Bloquid

System for collective management of issuance of proof-of-mortgage digital assets

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Abstract

"The most successful form of money in the economy of competing private currencies is the currency with the most stable value, that is, having the least volatility in relation to the consumer price index." ¹

Friedrich von Hayek

High volatility of crypto asset prices brings huge profits to professional speculative traders, but significantly impedes application of the assets in economic turnover. The volatility does not allow market participants to fix the value in the blockchain, which is necessary for long-term budgeting and planning of activities. The desire to fix the value in more stable traditional assets causes periods of strong retracement of crypto assets and leads to further volatility.

¹ Denationalisation of Money- The Argument Refined
An Analysis of the Theory and Practice of Concurrent Currencies F. A. HAYEK Nohel Laureate 1974
http://nakamotoinstitute.org/static/docs/denationalisation.pdf
Advances in the supply of reliable crypto assets lead to decrease in the fluctuation of asset prices and will become a driver of capitalization growth and development of crypto economy.

*Bloquid creates a system for collective management of the issuance of stable crypto assets*\(^2\) *secured by the mortgage fund — Mortgage Unit [MU].*

The issue of the MU is launched after entering into two contracts with the owner of the real estate: a mortgage tokens loan agreement and a real estate mortgage agreement. After the state registration of the encumbrance of real estate, a smart contract releases MU using the coefficients contained in the issuance formula. These tokens are transferred to the property owner under an interest-free loan agreement. In order to remove the encumbrance of real estate the borrower is obliged to return the MU tokens. As a result of this statutory concept, a link between the value of the mortgage fund and the nominal value of the issued tokens is created. Each MU token certifies an equal scope of claims for the entire mortgage fund formed out of real property provided by the owners as security for the tokens return. Blockchain technology allows you to check each security’s value, location, assignment. Such transparency gives undeniable advantages to the MU token in comparison with traditional investment instruments — mortgage securities.

Issuance management is carried out with the use of *Bloquid project tokens (BQT)*, which give their owners the right to receive royalties, generated by commissions for commercial use of the system, as well as the right to participate in collective project management. Transparent distribution of license payments is provided by a smart contract.

Impact on economy due to the project realization:

- increased stability of crypto economy;
- capitalization growth of crypto-economy due to the transfer of the value equivalent of real estate;

\(^2\) By stability, in this case, we mean the parameters of volatility (exchange rate fluctuations) that correspond to the needs of users.
increase in efficiency of the traditional economy by reducing the loan interest and transaction costs;

involvement of unused resources in the economy by increasing the turnover of the economic equivalent of real estate by tokenizing the obligations secured by its mortgage;

increased affordability of borrowed funds for small and medium-sized businesses;

decrease in threshold efficiency of new projects;

smoothing of barriers in intercountry financial services markets.

1. Current state and problems of the mortgage market

The total value of all developed real estate on the globe has exceeded $200 trillion, according to the British company Savills. According to the report, 84% of the total value of world real estate accounts for residential property ($168.5 trillion), the rest is commercial real estate.

In value terms ($141.5 trillion) more than 70% of all real estate in the world is located in ten countries - China, USA, Japan, Great Britain, India, Germany, France, Brazil, Italy and Russia.

China is at the top of the list ($42.7 trillion), the US are the second ($42.1 trillion). The aggregated value of real estate in Russia is $3.6 trillion, $2.9 trillion of which is residential real estate. It is noted that a third of total Russian residential real estate value is located in Moscow ($870 billion).

The mortgage portfolio is the largest asset in the world and it exceeds $25 trillion. More than $4 trillion mortgage loan is provided a year, less than 40% goes to buy new housing.

The ratio of mortgage loans issued to the country’s GDP is an important indicator of market development. Researchers consider that nowadays in high-income

3 Based on materials: Preobrazhensky V., Pervova E. Blockchain-mortgage as a stimulator of consumer demand // Forbes https://goo.gl/CKc9w4

Khusikhanov R. "Development of national mortgage lending markets in the context of the global financial and economic crisis" https://goo.gl/oRYHIN

4 The total value of all developed real estate on the globe has exceeded $200 trillion
countries this index is about 40%, in countries with an average income it is close to 7%, and in low-income countries - about 3%. On average, 21.3% of the population in developed countries take out mortgage loans, 2.9% in developing countries, and 8% in the world in general. These statistics demonstrates that mortgage lending is globally more typical of population groups with high income. In developing countries, the financially vulnerable social groups are often over-credited with tight consumer loans and do not have access to low-interest mortgage loan, despite owning a freehold estate. Such a debt structure entails high monthly payments, a reduction in consumer demand and adverse consequences for development of economy.

