CONFIDENTIAL INFORMATION[1]

VALUELINE:

A FRAMEWORK FOR
DECENTRALIZED AUTONOMOUS ORGANIZATIONS (DAO)

WHITE PAPER

White Paper V1.0

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This whitepaper is being provided by the creators of the ValueLine platform (“ValueLine token” and the “Talent token”), for informational purposes only and is nota binding legal agreement. There shall be no purchase and supply of tokens. This whitepaper may be amended from time to time.

1.1 VALUELINE OVERVIEW

This white paper seeks to explore a new type of blockchain solution called the "ValueLine" using a blockchain-based, closed, decentralized autonomous community (DAC) that determines its users and the access granted to them.

ValueLine is a type of governance model needed to regulate cryptocurrency transactions associated with a smart contract in digital communities. Our idea of smart governance built on intelligent blockchains is based on the premise that regulated (important/useful) knowledge rules or patterns are built by a consensus of experiential and questioning processes. These processes represent a proportion of desire patterns obtained from a Knowledge Field (KF) composed of Governance Parameter Requirements and Specifications (GPRS). The GPRS will represent the blueprint or checklist that serves as input into a governance rule training or learning and prediction knowledge system (GRTLP-KS).

We believe a modern governance system for decentralized communities should, in addition to its self-capacity catering ability, enable the easy integration of end-user experiences and end-user rule-specific contributions for improving the overall mining of processes within a smart contract in a clear and succinct manner.

An important difference in ValueLine when compared to other types of blockchain-based DACs is its use of an invariant, more general structure for mining useful processes. It doesn't just program and generate codes. This means that, in a ValueLine blockchain app, any kind of contract can be processed using a single code structure that is general enough to accommodate diverse kinds of contract user input data patterns.

In a ValueLine blockchain, the problem of bias in which a particular user (or group of users) influences the mined blocks is eliminated through optimizing experiential and search-query matching checks. This bias optimization (bias minimization) is carried out over severaltrial checks such that the best experiential or search-query (probe-like) matching checks are theones that give the least expectation error response (EER). The EER is therefore a metric that quantifies the value of a matching operation in ValueLine.

Thus, a ValueLine blockchain DAC will eliminate the double-spending property in the least matching error sense. This is achieved practically by employing time-based and rule learning Artificial Intelligence (AI) algorithms in both the experiential and search-query modes of operation.

In ValueLine, the requirements for onboarding users are determined by the community. The ValueLine platform powered by EOSIO solves a significant problem of user moderation. Itoffers a more robust model for user interaction and reward incentive. The goal is to create a platform which meets the following requirements:

a. Power is delegable
b. An account represents a person
c. A stablecoin is not tied to fiat
d. The primary token is never diluted
e. The utility or system token is never lost
f. The greater the number of users or applications, the faster the transactions; in this sense, a Knowledge System (KS) for automating ValueLine transactions in a blockchain will do less work as it will have a rich source of information or data to learn from.

To achieve these goals, we suggest a 9-point format for data presentation to enable an intelligent organization of data at its point of creation. Then the metrics from this structured data are used to enable automated resource allocation using executable contracts which the community approves. Every system contract must adhere to this format using a ValueLine engineered bya machine intelligence capable Knowledge System (KS).

The nine-point format includes the following:

i. *The Need*: A contract must define a need it seeks to address; identification of this need is vital for determining the extent of the experiential or question-like solution matching process typically used by theKS.
ii. *The Means*: A contract must define the means it seeks to use to address the need; the means will be determined largely by the value of tokens supplied to the system which in turn is regulated by the ValueLine KS experiential and probing rules.
iii. *Consideration*: A contract must stipulate the cost of addressing the need; this cost will be regulated by the ValueLine KS.
iv. *The Execution*: A contract must adhere to this 9-point format when executed.
v. *The Expectations*: A 9-point format contract must clearly stipulate the rights and duties or risks and opportunities. Stipulated rights and duties will be used by the ValueLine KS for solution verification in a Proof of Work (PoW) to increase the trust mechanism during payout. The risks and opportunities will serve as context to the ValueLine KS to improve its probing (search/retrieval) function.
vi. *The Conditions*: A contract must stipulate the necessary conditions for its execution; a contract based on the ValueLine KS will not be executed unless the necessary conditions are met.The necessary conditions can also serve as additional context during experiential and interrogative learning.

vii. *The End*: A contract must stipulate the end that will emerge after its execution using the means; the end of a contract will be defined by a ValueLine KS query rule as fulfilling a sufficient condition.
viii. *The Rating*: A contract must make provision to be rated by the parties affected by its execution. The rating will be done by the ValueLine KS which includes a portion of experiences and a portion of probing queries in a consensus of user votes.
ix. *The Record*: The statements i. to viii. above shall be documented on the blockchain. The ValueLine KS shall store the representations or patterns formed in a quadruple memory structure consisting of unknown unknowns, unknown knowns, known unknowns, and known knowns. Any variations on the knowledge units will be defined as an extended set of contract learning units.

1.2 THE PLATFORM

The ValueLine platform is a decentralized platform that securely manages content creation and consumption. The platform shall have the following features:

- Accounts
- Relationships
- Verified profiles
- Community
    - Users (consumers)
    - dApps (producers)
    - BPs (resources providers – can be organized as producers)
    - Panels (governance)
- An intelligent Blockchain technology described as the Knowledge System (or simply KS)
- Inbuilt governance
- Identity management and regulation

2.1 THE ACCOUNTS/USERS

Four types of users shall exist on the platform. The user type will determine the spectrum of activities involved in the creation and consumption of private and public content (message/token transfers). The KS will harness the functionalities of User Types to build a Knowledge Field (KF) rich in users. The interaction among users will be described by the quadruple set of the KS including unknown users who desire content rendered publicly as well as users known only through experience or via probing operation exchange content when a secure matching condition is met.

The KS shall also be used to identify various classes of users; all such users are referred to as the Knowledge Field (KF) of users. A typical classification scheme will include a time-based Artificial Intelligence (AI) matching phase for interacting with a proportion of desired users and a rule-based matching phase for searching a proportion of desired users; the desired users represent a proportion of the KF of Users (KFoU). Both matching phases are used to predict the most likely user class or classes for several trial checks which, in turn, gives us the likely contents that will be created or consumed in the blockchain.

