ALEHUB

ALEhub Project

WHITE PAPER

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INTRODUCTION

The modern economic paradigm has two distinct standalone segments:

- Real classical economy with its current rules, codes of business conduct, records and legislation.
- Crypto blockchain economy that provides means for decreasing a number of intermediaries involved in conclusion, closing and funding the deals, as well as consensus for authenticity of conditions and procedures.

The areas of concern in both segments are well known:

- In classical economy, decision-making is done in a few sectors of financial and state authorities. As a result, the potential to reach a compromise and arrive at a consensus is limited. Financial and legal infrastructures are quite expensive and not flexible.
- Cryptoeconomics is defined by non-compliance with legislation and recognized values of most countries in the segments of identification of fiscal agents, private data storage and encryption, liquidity and legality of digital means of payment, verification of authorization, skills, etc.

ALE Project team believes that now it's time to bring together best aspects of separate segments in order to get to a qualitatively new level - composite economy. This means a simple integration of rules and customs of existing industries and segments of global and local economies with the new processing and verification capabilities. So it becomes cheaper, simpler, more reliable and flexible.

Basic principles

- Overall compliance with existing approaches instead of implementation of new ones. Procedure optimization and distribution of required capacities, diversification of financial and processing risks.
- One of the core values of any project is the documentation and information in the course of its implementation.
- Compliance with the laws covering participants' verification and data privacy while keeping ability to manage access rights.
- Tracking rules of interaction in the globalized world.
- Special processing of large files to secure mobility and communication rate in the system.
- Flexibility, responsiveness and consensus on decisions in the course of a project implementation strongly determine its successfulness.
- In the long term, we should develop a platform with API connected to users' software (Clients). Number of functions and applications is almost unlimited as in real life, so in contractual work. Further development will follow an Application store model.
- An agreement (contract) is the basis of any business activity.

ALEHUB system is a tool designed to provide a convenient environment for searching and approving contract partners, their formal and practical competencies, formalizing terms of fulfillment of certain stages and the whole contract, adapting the contract terms and contracting parties to changing external and internal conditions by agreement of the parties or due to specific scenarios of the over-contractual consensus of large groups of the professionals; computerizing execution of the approved algorithms for reservation, payment, compensation and profit sharing.

Such solutions can be implemented only with a system approach: coordinated functioning of the users' software, virtual data warehouse, microprograms and codes transmitted via telecommunication networks, algorithms for change decision-making and data interpretation under dynamic operation conditions. All the above-mentioned correlates with financial models used in the economy, regulations and laws of the main jurisdictions. It has internal mechanisms for adjustment of rules and policies while maintaining constant and authentic recorded history.

Background

The number of active projects worldwide, even in IT & Hightech industry, is huge. In theory, that allows to set up and maintain quite developed and stable network of nodes utilizing users' computing landscape, traffic and storage capacities, as well as their mobile devices batteries capacity. Development of a corporate network for high-profile client could also be an option.

Availability of numerous industry-specific companies that develop and support protocols and other standards, evaluate and validate results and characteristics, grant licenses and certificates, shows a high degree of deal making skills and ambition for consensus over areas of concern.

Internationalization issues affect industry to the fullest extent. Processes of approval of rules, procedures, financing and risk management are growing more and more urgent.

If a fair compensation principle/algorithm for utilizing users' capacities is in place, it is possible to support stable operation of sufficient amount of nodes.

All these factors give grounds for choosing blockchain-based solution. Simple in definition, requirements for flexibility in reflecting and recording decision-making process, adaptability and other necessary features called for development of our own protocol and software tools, which are interrelated with such protocol by logic and processing.

The system, developed by ALEHUB on a new protocol, offers the possibility to manage projects via simple and intention-revealing interface, also supported on Android/iOS mobile devices.

Main challenges

Display and obligatory financially supported recording of agreements between numerous parties of the same contract with no room for ambiguity, deadlock, cultivation of irresponsibility or freeze of non-proportional volumes of liquidity as a subject of pledge.

Ensure quick arriving at a consensus or following consensus under dynamic conditions of growing desires of the participants, changing conditions in the course of projects implementation or external conditions (i.e., in “real life”).

