-way flow, i.e. actions of users like cash recharge, purchase of game props, etc., resulting in sealing and non-circulation of the inherent value of most traditional games. Nevertheless, hot street markets of on-line games and continuous flow and conversion of virtual assets to real assets still cannot be blocked in the traditional game era, but most trading platforms of virtual items still belong to a third party and operate in the gray zone. Moreover, as there are risks in furtive point-to-point curb trading, third-party intermediate platforms come into being. However, as third-party trading platforms of virtual items are not recognized and liable to being banned, it is difficult for acceptance by the capital market, even though the platforms are large in transaction volume and very good in profitability. But in terms of activeness of the whole trading system, third-party trading platforms of virtual items are a key part, and without the platforms, the enthusiasm of players in playing games would certainly be affected. It thus appears that, in the traditional game era, the positioning of third-party trading platforms of virtual items is relatively awkward.

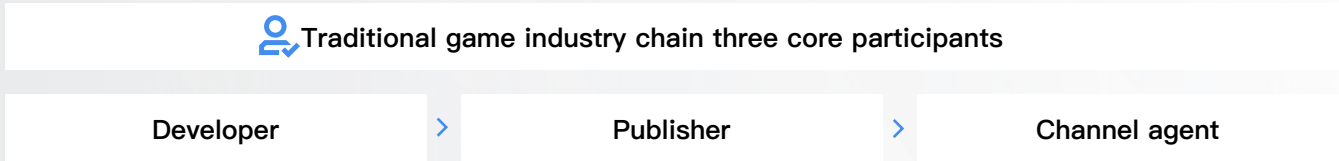
Therefore in traditional games, all games are subject to a predictable life span, from putting online to gradual decrease of players to closure in the end. The sense of players' participation is almost zero in the whole game. Hence, players would be affected by new technologies and new economic modes. In the future, players will increasingly go after the sense of participation, transparency and the degree of creation freedom. The user acquisition methods in the past may not be effective any more.

In comparison, blockchain games are quite different from traditional games. Through acquiring token incentives, communities have a strong sense of participation, and can influence the development progress of a game through governance tokens. As long as a community wishes to develop a game, the game will development all along. At present, we are observing the beginning of the game generation driven by the new token economy. In the new generation of games, the "pay-to-earn" mode will be replaced by the "play-to-earn" mode. The large groups of game players and the huge amount of the market provide excellent production soil for the development of blockchain games. The above disadvantages can be solved through combining games with blockchain.



An open and transparent open–source environment ensures the transparency of game figures; the unique token economic system can balance the profit sharing among parties concerned according to their contributions; tokenization and non–fungible tokenization (NFT) of assets in a game can also realize the circulation of the assets.

We don’t know if blockchain games will become another breakthrough for blockchain applications or the final form of game development. However, blockchain games now has already gathered a group of passionate participants, and its future will depend on the participation of more participants. The significance of blockchain games lies in not only getting the blockchain sector off the ground but also changing the rules of traditional games. Its inherent continuity will further lower the threshold of users and more closely bond communities with games. More importantly, it will provide a means to make all interested parties of a game (investor, producer, developer, publisher and game players) benefit from the key and economic success of the game. Such convergence of interests will make the game market generate extraordinary economies of scale and change the rules of game in the end.



Form 1.2 three core players in the traditional game industry chain



Figure 1.1 Crypto KITTIES

1.1 Development Of Blockchain Games

The development of blockchain games can be traced back to 2012 the earliest. In the period of nearly 10 years, the form of blockchain games has been updating and improving with the continuous development of blockchain technologies. Throughout the whole development course, we can divide the development of blockchain games into three stages:

● Stage 1: earliest model of blockchain games:

With the emergency of blockchain, some people discovered its highly aligned relation with games and began to explore and research in the field. This stage can be traced back to 2012 the earliest, and continued until 2017. The main representative products in this stage include SatoshiDice and Crypto Kitties, which are the enlightenment of the whole process of blockchain games.

In a sense, the development of blockchain has stimulated the development of blockchain games. In as early as 2012, i.e. three years after the emergency of bitcoin, the first bitcoin based blockchain game, SatoshiDice, burst onto the scene. This game was launched by Eric Voorhees on Bitcointalk for betting small or big on a bitcoin blockchain. This game once took up half of the bitcoin trading volume in 2012, and was finally sold in 2013 at the price of 120,000 BTC, equivalent to USD11 million at the time. With the cancellation of bitcoin zero–confirmation mechanism and due to network congestion, the heat of SatoshiDice users reduced quickly, and it was sifted out by the market gradually. There were a number of SatoshiDice type games from 2012 to 2017, but they didn't catch on due to pain points such as a single mode and high fees. In the following several years, lottery games continued to emerge on new public blockchains, but didn't last for a long time. In the bull market of 2017, Crypto Kitties was the first game to explode on Ethereum. Crypto Kitties was a game to raise, breed and trade kitties on Ethereum. This game not only created the highest daily trading record of 4,833 ETH but also caused serious congestion on Ethereum at the time.

Ethereum Crypto Kitties is a milestone game. On the one hand, Crypto Kitties showed people the huge potential of the Ethereum ecology, i.e. more scenarios and spaces can be tried on Ethereum in addition to token financing; on the other hand, Crypto Kitties provides a model for the development of many other blockchain games. The initial



design inspiration of the hot game Axie Infinity in 2021 was actually Crypto Kitties. The popularity of Crypto Kitties also turned people's attention to the development of blockchain game communities and encryption culture.

Although the development of games in this stage is beneficial to the development ideas and templates of subsequent chain games, the blockchain games born in this stage are more focused on Token economy, while ignoring the development of the good user experience for the game. As most of the games were highly similar, resulted in a singular game mode in the whole blockchain game market, so it was difficult for further development of the games or to have players to stay with the games. Therefore, those games were gradually eliminated by the market with development of the blockchain market day by day.

● Stage 2: The birth of blockchain gambling games

This stage can be deemed as a product of the barbaric development of blockchain, and can be traced back to 2018–2019 after the madness in 2017. The most famous game in 2018 was absolutely FOMO 3D, a Ponzi scheme game. A rule of the game “the person who purchases the last key keeps 48% of the jackpot” attracted 11,000 ETH in the pot within just 3 days in the bear market, and the number of active users grew by 10 times. One month later, someone significantly increased the Gas fee by utilizing the block packaging rule of Ethereum and took more than 10,000 ETH by maliciously causing the Ethereum to be congested for 3 minutes.

