

Magic Cube: An open protocol for the development of an entertainment ecosystem on the NEO blockchain

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Abstract

We describe a protocol that facilitates the peer-to-peer development of an entertainment ecosystem, with an initial focus on the gaming industry. The protocol has two primary components: a utility token offering mechanism and an exchange mechanism to allow for liquidity and interoperability between utility tokens. Both the offering and exchange mechanisms achieve incentive compatibility between all involved parties through the design of the MCC token.

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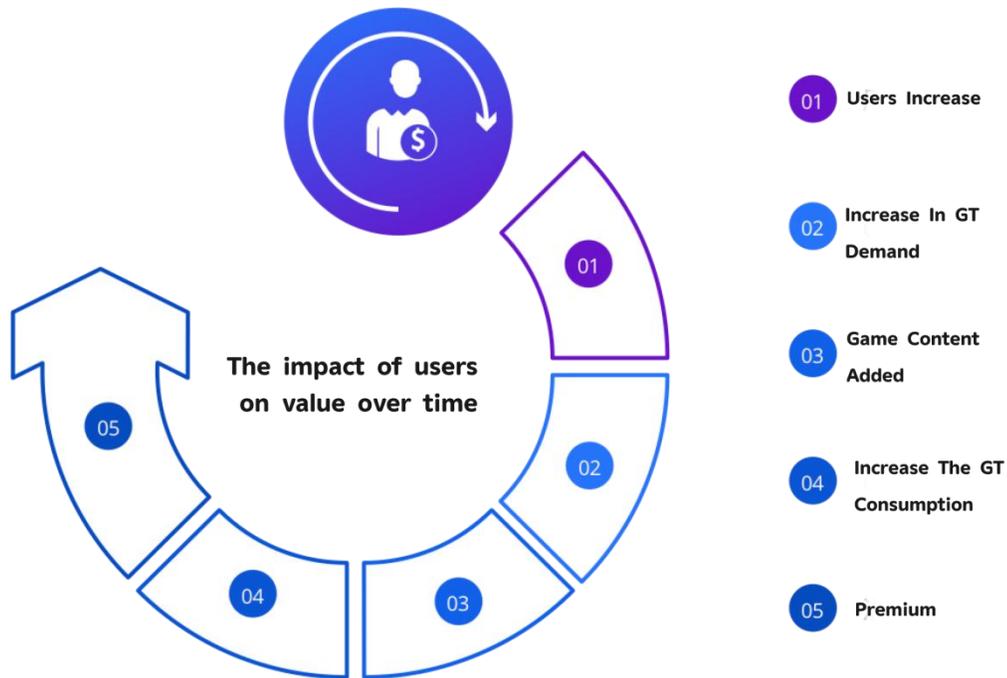
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Introduction

The Magic Cube protocol (herein referred to as Magic Cube) is a blockchain-based, decentralized entertainment ecosystem. Magic Cube is committed to asset-binding all virtual consumer goods (games, music, film, etc.) and implementing a new token economy that drives network effects for entertainment projects. Magic Cube Technology Foundation Ltd. (the **Foundation**) is putting these ideas into practice based on its own experience in distributing, channeling and publishing games.

The promise of blockchain is a leap forward in the ability to engage in trusted transactions regardless of the surrounding institutional environment. Magic Cube intends to use blockchain technology to circumvent existing unfair institutional environments and drive network effects among users, with the goal of creating an entertainment ecosystem that fairly rewards producers and consumers of content. Magic Cube will initially focus on the gaming industry, due to our already established presence in the space. Blockchains can benefit game developers and players in the following ways:

- Reward the creators and early adopters of games
 - Game development can be funded by the pre-sale of utility tokens to players.
 - Players can have exclusive rights to certain features of their favorite digital media.
- Network Effects
 - Game developers can have an alternative marketing approach to the monopolistic channels that currently capture a large percentage of developers' revenue. Scarce, useful, liquid tokens in the hands of players will encourage players to market new games. Currently, it is difficult for developers to incentivize players to try new games. No one wants to play a game that no one else is playing. Rewarding players for putting their "skin in the game" can turn players into early adopters and therefore marketers of the ecosystem, similar to what we have seen in the ICO (Initial Coin Offering) market.
 - Game players may resale utility tokens on an open and fair secondary market, potentially for a profit. Currently, players seldom receive benefits for being early adopters of a new game.



The Foundation will help game developers complete their own secondary IGOs (Initial Game Offerings) on the Magic Cube platform, during which the developer releases a secondary utility token with provable scarcity that provides exclusive access to in-game props and experiences. After the completion of a game’s IGO and the proven development of the token within the game (measured by the game’s status on the Magic Cube Token Curated Registry), the game’s utility token will be exchangeable on an open market with other tokens that also provide in-game and out-of-game utility.

The Magic Cube platform consists of the following primary parts:

- MCC Token Standards for Utility Token Offerings (UTOs)
 - MCC7 for mobile game IGOs
 - MCC15 for PC game and video console game IGOs
 - MCC40 for AR/VR game IGOs
 - More UTO standards will be listed for film, music, and other entertainment media. An IGO is simply a type of UTO.
- A mobile wallet/browser
- A decentralized exchange

- A kit for developers to deploy smart contracts with minimal friction
- A decentralized voting model, whereby holders of the MCC token would be able to vote (see below) on features of the Magic Cube platform

Gaming Industry Overview

In 2016, the global gaming industry's output value exceeded \$100 billion USD for the first time, exceeding the sum of that of the film and music industries. It is estimated that by 2020 the global gaming industry output value will reach \$129 billion USD. Mobile games will account for 51% of the gaming industry's output, surpassing the value of traditional gaming platforms, such as remote-controlled video game consoles.

In 2016, the number of Chinese gamers reached 600 million people and their market size reached \$24.6 billion USD, surpassing the \$24.1 billion market size of the US market. The Asia-Pacific region accounts for 46% of the global game market. In China, 93% of local gamers play games that have been developed by Chinese game development companies. For context, 56% of US game players play games developed by American companies.

Chinese users' demand for games continues to increase, but small and medium-sized game makers have been severely hampered by poor user traffic and fund raising obstacles driven by monopolistic middlemen and restrictive government policies. The difficulties faced by small and medium-sized game developers is specified below:

Pain Point 1: Funding

In 2017, the CSRC (Chinese Securities Regulatory Commission) suspended the listing of numerous companies in the gaming and film industries. In 2018 alone, five gaming companies, such as Suzhou Snail Digital Technology and Shanghai Green Bank Network, have had their IPOs suspended. Mergers and acquisitions, as well as refinancing, were also suspended.

Instead, the CSRC encourages already publicly listed companies to develop gaming platforms themselves, leading to monopolies over the gaming marketplace.

Without having a viable exit strategy, fundraising for small and medium-sized developers has become extremely difficult. The poor financing environment has led to developers not having enough incentives to support long development cycles, causing a drop in user experience, which has created a compounding negative feedback loop.

