

# LendChain WhitePaper

Decentralized Digital Asset  
Financial Services Platform

[www.LendChain.io](http://www.LendChain.io)

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# 1. Introduction

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LendChain is a distributed digital asset financial services platform based on the GXChain, providing digital asset holders with different types of financial services such as financing, investment, insurance and others.

## 1.1. Background

Since the beginning of 2017, the digital currency sector has continued to heat up. By the end of 2017, the total market value of the digital currency sector was over US\$600 billion. Correspondingly, digital currency exchanges have sprung up in large numbers, further stimulating this market filled with passion and imagination.

However, during the process of developing our digital currency platform, our team found that the market for digital currencies is not yet mature. In addition to exchanges, a mature digital currency market should also provide its participants with more diversified financial services products such as financing, investment, and insurance. The existence of these financial services products can not only satisfy the diversified needs of users, but also can provide more financial instruments to protect the rights of digital currency holders in this significantly fluctuating cryptocurrency exchange market.

According to the research on users' demand, the following are the pain points they face and why they need LendChain:

(1) Digital asset financial management: On Mar 27, 2018, Blockcity launched Yu Bi Wallet (余币宝) for its earliest 9999 investors who are called its "Genesis Citizens". Within 15 seconds, its 30000GXS quota had been sold out already. This reflects the overwhelmingly active wealth management needs of digital currency holders. In a bear market, digital currency holders do not want to sell coins. Using tokens to earn more tokens becomes the best way to preserve the value of digital currencies.

(2) The needs in turnover of capital: Let's suppose that BTC's price falls rapidly. If the holder urgently needs fund, but they are not willing to sell BTC at a low point, a loan service using BTC as the collateral will be required.

(3) Shorting cryptocurrencies: Let's now suppose that ETH price rises rapidly. If a potential borrower does not have ETH at hand, but they also believe that ETH will fall again, they can take advantage of this opportunity as well. For example, they can use USDT as the collateral to borrow ETH, then short selling borrowed ETH on the open market, then pay it back to investors after buying ETH when ETH price falls.

(4) Creditor financing: When a Token Fund has invested, they will have received the project's tokens from the project owners. They do not want to sell the tokens but they need additional fund to invest in other projects. At this time, they can freeze the tokens they received from the first project as the collateral, and borrow ETH to continue investing activities.

(5) Project owners' financial management: After the project owners' have initiated crowdfunding and have collected ETH, they would not immediately sell the ETH they have

collected. They can put their ETH on LendChain to earn interests.  
The creation of LendChain, was to meet these exact needs.

## 1.2. Vision

The launch of LendChain was not accidental. There were many similar financial blockchain projects before LendChain, but most of them didn't solve the pain points directly for the users. Many of them have done it too early, when the market size has not yet reached the stage to offer matured financial services. Some of the financial blockchain projects have disappeared over the course as well. But now it is the perfect timing because blockchain technology has passed its initial hype and will be more and more developed, well accepted and widely adopted. With a strong demand in financial management from tangible users in our own community, a financial framework that can handle complex market and user scenarios, and a secure Dapp platform that is engineered and will be automated for carrying out smart contracts, if we enter now, we will succeed.

LendChain aspires to **build the world's first distributed digital asset financial services platform** to enable digital asset holders with financing needs, to acquire loans at low cost in time, and allow digital asset holders earn more income by investing. As of now, there is not yet an institution in the world that focus on such services. With the rapid development of blockchain technology and digital assets, we believe there will be opportunities in a multi-trillion market.

In addition, LendChain will also become the first commercialized application developer on the GXChain. Blockcity has a solid customer base with almost 2 million real ID verified users and has credit rating data for all its users. GXChain not only supports smart contract, blockchain as a service (BaaS), but also provides many unique services, including ID verification, multi-dimensional data, KYC, and swift login technologies. While LendChain uses similar technologies and operation methods, GXChain data will be accessible through LendChain. Through the comprehensive cooperation with GXChainon technology, operations, user credit grading and other areas and a novel financial instrument framework, LendChina will become a leader in digital asset financial services.

## 2.Teams and Investors

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### 2.1. Founding Team



#### Oscar - Founder CEO

GXS former CMO

Former Director of Commercial Media for 360 New Media

Former Leo Co., Ltd. (Shanghai Stock Exchange 002131)

WanSheng Financial CEO

Has been involved in virtual currencies and the blockchain industry since 2013

In 2013, he came into contact with cryptocurrencies and served as head of core operations in China



#### Samuel - Co-founder COO

Former co-founder and COO of Zhuge Wallet

QingLan Financial Product Director

Netease Financial Product Manager

Has been specializing in Internet finance for many years

Has an in-depth understanding of big data risk control



#### Sen - CTO

10 years of development experience in financial services and blockchain development

Hyperledger Fabric Chinese community evangelist

Chief Architect of Weidai Company

Has supported 70 million to 200 million daily transaction volume of loans

Senior Engineer of Tong Ban Jie, engineer of Alipay





### Zhu Xuyin - Architect

Peacebird E-commerce project leader  
Previously worked in Hangzhou SEPBO Technology  
Has lead the design of website system architectures with tens of millions of page views  
Has xperience in handling scenarios with ten thousands of Query-Per-Second spike with highly concurrent access  
Has profound knowledge and solid expertise in Internet Financial Architecture and Blockchain Technology



### Mingyi - Software Engineer

Previously worked at HundSun Electronics  
Head of Commodity Module, Shanghai Petroleum Exchange  
Shanghai postage card storage module manager  
Has worked in Era Yin Tong Software  
Gold lease project leader  
Commodity project manager



### Zhikun Wang - Front-End Engineer

Three years of front-end web development experience  
Five years of IT development experience  
Experienced in data visualization, user experience optimization and front/back-end communication.  
Has a deep understanding of Ethereum smart contract and data security.  
Has been focusing on blockchain development technologies since 2015.





## Lingling Cai - UI Designer

UI Director of Sun Wealth Technology & Bee Financial Technology



## Huang-Community Operations Manager

Blockchain projects and cryptocurrency investor  
Invested in Polkadot, Qash, Ethlend, Scry and Arcblock



## Mohammad - Marketing Manager

With his skills to develop, implement, track, and optimize the digital marketing campaigns and to handle the promotions of the company and its products or services around the world across all digital channels.



## Liang Wu – Administrative commissioner

HR, Hangzhou Taowan Tecnology  
Responsible for community management, customer service, administration and HR





## Wendy – Business Manager

Graduated from Zhejiang Gongshang University

Commercial Director of AiDai Financial

Brand Director of Ferry Investment

Business Manager of ANCUN-- Provide ITFIN one-stop solution

Experienced in ITFIN

Led a number of blockchain activities

Deep understanding of blockchain and ITFIN



## 2.2 Investors



**GXS**

Next generation big data public chain



**BCH Angel Fund**

The Bitcoin giant BITMAIN, and top venture capital firms Fission Capital and IDG Capital have invested in BCH Angel Fund.



**GF.Network**

GF.Network has been founded by Bo Shen and FENBUSHI capital management team. The company's business covers a series of new brands developed by a series of blockchain industries,, such as equity investment fund, overseas stock fund, global incubator and so on.



**PreAngel Fund**

Lijie Wang, the founder of PreAngel Fund, manages one billion RMB assets. Since 2014, she has been dedicating in the blockchain industry and has invested in NEO, ObEN PAI, Ontology, RSK, ArcBlock, SmartMesh, etc



### **Fission Capital**

Founded in 2018, a creative services platform focused on premium blockchain project investment and professional digital asset management, incorporating traditional financial intelligence with the blockchain technology. Has invested NEO, Ontology, EOS, Metadium, Filecoin, etc.



