ContractLand

Powering The Decentralized Economy

Abstract. ContractLand is a decentralized exchange (DEX) powered smart contract as a service platform focused on helping small-to-mid sized (SMEs) companies to optimize and transform their business through tokenization. The exchange and it's wallet acts as a point of conversion and settlement of tokens for businesses and their end-users, while the platform offers a diverse and standardized set of smart contract solutions for various business use cases.

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Background

Blockchain technology was revolutionary in enabling the creation of tokenized assets that are fungible, transferable, and verifiable. It allowed anyone to own and transfer assets across an open financial network without the need for a trusted third party. The inception of smart contracts extended these capabilities to a far greater degree - disrupting the fundamental form of human trust and interaction.

One of the most promising concepts spawned from smart contract adoption is **tokenization**. Differing from traditional cryptocurrency, a token allows for business logic and relationship models to be imbued in the token - providing unprecedented efficiency to **value transfer, contractual relationships, and capital management**. This not only has the potential for immense impact on modern digital constructs, but also brings several opportunities to revolutionize traditional business models. Since the inception of Ethereum, hundreds of new businesses have been conceived on this new decentralized medium, forming an entire new industry of blockchain-centric companies.

The adoption of the tokenization model has been substantial within the blockchain community, with innovation atop smart contracts bringing us closer to a more collaborative and fair economy. But to inspire wider utilization amongst traditional industries, we need to overcome obstacles imposed by barriers of entry, insufficient standards, and a lack of supporting infrastructure.

Technical Barriers

The process of development and execution of smart contracts is often complex, time-consuming, and error-prone. The demanding requirements of technical expertise and industry experience for blockchain-based development limits its benefits to a handful of groups. These groups, such as early adopters and established corporations financially capable to hire the necessary talent, cover a small spectrum of those willing to explore and incorporate the technology to business needs.

Lack of Standards

The rapid growth of the tokenization ideology spawned a variety of ways to perform token system design and distribution. The chaotic development of the ICO market in 2017 was a testimony to how the lack of standards can put both investors and businesses at risk. It is impractical to expect a non-blockchain-centric business to enter the space and navigate the technology without ending up on a similar path. A standardized process for designing business and value generation models based on crypto-token systems and distribution needs to be set in place.

Economical Infrastructure Support

Once a token is established and deployed. It needs to be fluid on the open market to maximize its potential. However, the interests of cryptocurrency exchanges are not aligned with the interests of businesses. Enormous listing fees and artificial volume inflation are unsuitable for genuine businesses that need a stable, transparent and sustainable marketplace for their tokens.

Widespread adoption from the general public, and non-blockchain-centric organizations is essential to realize the full potential of blockchain technology. We introduce ContractLand as a foundational platform to drive this effort by reducing barriers of entry and grounding blockchain technology in real business use cases.

Road to a Collaborative and Transparent Economy

In a not-so-distant future, anyone will be able to use open networks, such as Ethereum, to create and execute contractual relationships through code. Exchanges will not only serve traders, but also serve businesses and their end-users as a point of conversion and settlement for tokens. And as technology advances, decentralized exchanges will inevitably replace centralized exchange in fulfilling the needs of businesses with the advantages of superior transparency and security. There are currently approximately a mere 30 million cryptocurrency users worldwide. As more businesses adopt blockchain technology, and end-user applications such as wallets and exchanges become more user friendly, more users will enter the space for non-trading or investment purposes.