This is because flat-out gambling can attract more people in a bear market. The new public blockchain EOS and TRON then took over the relay baton of lottery. A pixel drawing game named EOS PixelMaster once occurred in the EOS ecology, in which, players can purchase pixels at the corresponding positions by spending EOS to draw a picture. In the game, pixels on the canvas can be traded, or be purchased and overridden by other players, but the price of each pixel would be appreciated by 1.35 times at each time of trading. Meanwhile, the canvas drawing was subject to 24h countdown. At the end of the countdown, the player who drew the last pixel would win all EOS in the prize pool, the canvas cannot be further drawn, and the works would be permanently saved on the EOS blockchain. However, due to the design of the game mechanism and the nature of Ponzi schemes, this game was hot only for a short period of time. Because of the high threshold for creating an EOS account and the continuous dropping of the coin price, many players could not experience or were reluctant to deeply take part in the EOS ecology, resulted in limited development of blockchain games in the EOS ecology.

Around October 2018, various DApps on TRON began to become the mainstream. There are riddle games like Last Trip, multiplayer games like Tronman and pixel type games like Tronfun on TRON, but most of the games are lottery games. At the quick development stage TRON DApps, TRON hosted a DApp development competition to attract developers and startup teams with USD1 million prize. The blockchain games in this stage were not so fun and had relatively simple means of gameplay, and therefore it was difficult to continuously attract users.

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This stage in which the blockchain games were developed is the descending stage of the blockchain market. Compared with Stage 1, the games in this stage were mainly lottery and Ponzi scheme type games, and the strong speculation nature and the flat-out gambling nature of the games attracted a large number of players within a short period of time indeed. However, games in this mode still lack of a closed cycle in terms of the economic model, and their final crash is an inevitable result; as for the games themselves, the game mode in this stage was still very simple, and therefore no big development was made. Apart from the above not well-behaved products, some real game firms noticed the potential of blockchain game itself in this stage. When lots of blockchain DApps and games were launched in 2018, many traditional game teams also entered the blockchain field. Some games that become very popular later, such as Gods Unchained and Axie Infinity, were also formally put online in 2018. Therefore, foreshadowing was made in this stage for the following development of blockchain games.

● Stage 3: diversified development of blockchain games

Compared with the previous two stages, blockchain-based games in this stage have substantially improved in terms of economic model, product interface and playability. From the second half of 2019 till now, the theme of metaverse has been opened, the "play-to-earn" mode of blockchain games and the combination of NFT and chain games have become hot.

The emergence of NFT and the AR/VR development have furthered promoted the outburst of metaverse projects. At present, most metaverse games are more like an open platform that allows free creations by users. My World is open to the source code level, and allows users to modify to the source code level. On the one hand, active explorations of users bring along a large scale of creations on the game volume, and on the other hand, the threshold for participating users is raised for creating complex works. By contrast, metaverse projects on blockchain are mostly for visiting exhibitions. For example, NFT holding users have the natural demand to show off the NFT they have (which are mostly of the collection and artwork types at present) and use it to decorate their land or space, creating a socializing nature. Though this type of games has the potential of becoming the entrance of the next generation of personalized social interaction, the scenarios in the games are rather rough, the social interaction is simple, and their playability is very low compared with traditional games. In the meantime, as contents are run on distributed nodes, the games have a long loading time and freeze from time to time, seriously affecting the continuity of the games.

As of today, the hottest blockchain game has to be Axie Infinity. It is a blockchain game that well combines DeFi, NFT and token model. The initial team of the game is among the earliest players of Crypto Kitties. Axie is a decentralized turn-based game based on Ethereum and is inspired by Pokemon and Crypto Kitties. Players can raise, combat and trade NFT animals called Axies.

Compared with the last two stages, the blockchain games in this stage have had enormous breakthroughs in the economic model, game experiences as well as diversity. Meanwhile, the introduction of elements such as blockchain NFT, metaverse, etc. provide a powerful catalyst to blockchain games, and has stimulated the fast development of blockchain games. It is from this stage that most traditional game developers begin to pay attention to and try blockchain based modifications of their games, promoting the fast development of blockchain games indeed.

1.2 Development Status Of Blockchain Games

1.54 million UAWs are registered in the blockchain sector in Q3, grown by 25% than the last quarter (on a quarter-on-quarter basis) and 509% than the same period of the last year (on a year-on-year basis). One of the main driving elements behind the explosion of this indicator is blockchain based games. It is proved in the third quarter of 2021 that blockchain games will continue to grow under the stimulation of play-to-earn (P2E) movement. In the 3rd quarter of 2021, the number of Unique Active Wallets (UAWs) linked to game DApps has reached 754,000, almost accounting for half of the active wallets in the industry. The trace of games in the NFT field has becoming increasingly apparent, and NFT accounts for more than 22% in the NFT trading volume in the 3rd quarter.

It shall be noted that, compared with the data of August, the entire NFT trading volume, including game items, in September decreased slightly. Nevertheless, the growth rate is still remarkable compared with the last quarter. With the development of these two fields, the integration between game and NFT will become more obvious. In addition to including NFT as collections in a game, BAYC, Galactic Apes, Crypto Kitties and some other NFT projects have included game development in their road map (Crypto Kitties is actually a breeding game). While other NFT collections, such as Meebits, CyberKongz VX, Fluf World and Clone-X, will become the avatar used by players in virtual worlds. The current blockchain market is very hot, and in such a hot environment, big game projects stand out conspicuously one after another:

- **The popularity of Axie Infinity continues, gradually forming a trend to compete with traditional games:**

Axie Infinity is an Ethereum and blockchain based game for collection and breeding of imaginary creatures. Anyone can join in the game and consume or trade with the game tokens earned through combats, breeding and other means of gameplay in the game. In August 2021, Axie Infinity surpassed NBA Top Shot and has become a phenomenal product, and its accumulative trading volume exceeded USD1 billion, creating a historic high. As of August 18, the market value of its governance token AXS has reached USD4 billion, ranked the 40th place, and the growth rate of the token price is as high as 132% from beginning of the year to date. Its gas fee produced in July is higher than other encrypted assets, including bitcoin and Ethereum. According to the data of Token Terminal, a

DApp data statistics company, the protocol revenue of Axie Infinity in July was 4.2 times the sum of protocol revenues ranked the 2nd to 10th places on the whole Internet. According to the data of Token Terminal, the revenue of Axie Infinity on July 28 reached USD18.48 million, a daily revenue that is 2 times over the Honor of Kings, a mobile phone game developed by Tencent; in 30 days as of August 17, the revenue of Axie Infinity reached USD334 million. According to the data of Sensor Tower, the revenue of the Honor of Kings in July 2021 was USD231 million. The monthly revenue of representative blockchain games have been able to compete the traditional top games already.