### **Bitpie**

The most well-known bitcoin wallet in China.



### **QuarkChain Foundation**

QuarkChain is an innovative unlicensed blockchain architecture that aims to meet the global commercial standards. QuarkChain is a blockchain system that uses sharing mechanisms to provide a high-capacity peer-to-peer transactional system.



### **MediShares**

MediShares Wallet is a well-known wallet in China.



**Boundary Capital**

Boundary Capital has profound knowledge in blockchain investment and has invested in SiaCoin, GXS, EOS, DEW, TNB, Trinity, Ruff, DATA, IOST, IPFS, AE, RSK, EKT, and ICST.

## 2.3 Project Advisors



### Huang Minqiang

GXS Founder & CEO

Minqiang has over 10 years' experience in the field of data exchange and financial technology. He has dived into cryptocurrency and blockchain since 2012 and has initiated several projects. His expertise lies in the design of blockchain product economic models.



### Tu Guojun

GXS co-founder&VP

Hunan University Bachelor of Computer Science

Has successively held senior management positions in three listed IT companies

Has created many technology companies and had more than 21 years of business experience in internet, payments, information security, and healthcare

In-depth blockchain researcher



### Ocean

Blockchain Senior Investor

Digital Asset Fanatic

Senior miner

Continuous entrepreneur



## Zheng Cheng

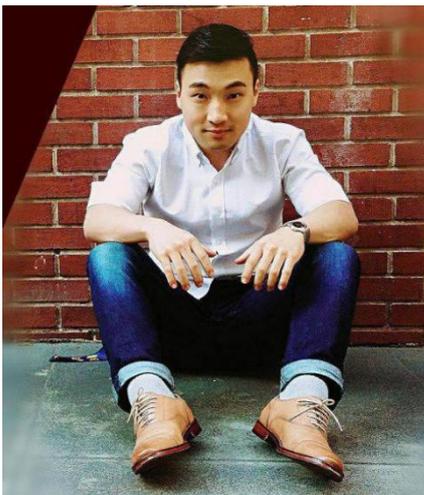
Founder & CEO of CoinGet

Has successively served in the Shanghai Stock Exchange, Netease Games, IBM, State Street and other internationally and nationally well-known enterprises. has been studying cryptocurrency and blockchain since 2015 and is experienced in finance, Internet and blockchain.



## Jonathan Chou

Co-founder and CEO of Bee Token, the first decentralized home-sharing network. Previously lead at Uber, Security & Fraud division, managing device tampering and preventing account takeovers. He has experience in startups with acquisition exits, including working at his family business and Grindr.



## Michael Pak

A graduate of UC Berkeley Haas, Former Investment Banker focusing on IoT, former full-stack Engineer, Head of Operations at Bee Token

# 3. Business Plan

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The core of finance lies in risk management, whether it is for the traditional finance field or the digital asset finance field to be initiated by us. Additionally, as an emerging financial services platform, we also need to establish our own credit and reputation from the ground up. Therefore, we choose collateral loans as an entry point to serve our first batch of users with financial products with the lowest risks.

## 3.1. Collateral loans

As a digital asset financial services platform, LendChain will implement a financing platform that uses digital currencies as collaterals. The user's entire lending process will be established on the blockchain, including lock-up of assets, borrowing targets, user investments, repayment due, overdue delivery, etc. These will all be executed through smart contracts. There is no manual operation processes, which minimizes the low efficiency in auditing and the risk of disappearance of the platform that frequently occurs in decentralized P2P platforms.

### Business Process

- (1) The borrower completes the identity and security certification;
- (2) The borrower funds certain digital currency as the collateral, and the digital currency can be BTC, ETH, GXS, EOS, etc.;
- (3) The borrower issues the target of borrowing, chooses the type of digital currency to borrow (including USDT, BTC, ETH, GXS, etc.) and customizes the target amount of the loan (we will recommend an interest rate). After the listing is released, the collateral digital currency will be frozen;
- (4) If it is within 24 hours, and 100% of the bid target is raised, the loan will become effective;
- (5) If the underlying investment does not reach 100% within 24 hours, or if the price of the digital currency lowers more than 20% within 24 hours, the target will automatically become invalid and the digital currency of the investment will be returned to the investor;
  - For investment users, after landing the LendChain platform, you can select the investment target according to various conditions such as the interest rate, the duration, and the currency, and then fund the corresponding digital currency to submit the application.
  - When 100% of the investment target is raised, the investment becomes effective, and the principal and interest will be received after the repayment.
  - If the loan is overdue, after the borrower finally repays, the investment user will receive overdue fees in addition to the original interest rate gain. Because of the cost that incurs to the platform, the platform will charge 30% of the overdue fee.

## Collateral Rate

LendChain sets a 50% rate for new users as the collateral rate, that is, a collateral of BTC which is equivalent to 2000USDT can yield a 1000USDT loan.

Later on, LendChain will evaluate the user's credit rating (loan records & GXChain credit data) and adjust the collateral rate individually.

## Currency

The LendChain platform is a digital asset financial services platform and does not involve fiat currency related businesses. On the LendChain platform, users can only borrow digital currency by using digital currency as the collateral. Early stage currencies include BTC, ETH, GXS, and USDT. Later on, we will develop an open and transparent mechanism for voting on cryptocurrencies to be listed, and which currencies to be added will be decided by users.

## Interest

The interest rate is freely set by the borrower. To protect the interests of the investment user, LendChain platform sets a range of interest rates. In the earlier stage, the LendChain platform only allows loan services with a daily interest rate. The currency of the interest is the same as the borrowing currency of the borrower, which means which currency is borrowed is which currency is returned.

## Repayment

When the loan matures, the user needs to complete the repayment within the same day, otherwise, it will generate overdue fees, and will be recorded as a credit stain, which will be permanently stored in the blockchain. The overdue fee is  $\text{daily principal} * \text{interest rate} * 2$ .

Loan users can set up automatic repayment in the background. Of course, this requires the account to have enough assets.

If the borrower does not need to continue to use the loan asset during the loan period, they may repay the loan asset in advance, but in addition to the loan principal and interest, the default handling fee (50% of the total remaining number of days of interest) must be paid, at which time the system will return the principal and interest to the lender. The borrower's collateral assets will be automatically unlocked and the transaction ends.

## 3.2. Risk Management

### Collateral digital currency price fluctuation risk

It is widely known that cryptocurrencies are volatile. We have also taken into account the value plunge in collateral assets. Our response is to use the stock market's more mature "stock pledge" to assess the collateral assets of each loan, and then establish a warning line (70%) and a closing line (50%). When the collateral assets reach the warning line during the loan period, the system will prompt a reminder, e-mail/text message to remind the borrower to ask them to increase the collateral, so as to ensure that they will not be closed, and to protect their rights and interests. After the borrower has added additional collateral, a new warning line and a closing line will be redrafted at this time, and the reminder will be repeated when the

second trigger occurs. When the collateral assets reach the liquidation line, in order to protect the interests of the lenders, the collateral assets will be processed for delivery, and the collateral owner, the borrower, will no longer own the collateral assets, and the assets will be owned by the lenders after the delivery process.

Settlement of volatility: After deducting fees such as processing fees (if any), the borrower's collateral assets are directly transferred to the lenders' account.

Closing transactions due to market value will not be recorded as a credit stain for the borrower.

### Loan default risk

Before the end of the loan period, LendChain will remind the borrower through system prompts, and emails/text messages to return the loan on time. When the overdue time reaches the maximum limit (the virtual currency price fluctuates greatly, therefore the period is usually 7 days), LendChain will take over the collateral assets, and after deducting the overdue fees, the assets will be returned to the borrower according to the investment proportion. At the same time, the borrower's overdue status is recorded in the LendChain blockchain, which will affect the user's credit score. In the future, when the user continues to use the loan service, the record will be displayed to all lenders in order to regulate and eliminate malicious loan behavior.