The following users are identified:

1. ANONYMOUS USER:

The first type is the anonymous user, who is a party that has signed up through a Ricardian contract using **standard credentials** like an email address or a telephone number. This typeof party does not desire to be contacted or to contact anyone on the network. The party is a **passive user** and can **only access public content** that is available to non-users.

2. SECURED USER:

The second type of user is the secured user, who is a passive user that has **verified his identity** as a person using his immediate network and other standards prescribed by the community. This user is open to **receiving private content (message/token transfers)** from other users. This user is **visible to his network** of users and desires to be contacted privately.

3. PRIVATE USER:

The third type is the private user who is a **secured user** that has initiated a **successful transaction on the network**. This user is interested in creating or acquiring private content that can be shared with other secured users.

4. TRANSPARENT USER:

The fourth and final user type is the transparent user, who is a private user who makes his identity known to everyone on the network by publicly posting a piece of privately created or received content. Accordingly, this is an active user that creates public content and is identifiable to other users.

2.2 USER PERMISSIONS

The rules for permissions can be amended by the community to ensure that the network provides equal opportunities for all users while ensuring that unequal outcomes do not eliminate the equal opportunity objective of the platform.

For user permission to be granted, the initial standards of account creation by the anonymous user must be met. Another way to create an account is to be invited by a private or transparent user. The **Genesis account** will be a contract between the initial user and the network to produce the initial blocks and to stake all received tokens for future account creation or credentialing. This contract will last for 4 years, which is the time for the network to distribute all ValueLine tokens. This will enable users to create accounts without incurring any costs.

For the sake of clarity, the permissions granted the above user types are enumerated below:

a. **Anonymous user account**: This is the first type of account which entitles a user to join the network. This account can view limited records, but it cannot engage in any activity on the network. This is created upon receiving and accepting the invitation. An email, phone number, location, etc. may be used.

b. **Secure user account**: This is an account that can receive secured messages but cannot transact or even respond to messages. Biometrics, pictures, and validations by other private or secured users may be required. This information will be accessible only to the user's network.

c. **Private user account**: A private account is an account whose user has been verified as an actual person by six or more private or secured users according to community standards. This account can receive and send messages from other private accounts. KYC standards or any standards acceptable to various communities in the different jurisdictions may be required.

d. **Transparent user account**: This account is a private user account that engages in public actions. This account is entitled to receive airdrops. All block producers (BPs) will be transparent accounts. A unique system security to protect the accounts of users from the public may be required here. Transactions may be numbered but are not attached to accounts. Governance may require that the user data be accessible using a paid or owner-generated temporary permission key.

3.1 VALUE CREATION

1. **Value Creation**: An asset or a liability is a product or service that supports a contract between two or more users. The users create value through the development, improvement, and implementation of processes that align or realign relationships and interests to produce profits after cost. This is facilitated by inventing, developing, producing, and delivering new market offerings that meet consumer needs.
2. **Identity Value:** A verified user is an asset to the network.
3. **Value Representation:** Consumer needs are the basis for labor demands. The supply and demand for labor are consistent with the supply and demand for any other services. Accordingly, when wages are low, labor supply decreases. This relationship is captured with the introduction of 2 tokens: ValueLine and Talent. ValueLine is a token that represents labor, while Talent is a token that represents products and services produced by the labor; both ValueLine and Talent are regulated by the KS.
4. **Resource Exchange:** An inbuilt exchange is used to facilitate the transfer of these assets between accounts in line with the primary blockchain contract. The initial value creation will be done intelligently through airdrops of ValueLine using the ValueLine KS mechanism. The airdrop of tokens will be done using the resource exchange.
5. **Value Exchange contract**: The airdrop is done using the ValueLine and withdrawn to user accounts using the Talent. Every airdrop is to be used at the user's discretion. Every value created belongs to the creator. However, the network exchange shall retain a 16.666% commission for network transactions related to the airdropped tokens. When a user sends a request to withdraw his share of the ValueLine contribution from a project, the network will initiate a withdrawal from the dApp to the resource exchange. From the exchange, it will send the equivalent Talent to the user. Each action will attract a commission of 16.66%, thereby enabling the exchange to retain 33.333% of all tokens.
6. **Worker Proposal Contract:** Every product and service funded by the network must go through the Worker Proposal System (WPS) and adhere to the system contract to ensure that the network receives 33.3333% of all Talents while leasing to users 100% of all ValueLine. Each lease shall not exceed a term stipulated by the community. Unused ValueLine decays back into the system account within 24 hours for redistribution.
7. **Private Assets:** The proceeds of a privately funded project belong to the creators. The creators retain 100% of the profits generated. They also pay for their network resources.
8. **Token Pricing:** When the system retains its share of the Talent (33.3333%), the price of ValueLine becomes fixed as a stablecoin and adheres strictly to the 180-degree trajectory.

9. **The Blockchain:** The most valuable asset on the network is the public ledger that orders transactions It ensures that the 33.3333% is not at risk and that the stablecoin is maintained.

4.1 ACCOUNT CONTRACTS

To ensure that the stability of the network is maintained and that the network is intelligent, the system contract requires accounts that contain arbitrary objects whichadhere to or recognize the consistent classes identified in the 9-point format.

1. Keys: Admission control will be based on a readable name that is stored on the blockchain and connected to your keys.

2. Accounts: For the purposes of maintaining network stability, the system contract will ensure that the resource demands made by the network will be correlated to the number of live accounts.

3. Value: The daily airdrop is distributed equally among live accounts. Any new log on will receive tokens at the prevailing rate at the time they went live. Any undistributed reserve will be deposited in the accounts that went live on that day.

4. System contract: This is the virtual machine that will execute every contract on the blockchain by merely identifying the arbitrary object that describes any of the 5 states of the 9 items represented by the 9-point format. There are 45 (or 36) possible states. The 5 states are the following:

0 = Rest (this may not be necessary)
1 = Invalid
2 = Not Valid
3 = Not Invalid
4 = Valid

The goal is to use a modular neural network to build a neural classifier that matches #1 and #2 in #3 as well as using #7 to deduce compliance with #6 and #5. This result is then presented to the user for his rating (#8). Next, it is recorded on the blockchain (#9).Every contract (except #9) has a relationship with the user through the system contract.