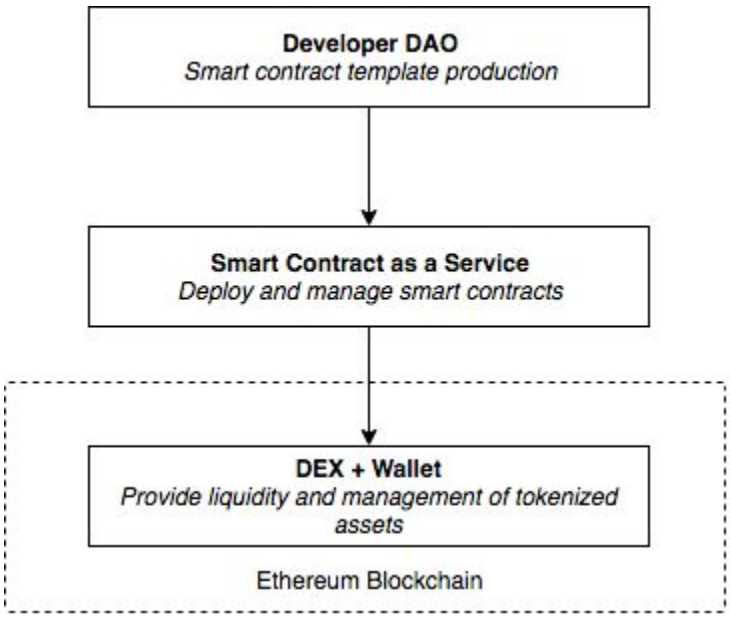
Therefore, exchange will ultimately integrate with businesses and enable users. ContractLand as a decentralized exchange and wallet based service platform will ground itself into this new economic ecosystem, and accelerate the adoption of blockchain technology through:

- Simplifying the utilization of smart contract and tokenized assets
- Standardized design, implementation, and integration practices
- Building supporting infrastructure enabling liquidity of critical mass
- Improving end-user experience of blockchain and cryptocurrency

The ContractLand Platform

Platform Layers

The platform is vertically integrated through the connection of a developer DAO and DEX to either side of the service. The purpose of the integration is to facilitate organic, effective smart contract development while providing liquidity and market exposure for businesses through this new medium.



The three layers of the ContractLand platform

Developer DAO

The ContractLand DAO is a Decentralized Autonomous Organization that is focused on producing smart contract templates for business use cases. The DAO is powered by community developers, where developers of the DAO are incentivized by token rewards to produce a rich pool of robust and practical templates with real business needs.

Smart Contract as a Service

Templates generated by the DAO are integrated into the Smart Contract as a Service platform. Enterprise users can deploy and manage their desired templates through the

platform's user interface. The platform abstract out the technical complexities making smart contracts easier to use for the end users.

DEX and Wallet

ContractLand's decentralized exchange and wallet acts as the foundation layer for the ecosystem. The Smart Contract as a Service platform integrated into exchange so assets created on the platform can become instantly tradable on the market. By making the exchange logic immutable and decentralized, we can create a market that is both fair and transparent.

Platform Life-Cycle

The life-cycle of a smart contract deployed on the ContractLand platform can be described as the following.