Integrate into the structure of protocol special fields for parameters and data structures supporting, when required, processing of user identification in the system as individuals and/or specialists and/or persons authorized to operate in any qualification system (industry-specific, international, independent, innovative etc.).

Ensure easy and intuitive utilization of tools based on ALE protocol – data, functions and parameters handling through client-user interactive interface supported by stationary and mobile devices.

Reduce dynamic balance of processing, communicational and storage load, as well as subsystem loads, in order to switch in the long term to distributed network, including mobile device based network.

Eliminate substitution of identity of already existing global qualifying and certifying authorities. Protect architecture baseline of the system from excessive malicious and faulty activities, especially from unnecessary accumulation of verification functions in the hands of a single person.

Additional challenges of the financial aspect: minimization of currency risks, including those related to crypto-currency, while keeping investment opportunities, i.e. capitalization of success in one form or another. These two conflicting goals are solved in the ALEHUB project by dividing the funds into the active-token – ALE-TOKEN and the system-internal payment instrument - ALE-COIN.

ALE TOKEN – to provide investment liquidity and ensure convenience of the investors it was written under ERC20 and is listed at stock exchanges. ALE-TOKENS are limited in quantity by approximately 150,000,000 units. Each of them ensures automated and proportional distribution of ALEHUB project generated profit.

AXEL (ALEhub eXchange element) is a container. It stores so much currency as it was placed there. This allows the holder to forecast planning, investing or selling its service within the limits of chosen currency or group of currencies (i.e., without exchange risks).

We offer our solutions to the court of public opinion and reveal them in the next chapters herein.

MARKET REVIEW

ALE core audience is the companies of the developed and developing countries. According to data provided by PWC, more and more companies recognize the importance of project management. In 2004, more than 30% of companies were not practicing project management methods on a regular basis. By 2012, almost half of the respondents have successfully implemented means to manage projects and obtained results.
The market of project management is constantly growing because of the new companies that are facing challenges in this sphere. Core audience may be divided into three segments: large enterprises (more than 250 employees), medium-sized and small enterprises, and self-employed persons (including PWC freelancers).

Figure 1 "Evaluation: amount of companies".
Source: PWC (2013), "Insights and Trends: Current Portfolio, Programme, and Project Management Practices" (report)

Out of the total number of companies at least 40 000 000 are still functioning, capable of paying and quite flexible in utilizing new means of project management.
ALE competitors can be divided into 2 segments:
1. Project management systems;
2. Freelance marketplace.

Market of project management systems

In 2017, the market of project management software was evaluated in $2.3 billion. Compared to the 2012 results ($1.65 billion) the growth made almost 40% during 5 years. Major market players are:

The majority of competitors are the Enterprise-class systems, which are an integral part of ERP systems. According to the Gartner report, the absolute leaders of the market are CA Technologies, Planview and Changepoint. These products are complicated in usage and implementation. Implementation of Oracle products requires certified professionals, reports in CA project Portfolio Management and SQL knowledge. Even analytical agencies point out that the large part of the systems (like CA PPM, Changepoint & Daptiv, HPE PPM, Microsoft Project) requires serious trainings for the employees if they never came across every specific system.

On the opposite side of the Gartner magic quadrant, there are SaaS products, which do not have flexibility in adjustment and force the users to follow project management methods adopted by the developers.

Furthermore, while analyzing the existing products we forget about server capacities and their support that are required by the server products. This is why Oracle, CA PPM, HPE PPM and other products are mainly aiming at large enterprises with highly developed infrastructure. Due to server organization, retention of documents is provided only through
1. Information security;
2. Support of internal server infrastructure.
If data warehouse breaks down or unauthorized access to the servers is gained, all project documentation and management infrastructure is under a threat.

Freelance marketplace

Key freelance marketplace are:
1. Upwork
2. 99designs
3. Task Rabbit
4. Link to expert
5. Talk Local
6. ozLance
7. Handy

Forbes evaluates freelance marketplace in $1 billion. However, none of the leading freelance marketplaces solves the problem of automated control over obligations, legally binding contracts with freelancers all over the world and remote labor control. Large enterprises, which hire teleworkers, have to use additional tools to control them (SAP Fieldglass etc).