● Soaring of Splinterlands indicators on blockchain in 3rd quarter

Splinterlands is a turn-based digital trading card game that supports three different blockchains (Ethereum, TRON and WAX). It is similar to Magic the Gathering or Yu-Gi-Oh, but its gameplay rules are more diversified. In addition to non-fungible tokenization of various cards, the game is also added with elements such as land auction, NFT card trading, card synthesis and so on. In the large trading volumes of NFT and Axie Infinity, the use of game DApp has been growing very rapidly. In September, Splinterlands had the largest number of participants when counting the blockchain datas.

In September, Splinterlands averagely attracted more than 245,000 UAWs every day. Compared with the end of the 2nd quarter, the player base number of the game increased by 3.267%. Other indicators prove the demand for this game is increasing for sure. For example, the trading volume of the game in present season has exceeded USD153 million, grown by 177% than the second quarter. Meanwhile, the game has generated a turnover of USD1.18 million, grown by 1,200% on a quarter-on-quarter basis.

● Development of blockchain games accelerated by hot metaverse concept

One of the most attractive concepts of blockchain game spaces is metaverse. The metaverse is the integration of virtual spaces, and encompasses a series of augmented reality (AR), virtual reality (VR) and blockchain network, which is to create a parallel and long-lasting virtual world based on the reality world through technologies, and people in the reality may live in the virtual space in the form of a digital avatar and move values and data freely in the virtual world without switching their on-line identity. The virtual world also has the entire social and economic structures.

In a metaverse world, the blockchain technology will be an important condition for its practicing. The blockchain

technology offers a decentralized clearing/settlement platform and a value delivery mechanism to ensure the value attribute and delivery of the metaverse, thus to ensure the stability and efficiency of the economic system and the transparency and deterministic execution of the rules. Decentralized virtual assets can be circulated in multiple platforms without referring to the content itself and therefore becomes more “real”.

Blockchain itself is also a new business mode. With blockchain, an organization can convert its business into a decentralized platform, thus to change its business operation mode. It is driven by distributed computation and creates an integrated platform based on digital currency, decentralization and intelligence protocol. Therefore, a platform is the most common business mode in the blockchain environment. Currently, a platform is created based on the blockchain system, and an ecological system is built on the platform to provide services to lots of users. Now, the Company is focusing on developing applications that can become a blockchain infrastructure. These applications applying blockchains and cloud services can offer an opportunity of fast development to end users.

Another important base in a metaverse world is NFT, which is the only encrypted currency token representing digital assets under a blockchain frame, and it will be the economic footstone of the metaverse in the future. NFT can be bought and sold in the same way as physical assets, to ensure effective ownership determination over the basic assets in the metaverse. At present, the DeFi ecology and metaverse scenarios have benefited the prosperous development of NFT – it is estimated the market will reach the level of RMB10 billion in 2021. The NFT transaction amount in 2021Q1 reached USD2 billion, approximately equivalent to RMB12 billion, and the annual turnover is estimated to be RMB48 billion. If metaverse scenarios continue to contribute 27% shares (by reference to 2020), the metaverse–NFT part will reach at least RMB13 billion in the 2021 transaction amount.

The metaverse is open to various players, allowing them to join in and act freely, and also to third parties, enabling them to freely add contents via technical interfaces (like MOD and DLC in traditional games). In 2021, the sales of ARVR device Quest 2 under Facebook has grown rapidly. Tencent has proposed the concept of full true Internet. Roblox, a representative metaverse company, was listed. The market attaches great importance to the development of metaverse.

Roblox is a virtual world, entertainment game and self–developed contents combined game. Most works in the game are

built by users themselves. Since its listing in March, the growth rate of Roblox has exceeded 50%, the total revenue of Roblox in the first half of 2021 is USD941 million, and its revenue in the 2nd quarter increased by 127% over the 1st quarter. According to the financial statements of Roblox, the reservations of Roblox as of June 30 amounted to USD666 million, grown by 35% on a year-on-year basis. With the popularity of Roblox after its listing, the metaverse is moving from a concept to the reality. Meanwhile, Sandbox Leading and other blockchain type metaverse games spring up like mushrooms, and other than that, mainstream signals begin to emerge in metaverse projects in a visible number. For example, Coca Cola, cooperating with Decentraland, has launched its first NFT series in the virtual world. Burberry and Blankos jointly launched a fashion brand based NFT series, which was sold out in seconds.

To sum up, the metaverse is one of the most exiting concepts in the entire industry. The metaverse is very likely to become a place where fashion brands can digitally monetize their assets. Moreover, the metaverse may become the place for some most expected games.

2.FUTURE OPPORTUNITIES AND CHALLENGES OF BLOCKCHAIN GAMES

With the development of 3D digital content manufacturing technologies such as Unity, Unreal, etc. and the maturity of relevant VR and AR software and hardware technologies, it is estimated that game will become one of the main presentation forms of blockchain applications. The game industry has made active efforts in various aspects, including finer visual effects, virtual world building, automatic generation, independent creation by users, social interaction mode, etc., and platforms for creation and social interaction of users have already emerged. It is estimated the industry will continue to innovate and advance in the categories of open world, UGC platform, social game, virtual currency, etc. The market of blockchain games is a red ocean full of opportunities. Compared with the traditional Internet games, the current blockchain games are still at an early stage, and there are gaps in aspects like image quality, interaction experience, etc. These gaps need people in the industry to continue to explore and improve the technologies, products and modes. So, it is also full of challenges.