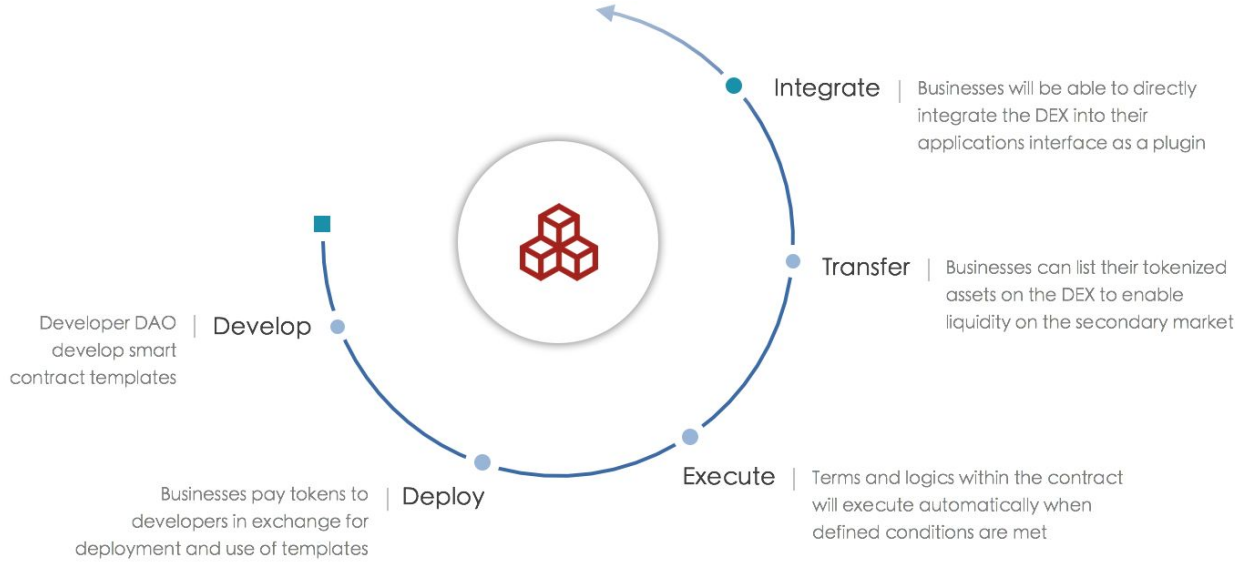


Illustration of the ContractLand's tokenization service cycle

Smart Contract Service Scenarios

In this section we present a list of use cases of smart contracts for different business scenarios.

Token Issuance and Management

There are in general three type of tokens; payment tokens, utility tokens, and security tokens. Payment tokens are used as a means of currency. Utility tokens are intended to provide access to an application or service. And security tokens are digital assets representing traditional financial products possessing ownership and governance properties.

Tokens can benefit businesses in many areas such as raising capital, payment processing, and community building by being more liquid, efficient, and transparent than traditional counterparts. ContractLand's platform offers neutral implementations of these type of tokens for businesses, featuring their native functionalities while allowing businesses to use with their own detailed parameters.

Reward Points

Reward points are widely used in various service and businesses. Tokenizing reward points can help create transparency in the reward system, increase transferability, and provide more incentive for end users to earn reward points due to possible appreciation of value. However, most businesses lack of sufficient technical capabilities to deploy smart contracts. ContractLand will make the deployment of reward point token contracts barrier-free.

Factoring Contract

By the end of 2016, the size of the global factoring market had reached US$ 2.6 trillion, and most of the factoring business was based on various traditional paper contracts. It required a lot of manpower to verify the authenticity of the contract, which has low efficiency and poor liquidity. ContractLand will utilize blockchain technology not only to make this process easier to customize operating environment for factoring using blockchain.

Technical Design

General Approach

Our team's general approach to development follows the principle of Evolutionary Architecture, where the fundamental concept is designing for incremental change in an architecture. This has been a popular practice in classic software development because change has historically been difficult to anticipate and expensive to retrofit. If evolutionary change is built into the architecture, change becomes easier and cheaper, allowing changes to development practices, release practices, and overall agility. However, applying this principle in smart contract development is more challenging since unlike classic software development where the application logic runs in a centralized server, deployed smart contract codes are immutable and un-iterable. To overcome this, we have designed a framework to enable upgradable smart contracts.

Framework for Upgradable Smart Contracts

The key thing to consider when upgrading contracts is how to preserve the state of the original contract in the upgraded contract. In classic software engineering approach, data of a application are separated from its functionality. This approach can also be applied to smart contract development, allowing multiple contracts iterations to share the same state.