5. Access (control): This is the management of access to resources using the virtual machine. Possible outcomes using the 5 states in a 9-point access contract include any of the following:

0 = Rest (No attempt to access is detected)
1 = Invalid (e.g., Wrong credentials)
2 = Not Valid (e.g., Expired credentials)
3 = Not Invalid (e.g., Improperly submitted credentials)
4 = Valid (e.g., Properly submitted credentials)

6. Ownership: As already stated, 33.33% of Talent tokens belong to the network. 100% of the network is owned by the community. 100% of ValueLine is leased to thecommunity by the network. Premium income from higher-than-average users goes directly to the active Block Producers, thereby increasing transaction speed when demand increases. Distribution of Talents in any project or contract is as follows:

1.85185185185185% of allocated Talents will be distributed among providers selected by the users based on votes received (the secondary pool). 50% of the income (Talent) will be distributed among the top 6 providers (e.g., BPs) that executed the proposal (the primary pool):

Position	% of Talent earned by Projects using "Ranked Pay"
1	12.962962962963
2	11.1111111111111
3	9.25925925925925
4	7.4074074074074
5	5.55555555555555
6	3.7037037037037

14.8148148148148% of the system income (Talent) will be distributed to users that voted and rated a project (or referred another user} according to the position of their projects. The distribution will follow the "ranked pay" in the following order:

Position	% of Talent earned by voters
1	25.9259259259259
2	22.2222222222222
3	18.5185185185185
4	14.8148148148148
5	11.1111111111111
6	7.4074074074074

BPs or projects must consider these system payments while planning their proposals.

7. Products and Services: The primary product is a responsive blockchain that offers a truly decentralized, secure, and scalable service. A secondary product is data hosting services that make it unnecessary for dApps to rely on traditional data hosting service for their non-essential data. Accordingly, this proposal will make it possible for the contract to price this service independently of the blockchain service.

8. Audits or ratings: Every project sponsored by the network is open source and must be rated for Talent rewards. The ValueLine returns to the network reserve account the moment a completed project is rated. Below is the 5-point rating system:

1 = Bad (e.g., Fraudulent service)2 = Not Good (e.g., Poor service)
3 = Not Bad (e.g., Acceptable service)

4 = Good (e.g., Great service)

Payments of Talent rewards are tied to ratings received from voters. These ratings serve as matching context for the KS experiential and probing operations prior to a payout.

9. Record: This is the on-chain storage of the events from 1 to 8 above. These events can be classified as independent contracts that use a modular approach to organize themselves into a single smart contract transaction. The classes of contracts are identified and described in the following section.

4.2 Classes of Contracts

No contract

0 Rest: No contract is running. This is the state of an account that is not live.

User contract

1 Consumer or Demand Contracts: These are proposal contracts that are initiated by users and validated by the system (e.g., account access control, project proposals).

dApp contract

2 Producer or Supply Contracts: These are proposal contracts that respond to Consumer or Demand Contracts (e.g., inventory of accounts, labor skills, products, and services).

Exchange contract

3 Exchange Contracts (Matches Demand & Supply): These are system contracts that match Consumer or Demand Contracts with Producer or Supply Contracts.

Verification contracts

4 System Contracts (Terms): These are system contracts that ensure that the 33.333% holding of the network is not at risk, that transactions are appropriately ordered, that the stablecoin is maintained, and that the preceding contracts are beneficial to the network.

Role contracts

5 Terms of Demand Contracts: Using the last event, these are system contracts that conduct a SWOT analysis and identify accounts that will be affected by the preceding contracts.

Performance contract

6 Terms of Supply Contracts: Using the last event, these are system contracts that verify compliance with community standards and the available capacity of the producers. It also monitors the performance timeline to determine delivery time.

Receipt contract

7 Terms of Exchange or Receipt Contracts: Using the last event, these are system

contracts that monitor payments as well as the exchange or delivery of products and services in order to close a project.

Rating contracts

8 Rating Contracts: These are system contracts that measure user satisfaction with products and services to optimize the ranking of consumers and producers.

Record contract

9 System Contracts (Records): These are system contracts that record or file the data from 1 to 8 above using the 9-point format and Rest.

5.1 ROLES

1. Groups of credentials or a User: These are standards for account creation or access using community-approved credentials.

2. Groups of Users: These are permissions or privileges that connect users through their accounts.

3. Groups of Permissions: These are roles attached to accounts. This is the foundation of all private relationships on the network.

4. Groups of Roles: These are publicly documented relationships or contracts between users and the network. They are managed using modular neural networks to build neural classifiers that assign roles to create value by maximizing opportunities and minimizing risks.

5. Groups of Projects: These are qualified projects that adhere to the 9-point format.

6. Groups of Value: These are dependent, necessary conditions for the successful completion of projects.

7. Groups of Products and Services: These are delivered projects.

8. Groups of Ratings: These are aggregated clusters of ratings of different products or services from different groups, reflecting their levels of satisfaction with the delivery.