Pain Point 2: Traffic Generation

The cost to receive traffic continues to increase, but the conversion rate of real users is extremely low. Most games are sold partially to a publisher, leaving the developer with the rights to only 10% of the future income of the game that the developer made him/herself. The publisher buys users through channels, such as Facebook, the App Store, offline marketing, etc.

However, fake accounts currently make up for approximately 62.5% of the users on-boarded through marketing channels, making the sale to the publisher highly unlikely to generate enough user growth for that 10% to amount to any substantial income.

Small and medium-sized developers still have no viable alternatives to using a publisher. Additionally, the immediate selling of most of their rights disincentives developers to continuously update their games.

Pain Point 3: Retention Rates

Because of the premise of the first two points, the retention of new real users, thus turning them

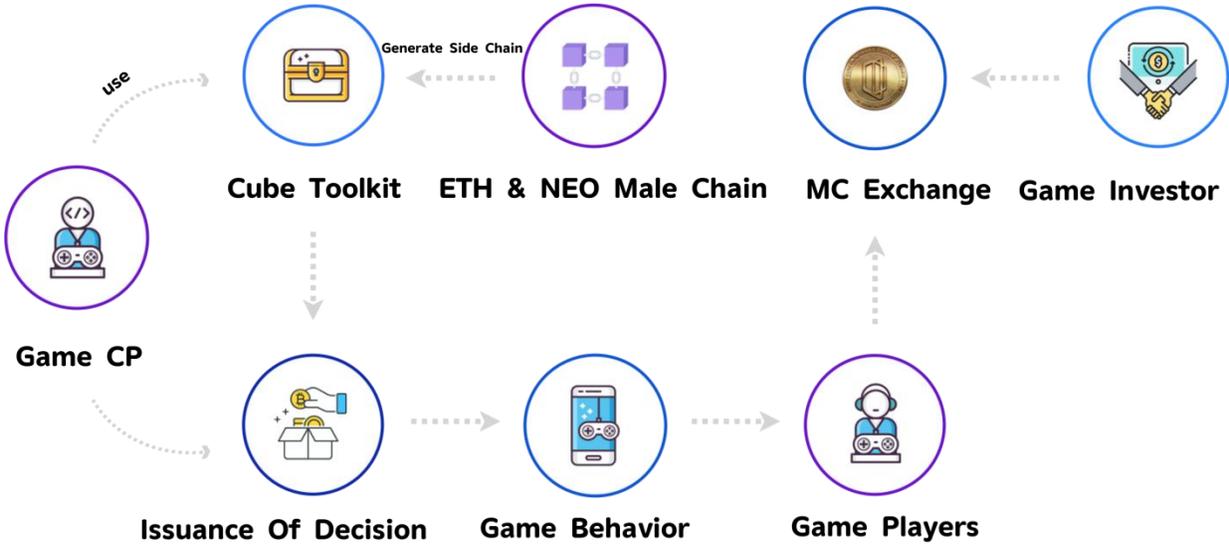
into early adopters, has become the key to survival. However, a lack of incentives for early adopters during early-stage game development creates a negative feedback loop. Game players do not wish to play a game that no one else is playing, as most view it as a waste of time. Small and medium-sized game companies need to find a way to retain real users.

Our Position

Magic Cube LLC is an internet company headquartered in Hangzhou, with its own game development team, online and offline channels and offline wallet business. Magic Cube LLC already has 23 games that are live with active product development. Each of these games will likely IGO on the Magic Cube protocol. Our games average a monthly active user rate of 150,000 people (per game). At present, our total number of users exceeds ten million people. We also have strong connections with other game developers and publishers, allowing the Magic Cube ecosystem to expand significantly beyond Magic Cube LLC.

Architecture

Magic Cube has designed the Magic Cube network to solve the pain points of the gaming industry outlined in the above the sections. The primary design principles of the Magic Cube architecture are modularity (for ease of upgradability), trust and security.



Governance

The governance module allows for token holders to vote on the features of the MCC ecosystem, for example upgrades to the Generalized Proxy, which in turn allows them to make upgrades to both the MCC token standard sub-proxies and the MCC exchange module, or add entirely new

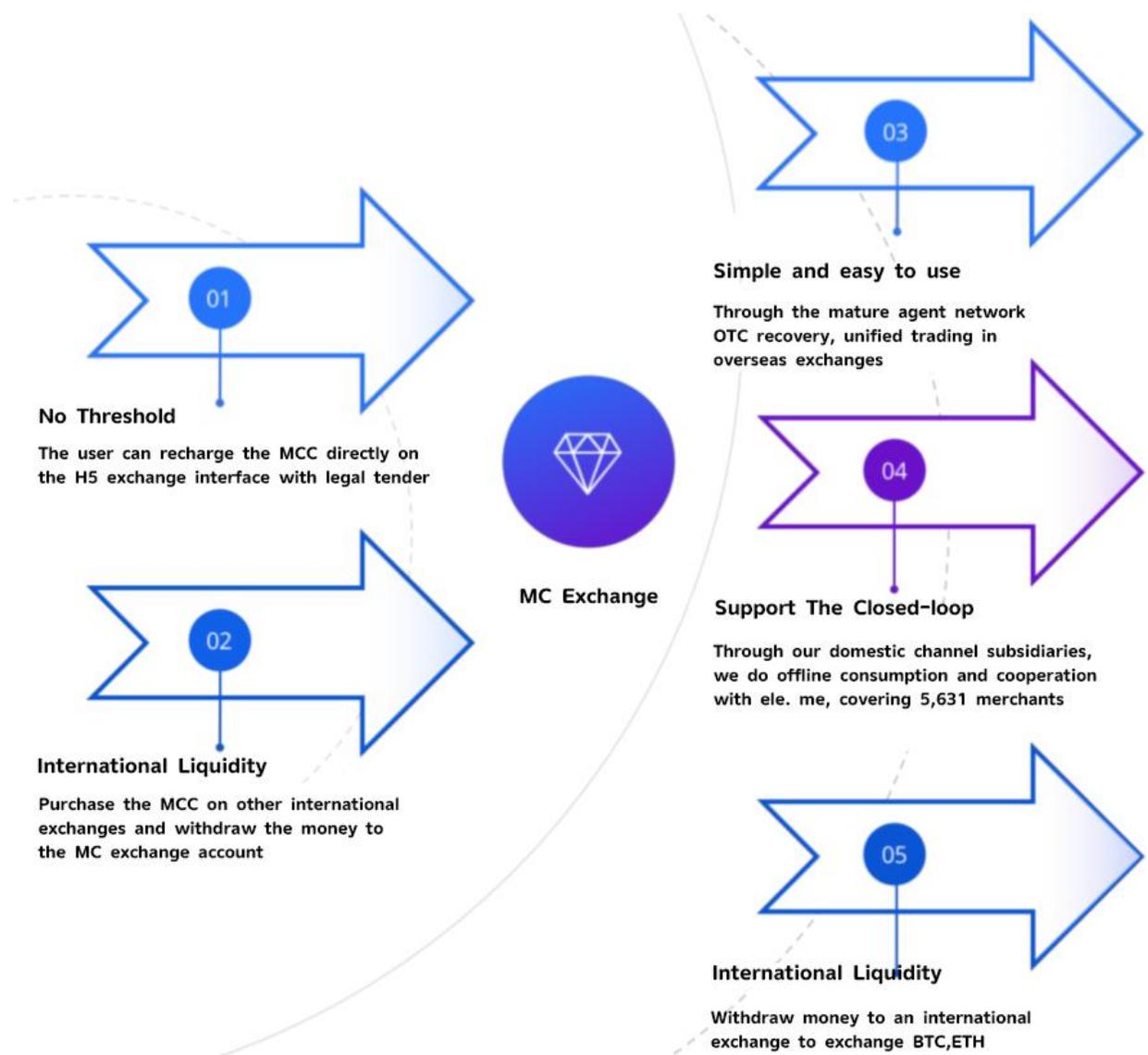
modules to the MCC ecosystem. The execution of protocol upgrades has been designed to with a priority of avoiding any disruption to the security of user funds. For the avoidance of doubt, the right to vote is restricted solely to voting on features of Magic Cube; the right to vote does not entitle MCC Token holders to vote on the operation and management of the Foundation or its affiliates, or their assets, and does not constitute any equity interest in the Foundation or its affiliates.