Due to the existence of collateral assets, investment users do not actually face the risk of loan default. Since the collateral rate of collateral assets will generally be around 50%, even after settlement, they may even receive more income than if the borrower pays back the loan on time.

### Risk Reserve

The LendChain platform will have a risk reserve to cope with unexpected asset risk events, pay the user as the case may be, and protect the user from losses due to risks associated with the platform.

## 3.3. Credit Loans

Since Bitcoin, an important feature of digital currency is anonymity. Therefore, in the case of digital asset loans, to realize credit-based loans, the requirement of personal identity certifications, and credit assessments are higher than in the traditional financial sector.

However, we are not alone. GXS is a well-known credit data transaction platform in the blockchain industry, and the users/businesses shared a large amount of citizens' credit data. On the other hand, our team is experienced in traditional financial big data risk control. The combination of data and models will provide credit loan users with uninterrupted services and a collateral loan experience that is as excellent as conventional collateral loans. In the near future, we will provide micro-credit digital currency loans to digital asset holders through comprehensive cooperation with GXS.

## 3.4. Financial Products

As mentioned in the background of 1.1, digital currency holders have a strong demand for financial management. Therefore, LendChain will provide users with richer and more convenient financial products in addition to the financial management targets of collateral loans and credit loans.

### Financial plan

The LendChain platform will regularly publish financial plans for each currency, raise a specified number of corresponding currencies, and then conduct decentralized investment by LendChain's professional investment research team. The investment directions include: the platform's collateral and credit standards, quantitative funds, private equity funds, mining projects, and large customer collateral market-making projects.

The financial plan will provide different deadlines and relatively stable interest rate returns. Users can invest according to their own needs. The LendChain platform will also provide liquidity support to the holders of financial plans, including services that use financial plan shares as collateral for borrowing, and revenue transfer for financial plan shares.

### Private Equity

Similar to private equity funds in the traditional securities market, digital funds usually have the lowest investment threshold, and they need at least 1 million CNY. This is a gap for many investors and they stop right there. In the future, LendChain will select high quality private equity funds in the market, break down its share and reduce the threshold for users to invest in. As long as the user's investment reaches the target amount, they will begin to enjoy the benefits.

If the user needs funds during the process, they may need to redeem them halfway. They may initiate a vote in the fund group, according to the proportion of votes corresponding to the investment proportion. When the total number of votes exceeds two-thirds, the decision takes effect. If the votes do not exceed two-thirds, we will also provide services similar to the financial plan for collateral loans and transfer of income rights.

### Index Fund

LendChain will hand pick main-stream cryptocurrencies with low risk and strong prospect, and develop our own digital currency market index – LC Index. Based on this, LendChain will provide a series of investment products for main-stream mature investors, using LC Index to set up the investment goal for digital currencies proportionally.

### Bonds

Bonds are a type of financial contract. They are obligations and debts issued by governments, financial institutions, industrial and commercial enterprises, etc. when they directly borrow funds from social borrowings and issue them to investors. They also promise to pay interests at a certain interest rate and repay the principal according to the agreed terms. In the global market, the bond market is much larger than the stock market.

In the field of digital assets, we believe that with the development speed of the current blockchain industry, demand for bonds will also emerge.

For example, if GXChain needs 10000 BTC as business development fund for investing in a bank in Japan. Then it can initiate a loan demand in LendChain. If investors are willing to lend assets to GXS. In addition to the credibility of the company, LendChain may ask them to provide some amount of GXS as collateral at this time. Or let its founders become the guarantor to increase investor trust in the bond.

And we will also provide better liquidity for the bonds. Investors can transfer the debt rights at any time.

## 3.5. More Future Plans

### Digitizing assets

We know that digital assets are not only virtual tokens. With the popularity of blockchain technology and the rapid development of asset digitization, there will be many areas where LendChain can further develop in the future, including stocks, bonds, funds, equity, futures, real estate, automobiles, etc.. These will be digitized in the near future.

We believe that loans and financial management should not be confined to the region. For example, Brazilians should not only use loans and wealth management services in Brazil, but they should also enjoy the same treatment in countries such as China, the United States, Japan, and France, and vice versa.

In the same way, the loan/financial management rates are different in each country and region. Although they are all formulated by the local government, this is inherently unfair in today's globalized world. The LendChain team feels that lending rates and wealth management revenues should be market-based, allowing the global market to decide for itself. The LendChain platform is to provide such a service that allows users all over the world to decide their own interest rates for their loans.

### Public Chain

When it is appropriate, LendChain will be upgraded to become a public chain, as an infrastructure for initiating and issuing financial instruments and loans. Organizations and individuals can use LendChain to take collateral loans. This realizes tokenization of bonds allowing users to freely long and short bonds.

## 3.6. Our advantages

The LendChain team has extensive working experience in the Internet finance field. It has developed products such as a domain name collateral loan platform, a P2P wealth management platform, and an online loan platform. The team has profound knowledge in this business and can hit the nail on the head. The strategic partner GXS will have in-depth cooperation after the launch of the LendChain product, including but not limited to the user's credit information data, community cooperation, etc., which will be inspiring to see.

The resources in the community will bring about many loyal users and lay a solid foundation for LendChain in the shortest possible time.

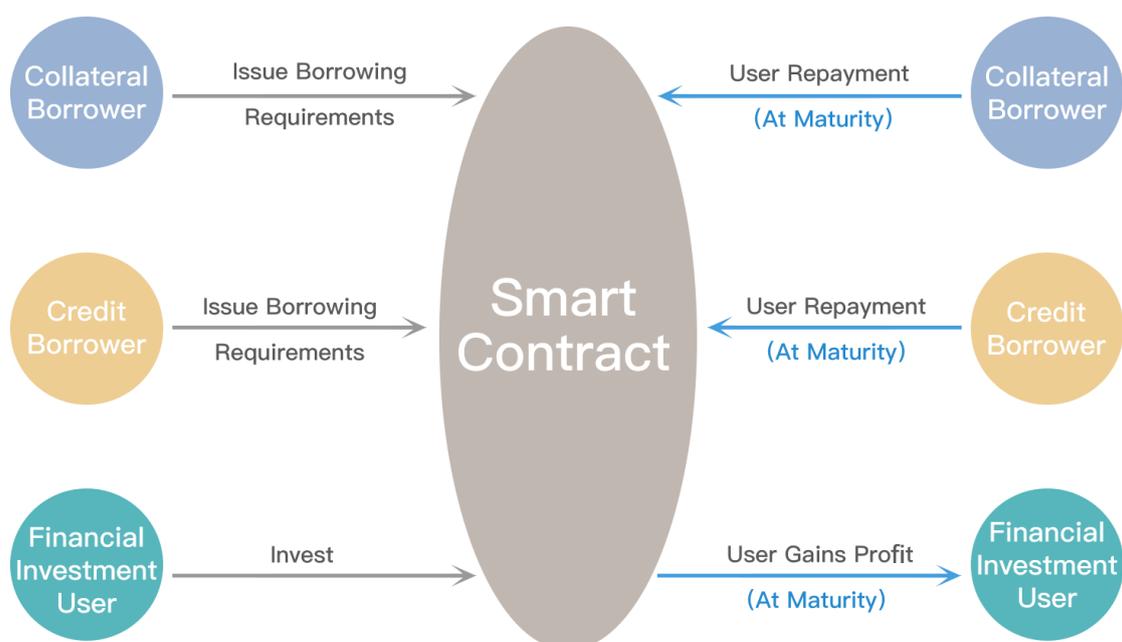
	LendChain Platform	SaltLending	HyperLending	ETHLend
Collateral Loan	Supports BTC,ETH,USDT and other currencies	Supports 5 currencies including USD, CNY etc.	Supports USD and CNY	Supports ETH
Credit Loan	Based on personal credit data on GXChain	—	—	—
Financing Product	Various investment products such as fixed rate and floating income investment	—	—	Fixed Income type
Platform traffic	More than 1.7millions users in Block City	—	—	—
Transfer of interests	The financial assets held are freely transferable and can be used as collateral	—	—	—

### 3.7. Open Source and Decentralized

In the future, we will make LendChain open source and make LendChain a decentralized platform. All assets will be implemented through smart contracts and all functionalities will be automated. The platform will remain functioning with no manual supervision.