20% of citizens in Russia spend more than 60% of their income on repayment of tight and short-term consumer loans. This makes them cut down expenses and reduce consumption. As a result, production, salaries and jobs are shrinking. Unemployment leads to an increase in past-due accounts, higher credit costs and a new round of cyclical consumption crisis.

At the same time, the ratio of the population's debt to GDP in Russia is 2.2 times lower than in developing countries, and 5 times lower than in developed countries. One of the main reasons for the high debt service expenses is a low share of mortgages, 3 and 10 times less than in developing and developed markets respectively. Potential volume of the Russian market is estimated at $1.7 trillion. The volume of the mortgage market for the past few years is nearly $170 million. Consumer demand can be increased by $205 billion by coming up to the rates of developing countries and by $1.3 trillion by growing up to the rates of advanced economies.

Intensive, uncontrolled development of mortgage lending (subprime - high-risk with high interest rates) in the US was the fundamental cause of the economic crisis, which began with the wave of defaults on mortgage loans, and then developed into a global financial and economic crisis of 2008-2009 years. Nontransparent mortgage securitization in the US was the reason for stock market investors to bank on credit ratings rather than an assessment of the potential risk. On the other hand, credit-rating agencies relied on insurance companies, government organizations guarantees and stable prices in the real estate market. As a result, the crisis was paid for by taxpayers.
We believe our project can solve these problems.

2. Present state and problems of cryptoeconomy

The market capitalization of the Cryptocurrency has recently reached $290 billion. However, this index is not stable due to the key problem of the cryptoeconomy - high volatility of assets value. High fluctuation severely limits the investment potential of cryptoeconomy, not allowing investors with medium and low risk levels to enter the market. In addition, volatility does not let one plan activities for business projects in the long run.

The high risk of losses forces investors and project teams to look for reserve assets that can protect their savings and reduce the risk of losses. Under these conditions, the natural demand of the market is to get stable crypto assets that are meant to compensate for market volatility and become a key element of cryptoeconomy, combining the decentralization that is provided by the blockchain technology and a high level of price stability.

One of such assets is Tether (USDT) that from time to time shows more than $2 billion trade volume per day.

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5 Based on materials
Vitalik Buterin The Search for a Stable Cryptocurrency
Projects of stable crypto-currencies on the Etherium: the state and prospects
Nick Tomaino Stablecoins: A Holy Grail in Digital Currency
6 https://cyber.fund/
However, Tether can not be called decentralized. Since it is tied to the dollar, it depends entirely on the banks in which the operator holds the collateral. At the beginning of 2017 the operator had problems with banks and a number of bank accounts was frozen, the price of USDT fell down to $0.85.

**Stable crypto assets**
Projects of stable crypto assets based on Ethereum exist almost since the launch of the network. Unlike the platforms described above, Ethereum stable coins were designed to be universal tools for application both in financial projects and communication with the "real world" business - it is assumed that their users may not even know about the existence of cryptocurrency.

The first Ethereum projects of stable crypto assets were Digix and Maker. Despite the fact that both platforms are not yet ready, they continue to grab attention, if only because they are representatives of radically opposite approaches to the concept of stablecoin.

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7 Being claimed that the Tether management would maintain the amount of USDT until their banking problem is resolved, it looks strange both an increase in the turnover of tokens by almost 500% and the increase in the number of tokens from July 2017 to August 2017 by more than 100 million US dollars.  
*Are Fraudulent Tethers being used for margin lending on Bitfinex?*  
*Tether now prints $100 million DAILY*  
This shows the vulnerability of centralized systems and crypto assets controlled by banking systems once again.
The Digix project is criticized for its centralized approach, although its founders are doing everything to implement elements of decentralization into it. The value of the DGX token is equivalent to 1 gram of gold. DGX has a 100% gold backing in gold bars from the Singapore vault. Any holder of the DGX token can receive its gold equivalent.