Exchange

The MCC Exchange is designed to minimize on-chain transactions, so as to satisfy the scalability requirements necessary to function at the same speed as a centralized exchange. There are at least three parties in every trade: a seller, a relay and a buyer.

A seller is the account that sends the initial order, stating the exchange rate at which they wish to sell Token A for Token B. A relay broadcasts and matches trades through an order book. A buyer is the account (or group of accounts) that fills an open order at an agreed-upon exchange rate with the seller.

The sequence of a completed trade goes as follows:



1. The relayer cites its fee rate (for the inclusion of the sell order on its order book) to the seller. The NEO blockchain does not charge fees for computationally light transactions, thus allowing the relayer to keep any fees it charges. Relayers decide their own fees, creating a competitive market for the business of sellers.
2. The seller creates an order and signs it with its private key, thereby validating the data contained within the order and agreeing to the fee set by the relayer. Relayers are expected to create orders that resemble today's user experience standards by providing interfaces that makes forming and signing an order as easy as possible.

3. The seller sends its signed order to the relayer, thereby paying the relayer a fee.
4. After checking that the order is valid (the fee was properly paid; all data was filled out correctly and signed), the relayer updates the order book with the seller's order listed. Any valid order may be cancelled through the cancel function on the MCC exchange contract, in which case the relayer would need to re-update its order book. If the order is not valid, it is rejected, and any fees paid to the relayer are kept by the relayer.
5. Buyers receive an updated version of the order book that includes the seller's order.
6. Buyers fill the seller's order by properly parameterizing and calling the MCC exchange contract on the NEO blockchain. It is up to relayers both to provide the user interface for buyers to fill orders and to handle partial fills through modification of order books.

This set-up may still not be secure enough to prevent the front running of orders by NEO block producers. A NEO block producer could see the data contained in an already filled order, decide to fill the order itself, and then publish a block containing its purchase instead of the purchase by the original buyer(s). To prevent the possibility of front running by NEO block producers, we are researching the computation viability of zero-knowledge proofs such as zk-SNARKs and Bulletproofs.

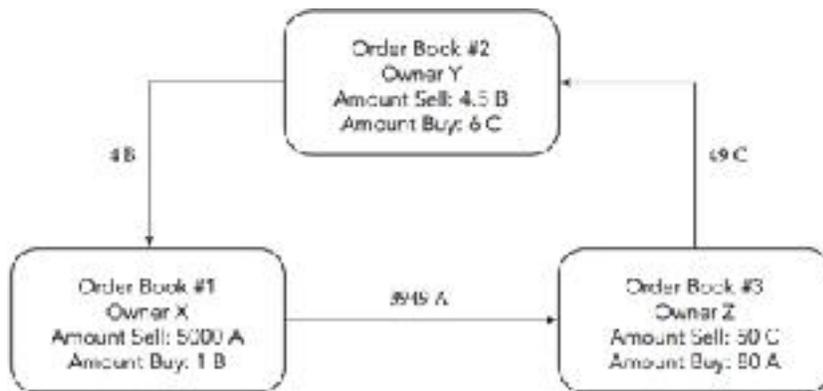
Ring Trading

The MCC Exchange supports the mixing and matching of multiple orders in a circular trade known as ring trading. By using multiple orders (potentially across multiple order books) instead of a single trading pair, the MCC exchange achieves a dramatic increase in liquidity. Ring trading is a feature of the MCC protocol, and is not a requirement, as it is computationally heavy for any relayers who choose to do it. Ring trades can be satisfied under the following requirement, where, for any given order, x is the amount Token A wanting to be sold and y is the Token B wanting to be bought:

$$\frac{x_1 \cdot x_2 \cdot x_3 \cdot \dots \cdot x_n}{y_1 \cdot y_2 \cdot y_3 \cdot \dots \cdot y_n} \geq 1$$

This property ensures that all traders in the ring order are receiving an exchange rate equal to or better than the exchange rate they messaged to the relayer.

Below is an example of a ring order between three traders across three order books, where each trader receives a significantly better rate than their ask price:



The pricing formula behind a ring trading rewards all buyers and sellers with the same discount percentage, so as to ensure fairness in the multi-partied transaction. If r is the initial asking rate of an order and β is equal to the discount that all traders in the ring trade received, the ring-trading rate of each order would be:

$$r_{0 \rightarrow 1} \cdot (1 - \beta), r_{1 \rightarrow 2} \cdot (1 - \beta), r_{2 \rightarrow 0} \cdot (1 - \beta)$$

and satisfy: $r_{0 \rightarrow 1} \cdot (1 - \beta) \cdot r_{1 \rightarrow 2} \cdot (1 - \beta) \cdot r_{2 \rightarrow 0} \cdot (1 - \beta) = 1$

hence,
$$\beta = 1 - \frac{1}{\sqrt[3]{r_{0 \rightarrow 1} \cdot r_{1 \rightarrow 2} \cdot r_{2 \rightarrow 0}}}$$

If the transaction involves n different orders, the discount β would be solved through the following formula:

$$\beta = 1 - \frac{1}{\sqrt[n]{\prod_{i=0}^{n-1} r_i}}$$

This formula ensures the relayers that execute ring trades can fairly discount all traders involved.