## 4. Technology

LendChain will establish a full-fledged financial services platform for different user needs. For the demand of collateral loans, LendChain will manage the frozen mortgage digital assets through smart contracts, and integrate with major mainstream exchanges, and with real-time access to the price of collateral digital assets to control the risks. If there is a large fluctuation that reaches the closing line, the smart contracts will automatically close the collateral digital assets. For the demand for credit loans, LendChain will incorporate GXChain with real-name user authentication data, use the big data risk control model to grant users with credits, and permanently record the user's loan information on the chain, so that malicious users with bad credits have nowhere to hide. For the needs of digital asset management, LendChain will link with private equity funds in the field of digital assets and develop its own financial plan that automatically invests according to user needs to meet the diverse financial needs of users.



### 4.1. LendChain Platform

- The LendChain platform provides convenient financial services including PC, HTML5, WeChat, and APP (iOS and Android). Users can publish loan requirements, invest in digital assets, and check digital asset prices, and more financial services on the LendChain platform.
- The LendChain blockchain will be developed on GXChain public blockchain. The use of GXChain will make it more efficient to communicate with GXS data in the future.

- The LendChain blockchain will record every loan transaction. At the same time, the records of each loan user will also be recorded on the chain. With the development of the business, a large amount of credit information will be constructed so that the fraud will have nowhere to go, and people with good credit would gain more.

## 4.2. API

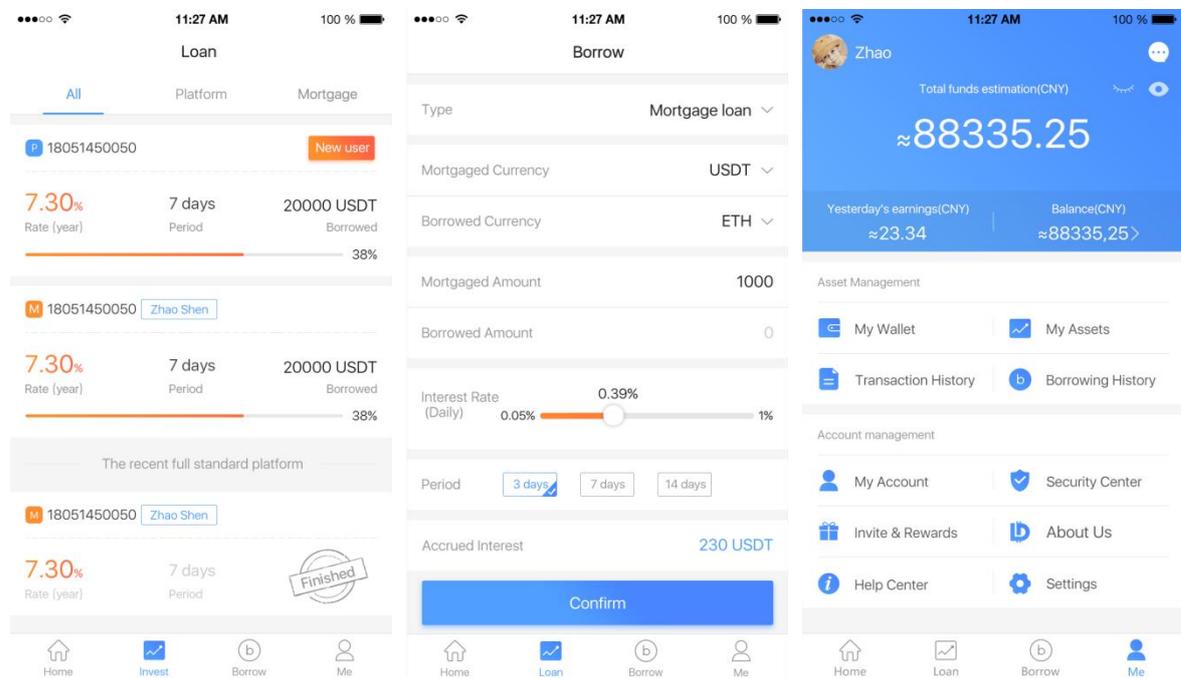
LendChain will provide comprehensive API services. Any platform or community can apply for LendChain API cooperation to facilitate its users to use LendChain services.

## 4.3. Dapp on the chain

LendChain will develop its own Dapp based on the GXChain public chain, providing a series of smart contracts:

- (1) Real-name authentication system
- (2) User Credit Rating System
- (3) Distributed P2P Borrowing Platform
- (4) Collateral Digital Asset Management System
- (5) TOKEN contract

The APP images are as follows:



## 4.4 Digital Asset Security

### Asset management for the collateral and private equity

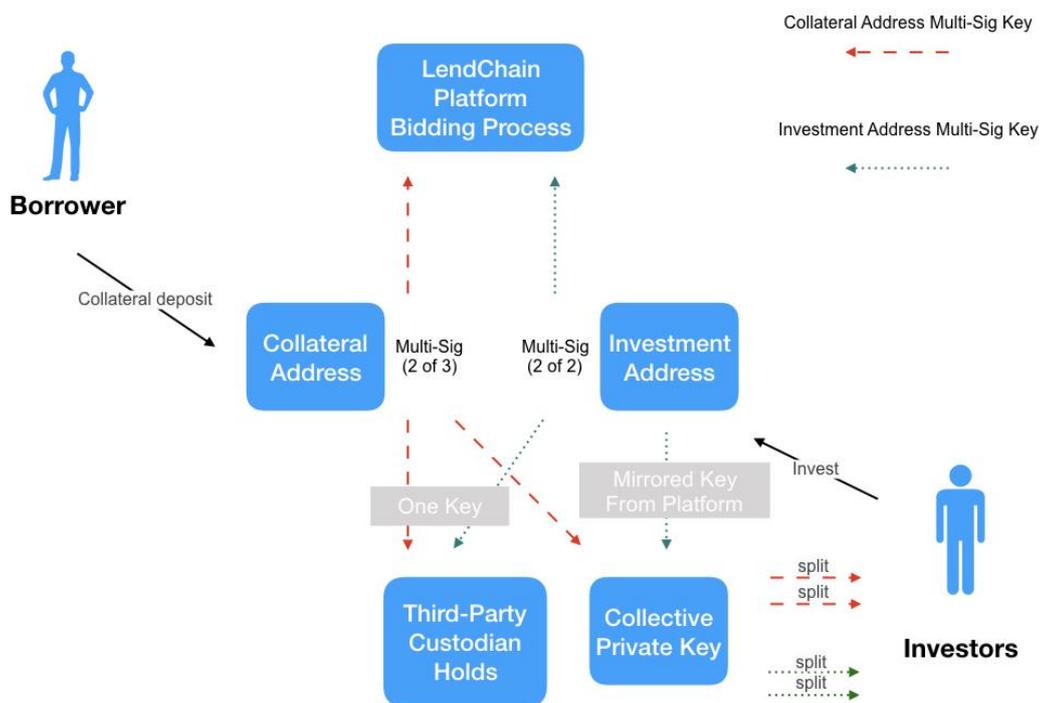
For every goal, the system will generate an address for the collateral and an address for the investment.