2.1 Opportunities Of Blockchain Games

● Popularity of NFT:

After the NFT trading volume reached a record of USD5.2 billion in August 2021, we can see its continuous boosting in September. NFT has become a leading category in traffic for the first time. Since the beginning of 2021, the NFT category has made positive progress, and creations and promotions focusing on NFT have helped it reach a high level. NFT spaces generated a trading volume over USD10.67 billion in just three months in the 3rd quarter of 2021. In the long term, it is more than the total time of 2019, 2020 and 2021. With the continuous rising of NFT, the combination

between NFT and game has attracted much attention because the emergence of NFT will not slow down quickly. This has also promoted the further development of blockchain games. NFT collections in games yielded a sales amount of USD2.32 billion in Q3, accounting for 22% of the total NFT trading volume of the entire industry. The money making movement via games, especially Axie Infinity, has become a front-page headline news and helped blockchain games enter the mainstream channels. This trend is related to emerging economies in particular.

● Gradual application of the concept of the metaverse

The emergence of the metaverse has enabled us to see different games, such as the My Neighbour Alice of BSC which has made great success in land selling, and the Sandbox and Upland have been operated for some time. We have also seen the additional functions in the metaverse, e.g. purchasing garments for virtual avatars directly in the Decentraland game mall, or Burberry sales recently in the Blankos metaverse. Furthermore, when talking about the metaverse, the participation of the fashion industry is also worthy of notice. We have seen previous successful cases in the traditional games, especially the Fortnite, in which, users are willing to pay thousands of US dollars for skins. On a planet with more than 2.8 billion game players, the blockchain game field still has a large room for growth. Long-established games such as the Alien Worlds or Upland and some improved games like the Splinterlands have been attracting more users. This is an excitement. For the market of blockchain games, the execution of the metaverse concept will also further promote its development.

The blockchain + game development mode depicts an amazing future. With the introduction of a new economic system into games and the participation of game players in building the base level of games, the metaverse makes us exclaims over the future vision of blockchain games. With the development of blockchain technologies, higher demands of players for a free and transparent platform with a high degree of participation, and the emergence of new game economic models and token incentives, more diversified blockchain games will be developed, and many DAO organizations and trade unions will also provide help for the blockchain game ecology. The market of blockchain games is still at an early stage, and the whole industry chain still has a large room for development. In the long run, we are optimistic about the gamified economy, and also expects to see more integrations of games with Defi, NFT or new concepts, to open a new door for blockchain games.

On the whole, blockchain game is a necessary stage of blockchain development. On the one hand, the game market

itself has a wide range of users and a relatively low access threshold, easy for access by ordinary users; on the other hand, due to the entertainment nature of games, it is the easiest approach for ordinary users to accept blockchain. Therefore, blockchain game is an important stepping stone for cycle breaking of blockchain, and the development of blockchain game can accelerate the development of blockchain and promote the popularity and practice of blockchain. The development of current blockchain games is still at an early stage, and not like the traditional games, a complete industry chain is yet to be formed. The route gone through by traditional games in the past will be the only way that the future development of blockchain games will pass, and will guide the future development of blockchain games.

2.2 Challenges Of Blockchain Games

Benefited from the development of high-performance public blockchains and two-layer networks, the interaction experiences of blockchain games have been improved, and the remarkable progress has been made in the blockchain game market in recent two years. So far, it seems that positive economic incentives in the early stages of chain games are more important than their playability, and the first step for developing a product is not to create one mainly for entertainment but to first design an economic system of a speculation attribute, which has succeeded preliminarily. The blockchain game market is raised by thousands of players, and with the participation of more players, they have increasingly high requirements for the game quality. The weak links of the entertainment sector still faces great challenges:

- **Obstructed by developer access threshold:**

The difference between a blockchain game and a traditional game is that it is coupled with blockchain, not just coupling of the concept but the actual application of the technology in the game. Blockchain games are still at the startup stage at present, and there is no unified development standard for the public blockchain environments are different. Therefore, developers without blockchain technological reserve will be difficult to quickly start the development of a blockchain game.

Secondly, it is difficult for professional game development and planning teams of traditional games to design a complete closed cycle of a decentralized economic system for they do not understand the decentralized blockchain

economic model, and this element is very likely to foreshadow the game operation in the future.

● Lack of related peripheral supporting roles:

In the development of traditional games, the game sector can be approximately divided into developer, publisher and distributor. Though there are problems existing in profit distribution, they perform their own functions in their respective fields, and the game quality can be largely guaranteed. At present, a blockchain project have multiple functions, such as game development, game release, game operation and maintenance, etc. As a result, the project owner focuses more on the release and operation of the game and ignores the game design and development, leading to poor experiences and low playability of current blockchain games, far inferior to the traditional games.

● Poor game experiences:

In terms of means of gameplay, blockchain games are restricted by the performance of public blockchains, and the large games have a high degree of similarity because of lack of diversified means of gameplay; in terms of game images, the images of blockchain games are relatively simple and the image quality is not so good; the smoothness of gameplay in blockchain games is far inferior to the traditional online games, and the high blockchain charges have also deterred many players; therefore compared with the traditional online games, blockchain games indeed need to catch up in aspects like image quality, interaction experience, etc. These gaps need people in the industry to continue to explore and improve the technologies, products and modes.



Form 2.1 NFT Social Trend Activity 2021,K

3. GMATRIXS GAME PUBLISHING PLATFORM

3.1 About Gmatrixs Platform

In the traditional game industry, a game Publishing Platform is one of the essential links, and game developers and game publishers perform their respective functions, helping game developing companies to put less efforts on game release and operation and devote all of their energies to developing the best game. It is a viable operation mode of the game industry that has tested by the market for decades, and should be learnt from by blockchain games.

Gmatrixs is an omni-chain game Publishing Platform based on independently developed middleware and Stand-alone Chain technical tools, offers middleware tools for omni-chain games, and aims to provide the SDK function, reduce difficulties in developing blockchain games, facilitate games to quickly access the Gmatrixs decentralized game Publishing Platform, provide game developers with functions such as blockchain based modification of games, middleware technical support, release of game assets, transaction of game props, traffic ecology sharing, platform arena, etc. A modular, universal and flexible framework is built with Ethereum based public blockchains. With the continuous fevering of metaverse and NFT, the development of blockchain games will certainly continue, and therefore we believe Gmatrixs will be an essential link for the future development of blockchain games.