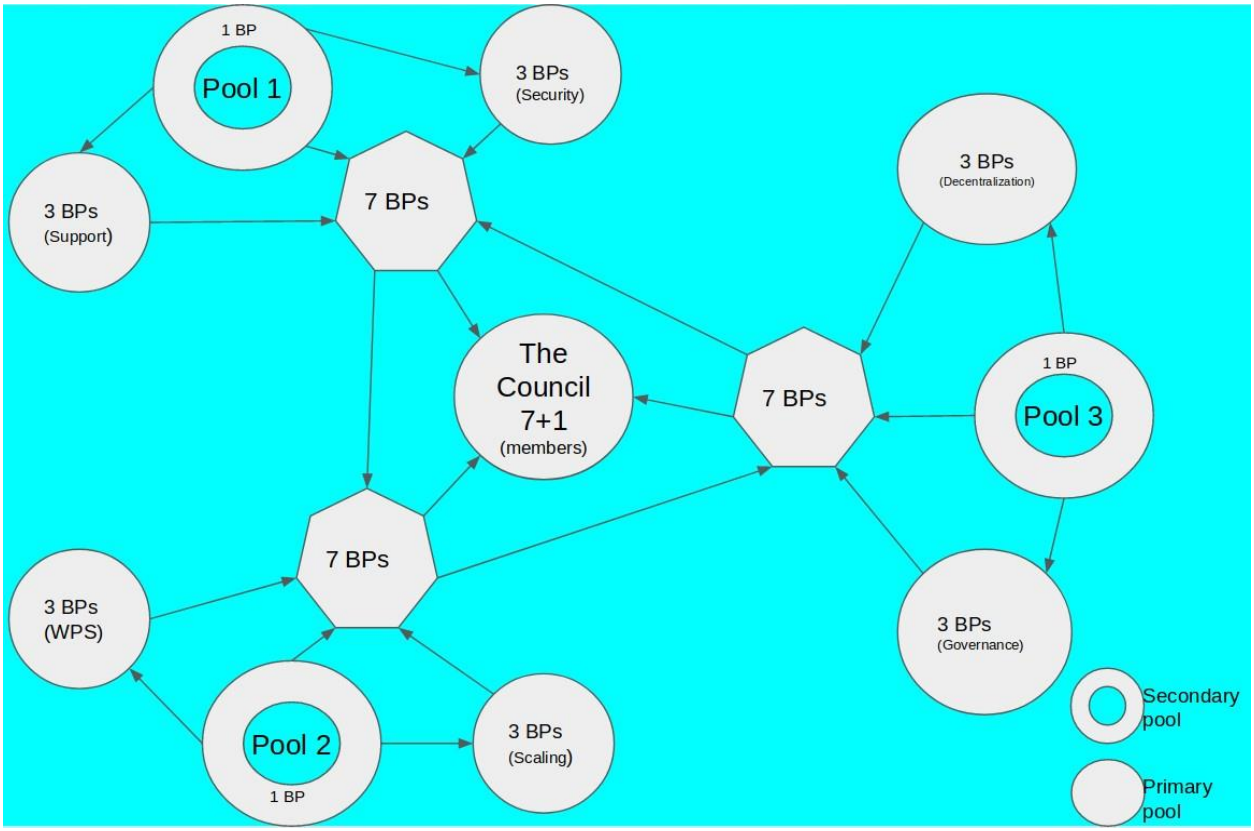
9. Groups of records: These are independently verified contracts received from a pool of block producers. Six groups of records received from the six pools make up a block.

6.1 GOVERNANCE

There shall be a governance council made up of the 21 **block producers** (BPs).

1. The users will elect 21 BPs into 3 secondary administrative pools that are focused on:

Pool 1 - Support and Security (33.33% of network profits less ValueLine insurance)
Pool 2 - Decentralization and Governance (33.33% of network profits less ValueLine insurance)
Pool 3 - Scaling and WPS (33.33% of network profits less ValueLine insurance)



2. Using performance metrics approved by the Council, 18 BPs shall be automatically or manually segregated into 6 primary pools of 3 BPs each, focusing on one task (e.g., WPS).

3. Using the same performance metrics, the top 3 performers in the 3 secondary pools and the 18 BPs in the primary pools shall be the decentralized entities governing the blockchain through the Council. The BP candidates in the secondary pools shall make the rules governing acceptance

into the 6 primary pools. The 3 lowest ranking of the top 21 BPs shall remain in the 3 secondary pools.

4. The Council shall be represented by 7 BPs elected by the 21 BPs, each casting a vote for the term of a project. The 7 BPs shall elect another BP as the 8th member of the Council.

5. The Council shall ensure that every proposal adheres to the 9-point format.

6. Every decision on a proposal must be reached through a referendum and every proposal must articulate a solution that can be executed programmatically.

7. The 8 members of the Council shall use the 9-point format to outline the governance challenge or a regulation. Then they must vote on each point or provision. This means that the 8 members must cast 72 votes and a proposal can only be approved with 48 votes or at least whena percentage of the votes meet a desired value. The desired value is automatically computed using a Knowledge System where a matching (experiential-like) processor is used to determine similar votes from a fraction of the 72 votes. A similar matching but probing (question-like) rule is also used to determine votes that meet a search criterion. For example, the number of votes that are cast as Point 1 will be determined by issuing a search criterion "Which Vote = Point 1" in the search rule. As another example, the search criteria could be the joint query "Which Vote = Point 1 and Which Vote = Point 2."

The search rule will also consider a fraction of the 72 votes for the governance approval. Hence, the actual governance proposal will be a consensus of experiential and question-like learning. These operations are achieved by performing several trial runs over the vote sequence entries from users such that the level of bias in decision-making by the KS is reduced and the solution is close to the optimal one.

8. Every proposal from the Council must be approved by the remaining 13 BPs. This means that the 13 members must cast 117 votes. A proposal from the Council can only be approved with 78 votes. The votes may also be computed using a similar mechanism as in item 7.

9. The results of the votes and the timeline for its implementation shall be published by the Council on the network. Each BP, each Pool, or the Council shall immediately communicate the outcome and its implications to its supporters. BPs whose supporters disagree with vote will lose the supporters' votes automatically.

7.1 VALUELINE GOLDEN POINTS

Golden Points (Valuation of Tokens):

ValueLine token price (vtp) ≡ average of the three top bitcoin currencies. Daily control of the price of *ValueLine* is achieved by:

- increasing or decreasing the supply of tokens (daily airdrop of *ValueLine* tokens) and platform fees
- interest rates
- miners' commissions

1) Unmet Demand Value (c) ≡ held class on the platform under contract (e)

2) The increased demand for tokens for platform stability, to ensure there is no increase or decrease of *ValueLine's* price, will be under the class met demand (d).

3) An issued token is a member of class Held in Reserve: Not under Contract (f).

4) An issued token of past contracts used to make an exchange is a member of -class Executed & Fulfilled Contracts (b). Past contracts can be used to build in stability. Stability is defined by the degree of fitness of met demand with respect to unmet demand.

4a) For example, purchased *ValueLine* tokens that have been exchanged with *Talent* tokens.

5) An issued token of past contracts not used to make an exchange is a member of class Executed & Unfulfilled Contracts (a).

5a) For example, purchased *ValueLine* tokens that have not yet been exchanged with *Talent* tokens.

6) Future contracts

6a) Funded contracts (h) ≡ the exchange platform allocated capital for the purchase of tokens in future

6b) Unfunded contracts (g) ≡ the exchange platform unallocated capital for the purchase of tokens in future.