- The collateral address is for the management of the collateral fund, this address uses a multi-signature system (2 of 3).
- The investment address is for the management of the collected fund, this address uses a multi-signature system (2 of 2).

### Signature key issuing

Collateral signature key will be issued to the platform, third-party custodian for security purposes and the investor.

Investment signature key will be issued to the platform and the third-party custodian, and at the same time, the signature key given to the platform will be split and issued to the investors.



## 4.5 Collateral Management

The platform will generate an address for collateral management for every goals. The borrower will send the collateral to the collateral address. When the fund arrives, the system will check whether the full fund is in place. Then, they can start a borrowing initiative with a target. The new address uses multi-signature (2 of 3) method to ensure the security of the

collateral fund. The signature key is owned collectively by the platform, the third-party custodian and the investors. When the collateral needs to be returned or transferred, the signature from either two of the three parties would allow the transaction to happen.

### Third-party custodian

The technical existence of the third-party custodian is mainly for avoiding accidents, such as issues from the platform or in case the platform signature key is lost. In such cases, requests can be sent by the other two parties (for example, the investor or the platform), the third-party custodian would determine case by case whether to provide the signature key (collateral key) they keep for this particular goal.

### Investor signature key split

Because every goal has many investors who invest in them. Only when every investor agrees on the signature can decisions be made. Therefore, the signature key for the investment asset amount needs to be stored through splitting. Every investor holds one of the multi-signatures of the collateral token fund. This key uses SSSS splitting (Shamir Secret Sharing Scheme) to split the keys. When all the investors all have the keys, it requires all the investors to provide their Key segment to reconstruct the signature key.

## 4.6 Shamir Secret Sharing Scheme Algorithm

Secret Sharing technique is important in cryptography and information security researches. It has been widely used in the private key and digital signature field. It was coined by Shamir and Blackly separately in 1979 through Lagrange Polynomial Interpolation and the vector method. Its basic idea is that the issuer uses a secret polynomial function to separate a secret “s” into “n” number of split “Shadow” secrets and distribute these Shadow secrets to secret holders. Any “t” number of Shadow secrets can collectively recover the secret itself. If there is less than “t” number of Shadow secrets, none of the secret holders will receive any information of the main secret. The creation of Shamir Secret Sharing Scheme solved the foundational challenge of private key storage security issues. It can ensure the security of the secret and keep it in full. At the same time, it can prevent the risks of uneven distribution: letting too few secret holders knowing too much of the secret. Secret sharing plays an important role in data confidentiality and information security, and plays a key role in information storage, transmission and in the process of using such information. Therefore, we need to strictly ensure the functionality and security of secret sharing in actual implementation.

### Expression

Shamir Secret Sharing Scheme algorithm is expressed by a dual number  $(k,n)$ , in which “n” means how many Shadows there are that were encrypted from an unrevealed secret “s” proclaimed in writing, “k” means how many number of Shadows need to be there at the same

time can the secret “s” be deciphered and revealed.

## Encryption

For  $s \in \mathbb{Z}_p$  ( $p$  is a large prime number), a secret proclaimed in writing that needs to be encrypted, we randomly select  $k-1$  number of random numbers  $a_1, a_2, \dots, a_{k-1}$  in limited group  $\mathbb{GF}(p)$  and set  $a_0=s$ , we can create a polynomial structured as follows:

$$f(x) = a_0 + a_1x + a_2x^2 + a_3x^3 + \dots + a_{k-1}x^{k-1} \text{mod}(p)$$

For this polynomial, randomly select “n” numbers  $x_1, x_2, x_3, \dots, x_n$  and respectively plug in to the polynomial to receive “n” private keys:

$$(x_1, f(x_1)), (x_2, f(x_2)), (x_3, f(x_3)), \dots, (x_n, f(x_n))$$

to distribute to “n” secret holders.

## Deciphering

Suppose that we have “k” private keys  $\{x_1, y_1\} \{x_2, y_2\} \dots \{x_k, y_k\}$ , we will have the formula below (calculated at  $\mathbb{GF}(p)$ ):

$$\begin{aligned} a_0 + a_1x_1 + a_2x_1^2 + \dots + a_{k-1}x_1^{k-1} &= y_1 \\ a_0 + a_1x_2 + a_2x_2^2 + \dots + a_{k-1}x_2^{k-1} &= y_2 \\ &\dots\dots\dots \\ a_0 + a_1x_k + a_2x_k^2 + \dots + a_{k-1}x_k^{k-1} &= y_k \end{aligned}$$

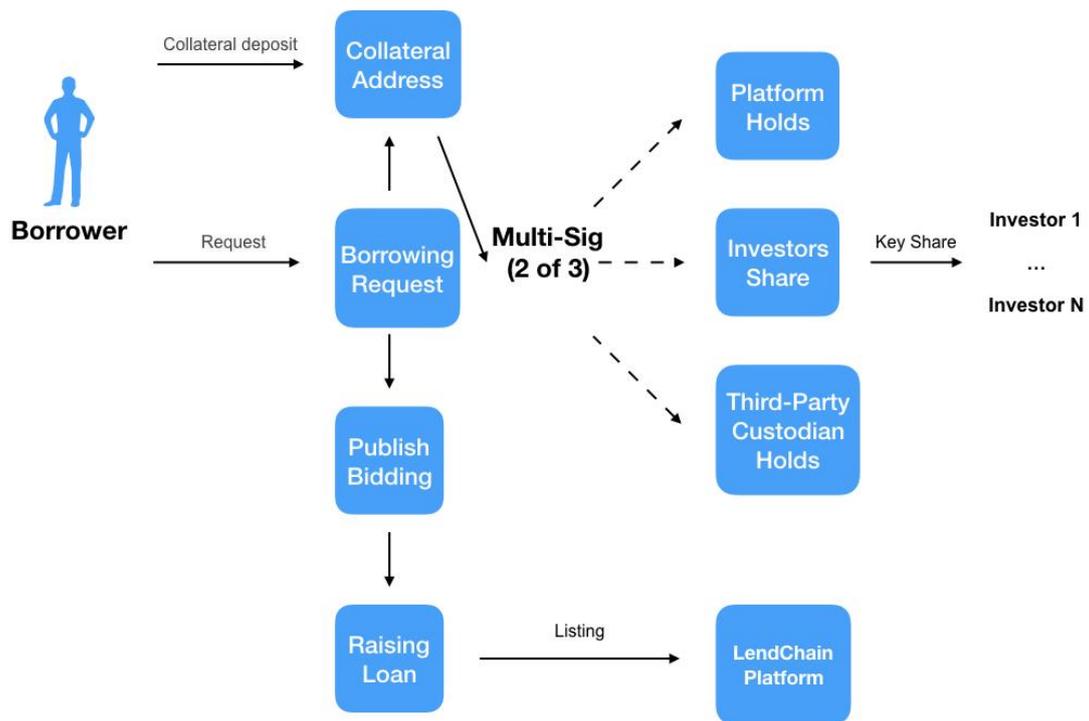
Through matrix multiplication or Lagrange Polynomial Interpolation, we can calculate that  $a_0$  is the secret “s” proclaimed in writing.

## Investment fund management

After creation of the goal, an investment address will be generated. This address uses multi-signature (2 of 2) technology. One of the private key is given to the third-party custodian to hold. The other private key is temporarily owned by the platform. When the goal’s target is reached, the platform will transfer the investment signature key to the borrower. The investment fund can be withdrawn when both the borrower and the third-party custodian submit the signatures.