MCC Token Standards

MCC Token Standard sub-proxies set the rules for the funding contracts that allow for secondary IGOs on the Magic Cube platform, as well as the rules that govern developer payout after an IGO has been completed.

Separate token standards exist for the purpose of creating appropriate rules for different types of entertainment utility token offerings. Not all entertainment development cycles are the same: a PC game may require thousands of dollars to upkeep while a film may require millions of dollars. It may take 2 weeks to push a mobile gaming update, but 2 years to create a film. The rules governing these developer discrepancies should be allowed to be unique.

To achieve this, The MCC token standards define not only different smart contract funding mechanisms, but also different rules for their respective token curated registries (TCRs). Each TCR exists in the following structure:

Game Data [1]	Status Data [1]
Game Data [2]	Status Data [2]
Game Data [3]	Status Data [3]
Game Data [n]	Status Data [n]

Game Data contains the following data:

Token_Ticker (the unique identifier for the token launched on the MCC platform); Token_Supply (set by the developer at the time of IGO); Balance (funds currently locked in the TCR) ; Developer_Account_Address (for intermittent payments to the developer); Timestamp_Proposed (showing the date the game was proposed to the TCR); TCR_TokenStandard (a hash of all token standards taken at Timestamp_Proposed); Timestamp_Approved (showing the date the game approved to join the TCR).

Status Data contains one of the four data options: Proposed, Challenged, Paused, Approved.

The goal of the TCR is to maintain community consensus around the state of the development of a game after the game has been funded through an IGO. See the **To Ensure that Developers Stay Truthful** sub-section below for more details.

Any token following an MCC token standard can be exchanged for any other token following an MCC token standard, as all MCC token standards also follow the NEP-5 token standard.

Ecosystem Incentivization Through The MCC Token

The goal of the native digital cryptographically-secured utility token of Magic Cube (**MCC Token**) is to create a decentralized entertainment ecosystem that exhibits a high level of trust by making use of embedded incentives that reward good behaviors, such as relayers' providing liquidity or developers' delivering promised updates to games, and punish bad behaviors, such as cartel formation amongst relayers or developers' fleeing the ecosystem with unearned funds.

MCC Token is a major component of the ecosystem on Magic Cube, and is designed to be used solely as the primary token on the network. MCC Token is a non-refundable functional utility token which will be used as the unit of exchange between participants on Magic Cube. The primary goal of introducing MCC Token is to provide a convenient and secure mode of payment and settlement between participants who interact within the ecosystem on Magic Cube. MCC Token does not in any way represent any shareholding, participation, right, title, or interest in the Foundation, the Distributor, its affiliates, or any other company, enterprise or undertaking, nor will MCC Token entitle token holders to any promise of fees, dividends, revenue, profits or investment returns, and are not intended to constitute securities in Singapore or any relevant jurisdiction. MCC Token may only be utilised on Magic Cube, and ownership of MCC Token carries no rights, express or implied, other than the right to use MCC Token as a means to enable usage of and interaction within Magic Cube.

The following use cases of the MCC token describe our current framework for achieving this:

To Upgrade the Protocol

MCC token holders may vote on features of the MCC Ecosystem. To vote on upgrades to the protocol, MCC token holders give a voting contract access to their coins for the time period of the vote with a 3 day buffer on both sides of the time period. The purpose of the buffer is to give the protocol time to recognize potential malicious attacks and take the necessary steps to prevent jeopardizing the protocol's security. For the avoidance of doubt, the right to vote is restricted solely to voting on features of the MCC Ecosystem; the right to vote does not entitle MCC Token holders to vote on the operation and management of the Foundation or its affiliates, or their assets, and does not constitute any equity interest in the Foundation or its affiliates.

To Reward Relayers

A seller (the trader whose order is filled) on the exchange will pay competitive fees to relayers. Sellers can pay their trading fees to relayers using the MCC token or any other token that the relayer accepts for payment.

To Avoid Monopolization Among Relayers

Relayers will be incentivized to give other relayers access to their order books. Relayers will set competitive fees (whose required payment is in MCC Token) for filling trades listed on their order books to reward themselves for providing other relayers with liquidity. A percentage of these open order book fees (the exact amount of basis points will be determined by the MCC token holders) will be sent to an MCC burn contract.

A percentage of MCC tokens in the burn contract (the exact percentage will be determined by the governance module) will be randomly released to MCC token holders who partake in the maintenance of the MCC Token Curated Registry (more details in the **To Ensure that Developers Stay Truthful** sub-section below). The purpose of burning MCC tokens is to prevent potential monopolization or cartel formation, where select relayers wash trade between each other to give the illusion of decentralization. Burning tokens makes Sybil attacks and cartel formation more expensive.

When ring trading takes place, the ring miner will be awarded a competitive fee (the exact amount of basis points will be determined by the MCC token holders) from all the relayers to which it helped find liquidity. In this instance, the relayers do not charge the other relayers fees. Only the ring miner is awarded inter-relayer fees, with the token burn still in effect at the same rate as on all other open order book trades.

To Pay For Utility Tokens

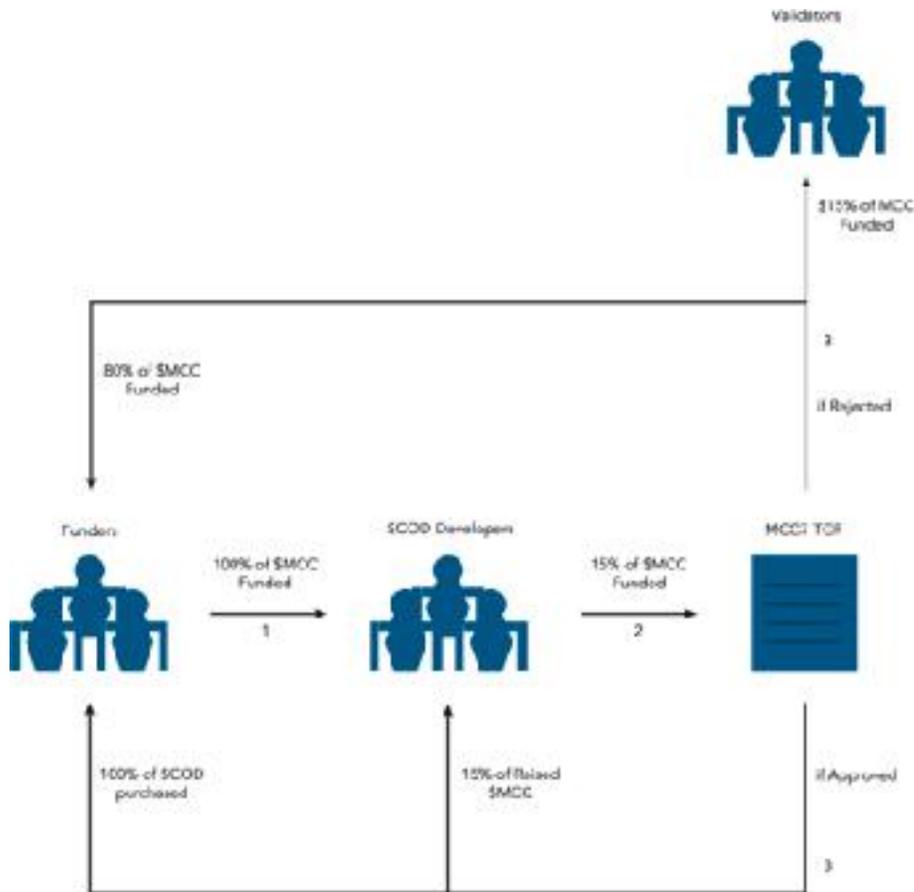
Secondary IGOs carried out on the MCC network must be completed using the MCC token as the base unit of exchange. Upon completion of the IGO, the game joins its respective token standard's TCR; the game's status becomes Proposed; and the timestamp of the proposal is recorded. Similar to an ICO, developers decide the percentage of their total game tokens they wish to sell at the IGO. They could keep some for team to add additional incentivizes for continued development.