Golden Points (Talent):

Talent token price (ttp) ≡ function of active users willing to purchase the Talent token

This will be computed based on the number of active users obtained from a predefined pool of active exchange users (AUs). The pricing scheme will be a consensus of potential activeusers who are determined (discovered) by an experiential learning phase and a probing phase within an invariant or fixed Token Price Estimation Knowledge System (tPEKs).

Note*: The number of willing AUs represents the Demand Change (increase or decrease) in token price reflects changes in demand which in turn impact resource usage.

Other exchange platform parameters that change include the following:

- Exchange Fees
- Interest rates
- Miners' commissions

Increasing Active Applications

Since the demand for tokens will be higher than the supply, creating a shortage of tokens, token prices will increase to match the demand and supply forces.

A Knowledge System will define an experience and probing phase where a portion of AUs describing the ttp will be optimized in such a way that it matches the available AU-biased tokens with the tokens demanded.

The optimization phase will use a self-discovery phase involving several initial trials described below:

- If a token match is found, the experiential and probing operation terminates; otherwise the trial is incremented to continue the matching process until a maximum number of trials is exceeded.
- If the number of trials is exceeded and an exact match is not found, we take the trial count that gave the token price with the least matching fitness error (mfe).

Decreasing Active Applications

When the resources exceed the demand, this will result in a surplus in token supply. Thus, the token prices will decrease to match the demand and supply forces. The KS concept also applies to this function.

8.1 RESOURCE OPTIMIZATION OF VALUELINE WITH THE KS

Model of a Reward-Penalty Scheme for a ValueLine KS Processor:

Block producers add content (resources) and hence value to a blockchain community in diverse ways. For a set of resource contributions by a BP, a resource will be numerically assigned a value by rating. The resource is specifically believed to add value to the community if, after an unbiased rating (voting) exercise, the block producers' content meets the needs (minimum and maximum specifications) of a select portion of the regulating community. The regulating community may be referred to as experts or simply regulators.

This rating or numeric quantification is performed by anonymous judges, experts, contributors, or any user who has a first-hand knowledge of the assessment of such a resource.

Typically, the resource or resources will be published through a suitable forum or social network site online. Provisions are made for the categories of contributors in the mentioned earlier.

To assure a level playing field, it is useful to add some sort of reinforcement program to move community efforts towards a more reliable, justifiable process. It will then be possible to effectively evaluate the performance of a given blockchain network: Isit doing poorly or is it ok? Hence, we can suggest remedial actions or necessary adjustments if necessary.

In equation (1), we provide a very simple but powerful model that borrows from the basic principles of reinforcement learning used in Artificial Intelligent (AI) systems. The definitions and notations of symbols used are also provided below.

$$n_p^n = \begin{cases} \left\lceil n_p^n - 1.85\% n_p^k, \quad m_o^- > th_{\max} \right\rceil \Big\| \\ n_p^n - 1.85\% n_p^k, \quad m_o^- < th_{\min} \end{cases} Penalty \\ \begin{cases} n_p^n + 1.85\% n_p^k, \quad m_o^- < th_{\max} \quad \& \, m_o^- < th_{\max} \end{cases} \text{Re } ward \tag{1}$$

An unsigned match operation is computed as:

$$m_o^- = \left| n - (n-1) \right|^{abs} \tag{2}$$

While its signed equivalent is computed as:

$$m_o = n - (n-1) \tag{3}$$

where,

n_p^k = standard or fixed commission, k, to a block producer (BP) providing a resource.

n_p^n = current (initialized) commission, n, to a block producer (BP)

n = nth value of a resource, the resource being part of a KS sequence

Thus, if a BP provides a correct resource, the network saves resources. If it is an incorrect resource, the BP will be penalized so that he or she provides the correct resource next time. Note that in this situation, the BP will have realized his or her error and will attempt to provide a matching resource in the next attempt when possible.

From our model, if m_o is within its threshold value, we say it is within-rating. Otherwise, it is out-of-rating.

Next, we need to provide a means of determining the needs of the regulating community. In this regard, this reduces to a means of calculating th_{max} and th_{min}.

How to determine th_{max} and th_{min}:

Given a pool of resource-regulated ratings, a %UK of a desired pool size (originally obtained from a Knowledge pool of selected vote ratings) is selected from the vote pool. Then, useful information is obtained experientially by using a random matching operation through time in accordance with equation (2) for m number of times.

For each extraction operation performed earlier, a UK pool mean is computed as:

$$UK_{\mu o} = \frac{UK_{(m_k)}}{n(m_k)}, \qquad m_k \in Z, m_k \subset m, UK_{(m_k)} \in U_k, U_{(m_k)} \subset U_k \tag{4}$$

where,

$m_k = \bigcup_1^m rand\,perm$ → Random Permutated integer number between 1 and m

$n(m_k)$ → Cardinality of m_k

Also,

$$UK_{\mu o} = \left\{UK_{\mu o1}, UK_{\mu o2}, UK_{\mu o3}, \cdots, UK_{\mu o m_k}\right\}, \forall m \; considered \tag{5}$$

where,

$\forall$ denotes the mathematical symbol "for all".