Its antipode is Maker and a stable cryptocurrency dai, the stability of which is ensured by the mortgage positions of the Ethereum tokens and the mechanism for maintaining the exchange rate with the help of smart contracts and a system of continuous auctions to create and eliminate collateral positions.

The other projects of the stable crypto assets based on Ethereum have not yet advanced beyond the proof of the concept: Decentralized Capital with digital counterparts of the currencies, and the Stabl project which started quite active in January 2017 with a concept similar to Maker.

Most likely, the first Ethereum stable token with decentralization elements will be DGX, followed by sai. Their launch is eagerly awaited by other major projects based on Ethereum, such as Augur and Gnosis predictions markets, payment card projects based on Ethereum smart contracts TokenCard, TenX and many others.

3. Bloquid

Investments in real estate and gold have traditionally allowed investors to offset inflation risks, which the fiat currencies are exposed to. It is quite logical to expect the onset of proof-of-mortgage tokens, since real estate is the most valuable private and distributed asset.

The system of collective issuance management developed within the framework of the Bloquid project makes it possible to reduce several intermediate stages that are usually necessary for the issue of mortgage-backed securities, as well as to obtain a new type of asset that is secured by mortgage and has collectively programmable characteristics.
Distribution is the key factor of stability. An owner of MU token can reduce both costs of inflation and risks of fluctuations in national real estate market, because each token MU is backed by a share of the entire distributed mortgage fund located in different jurisdictions.

Near-zero loan service costs and flexible due dates reduce the risk of default. Low risk of losing a mortgaged asset and simplicity of loan taking are significant factors of expectation of growth in popularity of the proposed solution among the property owners who need additional investment resources.

The use of blockchain technology makes it possible to preclude data tampering, dramatically increase transparency, cut costs and provide mass tokenization of mortgage claims. Bloquid, as the provider of the tokenization, will publish information on the composition of the mortgage fund, the scope and commitment period of obligations, defaults statistics, so that any concerned party can more accurately assess the risk of the proof-of-mortgage token possession.
It is assumed that all of the above will let mitigate risks and get a relatively stable asset with programmable characteristics and three-in-one main advantages:

- general advantages of cryptocurrency;
- real asset backing;
- transparent issuance management

As a consequence - it is able to become a new type of reserve asset.

By combining the speed and transparency of blockchain technology and economic potential of real estate, Bloquid will become a provider of transferring the economic value of real estate to cryptoeconomy in huge volumes and with minimal costs. The receipt of greater volumes of secured liquidity on the market of crypto assets will lead to a multiple growth in its capitalization.
Solved problems and usage scenarios

The target audience of the service are property owners wishing to invest in crypto-economy or to receive an interest-free loan to increase the available investment resource⁸.

The current issue with offered bank credit products is the existence of a loan interest. For example, A 10-year-long bank loan with annual servicing of 10% without additional insurance payments and commissions will cost 59% of the principal amount of the loan.

The Bloquid Project does not collect loan interest and only keeps a commission fee for the proof-of-mortgage tokens release.

When you invest fiat money in the crypto economy, the average currency conversion fee is 3-7%. Bloquid eliminates the need to address intermediaries, since the release and circulation of mortgage tokens initially occurs in crypto-economics.

With enactment of stable legislative regulation and tax administration of crypto assets, service audience will include large property owners: developers, retailers, hotel chains and landowners.

Consumer scenarios of property owners

Cost saving. Higher property income.

Property owners who want to invest in cryptocurrencies and ICO may take a home equity loan and become obliged to pay loan interest, insurance and commission. Moreover, the conversion of fiat currency into cryptocurrency costs additional commission. Acquiring MU tokens by getting a loan on mortgage within Bloquid allows to significantly reduce these costs. The client receives mortgage tokens and freely exchanges it for other digital assets.

Housing improvements. An owner of residential property wants to build a new house but has financial difficulties with the project construction. Sale of the only

⁸ "Man sells everything he has for Bitcoin"
property is risky due to the lack of additional housing. Taking a bank mortgage loan increases the construction budget. The owner of Bloquid mortgage tokens MU can transfer them to the developer as a payment for the house construction or as a security for execution of payment by installments obligations.

**Asset protection**
Affected property keeps it safe from illegal expropriation.

**Lowering losses in case of local real estate market decline.**
Distributed mortgage fund, which secures tokens MU, allows to average out possible fluctuation of national real estate markets.