To Ensure That Developers Stay Truthful

In order for a token to be listed by relayers after its IGO, it must be listed on its appropriate MCC token standard's TCR with its status as Approved. Once a token is listed as Approved, it can always be traded on the Magic Cube network, regardless of what happens to its status on its respective TCR.

Until the game's status is changed to Approved, a certain percentage (dependent upon the MCC token standard that the token complies with) of those funds remain locked in funding contracts; a certain percentage (dependent upon the MCC token standard that the token complies with) is immediately given to the developer; and a certain percentage (dependent upon the MCC token standard that the token complies with) is staked in the TCR contract until the game's status is either changed to Approved or the game is removed from the TCR. For a game's status to change from Proposed to Approved, it must go a certain amount of time (dependent upon the MCC token standard that the token complies with) without being Challenged or it must survive a Challenge Period.

The remaining aspects of developer rewards will be uniquely specified by each MCC token standard. Below is an example of how an MCC token standard could specify a payout timeline:



- Upon completion of the IGO, the developer immediately receives 5% of MCC funds raised, while the Funding contract locks 80% and 15% is staked in the MCC7 TCR.
- If the game's status is changed to Approved, the developers could immediately receive the 15% that was staked in the MCC7 TCR Contract. The remaining 80% of the raised funds could be awarded to the developer on a linear basis, with 10% released at a constant monthly time interval. The funds are released at the slotted monthly intervals only if the game's status remains Approved. Funding is paused if the game's status is Challenged or Paused. If the status is reverted back to Approved after a Challenge Period, the developer receives any funds that were missed during the Challenge Period. If the game's status becomes Paused, the developer payout time schedule is also paused and only resumes if the game's status is reverted to Approved. If the game ever becomes de-listed, all locked developer funds are returned to the initial funders.
- If the game is Rejected by the validators, the initial funders are refunded 80% their MCC contributed. The 15% staked is awarded to the challengers and voters of the TCR.

Because the structures of each token standard's reward mechanism will be decided by the token holders of MCC token, developers are further incentivized to hold MCC token to play a role in the governance process for token standards. A hash (TCR_TokenStandard) of all token standard at time of proposal is stored in the game's data field on the TCR, so that developers do not have that their rewards schedules altered ex post facto.

Relayers cannot list coins whose status never change from Proposed to Approved. If relayers list coins that did not meet development requirements, the MCC network will lose significant value, which should decrease the value of relayers' business models and MCC token holdings, encouraging them to remain honest. There may be the deployment of a TCR whose purpose is to moderate rule-following relayers in the future, although we do not think that is necessary at this time.

Challenge Periods

A Challenge Period may be initiated against candidates in their application period or against already approved TCR members. The Challenge Period begins when an ecosystem member stakes a certain amount of MCC tokens (the exact amount of basis points will be determined by the MCC token holders) in a proper challenge contract, which will be voted on by the validators.

The only criteria to be a validator is for the user to have locked a certain amount of MCC tokens (the exact amount will be dependent upon the MCC token standard that the token complies with) in the TCR for the duration of the vote plus a buffer period. There, validators could be relayers, evangelists, consumers, or other developers. Developers with funds locked in the TCR contract could also be validators.

Once a challenge has been made, all participating validators send their votes using a commit-reveal scheme (to ensure that validators cannot see other validators' votes before submitting their own). A vote can contain any of the following messages: Status_Delist; Status_Approved; Status_Paused. Whichever message receives the highest number of votes becomes the game's status (except in the event of Status_Delist, which would cause the game to be removed from the TCR).

All validators who vote receive random TCC token rewards to incentivize continuous

participation. These rewards come from the pool of tokens burned by relayers (for open order book trades) locked in the burn contract. We prevent Sybil attacks for random rewards by requiring a tokens to be bonded in order to be a validator.

To Bridge the Online and the Offline

At present, there are 250 merchants in the provinces of Jiangsu and Zhejiang that accept the MCC token as payment. We plan on partnering with 50,000 merchants before the end of 2018.

Formalized MCC Operations

Governance Module

The Governance module provides a backdoor to the Generalized Proxy module for the governance of all other smart contracts on the MCC platform. The Proxy module acts as a whitelist for which contracts are valid to be called on the MCC protocol. The Governance contract contains the following function calls:

Bond — users bond tokens for a buffer period placed both in front of and behind the deadline to vote; users' votes will be proportionate to their stakes; users can bond and vote before the buffer period begins.

Delegate — an account can delegate their stake to another account (the tokens remain bonded during the delegation period, and therefore cannot be spent during this period).

Vote — an account publishes their vote on a Magic Cube Improvement Proposal.

Abort — an account can abort any participative actions (such as bonding or delegating) before the buffer period of the vote, if their vote is made before the buffer period. This will be useful if the account needs to spend MCC token for a reason economically more important than the outcome of the vote to them.

The Governance module has the ability to vote on the parameters of the Governance contract itself as listed in the Proxy module.

Funding Mechanism

The Funding Mechanism is executed through the launch Contract. A launch contract is published by a contract owner (one address per contract initially, for the representation of either a decentralized autonomous organization, centralized organization, or lone individual). The launch contract contains the following data fields:

Owner_Address; Token_Symbol; Price (of the utility token offering in MCC for the duration of the utility token offering); Expiration_Time (of the utility token offering, to be executed through Time_Stamp); (total native) Token_Supply; Percentage (of token supply allocated to the utility token offering); Inflation_Rate (if applicable); Contract_Upgradability.

The Owner_Address will be the receiver of the developer payout of the MCC raised in the launch contract, with the money received at a rate as detailed in the MCC Token Standard under which the launch contract was deployed.

It will be likely that contract owners promote their utility token offerings through other protocols designed for designed media and/or centralized media platforms. On the Magic Cube wallet, we will provide free promotion of token offerings launched on our platform.