Segments of ALE market

For planning purposes, we divide the market into 5 segments: large enterprises (over 250 employees), medium enterprises (50 to 250 employees), small enterprises (10 to 50 employees), microenterprises (less than 10 employees), self-employed persons & freelancers. Financial forecast of ALE system should be made based on information about the number of projects in the system. Though the last 2 segments bring minimum of orders, they play the key role since they represent the largest community of the Contractors in the system.

Figure 2 "Average volume of projects, in US dollars".

Large enterprises

Large enterprises are included in the analysis regardless of belonging to any economy sector. Since whatever type of activity is performed by the companies, they have a need for IT functions, research, analyses and reviews. Large enterprises can act as a Contractor and a Customers in a large number of projects at once.

According to PWC, projects with a budget from 1 to 10 million dollars make 36,1% of the total number of projects of large enterprises. Unfortunately, reliable statistics on the distribution of projects by volume are not presented, and to avoid bias of estimator the economic calculations will use the index of the volume of the average project of a large company totaled up $ 1,000,000. The project with such budget has an average term of execution - 1 year. Thus, the total volume of such projects in this market is at least $100 billion.

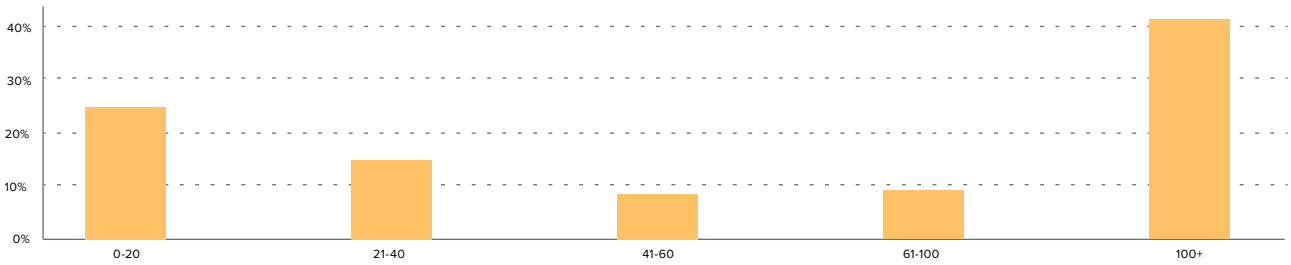


Figure 3 "Number of projects in the portfolio of large companies".
Source: PWC (2013), "Insights and Trends: Current Portfolio, Programme, and Project Management Practices" (report)

Current study does not include projects greater than $10 million, since they represent the strategic interests of large enterprises and their management should be carried out in a special mode.

Medium enterprises

If large enterprises act primarily as Customers, there are more and more Contractors on the level of medium-sized enterprises. At the same time this sector is distinguished by the fact that a significant number of medium-sized enterprises will provide services to each other. Since 2-3 enterprises interact within the same contract and place funds into the system only once, the number of valuating units should be reduced in economic calculations. Medium-sized enterprises simultaneously support from 3 to 6 medium-sized projects or up to 2 large ones.

Small enterprises

Small enterprises act both as Contractors and Customers in equal proportions. At the same time, it appears probable that 25% of all orders of small enterprises will be executed by small enterprises, since they can provide the best balance of cost, quality and order cycle time for small projects. Small enterprises are one of the main targets of the marketing campaign at the first stages, because due to low commission fees and estimated elasticity of the offer by segments - the volume of small enterprises will give the maximum economic effect for the system.

Microenterprises, self-employed persons & freelancers

Microenterprises act on a platform primarily as the Contractors and Customers of the smallest projects. Microenterprises, like self-employed persons, are the second significant target, since they provide workforce enough to support the largest number of Orders in ALE system.
Self-employed persons and freelancers represent the largest segment, acting as Customers in less than 5% of cases.