Gmatrixs Phase 1 is integrated with ETH/BSC/HECO, and game developers will only need to integrate once to obtain users under different public blockchain environments to ensure their games are adaptive to future requirements, and other mainstream public blockchains in the market will be accessed later. Gmatrixs can satisfy the game developing requirements of individual developers and small game development teams, and can also provide proven large game development and operation solutions to specialized game companies.



HECO



BINANCE
SMART CHAIN



ETH

3.2 Functions Of Gmatrixs Platform

Gmatrixs is a decentralized game Publishing Platform first launched on Ethereum, and is positioned as an omni-chain game middleware product in terms of function. It mainly aims to provide technical support and services to game developers on middleware technologies, offering of game assets, trading of game props, sharing of traffic ecology, online trading of assets, platform arena, etc.

● Game middleware technologies

Middleware is a kind of independent system software or service program. Specifically speaking, middleware shields the complexity of the bottom-layer operating system, provides program developers with a simple and unified development environment and reduces the complexity of program design, thus to greatly reduce the technical burden.

● Offering of game assets

The Gmatrixs platform supports the online offering of game assets and game props. The Gmatrixs platform has simplified the asset offering operations and lowered the threshold for developers without blockchain technical reserve to facilitate professional game development teams to quickly begin the development of blockchain games, and the Gmatrixs platform will also assist in asset offering and putting props online.

● Trading of online assets

Different from the traditional online games, the prop ownership in games belongs to players, and the platform supports their trading and transactions. This function is provided to facilitate transactions among users, or to enable users to make a profit through selling a game asset or prop.



- **Sharing of traffic ecology**

Gmatrixs is integrated with multiple blockchains (ETH/BSC/HECO), and therefore game developers will only need to integrate once to obtain game players under different public blockchain environments. The Gmatrixs platform also has a good traffic bearing effect. With the release of games on Gmatrixs, more players will be attracted to and stay at the Gmatrixs platform, so a better user base can be provided to customers after a new game is released online. Hence, the platform and game developers can increase users through the constructive interaction relation, leading to a win-win result.

- **Platform arena**

Gmatrixs also provides a platform arena for PK among players, in which, players can carry out PVP battles. This function can enhance the player interaction in a game.

3.3 Technical Support For Gmatrixs Blockchain Game Products

To facilitate developers to develop blockchain based games on the Gmatrixs platform, the SDK provided by Gmatrixs is free of learning cost, and has the same access method as traditional SDKs. In order to shore up the weak spots of professional game development and planning teams of traditional games in economic model design and project operation due to lack of understanding on the decentralized economic model, Gmatrixs will also provide technical support and services for this type of projects.

Before a good game team develops a game product, it can submit a product technical support application to Gmatrixs, and all users can view the new product development plan of the team and determine if to provide services to the product. Meanwhile, a smart contract will be oriented to complete the technical support process to ensure the online publication of the game development in real time. When the plan is completed, the project will enter the development stage. After the successful development of a project, the supporting users will get various rewards in the game product. Game players will carry out activities in the game developed by the developer, including gameplay, play time, activity, interaction frequency, purchase of online props, etc., and the developer will also obtain token incentives.

4.GMATRIXS MIDDLEWARE TECHNOLOGY ARCHITECTURE

4.1 Introduction And Application Of Game Middleware

Middleware is an independent system software or service program that distributed applications use to share resources between different technologies.

Middleware is built on the client/server operating system to manage computer resources and network communication. It is a system in which software connected to two independent applications or systems can exchange information with each other through middleware, even though they have different interfaces. One of the key ways to implement middleware is messaging. With middleware, applications can work on multiple platforms or OS environments.

Middleware is between operating system and application software and provides service functions for application software.

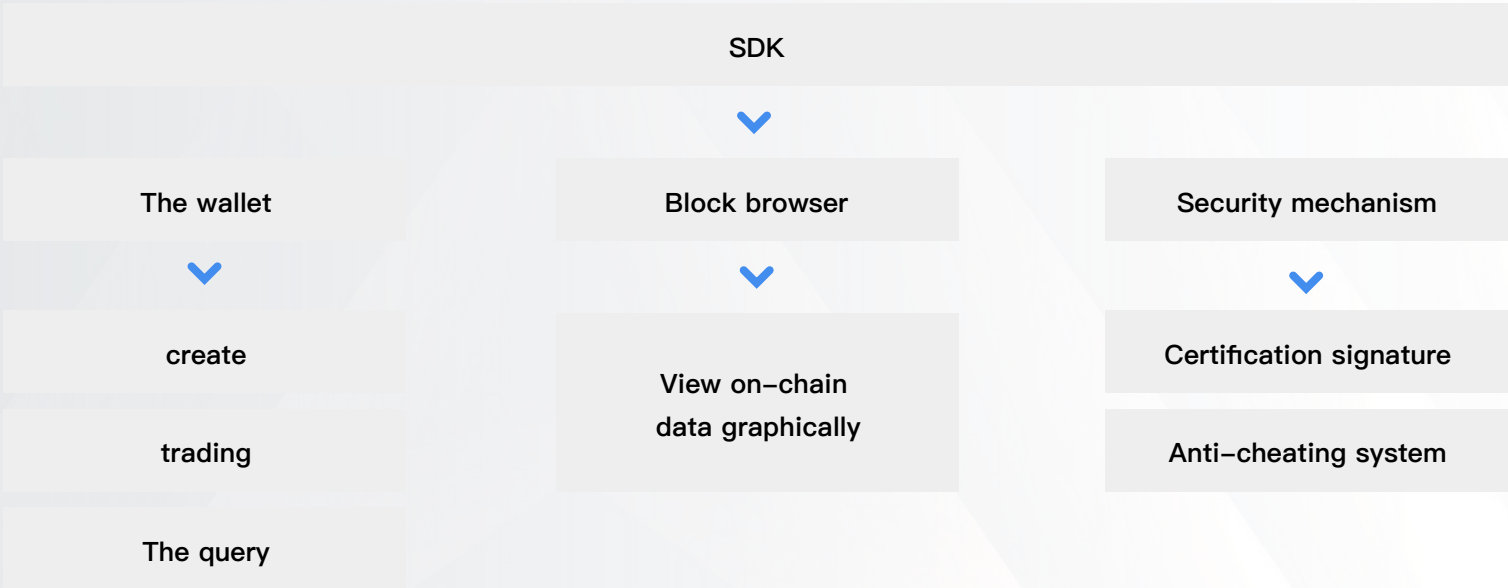
Specifically, the application of middleware greatly reduces the complexity of the underlying operating system. Since then, application developers can focus on a simple and unified development environment, greatly reducing the complexity of the program design. They can focus on their own business and do not have to rework for the transfer of programs between different system software, thus greatly reducing the technical burden.