Token Curated Registry

The Token Curated Registry consists of two contracts, the TCR contract and PLCR Contract. There are three primary actions to support the functioning of each MCC Token Standard TCR (The creation and upgrading of MCC Token Standards will be maintained by the Governance module through the Proxy module.):

Submitting a Candidate

Interaction 1: Users approve that the TCR contract is allowed to transfer their funds from their wallet.

Interaction 2: Users submit the candidate for application into the registry, which includes the necessary bond to engage the validators.

Challenging a Candidate

Interaction 1: Users approve that the TCR contract is allowed to transfer their funds from their wallet.

Interaction 2: Users challenge the candidate's application into the registry, which includes the necessary bond to challenge as a validator.

Voting on a Candidate

Interaction 1: Users approve the PLCR contract to transfer funds from their wallet.

Interaction 2: Users requests voting rights from the PLCR contract.

Interaction 3: Users submit their committed vote to the PLCR contract.

Interaction 4: Users submit the reveal hash (for their committed vote) to the PLCR contract

The results of the challenge allow for the updated data of each listing's status. A challenge can be performed for any applicant or for any current member of the TCR. All members of the TCR are required to hold a small stake in the TCR in order to remain listed.

We would like to note some of the beneficial properties of the PLCR contract. The tokens locked in the PLCR contract to vote are only partially-locked, meaning that they can be used in multiple polls, so long as the tokens locked are owned by the same address and the polls are executed by another PLCR contract. The PCLR contract does not punish the voters who vote not in the majority group. The PLCR contract returns the status of the candidate to the TCR contract to decide who the winner of the challenge is (in the event of a Pause, the vote is a draw until the status is changed again), and the loser's funds are distributed to the challenger and majority voters appropriately. Votes can be changed during the Pause Period to signal the future result until an additional challenge is created, at which point validators must lock in their votes to end the Pause Period.

This set up allows for validators to assuredly and easily vote in multiple polls simultaneously, while holding accountable the Applicant and Challenger for capturing the network's time.

Decentralized Exchange

There are two types of orders that will be executed through the exchange: point-to-point orders and broadcast orders. Each type of order uses the same DEX contract, but begin with different data sets.

Point-to-point orders specify the buyer address(es) that can fill the order at a specific rate and quantity, only requiring the buyer's signature. Broadcast orders leave the buyer's address as null and specifies the buyer's address when there is a buyer. The buyer still must sign the order in order for the order to be verified by the DEX contract.

The DEX contract verifies the buyer's, seller's and relayer's signatures against each of their account addresses to ensure that the all three parties have agreed to execute the listed trade at the listed exchange and fee rate. The DEX contract does care if an order is publicly or partially filled. Relayers can perform partial fills through providing the additional argument: `Partial_Fill`, where the `Partial_Fill` is less than the `TokenB_Amount` (the amount of TokenB to be bought). It is up to the relayer to maintain the order book appropriately after a partial fill has been executed.

Orders contain the additional data to be processed by the DEX contract: `DEX Contract` (pointing to the address of the DEX contract needing to be called); `Token_S` (the token to be sold; the developer is given access to this token by the seller); `TokenS_Amount` (the amount of TokenA to be sold); `Token_B` (the token be to bought); `TokenB_Amount` (the amount of TokenB to be bought); `Fee_Amount` (the fee paid to the relayer); `Fee_Address` (the relayer's account address); `Timestamp` (the time at which the order was signed); `Expiration` (the duration of time that the buy order may be broadcasted on the relayer's order book).

Prepared-for Scenarios

Because blockchains are not yet scalable for mainstream adoption, we will carefully follow all scaling progress on public platforms. Should we wish to decentralize our platform before adequate scaling has been achieved, we may temporarily implement a Proof of Authority side

chain, pegged to the public NEO main chain. Our Proof of Authority side chain would require Authorities to stake a significant amount of MCC tokens, thereby turning the platform into an emergency Authorized Proof of Stake side chain. Because this model is still centralized, we would look forward to moving back to the main chain, once scaling solutions have been resolved.

Product Features of the MC Platform

For Users: A Digital Wallet/Browser

The Magic Cube Wallet/Browser will be compatible with all virtual assets such as game titles and skins that can be purchased with tokens launched on the MCC network. It will have social features such as instant messaging and user profiles, with the potential for other social features added on based on user feedback. The wallet/browser will be accessible on both mobile and desktop devices across all popular operating systems (iOS, Android, Linux, Windows, etc).

Most existing encrypted digital currency wallets require a high level of expertise from mainstream users, such as transaction fees, private keys and alphanumeric addresses. Magic Cube will offer an opt-in centralized custody of wallet funds so that users do not have to worry about losing their private keys. Additionally, all transactions using our wallet will be fee free, as NEO does not require fees for computationally light transactions.

The Magic Cube wallet has already reached more than 250 shops in Zhejiang and North Jiangsu. Users can quickly use the currency in their wallet by scanning other Magic Cube wallets' QR codes. Magic Cube plans to on-board 50,000 merchants onto the Magic Cube wallet by the end of 2018. The types of merchants who we are seeking are in the businesses of: leisure and entertainment, shopping malls, food catering, and schools.

For Developers: The Cube Kit

The Cube Kit will be an open-source template for the deployment of different MCC smart contracts to guarantee that our gaming developers securely execute their abstracted business logic. Initially, we will focus on the IGO contract, referencing the Launch smart contract necessary to launch a gaming token on the Magic Cube protocol. The IGO contract template will

require only that the developers assign values to variables that will be unique to each project, with the audited template providing the additional code for the deployment of the contract.

As we on-board increasingly complex games and blockchains scale, we will develop numerous additional templates, allowing for more intricate IGOs that could involve non-fungible tokens, dual token models and dual game models. Like other first and second layer protocols, we believe that creating tools that promote ease of creation will lead to greater creation and therefore accrue more value to the platform. Additionally, we will release open-source templates for the creation of relayers once the MCC exchange shifts to a decentralized model. This is less of a priority because of our development timeline. Please see our **Development Plan** for more details.