## 4.7 Business Process

### Initiating borrowing activity (setting the goal)

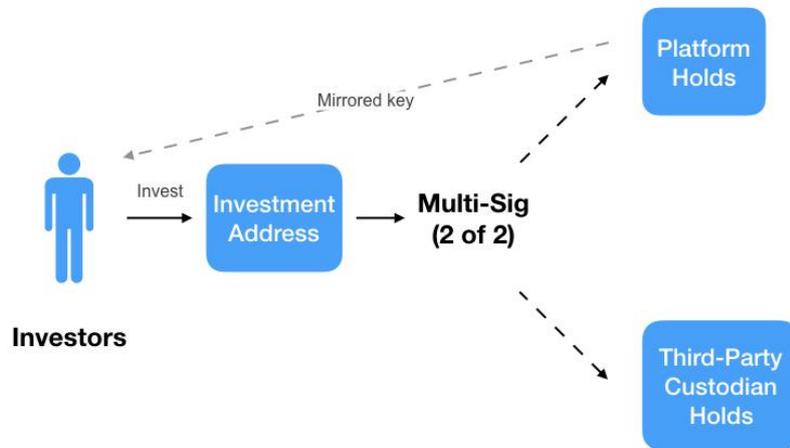


The borrower initiates a borrowing activity:

(1) After submitting the borrowing request, the platform will audit it based on certain rules and regulations. Then, it will generate a borrowing target to send to the LendChain bidding platform.

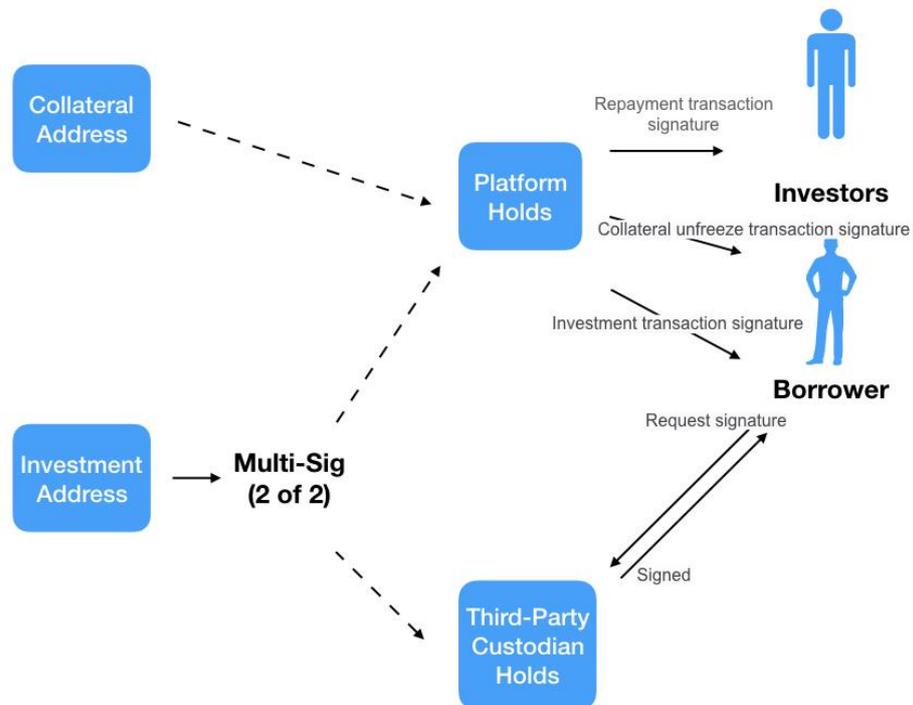
(2) At the same time, the platform will generate an address for the collateral. The borrower needs to fund the collateral into this address (this does not necessarily have to occur at the same time of financing, but the borrower has to submit the collateral before the target has been fulfilled. Otherwise, the fund will not be transferred to the borrower).

## Bidding by the lenders or investment users



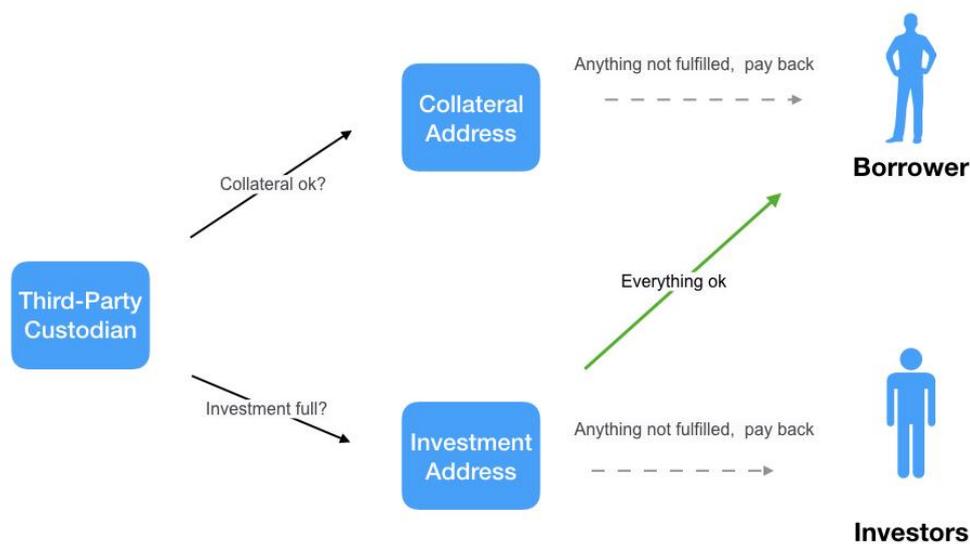
The lenders bid normally in the platform. When the target has been reached, the platform will clear the account to check investors' investment tokens, then transfer them to the corresponding goal's investment address. Because the investment address uses multi-signature (2 of 3) technology, only when the third-party custodian signs can the fund be accessed. Therefore, the users don't need to worry about investment fund security. At the same time, to prevent accidents from happening, the platform's investment signature key has a mirrored split version to be kept by investors.

## Reaching the target



- (1) When the target has been reached, the platform will carry out the investment transaction (payer: the investment address, receiver: the borrower) and use the investment signature key to sign. Then, the platform will send the data to the borrower.
- (2) The borrower will request the signature from the third-party custodian to conduct investment fund transfer transaction.
- (3) If there are issues with the tokens in the investment address or the collateral address, the third-party custodia should refuse to sign. Then the goal cancellation process would be started.
- (4) The borrower sends the data with the signature from the two parties and upload to the chain
- (5) The platform generates the collateral unfreeze transaction (payer: the collateral address, receiver: the borrower) and uses the collateral signature key to sign. Then, the platform will send the transaction data after the signature to the borrower.
- (6) The platform generates the repayment transaction (payer: the collateral address, receiver: the lenders) and uses the collateral signature key to sign. Then, the platform will send the transaction data after the signature to the lenders.

## Goal cancellation



Goal cancellations are initiated by the platform or the third-party custodian. The system will return the tokens in the collateral address to the borrower and the tokens in the investment address to the lenders.

- Initiated by the third-party custodian

(1) Refund transaction will occur (payer: the investment address, receiver: the investors) and the third-party custodian will use the investment signature key to sign. Then, the platform uses investment signature key or sign or the investors sign by using their collectively restored investment signature key.