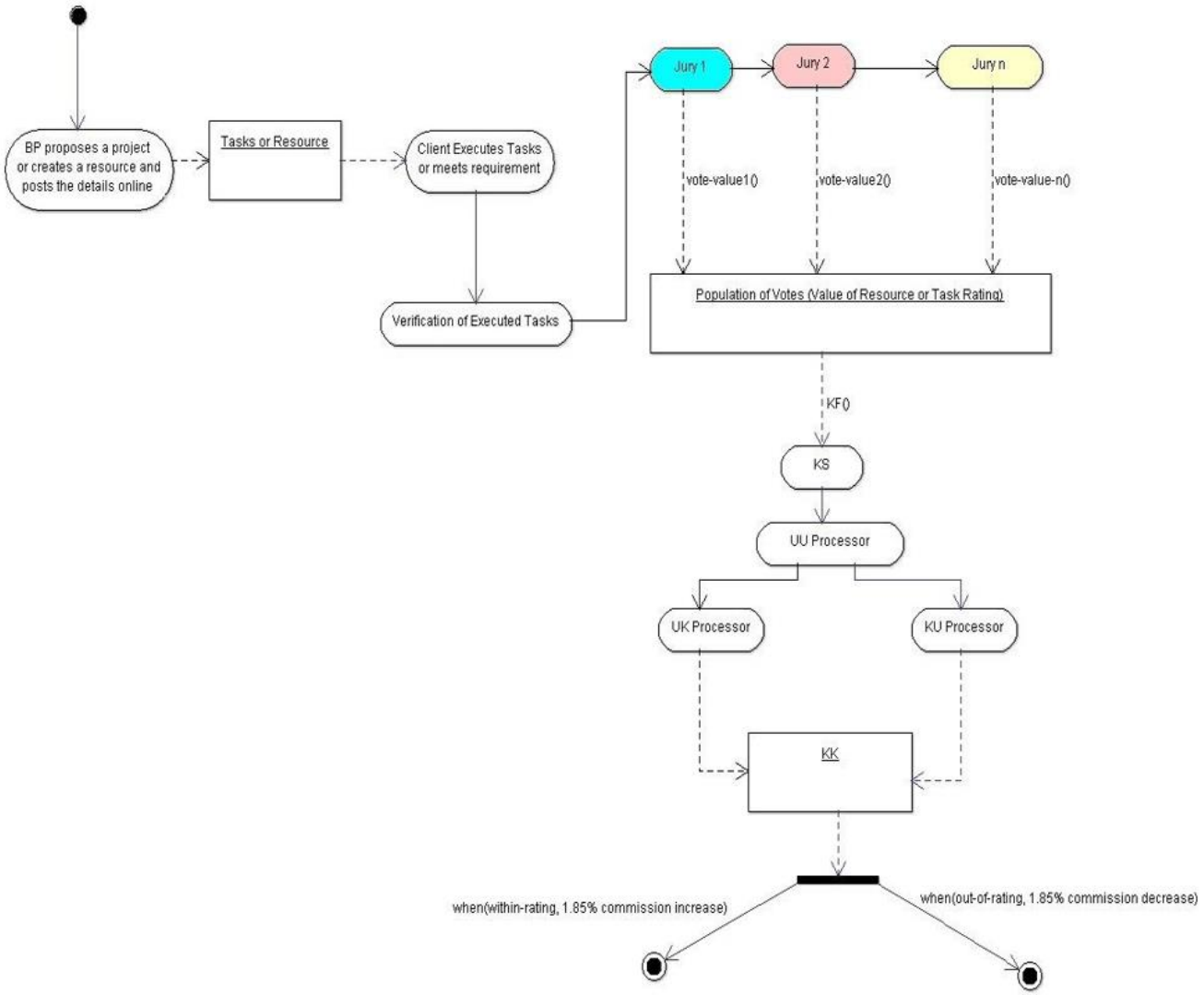
From equation (5), the min-max thresholds can easily be computed by taking the min and max of the UK sequence as in equations (6) and (7), respectively.

$$UK_{\mu o\_\min} = \min\left(\overset{\cdots}{UK}_{\mu o}\right) \tag{6}$$

$$UK_{\mu o\_\max} = \max\left(\overset{\cdots}{UK}_{\mu o}\right) \tag{7}$$

Systems View:

A systems view of the proposed KS-Valueline concept is shown below.



9.1 CONCEPT OF A SELF-REGULATED BLOCKCHAIN-BASED EXCHANGE PLATFORM

This section provides a detailed concept of a self-regulated blockchain exchange platform for the *Valueline* network. The blockchain-based exchange platform will permit users (or holders) to exchange their resource tokens (*Valueline*) for redeemable store of value (SOV) tokens known as *Talent* tokens, which are also used in the exchange program. *Talent* will have the potential to act as a secure mode of payment. For example, individuals will be able to pay their service providers with this redeemable token. *Valueline* tokens will have a fixed value while the value of *Talent* tokens will vary depending on their demand.

The Exchange Process

The blockchain exchange platform largely acts as a regulated foreign exchange platform. People will exchange different forms of assets on the exchange platform for tokens at a commission by the platform. There are two ways through which individuals will acquire tokens: by purchasing directly from the exchange platform and by receiving tokens from existing users through a transfer of the right of ownership. In each case, all issued tokens will be transferred through the platform exchange.

Because all Valueline and Talent tokens are freely offered to users by the network, the network retains 33.333% of the Talent tokens. Accordingly, when a user votes with a freely received Valueline token, he accepts the condition that 33.333% of his vote was cast on behalf of the network. When the user is being paid for his vote, the network applies a 16.666% fee on the transaction. Similarly, a transfer of Talents from the holding account will also apply another 16.666% fee on the transaction to complete the retention of the 33.333%. As a result, the exchange platform will earn a total commission of 33.333% for all issued and redeemed Talent tokens.

Noteworthy, *Valueline* tokens will not leave the exchange platform, only *Talent* tokens will be withdrawable. However, holders of *Valueline* tokens will have the right to exchange their tokens with *Talent* tokens at their existing market rates. This strategy will ensure there is a stable utility token to back contracts on the blockchain. Further, holders of any class of tokens (*Valueline* or *Talent*) will be able to transfer their tokens to a third party for free.

Valuation of Tokens

Two distinct models will be used to value the two categories of tokens, *Valueline* and *Talent,* which will be issued by the platform.

Valueline

The value of Valueline will be based on the average of the top three bitcoin-related cryptocurrencies and subsequently through the adherence to a 180° trajectory after the network obtains its 33.333% of the Talent tokens. To avoid price fluctuation depending on the demand of Valueline in the market, there will be a daily control of the price by increasing or decreasing the supply of tokens (daily airdrop of Valueline tokens), platform fees, interest rates, and miners' commissions. For stability of the exchange, the platform will float *Valueline* tokens daily which are already locked in the category of executed and unfulfilled contracts (See graphics below). This strategy will ensure that the price of *Valueline* is stable, ensuring the 180-degree projection. Since *Valueline* will have a stable price, all airdropped but unissued tokens will be under the category unmet demand (See graphics below).