**Transboundary value transfer**
By tokenization the value of real estate turns into an easily transferable economic instrument as it is no more involved into the long and costly process of changing the ownership and the barriers that are typical of banking system.

**Impact investing**
Communities could establish foundations to support ecological, social and sustainability projects, formed by combining deposits in MU tokens.

**Factors of demand on tokens MU**

**Taking profit.**
Crypto investor, wishing to take profit, usually goes into fiat money. It poses a number of problems related to gaps in tax administration of cryptocurrencies operations and the need in using the banking system with its trustworthiness consistently fading away.

Mortgage token MU with its transparent security solves implies collective issuance management system and has a predictable behaviour on the market. So, exchange of higher-risk crypto assets for a stable MU token solves both the value conservation and taxation issues.

**Portfolio set-up.**
In general, a cryptocurrency investment fund builds a portfolio of assets, following the principle of diversification, so a part of the funds is invested in assets with a low level of risk. Bloquid solves this problem by offering mortgage tokens as a stable crypto asset.

*Hedge against inflation and currency depreciation.* Investors who want to hedge against inflation or national currency depreciation use conservative instruments: they invest in gold, bonds, real estate. At the same time investments in real estate have high barrier of entry. Bloquid’s mortgage tokens, secured by a diversified portfolio of real estate in different jurisdictions, cover the risk of currency depreciation and give an opportunity to invest small amounts of money.

*Planning and budgeting.* Startups that raised funds through ICO need to do financial planning in order to realize their activities, what is hardly possible in a highly volatile market.\(^9\) Transferring part of the funds into a mortgage token simplifies planning for companies engaged in cryptoeconomy.

*Mortgage redemption.* The borrower must return the mortgage tokens MU in order to redeem the mortgage - this requires a repurchase of the tokens on the market.

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\(^9\) Ethereum Foundation was on the verge of bankruptcy in 2015 due to the plummet in the bitcoin rate and was forced to shut down several development directions.
Algorithm of issuance

The mortgage token is issued after the signing of two contracts with the owner of the real estate: a loan agreement for tokens\(^{10}\) and a mortgage agreement (to secure the fulfillment of obligations of the first contract).

In counties with the Torrens title the mortgage agreement comes into force after passing a state registration. Having received an information about registration of the real estate encumbrance, Oracle transfers this data to a smart contract. The latter, using the coefficients contained in the issuance formula, issues mortgage tokens, which are sent to the owner’s account.

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*The issuance formula is a rule in the smart contract that determines the number of tokens that the mortgagor can receive in exchange for a mortgage. The basic parameters of the formula are regulated by the owners of the Bloquid tokens by means of collective agreement.*

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In order to discharge the mortgage the borrower is obliged to return mortgage tokens to the lender. As a result of this statutory concept, a link is created

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\(^{10}\) By law, almost any claim may be secured by mortgage
between the value of the mortgage fund and the notional value of the issued tokens.

All tokens are equivalent and are secured by equal shares of the entire mortgage fund.
MU token is not currency-denominated and does not carry inflation costs, which usually make up the larger part of bank interest rates.

In exchange for a mortgage, the owner receives an asset with security level comparable to the assets of the highest class in organized markets - mortgage bonds (AAA). Tokens can be issued in several existing blockchain systems, at the option of the borrower.

It can be Bitshares, Ethereum, Waves and other systems. Issued tokens MU can be exchanged for various tokens and cryptocurrencies within decentralized exchanges. In the foreseeable future, thanks to the projects like TenX, Tokencard, Blockpay, it will soon become possible to pay by tokens in our daily life using bank cards.

The process of traditional securitization is complex and depends greatly on the jurisdiction within which the process is conducted. Among other things, securitization distributes risk and permits investors to choose different levels of investment and risk. The basics are:

Mortgage loans (mortgage notes) are purchased from banks and other lenders, and possibly assigned to a special purpose vehicle (SPV).
The purchaser or assignee assembles these loans into collections, or "pools".
The purchaser or assignee securitizes the pools by issuing mortgage-backed securities.