The benefits of Gmatrixs SDK middleware to game applications are not only simple access, shorten access cycle, but also provide chain maintenance, contract writing and resource management.

The SDK interface provided by Gmatrixs allows developers to quickly develop blockchain-based games.

- Users wallet
- Blockchain browser interface
- Certification signature
- Anti-cheating module
- Websockets and events
- Solidity + Ethereum Virtual Machine
- Transformation of gateway integration and other functions

User wallet mainly provides users with account creation, transfer, query and other functions, while blockchain browser connects Ethereum, authentication signature and anti-cheating system to provide perfect protection for user asset security.



Form 4.1 SDK system

Gmatrixs game developers write game strategies based on the smart contract mechanism of blockchain technology, and consume main chain tokens to confirm the legitimacy of the game’s identity. Any game developer, including individuals, studios and enterprises, can apply to join GMS to create and publish blockchain games.

During the process of participating in the game, players will consume the corresponding tokens in their accounts according to the smart contract strategy set by the game to complete the game tasks or acquire the game virtual assets. All virtual assets owned by players are recorded in the Ethereum, which cannot be tampered with. At the same



time, digital value exchange can be carried out through various virtual assets of Ethereum online games, which consumes ETH (gas).

4.2 Technical Description Of Game Middleware

With the two-way/joint protocol, Gmatrixs assets that on Ethereum can locate the block containing the transaction in the blockchain to prove that the transaction actually did happened, which achieve the process of asset locking and transfer.

From the perspective of blockchain, the decentralized server framework specifically designed for games can not only satisfy individual developers and small game development teams to produce games, but also provide mature large-scale game development and operation solutions for professional game companies.

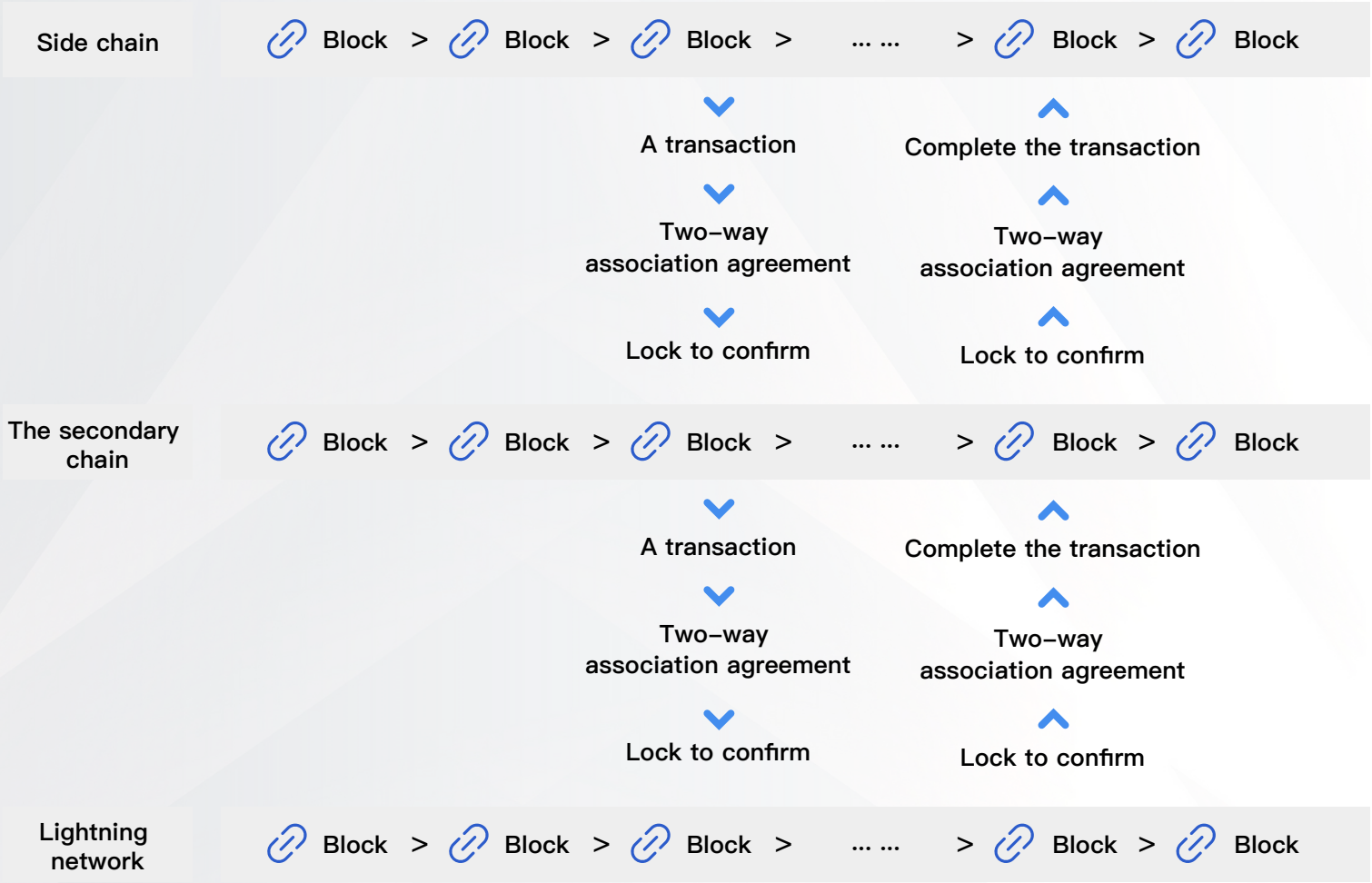


Table 4.2 two-way/joint agreements

● Secured chains:

This solution relies on Ethereum itself and does not require the establishment of its own validation mechanism. This solution is suitable for organizations with applications that require a high level of security, such as startups, because this solution is more adapted to the inability to establish a sufficiently decentralized and secure verifier mechanism.