The value of the unmet demand (c) will be equal to that of the class Held on the platform: Under contract (e). The increased demand for tokens required to make the platform stable will be under the class met demand provided that there is no increase or decrease of *Valueline's* price (d). The issued token will be under the class Held in Reserve: Not under Contract (f). Past contracts of tokens that have been issued and used to make an exchange will be under the class Executed & Fulfilled Contracts (b). For example, purchased *Valueline* tokens that have been used to generate value via *Talent* tokens are like a user that purchased *Valueline* and used the resources to sell a product or a service in exchange for *Talent tokens.* Past contracts of tokens that have been issued and not used to make an exchange will be under the class Executed & Unfulfilled Contracts (a). For example, purchased *Valueline* tokens that have not yet been exchanged with *Talent* tokens. In future contracts, the funded contracts (h) are those that the exchange platform has allocated capital for purchase of tokens in future, while unfunded contracts are those that exchange platform has not yet allocated capital (g).

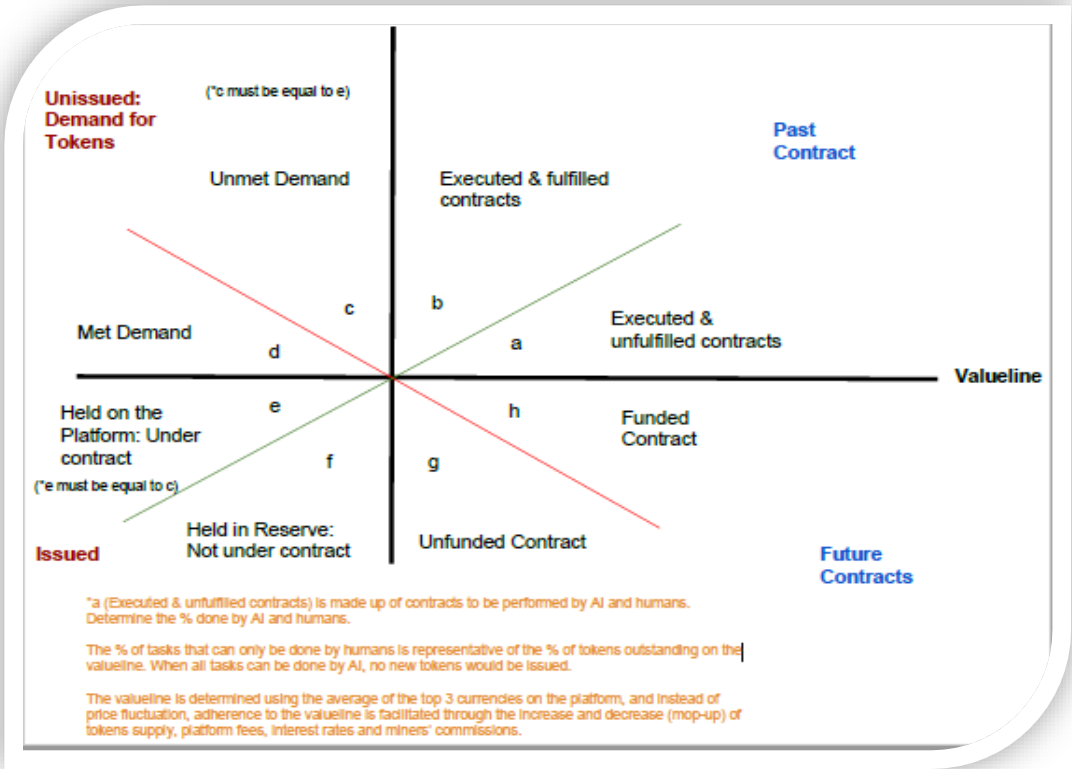


Figure 1: *Valueline* Token Management

Talent

The value of *Talent* will adjust based on market demand. Therefore, the price of the token will increase or decrease depending on the number of active users willing to purchase this token at any given time. If the demand for the tokens increases relative to supply, the value of the issued *Talent* will increase. If the demand is low relative to the supply, the value of the issued *Talent* will decrease. The platform's fees, interest rates, and miners' commissions will also increase or decrease depending on tokens' demand since these changes will also affect the usage of resources.

More Active Applications

A high demand for *Talent* tokens will imply that there are more active applications. The high number of applications will result in a scarcity of resources such as (RAM, Bandwidth, Storage, etc.). Therefore, miners and the exchange platform will earn a higher commission when there are more applications than when there are few active applications. Since the demand for tokens will be higher than the supply, which will result in a shortage of tokens, the

token prices will increase to match the demand and supply forces. The platform will use its 33.333% asset (subject to the availability of complete insurance) to ensure that resources are distributed to meet growth needs.

Less Active Applications

A low demand for Talent tokens will imply that there are less active applications. The low applications will result in surplus resources (RAM, Bandwidth, Processors, etc.). As a result, miners and exchange platforms will earn a low commission due the low demand for their services and resources. Since the resources will exceed the demand, which will result in a surplus in token supply, the token prices will decrease to match the demand and supply forces.