While a residential mortgage-backed security (RMBS) is secured by single-family or two- to four-family real estate, a commercial mortgage-backed security (CMBS) is secured by commercial and multi-family properties, such as apartment buildings, retail or office properties, hotels, schools, industrial properties, and
other commercial sites. A CMBS is usually structured as a different type of security than an RMBS.\footnote{https://en.wikipedia.org/wiki/Mortgage-backed_security}

**Token MU stability factors**
There are several stability factors behind the system.
By virtue of the loan agreement, the owner of the real estate has an obligation to repurchase the token, case of failure to fulfill the contract obligations results in a foreclosure on the mortgaged property. This creates the required level of support for the market rate of the token.

On the other hand, the issue of tokens for new participants of Bloquid creates a level of supply on the market, restraining the unjustified growth of market value. A flexible loan repayment schedule is another factor of the token stability.

A range excess of the market price over the set parameters activates a deferral of loan repayment, what allows borrowers to postpone the token repurchase, pushes down demand and returns the price down.
A decrease in asset value is the opportunity to repay a loan at a discount what motivates borrowers to buy tokens at a lower price, what consequently returns the price of the token to the estimated range.

The change in the price of the mortgage token due to the default of borrowers is compensated by the discount applied to the value of the mortgaged unit and by the insurance fund replenished by commission fees. Resources of the fund will be spent on repaying defaulted mortgage tokens.

Collective management of the issuance formula and the transparency of the mortgage fund are the factors of stability that allow reaching consensus, which is expressed through the correlation between the decisions taken within the system management and the market rate of the mortgage token MU. An increase in the consensus index is the main task and the metric of the project.

3.2. The Bloquid Project Token [BQT]

The release of the project token (BQT) is provided for the purposes of collective issuance management, product development management and assessment of team members contributions.

The project token BQT is a multifunctional tool for using the system which capabilities are being expanded during the development of the project. Thus, owners of the BQT token acquire exclusive rights to the result of intellectual activity (RIA) of the Bloquid team including:

- project description, information, research, analytical and presentation materials;
- contracts and other legal paperwork;
- the whole set of software developed and used for project implementation.

Token characteristics during the stage of system development

Token is a measure of evaluation and the way of fixing the creative contributions of the co-authors of the project and the assistance provided during the project implementation. The token is distributed among the project members in
proportion to their contributions. In addition, the token provides an opportunity to participate in decision-making within the project implementation.

*Token characteristics during the non-commercial phase of the system usage*

During the non-commercial stage BQT Token has the functional properties that give the following rights:

- The right to tokenize real estate (acquiring BQT tokens is a must for a mortgagor to use the Bloquid platform);
- the right to act as the mortgagee of the system (possession of a certain number of tokens gives the right to participate in the system as a mortgagee);
- the right to participate in system management.

*Token characteristics during the commercial phase of the system usage*

Besides the ones listed above, at the stage of commercial operation of the system the owner of the token is provided with a legal opportunity to receive royalty payments formed from commission fees.

The BQT tokens quantity is limited to 100,000,000 units. Distribution is regulated by collective voting and when necessary to reward team members, attract new clients and financing for product development.

3.3. Model of income generation and income distribution

A property owner could be charged a commission fee for the issuance of mortgage tokens. The commission rate may be determined by voting of BQT owners during the process of commercial stage launch. A commission charge for token circulation is also possible in order to cover transaction costs and reduce the volatility of the mortgage token due to possible speculation on the market. Commission fees are the main source of income of the Bloquid project.
The costs of entering into mortgage loan contracts and registering mortgages are planned to be shifted to the mortgagor - expenses for processing the electronic signature, state registration of the contract and possible payments to appraisers and insurance companies. Tax liabilities do not arise.\textsuperscript{12}

Graphs of key economic indicators\textsuperscript{13}. The financial model assumes reaching self-sufficiency on the 5th operating year.