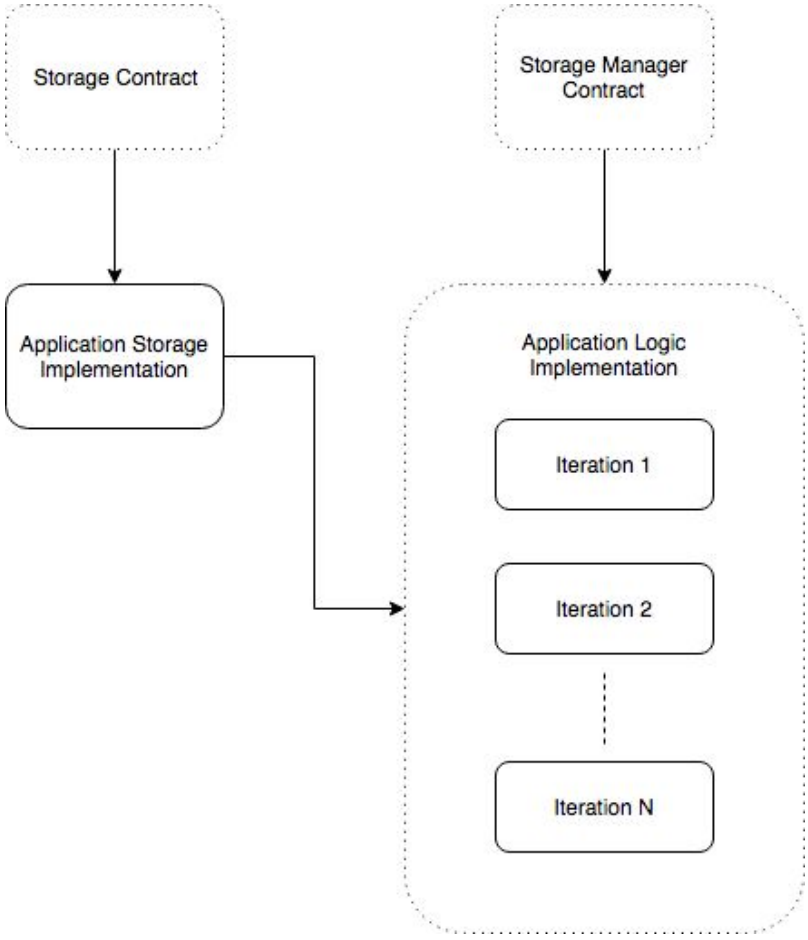


Illustration of the decoupling of data and logic in the upgradable contract framework

The framework provides a abstract implementation of a *Storage Contract* and a *Storage Manager Contract*. Any application level smart contract implementations can extend on top of these interfaces to achieve the goal of decoupling data and logic, and enabling the upgradability of contracts without losing its existing state.

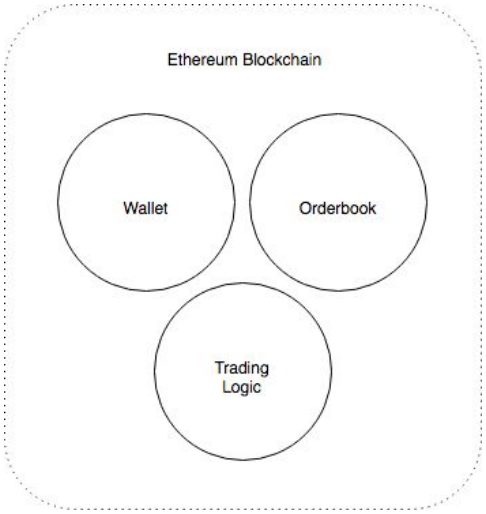
Decentralized Exchange

There are three key components to the design of the exchange; The *wallet*, the *orderbook*, and the *trading logic*. Following the iterative development approach, we have came up with an initial plan to have the exchange developed in 3 stages, with each stage delivering a new set of user value and performance enhancements. The separation of stages leaves sufficient room to react to changes such as changes in Ethereum's technology, or business use cases of the exchange.

Stage 1

The goal of first stage of the exchange is to enable basic trading functionalities in order to provide liquidity for tokenized assets, and all three components will be implemented

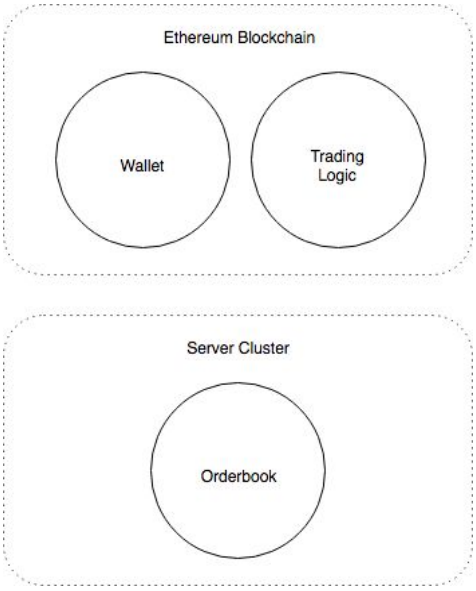
on-chain via smart contracts. Since all functionalities such as deposit, withdraw, order creation and execution are implemented on-chain, we expect the initial performance of the exchange to be quite slow with relatively high end user costs for trading (due to ethereum gas costs). But it should be sufficient to support the platform's needs initially as both the amount of assets created on the platform and trading volumes will be modest.