Figure 2: Talent Demand and Supply

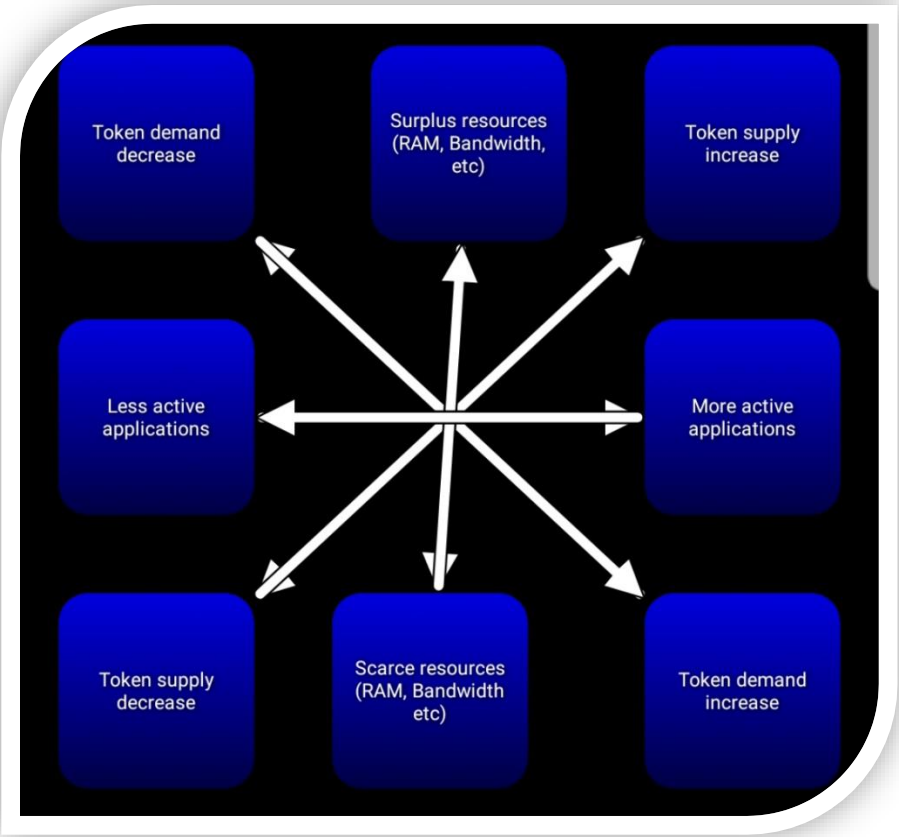
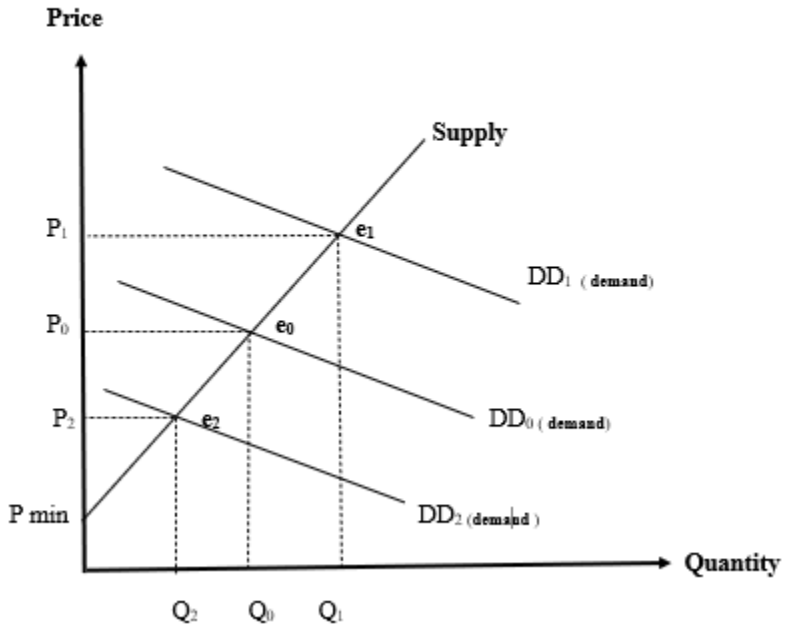


figure 3: Graphical Illustration of Talent Pricing



Where, P is price, DD is demand, S is Supply, Q is quantity.

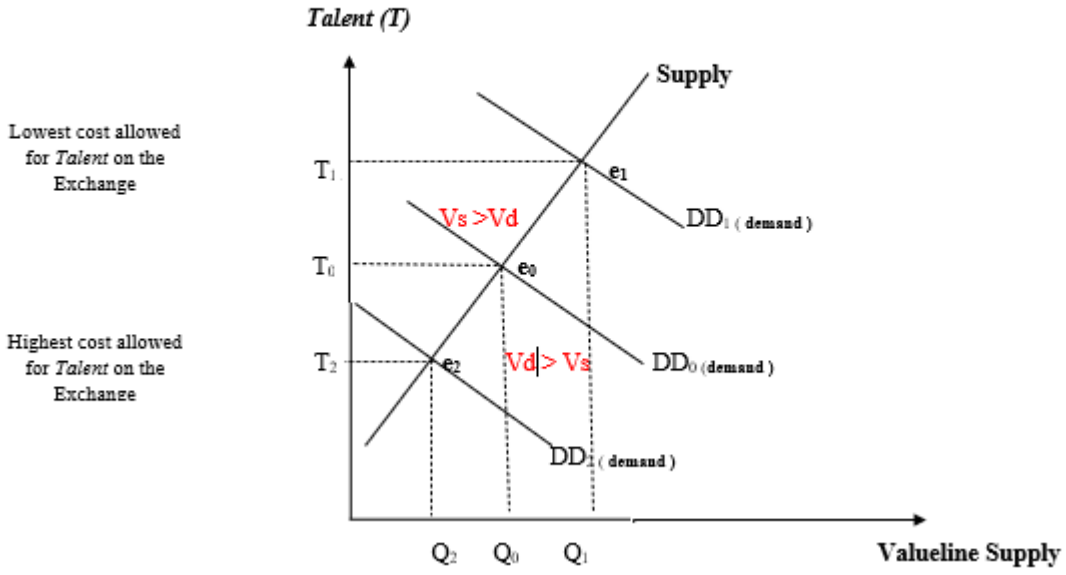
The equilibrium demand for Talent tokens results in price (P0) and quantity (Q0).

When there are more active applications, the demand for resources increases to DD1. At this level, the new equilibrium (e1) is attained by increasing the price to P1. At price P1, the exchange platform and miners will increase their resources to match the market's demand.

When there are few active applications, the demand for resources decreases to DD2. The demand for *Talent* is Q2. At this demand level, a new equilibrium (e2) forms because miners and the exchange platform are willing to sell their services at a lower fee of P2.

Note: The price of *Talent* cannot fall past zero (P min) even with zero demand because it has a minimum exchange rate that is pegged at the equilibrium price of *Valueline.*

Figure 4: Valueline exchange with Talent



Where, P is price, DD is demand, S is Supply, Q is quantity, Vs is Valueline Supply, Vd is Valueline Demand. The blockchain-exchange platform always aims at maintaining *Valueline* at the equilibrium levels E0. Since *Talent's* value is based on *Valueline,* they have an inverse relationship. An increase in the supply of *Valueline* leads to fall in the exchange rate of *Talent* for *Valueline.* For example, an increase in the supply of Valueline from Q0 to Q1 results in a shift in exchange rate with *Talent* from T0 to T1.

A decrease in supply of *Valueline* results in an increase in the exchange rate of *Talent's* for *Valueline.* For example, a decrease in the supply of Valueline from Q0 to Q2 results in a shift in exchange rate with *Talent* from T0 to T2.

The equilibrium exchange rate is T0 and the quantity of *Valueline* held on the market under contract (e) is Q0.