Unregistered small- and microenterprises, part-time self-employed persons

We represent this segment as an additional one. According to the World Bank statistics, there are more than 300 million unregistered micro- and small enterprises worldwide. We do not consider this segment in further financial calculations due to the lack of reliable statistics, however, when ALE system starts functioning, the project team deems it possible that such enterprises will transfer from the shadow economy to the real one. Significant efforts will be made to support this process.

PROBLEMATICS

Regulations and requirements

All the systems based on distributed ledgers have one essential fault - the procedures performed fail to meet the legislation of majority of countries as for identification of the economic agents. Until now, this factor has stymied implementation of the platform with multilateral smart contracts, which could have satisfied all the requirements of participants of real global goods and services market.

Encryption

COUNTRY	TITLE OF THE STANDARD	ALGORITHM NAME	PUBLICATION YEAR
USA	Advanced Encryption Standard (AES)	Rijndael	2002
Russian Federation	GOST 28147-89	Magma	1989
Russian Federation	GOST-R 34.12-2015	Kuznyechik	2015
China	SM4	WAPI	2006
Switzerland	IDEA	International Data Encryption Algorithm	1991
Japan	Camellia	Camellia	2000

Table 1 «Encryption standarts»

Different encryption requirements demanded of different legislations. All the available platforms offer only one method of data encryption.

Project management methodology

Almost every country has its own project management standards (DIN 69901 in Germany, international ISO 10006-97, APM in Great Britain). At the same time some countries have several unique project management standards (Prince 2, BS 6079-1:2010 and APM in Great Britain). Each standard regulates specific features of the management process. And none of them can be treated as generally accepted - even in particular industry sector in a particular country.

Today's market of project management systems has variety of server products targeted to meet the demands of the large business. Significant time and financial resources are needed to implement them, mainly to adapt them to certain industry sectors or companies.

As the practice shows, the methodological aspects of project management can differ dramatically.

It is almost impossible to arrange work in strict conformity with accepted methodology if simple services of project management are utilized.

Project documentation

When it comes to project documentation, two basic issues should be considered:
1. unilateral repudiation of obligations caused by informal or unverified correspondence;
2. integrity and invariability of the project documentation.

Smart contracts

Current platforms for implementation of decentralized applications do not offer solutions how to make an adequate substitution of a juridical person (contracts, notary officers, guarantors etc.) needed for creating trust relationships between parties. To reach the acceptable level of trust the two problems should be solved simultaneously:
1. The possibility to enter into a smart contract with conditionally unrestricted number of the parties;
2. The possibility to amend a concluded smart contract with the new provisions, including engagement of the additional parties.
The next evident problem is a technical complexity of smart contract creation, i.e. the demand for the technical expert (e.g., Solidity programmer). Many programs based on such platforms as Ethereum, Waves, Qtum, Stellar etc. offer a means for solving this issue. However, these are already existing smart contracts that allow establishing actual interaction between specific parties without an option to expand the terms (as for example in the cybersport betting system or automated system of compensation of losses for insurance companies). It means that new smart contracts are not created within such projects. Our platform offers the possibility to create traditional interfaces to enter into smart contracts without being bound to the “parent” smart contract.

Volatility of payment instrument and compliance with jurisdiction

Current platforms for implementation of decentralized applications offer an environment where the projects with internal tokens can be created (e.g., ERC20). However, none of the current tokens can be used as a payment instrument in a real market project. Why? This is because tokens and cryptocurrencies are defined by high volatility.
Cryptocurrencies with the fixed exchange rate against fiat currencies (like TetherCoin) can not become an acceptable option from a standpoint of different jurisdictions. For instance, the Russian contracting parties can perform payment transactions only in national currency.

No guarantees and opportunities to resort to arbitration

The common issue of classic freelance platforms is the absence of guarantees. Mainly the lack of financial performance guarantees by the Employer and complete execution of the technical specification by the Contractor.
ALE is also designed to address challenges of complicated and unprofitable official judicial protection of contract parties’ rights. To solve this, the system should allow different parties to operate in legal environment.