Stage 1: Pure on-chain system

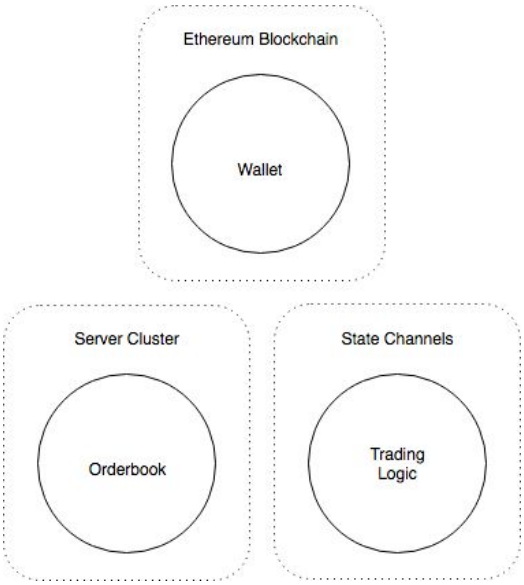
Stage 2

As more assets are created on ContractLand, we need to enhance the performance capabilities of the exchange. We do this by leveraging classic centralized systems without hindering the fairness, and security benefits of the decentralization, and upgrade to a on-chain off-chain hybrid model similar to EtherDelta and Ox, with the *orderbook* component managed off-chain for cheaper and faster order operations.



Stage 2: Hybrid system with orderbook managed off-chain

Stage 3
The third and final stage of the exchange delivers a similar performance and end user experience comparable to a centralize exchange. This is by moving the *trading logic* off-chain, and be implemented via state channels. At this stage only the *wallet* and fund management is remained on-chain, and the scalability of the exchange is extended to handle large volume and high frequency trading of assets.



Stage 3: Hybrid system with fund managed on-chain, orderbook maintained off-chain, and trade execution logic ran via state channels

Blockchain Technology

Our platform will pilot on the Ethereum blockchain due to its:

- Existing ecosystem, tools, and developer community
- The underlying blockchain has solid decentralization (compared to platforms like NEO, QTUM)
- The Ethereum Enterprise Alliance (EEA) is a strong support for business development

We recognize that smart contract technology is a young and agile ecosystem, liable to rapid change both in future iterations of existing platforms, and in the emergence of future blockchain systems, and thus remain open to exploring other platforms.

The ContractLand Token (CLC)

CLC will be deployed on the Ethereum network as an ERC20 token.

Token Utilities

- **Template Usage Cost**

CLC is used as the service token for the ContractLand's smart contract template service. Costs for deployment and usage of templates will be charged through CLC, of which a significant portion is paid out to the template developers.

- **Developer DAO Incentivization**

CLC incentivizes the developer DAO to produce high quality templates as the supply and demand of the template market will be driven by free market competition. By using CLC as an incentive mechanism, it ensures a high quality and quantities production of templates.

- **Exchange Listing Fee**

Given the DEX is ran on an open network, it can be accessed and used by anyone. But only businesses approved by ContractLand will be visible and searchable on the official platform. This will be a standard and transparent fee structure applied to all businesses, and minimal compared to traditional crypto exchange listing fees.