\hspace{1cm}

\begin{center}
\begin{tabular}{c}
\textbf{Cash Flow Forecast} \\
\end{tabular}
\end{center}

\begin{center}
\begin{tikzpicture}
\begin{axis}[
    title={Cash Flow Forecast},
    xlabel={Year},
    ylabel={$\text{million}$},
    xmin=2017, xmax=2024,
    ymin=-25, ymax=100,
    ytick={0,25,50,75,100},
    yticklabel style={/pgf/number format/1000 sep=,/pgf/number format/fixed},
    legend style={at={(1.2,0.5)},anchor=south west},
]

% Total line
\addplot[blue,mark=*,line width=1.5pt] coordinates {
};
\addlegendentry{Total}

% Accumulated total line
\addplot[blue,dashed,mark=*,line width=1.5pt] coordinates {
};
\addlegendentry{Accumulated total}

% Costs line
\addplot[navyblue,mark=*,line width=1.5pt] coordinates {
};
\addlegendentry{Costs}

% Income line
\addplot[red,mark=*,line width=1.5pt] coordinates {
};
\addlegendentry{Income}
\end{axis}
\end{tikzpicture}
\end{center}

\textsuperscript{12} The analysis is based on the Russian legislation for July 2017
\textsuperscript{13} The calculation is based on data embedded in the financial model. Commission from transactions - 3%. Capitalization forecast is based on the Snapchat capitalization valuation during the IPO (x30 to the company’s revenue).
Revenue is allocated for product development and payments to IPR holders (BQT tokens holders). The distribution will be guaranteed by the smart contract.

3.4. Insurance fund

Insurance fund is created to eliminate the potential risk of unsecured tokens emerged because of borrowers defaults or property destruction. The insurance fund is formed out of mortgagors’ installments. The amount of insurance contributions is related to the issuance formula and the credit rating of the mortgagor. The insurance fund can not be less than 10% and more than 50% of the total mortgage fund.\textsuperscript{14}

10% of raised funds will be allocated for the formation of the initial capital of the Insurance Fund. The management of the insurance fund may be transferred to an external manager. It is also allowed to diversify the insurance fund by forming a portfolio of several crypto assets.

\textsuperscript{14} The final decision on the size of the insurance fund will be taken before the commercial launch of the project.
3.5. Mortgage fund

Mortgage tokens certify equal scope of claims in regard to real estate in the mortgage fund. Mortgage tokens do not bind to particular real estate units what creates advantages similar to securities portfolio management: investment conditions are enhanced because of having investment features that are not affordable considering one single asset and possible only in investments portfolio management. The main purposes of the mortgage fund are maintenance of a certain stable level of token price and risks reduction.

Elaboration of risk assessment tools for managing the mortgage fund portfolio is a priority for the Bloquid project, since the maintenance of a mortgage token stability is impossible without managing the risks of potential defaults and fluctuation in the price of pledged real estate.

The formation of the mortgage fund portfolio is based on the following principles:

- sectoral and regional diversification of real estate;
- minimizing dependence of the mortgage fund value on any particular mortgaged unit;
- liquidity and proportional discounting of the mortgage fund units;
- deconcentration of mortgagees in order to reduce the risks of the system;
- transparency of the mortgage fund and real estate units (excluding personal data).

4. Technical description

The project implementation includes the setup of Bloquid website, smart contracts, an issuance management system, a scoring system and oracles that use data from external sources.
The detailed scheme is available by reference.

The Bloquid website is a communication channel with customers of the service: the client can apply for a loan, sign the documents with the use of e-signature, track the status of document registration, make transfers, track the flow of funds, participate in voting.

Conducting token transactions involves the development of smart contracts. In order to implement the embedded logic, there are 4 smart contracts to create:
- a smart contract that issues mortgage tokens;
- a smart contract that issues project tokens;
- a smart contract that distributes revenues between IPR holders;
- a smart contract that counts the results of an e-voting of IPR holders.

The scoring system for assessing borrowers is a mathematical and statistical system for analyzing a borrower, which allows eliminating subjective risk assessment when granting a loan. Ready-made solutions for scoring borrowers,
which can be integrated into the project without the need for in-house development, are already getting available in the crypto industry\textsuperscript{15}.

The issuance formula management system is a mathematical model embedded in a smart contract that issues mortgage tokens. Model parameters are regulated by owners of BQT tokens through the voting process. The parameters of the issuance formula include components that take account of the portfolio management data of the mortgage fund and data on a particular real estate asset. It is planned to expand and improve input parameters as well as use the machine learning system, in order to provide programmable behavior of the mortgage token rate.

5. Management tools and project implementation plan

Management instruments

The project develops and implements the idea of a decentralized organization (DAO) that carries out its activities on the basis of collective agreement and tools for collaborative decision-making, including electronic voting with project tokens BQT and mandatory results recording in the blockchain.