● Stand-alone Chain

Stand-alone Chain are chains independent of Ethereum with their own pool of validators, which are responsible for their own security and provide better independence and flexibility. Stand-alone Chain support EVMs and can also share the security of Ethereum. The solution is usually suitable to be able to run a sufficiently decentralized and secure pool of validators.

● Lightning Network

As the price of ETH skyrockets, its performance drawbacks keep coming to the fore: expensive GAS fees, slow speed, inflexible and customizable smart contracts. Especially the problem of smart contracts, in the short term, it will make Ethereum lose more retail investors. In the long term, the development of Ethereum 's Dapps ecology is limited, and more development may move to BSC, HECO, Polkadot, etc. to seize the Ethereum market and weaken the position of Ethereum. GMS improves Ethereum performance from computing speed, GAS cost and other dimensions.

4.3 *Game Middleware Functions*

After creating a game ID on the chain, the developer gets a contract for it. Gmatrixs provides SDK to developers to quickly develop blockchain games.

SDK mainly includes user wallet, blockchain browser interface, authentication signature, anti-cheating module and other functions.

User wallet mainly provides users with account creation, transfer, query and other functions, while blockchain browser

allows users to view all Ethereum data in a graphical way. Authentication signature and anti-cheating system provide perfect protection for user asset security.

4.4 Description Of Stand-Alone Chain

Stand-alone Chain are used to confirm data from the main chain. Through two-way Peg mechanism, assets can be transferred between main chain and Stand-alone Chain. When an asset is locked on the main chain, the equivalent asset can be released on the Stand-alone Chain. Conversely, when related assets in the Stand-alone Chain are locked, equivalent assets anchored on the main chain can also be released.

The equal value between the main chain and the Stand-alone Chain can achieve two-way circulation. It is beneficial to speed up the transaction, reduce the transaction cost and improve the transaction efficiency. For example, the transfer speed of the main chain is slow and the GAS fee is too high, but the transfer speed can be improved by using Stand-alone Chain to reduce the GAS fee. Ethereum supports highly concurrent decentralized applications, which can be achieved through Stand-alone Chain development.

Using two-way peg mechanism, the transfer and return of assets to the Stand-alone Chain can be realized. For specific transactions, main chain and Stand-alone Chain require Simplified Payment Verification (SPV). The complete process is as follows:

- When user transfers asset to a Stand-alone Chain, he needs to create a transaction on the main chain firstly and then wait for the transferred asset to be sent to a special output. These assets are locked up on the main chain
- The user needs to wait for a confirmation period so that the above transaction can receive sufficient Proof Of Work
- When the user creates a transaction to extract assets in the Stand-alone Chain, it is required to indicate the output of the above main chain locked on the input of this transaction, and provide sufficient SPV

- Users need to wait for a period of competition to prevent double spending
- Assets circulate freely on the Stand-alone Chain
- A similar reverse action can be taken when the user wants to return the asset to the main chain

In addition, the security and stability of the main chain will not be affected if there are major problems such as code vulnerabilities and capital theft on the Stand-alone Chain. Because Stand-alone Chains are independent.

The Stand-alone Chain has its own pool of validators, so it is independently responsible for its own security. Stand-alone Chains can rely on the original blockchain (main chain) to upgrade technology and provide better independence and flexibility without affecting the work of the original blockchain (main chain).

5. GMATRIXS TECHNICAL SOLUTIONS

Gmatrixs provides game development companies with the following technology and innovation solutions:

Gmatrixs SDK integrated multi-chain (ETH/BSC/HECO), so when the game access to one chain can be arbitrarily added to other chains without repeated access;

The SDK integration multiple chains provide by GMS(ETH/BSC/HECO/Polkadot) uses the same procedure of access from traditional SDK, thus no additional learning costs. According to the document operation instructions, the game project can achieve fast access.

● Gmatrixs Technology Foundation

The blueprint of Gmatrixs concept is based on the Gmatrixs SDK as a whole, in line with the next generation of blockchain technology prospects of multiple chains (ETH/BSC/HECO), and all of these chains can achieve collaboration through open functional portal protocol.

SDK includes some high-level blockchain services:

- Login/Authorization
- Index
- Websockets and events
- Solidity + ETH Virtual Machine
- Transformation of gateway integration, etc

● Gmatrixs Consensus Mechanism

Gmatrixs adopts DPoS+PBFT consensus mechanism. Game users are rewarded with tokens through the consensus mechanism of Proof of Activity (PoA). After each user participates has the Game Digital Signature and the Gmatrixs Digital Signature, it is possible to determine whether the user will get the TOKEN of the system reward based on the Proof of Activity.

● Asset Turnover

When the two parties of the transaction have different game virtual assets that need to be exchanged, Gmatrixs automatically establishes the smart contract for the transaction. The establishment of the smart contract will consume the tokens of both parties, and the assets of both parties of the transaction are submitted to the two-way/syndicated agreement for locking.

When both parties sign the virtual asset to be traded within a specified time frame, which means that the transaction asset is allocated as agreed and the transaction is completed. Both sides of the transaction will spend a certain amount of TOKEN. If the two parties of the transaction do not sign the virtual asset as agreed within the specified time, which means that the transaction fails. Then the virtual asset will be returned, and the unsigned party will consume the TOKEN.

The following functions are allowed:

- Assets are transferred to the game
- Assets are transferred to Ethereum
- Trace assets on the chain

6.GMATRIXS ROADMAP

● July 2020:

Start the concept of Gmatrixs platform, and demonstrate the development route of Gmatrixs concept and business plan.

● September 2020:

Gmatrixs team was set up and synchronously open the development of SDK.

● June 2021:

Basically completed the technical development and test of middleware and SDK for game asset release, and started the platform system test.

● 2021 Q3:

Gmatrixs platform EVM version was launched, and opened the source code. Finish the publishment of Gmatrixs technical documents and SDK. The team prepared the launch of the platform Token \$GMS.

● 2021 Q4:

Gmatrixs platform officially launched. The SDK Demo version test is started. The traditional game team can access the SDK, and directly use the Gmatrixs platform containing wallet system in the chain game solution, so that users can freely access the chain game world from the App end, which greatly reduces the user threshold.
Open SDK cooperation with game team and continuously introduce new games to Gmatrixs platform.