- **Exchange Trading Discount**

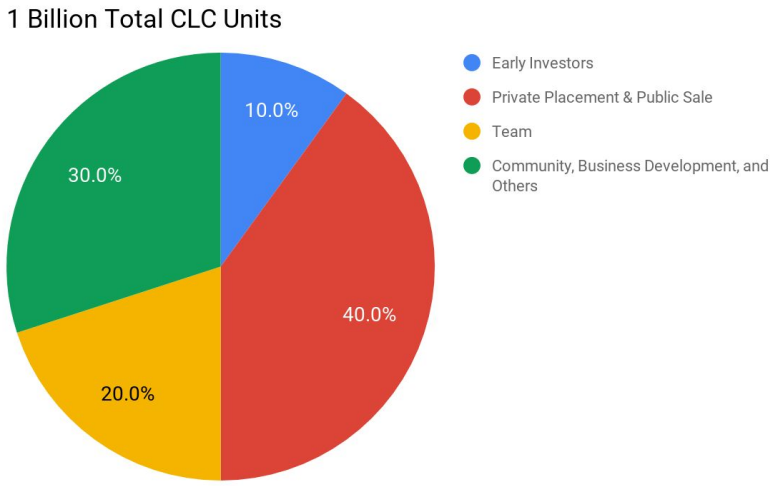
Holders of CLC will receive a discount on the trading fees of the DEX..

- **Token Buy-Back**

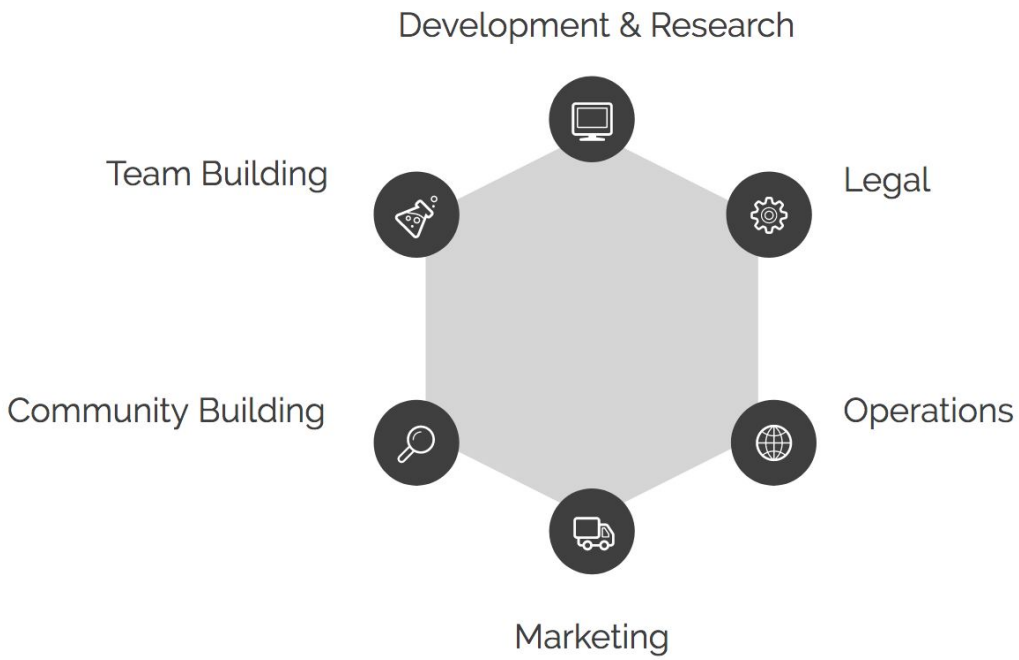
ContractLand will periodically use a portion of the revenue to purchase back CLC tokens from the secondary market.