GOAL OF THE PROJECT

There is a separate room in the market for project management applications. The planning, adaptation and record-keeping of managerial, technical and engineering solutions is executed within its framework. There are CRM-systems for management and communications accounting. Financial services related to execution of the projects and fulfilment of the terms of the corresponding contracts are carried out and managed separately via banking applications and operator's accounting system.

ALE project team have set a challenge to unify basic features of mentioned services into the one, based on the distributed ledger. By doing so we can offer the common and user-friendly tool & interface to all the parties of the project business.
To achieve this goal ALE project team have arrived at the decision to develop a brand new platform and protocol, that would be able to: support the format of already existing real economics contracts; provide the required processing speed, variety and multifactorial nature of relations; improve the convenience level in utilization and perception of information. For this purpose, we are making solutions for the below issues:

- Complete match of a protocol with already existing real-life practices of project management in a convenient and user friendly mode;

- Overcome technologic challenges of existing services:
  a. Technical specifications of low quality due to client's lack of competence;
  b. Acceptance procedures issues;
  c. Imperfect legal provisions covering the responsibility of the Employer and Contractor for partial or full defaulted obligations;
  d. No coordination between project documentation and financial activities;

- Consensus of parties confidence through the distributed ledger is provided by blockchain, supported by financial assurance and reputational risks via ALE system serving as a neutral intermediary;

- Automatic processes of settlement payments between the parties;

- Unification, acceleration and maximum automation of members verification processes, technical specification and results of work;

- Capitalization of payment instruments, management and control over expenses;

- Quality and reliability improvement of contractor's agreements and consistency of achieved results;

- Registration of contract terms approval and performance processes in blockchain;

- Payments, advance payments and provision of guarantees by the contracting parties within ALE monetary system;

- Project flexibility - possibility to change terms provided that financial and management decisions consensus is in place;

- Own authentic verification procedure through blockchain record;

- Possibility to have several contracting parties, for example: a tester, receiving inspector, a number of consequent and concurrent subcontractors, certification commission and so on;

- Automation of processes of parties verification, technical specification and delivery- acceptance (Acceptance tests, Qualification, Execution Control, Commissioning, Compliance) both for the Customer and the Contractor; disposition of funds between contracting parties according to the contract terms based on ALE algorithm and ALE electronic contracts execution protocol.
Registries of participants in the economic activities, which are certified for specific operations, exist as at a level of different jurisdictions, so at a level of economic sectors. That is why our goal (platform development) was exactly to develop a universal protocol for parties' status validation. The particular method should be automatically encapsulated into the protocol by the decision of an interested party/group of parties.

To fulfil the ALE project's tasks and objectives, ALE platform performs the following:

- Register and storage of corresponding project documentation, governed by legislation or existing practices of agreements covering non-disclosure clause, intellectual property, service activities, guarantees etc.;

- Support of current communication within the project based on text messaging (chat) with possibility to use information in the documents approval process;

- Published information access control, protection of personal data in accordance with the law;

- Efficient use of communication network resources and user devices to provide the required processing speed within the platform;

- User-friendly set of payment instruments, that can be integrated into smart contracts to settle parties payments (thus minimizing risks of volatility and liquidity);

The start version of the product is particularly targeted at IT & Hightech industry taking into consideration users qualification, corresponding experience and understanding, capacities, as well as the fact that these industries are international and apparently project oriented.

ALE PLATFORM

Description

ALE is a platform for creating decentralized services of project management based on blockchain. One of the main ALE features is to support multilateral smart contracts. With their help, especially due to the possibility to automatically administrate the relationship of the parties, the trusted operating environment is guaranteed. Besides that, legal practice as any other practice which deals with the contract allows to amend any arrangements with new conditions during the process of work. Thanks to ALE, smart contracts can be supplemented by new terms until their execution, thus creating the "contract tree", or the project structure by another name.

ALE offers the solution in creating spaces, where the trusted or contractual relationships are replaced with the relationships in the environment highly regulated by infrastructure. Within one specific space it is possible to enter into unlimited quantity of contract types (like development contracts, testing contracts, recruiting contracts, nondisclosure agreements and etc.) with conditionally unrestricted number of parties. Conditionality resides in the available computing capabilities of the network. The members of the process can be represented by any party of business relationship responsible for any process. If draw an analogy to conventional and common areas of contractual relationship, the parties can be represented by Employers, Employees, Customers, Contractors and Subcontractors.