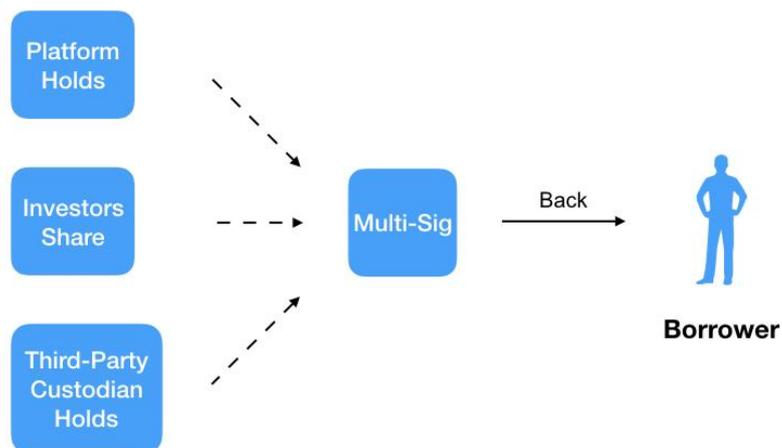
(2) Collateral unfreeze transaction will occur (payer: the collateral address, receiver: the borrower) ) and the third-party custodian will use the collateral signature key to sign. Then, the platform will sign.

- Initiated by the platform

(1) Refund transaction will occur (payer: the investment address, receiver: the investors) and the platform will use the investment signature key to sign. Then, the third-party custodian will sign.

(2) Collateral unfreeze transaction will occur (payer: the collateral address, receiver: the borrower) ) and the platform will use the collateral signature key to sign. Then, the third-party custodian will sign.

[Return of the principal, interests \(and overdue fees if applies\)](#)

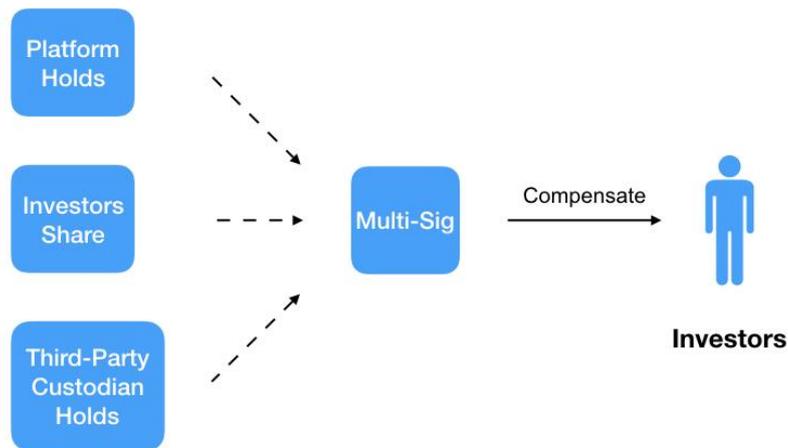


(1) The borrower will fulfill the agreement to return the interests and overdue fees. At the same time, the platform will return the principal, interests and overdue fees.

(2) The borrower will send to the platform the platform's signature key for the collateral unfreeze transaction when the target had been reached. When the investors agreed, the platform will use investors' split private keys to recover their collective key to sign.

(3) If the borrower requested the third-party custodian to directly unfreeze the collateral, the third-party custodian needs to check the historical repayment records of the borrower. If there are any issues, the third-party custodian should refuse to sign.

## Bad Debt/Collateral Account Close Out



When the borrower does not have the capability for repayment, or if the collateral tokens encountered fluctuation risks and closed out, and the borrower is not willing to add additional collateral, then the collateral tokens will need to be transferred to the lenders.

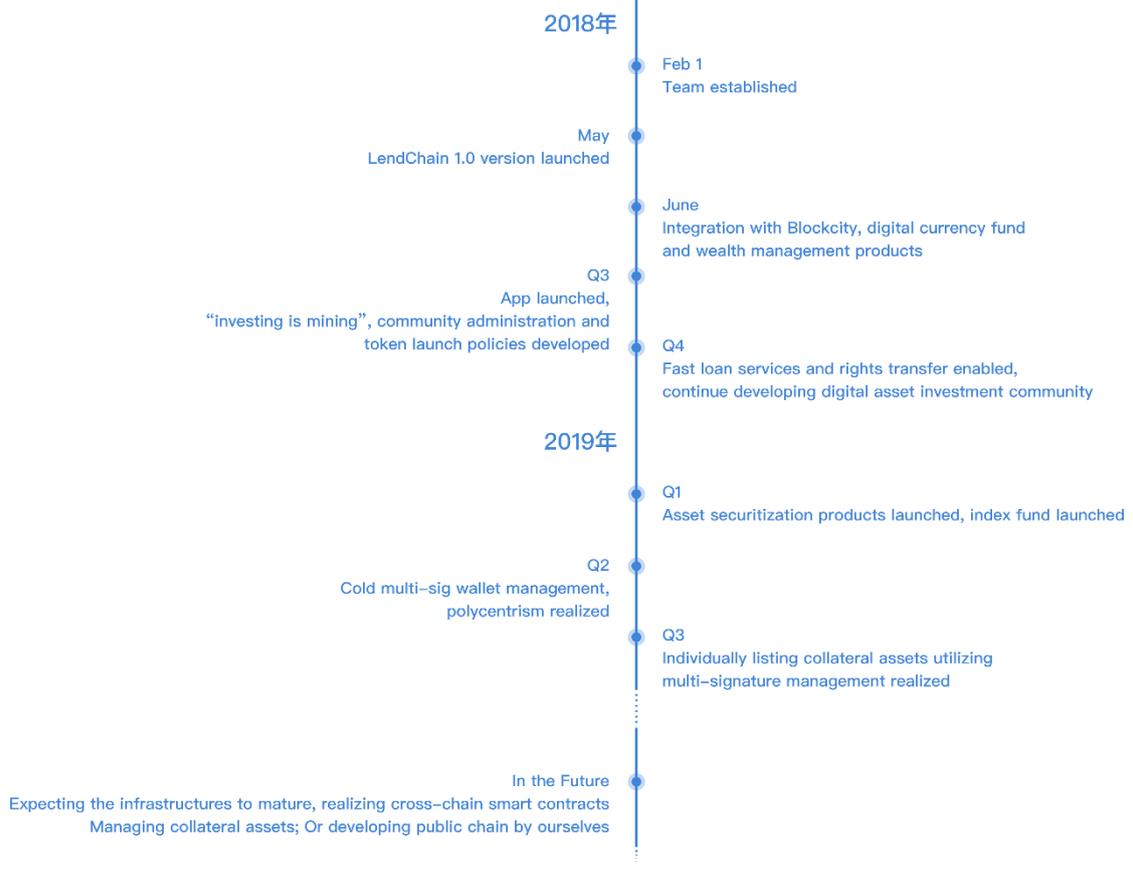
(1) The platform initiates collateral transfer process triggering the collateral transfer transaction (payer: the collateral address, receiver: investors' addresses), and uses the collateral signature key to sign.

(2) When the investors agree, the platform will use investors' split private key to recover signature key and sign.

(3) Borrowers can use their own split private keys to recover the signature key to sign and transfer the collateral.

(4) The platform will upload the transaction with the two signatures to the chain

## 4.8 Project Plan



# 5.About tokens

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## 5.1. Token Use Scenarios

The LendChain digital token is named LendChainToken, ticker: LVCOIN, which was developed based on GXChain

### Fees

When users utilize the LendChain platform for loans, financial management and other services, they need to pay a certain percentage of service fees, while those who use LVCOIN

	The first year	The second year	The third year	The fourth year	The fifth year and later
Discount rate	50%	25%	12.5%	6.25%	no discount

will receive discounts. (Specific discount rates are shown in the table below)

For example, if user A funds 100ETH as the collateral and borrows 50ETH, they will need to deduct 0.5ETH handling fee. If they use LVCOIN, they only need to pay the equivalent of 0.25ETH.