Examples of other people offering similar developer tools in the crypto space:

<https://blog.airswap.io/airswap-developer-series-part-1-makers-and-takers-8c0c7c6d594b>

<https://blog.dharma.io/dharma-relayer-kit-73dea1d665c1>

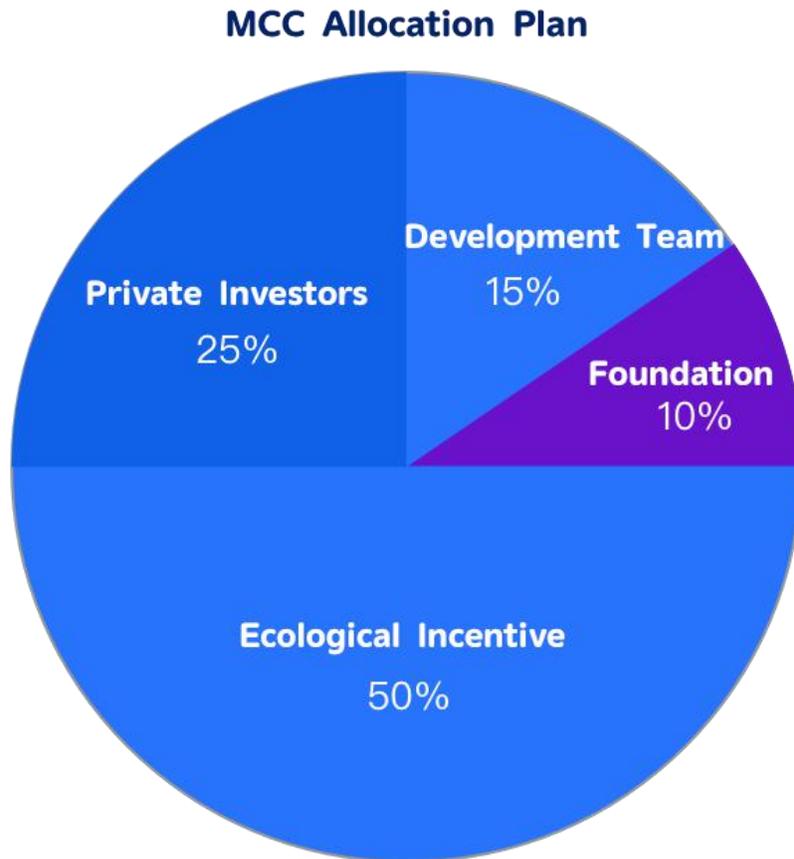
MCC Utility Token Offering

The private placement UTO (utility token offering) for the MCC token will be conducted in NEO or ETH (which would then be converted into NEO), as the MCC token is a NEP-5 token.

MCC Tokens are designed to be consumed, and that is the goal of the MCC Token sale. In fact, the project to develop Magic Cube would fail if all MCC Token holders simply held onto their MCC Tokens and did nothing with it. In particular, it is highlighted that MCC Tokens:

- (a) is non-refundable and cannot be exchanged for cash (or its equivalent value in any other virtual currency) or any payment obligation by the Foundation, the Distributor or any affiliate;
- (b) does not represent or confer on the token holder any right of any form with respect to the Foundation, the Distributor (or any of its affiliates), or its revenues or assets, including without limitation any right to receive future dividends, revenue, shares, ownership right or stake, share or security, any voting, distribution, redemption, liquidation, proprietary (including all forms of intellectual property or licence rights), or other financial or legal rights or equivalent rights, or intellectual property rights or any other form of participation in or relating to Magic Cube, the Foundation, the Distributor and/or their service providers;
- (c) is not intended to represent any rights under a contract for differences or under any other contract the purpose or pretended purpose of which is to secure a profit or avoid a loss;
- (d) is not intended to be a representation of money (including electronic money), security, commodity, bond, debt instrument or any other kind of financial instrument or investment;
- (e) is not a loan to the Foundation, the Distributor or any of its affiliates, is not intended to represent a debt owed by the Foundation, the Distributor or any of its affiliates, and there is no expectation of profit; and
- (f) does not provide the token holder with any ownership or other interest in the Foundation, the Distributor or any of its affiliates.

Token Distribution



There will be a supply of 20 billion MCC tokens. The tokens will be distributed as follows:

- 15% will be allocated for the Development Team.
- 25% will be allocated for strategic private purchasers.
- 10% will be allocated to the Foundation.
- 50% will be allocated to the Ecological Incentive.

The contributions in the token sale will be held by the Distributor (or its affiliate) after the token sale, and contributors will have no economic or legal right over or beneficial interest in these contributions or the assets of that entity after the token sale. Approximately 10% of the tokens allocated to the Foundation will be distributed to the traders who use the Magic Cube Exchange (see Development Plan) via secondary smart contracts, effectively granting traders a rebate of 80% of their trading fees. The rebate will be paid with MCC token as the platform currency. This transaction fee rebate model has proven to be effective by FCoin, a cryptocurrency exchange that surpassed a billion dollars of daily volume in just months after its launch. This model also distributes the MCC tokens to Magic Cube users proportionally to their usage of the system, thus ensuring fair decentralization of the protocol. The Magic Cube exchange will launch in Q4 2018.

Magic Cube Foundation

The Magic Cube Foundation is established in Singapore. The Foundation is committed to the development of a trustworthy, fair gaming industry through the evangelism and promotion of the Magic Cube protocol. The Foundation will achieve its commitment by:

- Generating consumer traffic. The Foundation will reward users who perform desired behaviors, such as trading on the Magic Cube Exchange.
- On-boarding gaming projects. The Foundation will market the platform to gamers both in China and the US, so as to show them the benefits of using Magic Cube versus the current status quo.
- Funding select third-party projects that wish to built on top of the Magic Cube protocol.

Development Plan

The Magic Cube wallet, which displays all IGOs, was completed in early 2018. The Magic Cube roadmap for the next year is the following:

- 2019 Q2: Launch controversial game product through IGO mode to gain influence in the industry and attract more CP. Shorten the game CP partner access time to less than 1 month; First round of token sale; Do IGO mode promotion and exchange trading activities promotion around this product; More than 100,000 people trade daily.
- 2019 Q3: Establish clear screening rules and potential cooperation CP docking library; Create customized trading activities and community operation plans around one main product every month; The number of daily transactions exceed 200,000.
- 2019 Q4: Begin to increase the coin-selling fee, and begin to promote the independent APP of MC exchange; Second round of token sale.
- 2020: The transaction volume exceed 100 million dollars. On the basis of the original mobile game business, we expand the cloud game core player market and other entertainment sectors.
- 2021: With a market capitalization of \$1 billion, Cayman Islands prepare for a pre-ipo listing on the international main board.

Strategic partners



Our Team



Rudy Rong / CEO

- Forbes-30 under 30 Entrepreneurs, USC Film production & Business Administration
- Work experience: Philadelphia Overseas Investment Financial Derivatives Analyst, Shanda Group's Bianfeng game operation manager, Kirin Films Overseas Market Director
- Entrepreneurial experience: Born an extraordinary club. At the end of 15th, the total amount of sales of 6 million yuan per day was created. And open up P2P super-run rental, private club membership card, event planning and other services. Widely followed by the media
- Academic experience: Participated in the development of virtual reality optical field at the ICT Institute. Created the company and take gap year from college. Member of the Wharton Global Youth Leadership Program at the University of Pennsylvania (only 3 in China).



Andrew Baskt / CTO

- Cryptography Engineering
- System Architecture
- Graduated from Stanford, majoring in product design. He designed an automated trading exchange in Crusoe Capital. He is proficient in protocol consensus algorithm.