Such spaces can be named with DAO (Decentralized Autonomous Organization) extension. Server-based project management systems prevail in the world these days. We are integrating DAO elements into the system to create the universal protocol. ALE does not require to "send the signatures to the contract" to authorize a transaction. ALE may only identify the changes of the corresponding condition and that would be enough for the specific tokens to be recognized as released towards one of the contract parties.

In most cases when the advanced payment to three counterparties is made in DAO the triple price reserve is created. ALE offers to make one reserve to all counterparties before contract signing. With that, the price can be reduced without changes in contract terms (for example at the time of getting discount or for Exchange Traded Commodities with rapid prices at particular time (e.g., in currency).

To create such spaces ALE platform offers to use the UMECE protocol. The process of development of "trusted operating environment" resolves itself into the creation of the client side and description of the following parameters:

1. Members parameters:
    a. members class;
    b. members of each class attributes;
    c. members verification rules;
2. Contract parameters:
    a. contract types;
    b. contract terms for each type;
    c. potential additional terms for each contract type;
    d. contract attributes;
    e. additional required terms and parameters;
3. Other requirements.

Automation of contractual relationship via smart contracts

ALE fully separates the terms «contract» and «smart contract». Smart contract is an instrument to make a legally binding contract with the automation of:

- Financial liability.
- Timed liability (time of delivery and payment).
- Liability associated with third parties engaging (Trusted Third Parties).

Therefore, ALE resolves an issue of legitimization of the term “smart contract”. Such arrangement of contractual work allows eliminating the necessity of renewal of documents through the third-party services or via postal service. At the same time blockchain ensures safety and invariability of all documents.

Structure

To provide prompt and simple user access to the blockchain data, the general virtual chain of blocks was divided into three interconnecting blockchain registers. The records have references to each other by means of hash-links within the contract execution. Datastream is divided into three registers:

1. Basic register records data about smart contracts and transactions, including the calculated amounts, their validation terms, identifiers of the assigned parties (wallets), validation code logic and/or temporal terms of contract amount distribution. Blocks with contracts of the basic register are treated as basic and generating, and the corresponding blocks out of the enclosed registers refer to them and to the order number through hash link. The corresponding hash-link is recorded into specified field of the enclosed registers.
2. The first enclosed register records the concurrent communications (partially - formalized and used). The access to communications is granted only to communicating parties. In other words, communication is a correspondence between parties during execution and enforcement of a contract. During this process the User’s Client allows to use standard data blocks while messaging. Data blocks may contain information about price and its changes, date or sequence of dates within the specified period of time; coordinates of acceptable QA parties may also be set there.
3. The hash-sums of encrypted documents related to the project are stored in the second enclosed register. This register is opened upon request, e.g. for analytics or arbitrage.