\textsuperscript{15} For example, \url{http://ico.scorista.com/}
The core principle of the project: agreement is a law. The code is a part of the agreement and is changed in full compliance with it. Constant raise of collective management efficiency is the backbone of effective change management. The Bloquid project is created by the co-authors who have concluded a collective agreement on the joint creation and use of intellectual property. The agreement participants that made creative contributions become rightholders.

The product development is managed by two systems of collective decision-making: the Authors’ Council and the Council of Right Holders regulated by the relative statutes.

In order to perform legal acts with third parties, it is planned to create a special vehicle in the interests of right holders, which, among other things, will act as a mortgagee under mortgage contracts at the stage of non-commercial operation of the system.

The detailed scheme is available by reference
System development management.

The project involves several stages of implementation. As the project moves forward, project’s tokens holders will be granted more and more rights to participate in the management of the project implementation, and at the commercial operation stage - to participate in the management of the system and obtain royalties for its use.

The following principles are used in decision-making:

*The priority of the mortgage token stability* - the participants of the Bloquid project put a priority on maintenance of the tokens value stability, in other words, predetermined volatility in relation to the consumer price index, under the condition that the majority of the tokens users have a consensus for this principle.

*The principle of expanding the audience* - BQT tokens possession and a voting right among a wide range of people will provide balanced decisions.\(^{16}\)

Distribution is considered as one of the key factors of stability of the system and the mortgage tokens. In the Bloquid project, the principle of decentralization is embedded in the decision-making system and the formation of the mortgage fund.

*Priority of the system participants’ interests over the interests of the co-authors of the project.* Decisions of the co-authors on the project development must be taken in the interests of all participants of the system, and not to their personal advantage.

*Balance of interests* - in the event of a conflict of interests between the different stakeholders of the Bloquid project, the project developers will rely on the principle of maintaining a balance of interests between groups of users.

\(^{16}\) The probability of making an erroneous decision is inversely proportional to the number of parties involved in the decision-making process. Mathematician J. Neumann proved: "The input data is not sent to one single machine, but simultaneously to a whole series of identical machines; the greater the number of lines in each beam, the probability of failure of a large number of components may be the result of the majority of these machines. "The more computational components the information is processed and the more direct connections between them, the less is the probability of error;" ... with a sufficiently large number of lines in each beam is made arbitrarily small. "

https://goo.gl/R1lev6
**Issuance Management System**

A market of predictions as a technology that unlocks the potential of collective intelligence is an idea that has already become quite widespread.\(^{17}\) The Bloquid team set an object to create a system of collective parametric management that would ensure a consensus of the participants on the terms of issuance along with a programmable asset behaviour on the market.

![KEY METRICS](image)

Bloquid is developing governance model in which holders of BQT Tokens will be able to influence on a number of key parameters of issuance formula and commissions. For example: token holders can determine the required parameters of the token volatility. If the specified parameters are overrun, the transaction fee will be increased.

This toolkit will include determining the weights of the coefficients that shape the issuance formula for every new collateral and a participant who joined the system:

- discount rates;
- commission rates;
- rates of insurance premiums;
- terms of validity and conditions for the renewal of contracts.

The future goal of the project is to provide every owner of real estate, irrespective of its location, an opportunity to pledge it and to receive mortgage tokens on a parity and equitable basis.

Key points of the project implementation:

- Q1 2018 - Pre-sale;
- 2018 - ICO (1st stage of BQT tokens distribution);
- 2018 - software product development, working out legal solutions for new jurisdictions, formation of the scoring system;
- 2018 - test issuance of MU tokens in 2-3 countries
- 2019 - market launch in Russia;
- 2019-2022 - international integration;
- 2019-2020 - start of commercial operation;
- 2027 - business operation under 70 jurisdictions
6. Distribution of project tokens BQT\textsuperscript{18}

We are going to run multistage distribution. On each stage of the public tokens distribution, the value of 10\% of the project's tokens BQT will be calculated based on the total amount of collected investments.