Andrew Musk / Product Manager

- UCLA Computer Science Major; The Nephew of Elon Musk; The Founder of UCLA Blockchain Club
- Work Experience: TESLA AI Lab, Gigafactory Plant Analytics.



Zhechen Shi / CTO

- Programming Lead
- Zhejiang University Grad, T4 engineering from Tencent, Alibaba.
- Tianmao programming lead. 8 years experience in Cloud Gaming. 5 patents on AI and Smart Contract.

Consultant Team

Chen Tianqiao



- Founder, chairman and CEO of Shanda Investment Group, founded in 1999 by Chen and his family.
- Chen is credited with having pioneered and built the online game industry and the online literature industry in China. Chen stepped down as CEO of Shanda Interactive Entertainment in 2012 and then took the company private. Chen and his wife Chrissy are active philanthropists, supporting research programs on brain science.

WangFeng



- Founder of Mars Finance, founder, chairman of the board, chairman of the Board of Directors, and MBA of Peking University, has over 20 years of experience in the Internet industry.
- In March 2007, the founding of the Blueport Interactive, after the Chinese game industry from the end of the tour, page tour to mobile games three times, was called "the most storyteller" in the industry. After the listing of the Blueport Interactive in the Hong Kong Stock Exchange in 2014, it has owned three major businesses: Blueport Games, Blueport Pictures and Blueport Technology. He was selected as "Forbes 2015 China Mobile Internet Top 30", and Wang Feng himself was elected "Fortune" Chinese version 2016 "China 50 Business Pioneer".



Da Hongfei

- Founder of NEO, an onchain distribution technology CEO, an early participant in the Chinese Bitcoin community.
- Since 2013, he has worked full-time in the digital currency community and co-founded the “Bit Pioneering Camp”. Since 2015, he has been hosting the “Little Ant” project and is now the top 10 global currency. Da Hongfei is a

representative of China's blockchain industry, an early participant in the Chinese Bitcoin community, and a member of the Financial Technology Group of the Shanghai Pudong International Finance Association. It has deep insights into the underlying technology, application scenarios and industry structure of the blockchain. It is a blockchain technical consultant for many banks, brokers and registration agencies.

References

This paper would not have been possible without the work of our peers in the industry. We would like to give credit to the following people and projects:

Hongfei Da

Vitalik Buterin

Mike Goldin

Eddy Munoz

The 0x Team

The Loopring Team

The FCoin Team

Risks

You acknowledge and agree that there are numerous risks associated with purchasing MCC Token, holding MCC Token, and using MCC Token for participation in Magic Cube. In the worst scenario, this could lead to the loss of all or part of the MCC Token which had been purchased. **IF YOU DECIDE TO PURCHASE MCC Token, YOU EXPRESSLY ACKNOWLEDGE, ACCEPT AND ASSUME THE FOLLOWING RISKS:**

1. Uncertain Regulations and Enforcement Actions

The regulatory status of MCC Token and distributed ledger technology is unclear or unsettled in many jurisdictions. The regulation of virtual currencies has become a primary target of regulation in all major countries in the world. It is impossible to predict how, when or whether regulatory agencies may apply existing regulations or create new regulations with respect to such technology and its applications, including MCC Token and/or Magic Cube. Regulatory actions could negatively impact MCC Token and/or Magic Cube in various ways. The Foundation, the Distributor (or its affiliates) may cease operations in a jurisdiction in the event that regulatory actions, or changes to law or regulation, make it illegal to operate in such jurisdiction, or commercially undesirable to obtain the necessary regulatory approval(s) to operate in such jurisdiction. After consulting with a wide range of legal advisors and continuous analysis of the development and legal structure of virtual currencies, a cautious approach will be applied towards the sale of MCC Token. Therefore, for the token sale, the sale strategy may be constantly adjusted in order to avoid relevant legal risks as much as possible. For the token sale, the Foundation and the Distributor are working with Tzedek Law LLC, a boutique corporate law firm in Singapore with a good reputation in the blockchain space.

2. Inadequate disclosure of information

As at the date hereof, Magic Cube is still under development and its design concepts, consensus mechanisms, algorithms, codes, and other technical details and parameters may be constantly and frequently updated and changed. Although this white paper contains the most current information relating to Magic Cube, it is not absolutely complete and may still be adjusted and updated by the Magic Cube team from time to time. The Magic Cube team has no ability and obligation to keep holders of MCC Token informed of every detail (including development progress and expected milestones) regarding the project to develop Magic Cube, hence insufficient information disclosure is inevitable and reasonable.

3. Competitors

Various types of decentralised applications are emerging at a rapid rate, and the industry is increasingly competitive. It is possible that alternative networks could be established that utilise the same or similar code and protocol underlying MCC Token and/or Magic Cube and attempt to re-create similar facilities. Magic Cube may be required to compete with these alternative networks, which could negatively impact MCC Token and/or Magic Cube.

4. Loss of Talent

The development of Magic Cube depends on the continued co-operation of the existing technical team and expert consultants, who are highly knowledgeable and experienced in their respective sectors. The loss of any member may adversely affect Magic Cube or its future development. Further, stability and cohesion within the team is critical to the overall development of Magic Cube. There is the possibility that conflict within the team and/or departure of core personnel may occur, resulting in negative influence on the project in the future.

5. Failure to develop

There is the risk that the development of Magic Cube will not be executed or implemented as planned, for a variety of reasons, including without limitation the event of a decline in the prices of any digital asset, virtual currency or MCC Token, unforeseen technical difficulties, and shortage of development funds for activities.

6. Security weaknesses

Hackers or other malicious groups or organisations may attempt to interfere with MCC Token and/or Magic Cube in a variety of ways, including, but not limited to, malware attacks, denial of service attacks, consensus-based attacks, Sybil attacks, smurfing and spoofing. Furthermore, there is a risk that a third party or a member of the Foundation, the Distributor or its affiliates may intentionally or unintentionally introduce weaknesses into the core infrastructure of MCC Token and/or Magic Cube, which could negatively affect MCC Token and/or Magic Cube.

Further, the future of cryptography and security innovations are highly unpredictable and advances in cryptography, or technical advances (including without limitation development of quantum computing), could present unknown risks to MCC Token and/or Magic Cube by rendering ineffective the cryptographic consensus mechanism that underpins that blockchain protocol.

7. Other risks

In addition, the potential risks briefly mentioned above are not exhaustive and there are other risks (as more particularly set out in the Terms and Conditions) associated with your purchase, holding and use of MCC Token, including those that the Foundation or the Distributor cannot anticipate. Such risks may further materialise as unanticipated variations or combinations of the aforementioned risks. You should conduct full due diligence on the Foundation, the Distributor, its affiliates and the Magic Cube team, as well as understand the overall framework, mission and vision for Magic Cube prior to purchasing MCC Token.