### VIP membership

We will open limited spots for enrolling in VIP investor members. Investment users who have a large amount of assets can access this privilege. They can purchase VIP memberships by paying a certain amount of LVCOIN. Users can keep the digital assets they want to invest in a locked position. After setting interest rates and investment amounts, as long as it is in compliance with the standards, the system will bid immediately, for the maximum benefits of the VIP members. The proceeds generated in the investment and the principal will be automatically returned to the user's account after the transaction.

In the future, more services will be developed for VIP members, and high-end users will have a strong demand for TOKENs.

### Vote on currencies to be listed

In the later stage, we will develop an open and transparent mechanism for voting on currencies to be listed. The user will decide which currencies to add. And this will require consuming TOKENs and require the project owners to use collateral tokens as the margin.

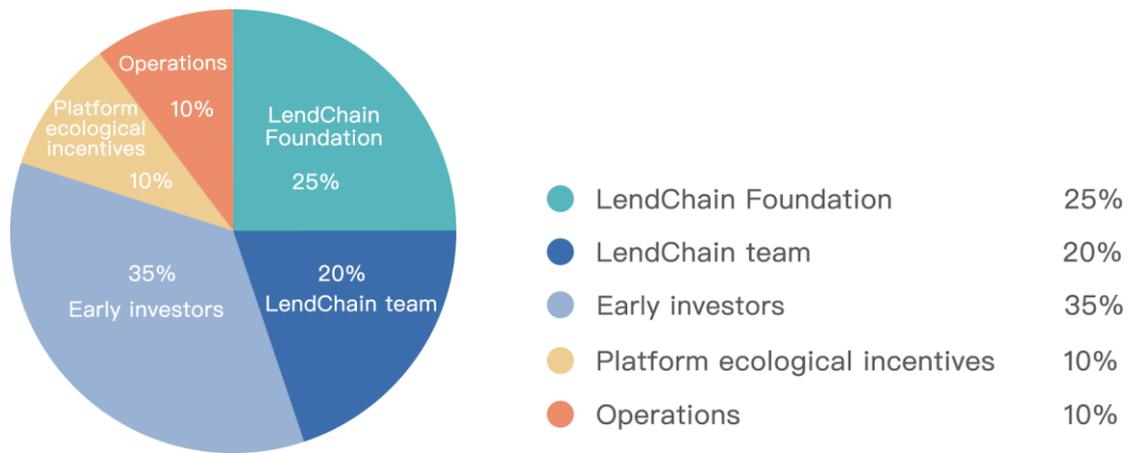
### Collateral financing

Cooperates with the demand side of financing such as investment organization, exchanges, market makers, and project parties which are required to use mainstream cryptocurrencies and

LVCOIN as collaterals.

## 5.2. Token Allocation

LendChain will issue a total of 1 billion LVCOINs, and will never increase the total supply in the future.



### Instructions:

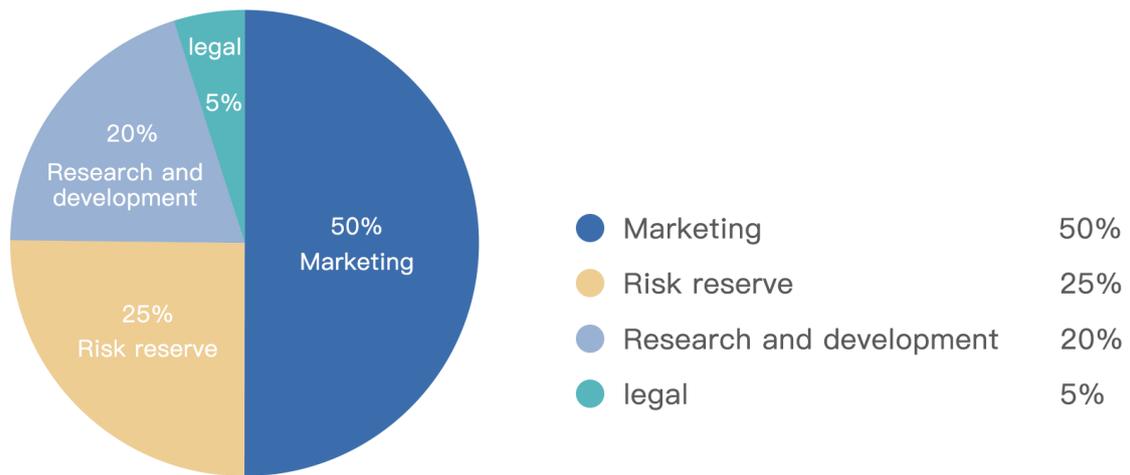
Early Investors have 40% locked positions for 3 months.

Shares for the team and the foundation unlock 25% every six months for two years.

The platform & ecosystem incentive portion is used for overseas community building.

The operations portion is used for promotional rewards and when the operations portion exhausts, the foundation portion will be taken into consideration for usage.

## 5.3. Use of tokens raised



## 5.4. Buyback Mechanism

Each quarter, we will use 20% of the LendChain platform's quarterly revenue to repurchase LVCOIN currency. The repurchased LVCOIN currency will be destroyed. The repurchase record will be announced on the official website. Users can check this on the blockchain browser, to ensure openness and transparency. The destruction of LVCOIN will continue until the total destruction amount reaches 450 million.

# 6.Foundation

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## LendChain Foundation establishment

The LendChain Foundation was established with the approval of the Singaporean government and is governed by the laws of Singapore. The foundation is independently managed and operated by a board of trustees or a management committee composed of qualified consignees and is independent of the government. Singapore is known for its stable and sound legal and financial environment. LendChain established a non-profit organization in Singapore. According to the Singaporean law, the foundation is legally established to support or participate in the public interest or private interest activities without any commercial interest. The “profit” obtained by the foundation is called surplus and will continue to be reserved for fees incurred in other activities without distributing to its members.

## LendChain Foundation operations

LendChain Foundation's financial management principles: overall arrangements, integrated management, briefings, and practical results; careful planning, and spending within the limits. The LendChain Foundation Asset Management incorporates comprehensive budget management and prepares budgets based on actual operating conditions. The annual financial income and expenditure report shall be reviewed by the internal committee, the monthly financial budget shall be reviewed by the Executive Committee, and the financial management center shall be responsible for its preparation and implementation.

The LendChain Foundation will introduce third-party auditors to supervise the financial operations of the project, conduct fund audits and to provide audit reports. The audit report will be announced in the annual information disclosure.

## Legal compliance and other matters

The LendChain Foundation will employ established law firms as legal consultants for LendChain and provide comprehensive legal services for LendChain projects in digital asset transaction structure, operational compliance, legal risk control system design, and global legal advice.

## 7.Disclaimer

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(1) This document is used only to convey information to a specific target who actively requests knowledge of the project information. It does not constitute any future investment advice, nor is it any form of contract or commitment.

(2) Once the participant participates in the TOKEN distribution plan, he/she understands and accepts the risks of the project, and he/she is willing to bear all consequences for oneself.

(3) The project team made it clear that no returns are guaranteed and will not assume any direct or indirect losses caused by any project.

(4) The TOKEN involved in this project is an encrypted digital code used in the transaction process and does not represent project equity, income rights or control rights.

(5) As there are many uncertainties in digital currencies themselves (including but not limited to: the environment for digital currency regulation by various countries, industry incentive competition, and technical loopholes in digital currencies itself), we cannot guarantee that the project will be successful. There are certain risks of failure for the project and the TOKENs of this project also has the risk of zeroing.

(6) Although the team will work hard to solve problems that may be encountered in the process of project advancement, there will still be policy uncertainties in the future. Everyone must understand the various aspects of blockchain prior to supporting and participating in the project rationally under the premises of fully understanding the risks.