Factors of demand on BQT tokens

\textit{The increase in the token value at the distribution stage}

The distribution of the Bloquid project tokens:

- pre-sale, during which capital is attracted with a discount from the sale price of the 1st stage of the BQT tokens distribution;

- stage 1, during which 10,000,000 Bloquid tokens are distributed according to the subscription model and the creative contribution of the project participants and co-authors is estimated;

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\textsuperscript{18} Preliminary calculations
Increase in the token market value in course of project development

Due to the limited amount of tokens BQT and the requirement to possess the tokens to use the system, it is planned that the tokens value will grow proportionally with the mortgage fund enlargement and increasing demand for real estate tokenization. By means of e-voting BQT tokens owners will determine the scope of rights established by possessing BQT tokens including the amount of real estate that one BQT token allows to tokenize and the number of tokens required to act like a mortgagee.

Receiving license payments

It is planned to start charging transaction fees as the commercial operation is started. These fees form project revenue on the basis of which it is possible to make a forecast about the company's capitalization and the market price of the tokens BQT.

An owner of the token BQT becomes the copyright holder and receives the right to get license fees formed from commissions.

The percentage of income allocated to copyright holders is determined by collective voting.

Calculation of royalty per token\(^\text{19}\)

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\(^\text{19}\) The calculation is based on the financial model data and the hypothesis that 10% of the tokens in circulation will be added to the licensed smart contract, and 50% of the proceeds will be directed to the rightsholders.
7. Perspectives

The mortgage token is the first truly transparent stable token, secured by a mortgage of real estate. Combined with the innovations of smart contracts and the transparency provided by the blockchain technology, Bloquid completely changes the process of obtaining a secondary mortgage and is likely to become a leader in the field of investment innovations.

Map of the transparency of the real estate market

The ideas of transparency, decentralization and consensus inherent in the blockchain act as a reliable basis for changes in the mortgage market. Bloquid as a provider of these changes can make evolutionary changes in this market and have a positive impact on the world economy.

International diversification of the mortgage fund will reduce the currency risks and standardize the tokenization of mortgage. This means that a client will

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20 Data from the Global Real Estate Transparency Index survey conducted by JLL for 2016. The indicator of transparency of 109 world real estate markets is based on the 139 factors analysis, including legal aspects and the process of making deals. According to JLL, two-thirds of the real estate markets around the world have demonstrated an increase in transparency over the past two years. The process of global growth of transparency of real estate markets is supported by a technological factor that stimulates the digitization of all types of real estate data, as well as helps to disseminate and analyze them.
acquire high transparency of pricing a mortgage product, not least because of the economic policies managed and implemented by Bloquid. Subsequently, this may lead to an increase in the scope of the secondary mortgage market around the world.

The Bloquid team believes that the designed solution is a response to the problems faced by the cryptoeconomy and the traditional economy, and we are confident that the implementation of the project will contribute to the stability growth of economic systems.

Contacts

To contact the project team, find out the latest news of the project or apply for participation in the distribution of tokens:

- Project site
- Facebook
- Telegram
- Medium
- Golos

Appendix

1. Legal aspects of project implementation [RUS]
2. Finmodel [RUS]
3. Bloquid Q&A [ENG]
4. BLOQUID PROJECT JOINT SUPPORT AGREEMENT FOR INTELLECTUAL PROPERTY DEVELOPMENT [DRAFT] [ENG]
References


Lavrova MI, Khudoroshkova MA Problems of development of mortgage lending in Russia // Young Scientist. - 2016. - No. 10.5. - P. 36-38.
https://moluch.ru/archive/114/30379/

http://www.m-economy.ru/art.php?nArtId=2110

Lavrova MI, Khudoroshkova MA Improving the valuation of the collateral object for mortgage lending // Young scientist. - 2016. - No. 10.5. - P. 33-35.
https://moluch.ru/archive/114/30379/

Vitalik Buterin The Search for a Stable Cryptocurrency

Tomaino Stablecoins nick: A Holy Grail in the the Digital the Currency
https://thecontrol.co/stablecoins-a-holy-grail-in-digital-currency-b64f3371e111

Global Real Estate Transparency Index 2016
https://www.jll.com/greti

Nazarchuk NP Problems of mortgages today and emerging risks
http://online-science.ru/userfiles/file/mtvl07zmquolv6ihlpxxs9lxgwp9usd.pdf

Preobrazhensky V., Pervova E. Blockchain-mortgage as a stimulator of consumer demand // Forbes

Projects of stable crypto-currencies on the Etherium: state and prospects