● 2022 Q1:

The SDK supports Inter-Blockchain and will gradually support mainstream public chains such as SOL, AVAX, FTM, Polkadot, and LUNA.

Platform features update: Marketplace, Launchpad features will be added, and syncing these features will be integrated into the SDK, making them available to game projects that access the platform through the SDK.



2022 Q2:

Gmatrixs platform Stand-alone Chain development will be completed, and open each game project to Stand-alone Chain migration, using the high performance of the stand-alone chain to improve the platform game playability.

Game middleware features and SDKS will integrate more features, including platform arena, game guild governance, and more. Improve the SDK functions and API interface to simplify the game release link, so as to help the game development team in Gmatrixs platform can achieve a simple and fast release.

The platform's own game development will be completed and launched to enrich the platform's game ecosystem and attract more chain players and traditional players through the game

2022 Q3:

According to statistics, the number of games accessed through the platform SDK exceeds 20 and the platform covers more than 200,000 users. Gmatrixs will establish an integrated player, Game Miner, Token Trader and NFT Collector chain game user ecosystem.

The Gmatrixs platform has officially joined the metaverse. Relying on a number of games and user ecology in the platform, combined with the gameplay of land NFT and multiple player identities, players and users have more diverse forms of participation in addition to playing and earning, to create the world's leading game metaverse.

7.GMATRIXS ECONOMIC MODEL

7.1 About GMS

GMS is the token of Gmatrixs, which issued a total of 100 million and sed for circulation in the Gmatrixs ecosystem. In the future, GMS is mainly used for NFT asset purchase; Transactions between NFT assets and game assets under Gmatrixs platform. In the future, when the game projects enter the Gmatrixs platform, a certain amount of GMS shall be staked to use the patform game SDK service;

7.2 GMS Distribution Ratios

Category	Token (%)	Price	Alloc	#Of Token
Seed	5%	\$0.2	\$1M	5,000,000
Private	4%	\$0.5	\$2M	4,000,000
Public	1%	\$0.8	\$0.8M	1,000,000
DAO incentive	5%	*	*	5,000,000
Game Access Circulation	36%	*	*	36,000,000
Ecosystem	20%	*	*	20,000,000
liquidity/Staking	10%	*	*	10,000,000
Team	19%	*	*	19,000,000
Total	100%	*	*	100,000,000

Form 7.1 GMS allocation ratio

7.3 Functional Applications Of GMS

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When a new game enters the platform, the new game team must stake a certain amount of GMS before they can access the platform.

When a new game asset NFT is first released, it will be purchased by GMS.

Platformer's own tokens must be set up as GMS/ game tokens LP.

The platform game asset trading market will use GMS as the primary trading currency, with a 5% service charge.

Category	Vesting(Schedule)
Seed	10% om TGE,linear vesting for 24 months
Private	10% on TGE,linear vesting for 18 months
Public	50% on TGE, the rest is vesting for 15%, 15% and 20% for 1 quarter
DAO incentive	Discretionary unlocked based on market demand
Game Access Circulation	Discretionary unlocked based on market demand
Ecosystem	Discretionary unlocked based on market demand
Liquidity/Staking	Discretionary unlocked based on market demand
Team	10% on TGE,1 quarter cliff,linear vesting for 36 months

8.DISCLAIMER

This white paper is for informational purposes only and does not constitute any future investment guidance, nor is it a contract or commitment of any kind. The Gmatrixs Development team makes no representations or warranties (express or implied) and disclaims all liability arising from the information contained in this White Paper

- The objectives set out in this white paper may change in light of unpredictable circumstances. While the team will endeavor to achieve all of the objectives of this white paper, all individuals and groups purchasing GMS and corresponding NFT assets will be solely responsible for any risks. Part of this white paper may be adjusted in the new version of the white paper as the project progresses, and the team will make the updated content public through announcements on the website or the new version of the white paper. The "roadmap and development" proposed in this white paper is subject to change.
- GMS is a token for settlement on the Gmatrixs platform and is not an investment product. The Gmatrixs Development team is not bound by any representations regarding the future performance and returns of GMS or the Gmatrixs gaming platform, and expressly disclaims any promises of return or liability for any direct or indirect losses resulting from the project.
- Regulators have not reviewed or approved any information provided in this white paper. Therefore, no action is being taken or will be taken with respect to compliance matters required by the laws, regulations or rules of any jurisdiction. The publication, distribution or dissemination of this White Paper does not imply compliance with applicable legal, regulatory requirements or provisions.
- Blockchain technology is still in its early days, and the application of the new technology to existing laws is sometimes unclear. Once tokens become popular on a global scale, there are likely to be issues related to laws and regulations that are not clearly defined for the platform. Many of the terms of the platform and tokens are likely to be revised in the future to accommodate updates and amendments to the law.
- Gmatrixs development team believes that there are risks in the development, maintenance and operation of Gmatrixs game platform (including but not limited to the environment of digital currency regulation in various countries, industry incentive competition, digital currency itself technological vulnerabilities, etc.), so many of this was beyond the control of the Gmatrixs development team. There is no guarantee that the project will



succeed. There is a risk that the project will fail, and the value of GMS is also at risk of going to zero.

- Once participants participate in the crowdfunding plan with in-game assets including GMS tokens and NFT, they fully understand and accept the risks of the project and are willing to bear all the corresponding consequences.

● Risk Warning

The Gmatrixs development team believes that there are numerous risks in the development, maintenance and operation of the Gmatrixs game platform, many of which are beyond the control of the Gmatrixs development team. Participation in the private placement, crowdfunding, and trading of tokens and NFT assets within Gmatrixs games shall be a deliberate and determined action, and shall be deemed to be the purchaser's full knowledge and consent to accept the following risks:

- (1) The open sale plan may be terminated early
- (2) Insufficient information disclosure of the white paper
- (3) Possible regulatory measures for virtual tokens
- (4) Gmatrixs game development failure or give up
- (5) Security weaknesses of blockchain technology
- (6) Insufficient processing capacity of virtual token
- (7) Popularity of Gmatrixs games
- (8) Insufficient liquidity of GMS tokens and NFT assets
- (9) GMS and NFT asset price fluctuations
- (10) Other risks unknown at present