Token Distribution & Fund Allocation

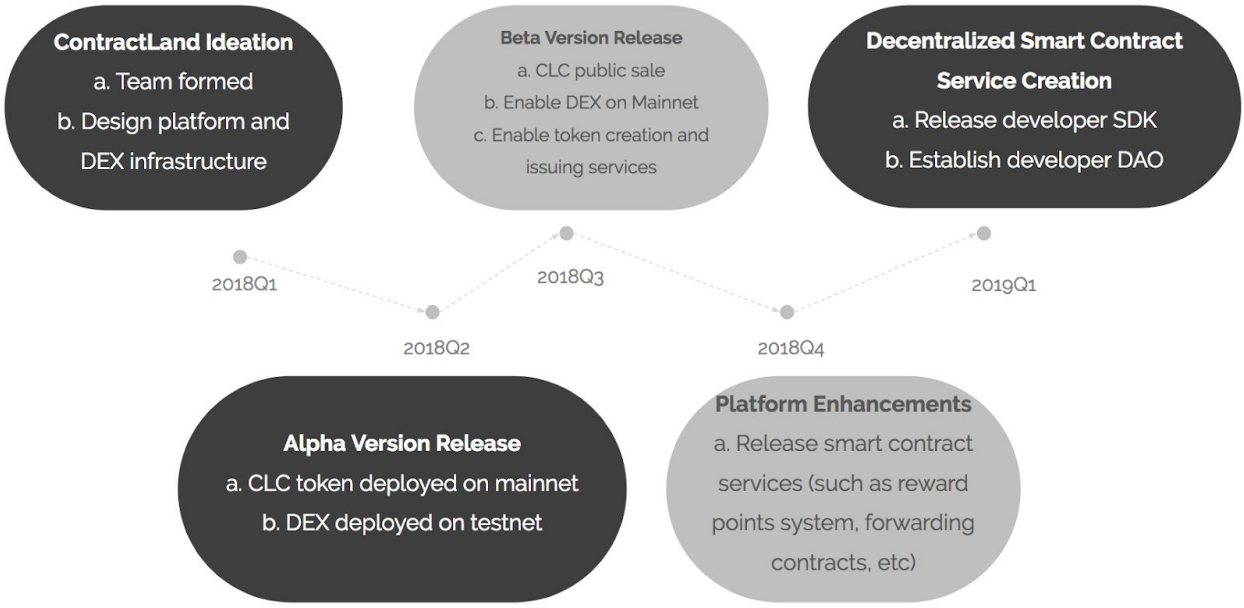
The total amount of CLC tokens will be 1 billion, and the minimum unit of division is 18 digits after the decimal point.



Funds raised during the Contribution Period will be used solely for the development and business operation of ContractLand.



Milestones



Team

Peter He - CEO
Peter is a graduate of Computer Engineering from University of Toronto, founder of Nimbusfly Technologies Inc, and has led the effort in creating the first blockchain development community at Bloomberg NYC. Coming from a technical background, Peter is an expert on blockchain and DApp development.

Forrest Li - CMO
Blockchain Entrepreneur and crypto investor. Graduated from Master of Financial Engineering from University of Toronto. Forrest has worked at Cinda securities, specializing in risk management.

Han Ke - CTO
A former trading and applications engineer at FinTech firm Betterment, led their first blockchain product in the space. Long-time dabbler of cryptocurrencies. Experienced in blockchain, algorithmic and high-frequency trading, data processing and predictive forecasting, as well as web and mobile frameworks.

Bingyang Li - Advisor

Independent VC blockchain investor. Used to provide data analysis consulting services to many top scientific research institutes and financial institutions around the world such as Harvard, MIT and Stanford, and has rich entrepreneurial experience.

Jiahua Xu - Early Investor
Co-founders of Newpay of Hainan New Generation Technology Co., the first batch of third-party payment practitioners in China, the COO of Shanghai Culture Assets and Equity Exchange, expert of internet banking and exchange

Chang Liu - Early Investor
The early investor of cultural property rights and postage card electronic discs have been devoting themselves to promoting the value of cultural products for many years. They are the brokering members of many exchanges such as the Nanjing Stock Exchange and the Beijing Fulit Textile Exchange. They have a large number of members and have five years of experience. Above exchange actual combat experience. Participate in the community management of a number of well-known blockchain projects, has extensive experience in community operation and maintenance, and is closely related to the major self-media within the circle.

Zeyang Xu - Early Investor
Decades of investment and Internet finance entrepreneurship experience, in-depth participation in product design of the Shanghai Stock Exchange, co-founder of sports quiz platform FirstMatrix.