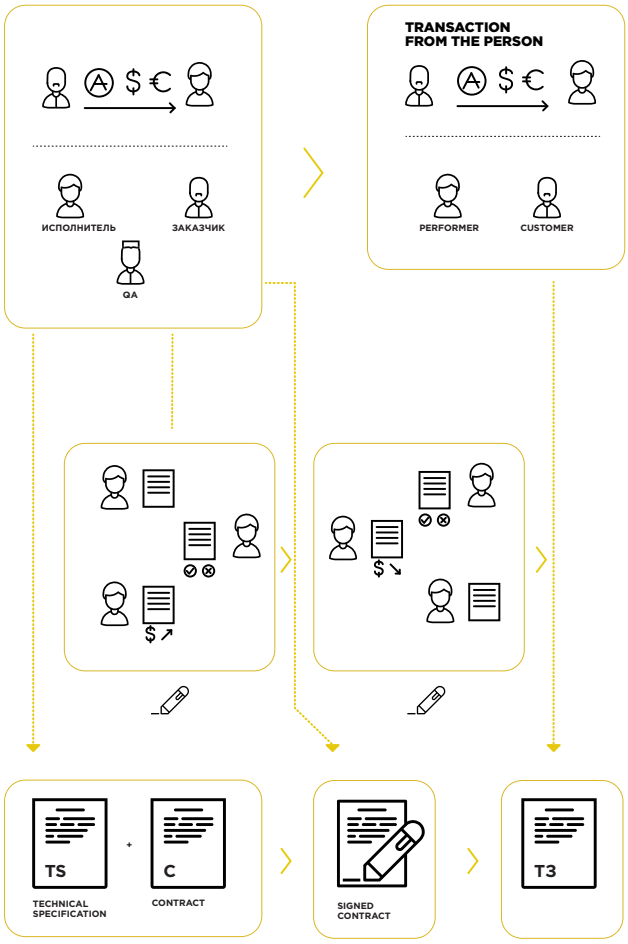


Figure 4 "ALE platform structure concept"

For the users convenience while using the thin-Client, the data of the enclosed registers may be recorded in a sharded and partitioned way. It allows sending the request to the exact block, order or user (wallet), without necessity to load big volumes of data.
A Client that synchronizes only the 1st level register can be chosen for loading efficiency. In this case synchronization will be done only for the blocks of the 2nd and the 3rd registers that were initiated by the client himself.

Chat

Chat is a logical sequence of messages enclosed in a blockchain. Chat requirements:

1. Message delivery confirmation;
2. Consistency over time.

Chat consistency is provided by the simplified blockchain. The delivery confirmation is achieved by the electronic signature mechanism. The message is considered to be sent only if it was signed by all the interacting parties or at least by the qualified majority. In theory, a common chat for all parties can be arranged. All parameters must be specified in the contract that is published in the upper level blockchain. The motivation to communicate through messages is simple: the contract is considered to be completed when all electronic signatures of all parties are in place. In case one party ignores another one with no technical excuse for that, it is expected that the electronic signature of the ignored party will be absent on the final document, which is shared between all parties and contains the formal description of collective work results.

Document management system

Documentation is one of the weak points of modern software development. According to the majority of current standards, ALE-system allows to add the documentation requirements into the technical specification. The modern methodologies of software development shift focus from documentation of each stage of development to interaction with the customer. However, lack of proper documentation is a challenge when it comes to support of the software. That is why the contract may also specify the basic rules of document management and frequency of its drawing up. Documentation availability is a logical end of software development process in case of small projects. Large projects usually require the stepwise documentation drafting along with system development.

Administrative accounts

If required, ALE platform offers to create administrative accounts for third party to control and regulate transactions and changes of conditions. In case of application development for a holding company such account can be created for managing organization which will control activities of affiliated companies. An administrative account functions like an intellectual node with the powers to collect data, control operations and enter collected and processed data into the public or private blockchain. Such account requires the particular owner who could ensure the continuous operation of the data-collecting algorithm.

Members verification

Verification as a term varies depending on the object so being interpreted in a different way by every business activity participant:

1. Verification of the documents content. This procedure is an exclusive duty of the parties as in real life so from legal standpoint. Encrypting enables them to agree not only in a private way but also to join the third party by means of selected key. Such procedure is enacted into laws of almost all countries, where the law governs the responsibility for private data storage.

2. Verification in all basic economic branches, in which the independent or governmental certifying, licensing and permitting body exists.

3. User verification – including the procedure enacted into law

4. Paying agent verification, required by the law

In fact, a standard procedure is implemented here: the third party (or so-called Trusted Third Party, TTP), confirmed by anybody, puts its signature on the verified object. Our task is to confirm the legislative correspondence of the systems. That is why we accept the fact that security depends not only from the safety of procedure and code, as it's been a long time since people have learned to reach a consensus with the law.

ALE offers to use any verification method required by the local legislation. As an example, X.509 for countries with strong regulations or Web of Trust principles for countries with fuzzy regulations.

Settlements between parties

Nowadays cryptocurrencies are characterized by high volatility, so they cannot become a fully functional payment instrument in project activities. It is impossible to fix payment terms in the contract with uncertain market weight considering the fact that the payment is performed upon its execution, i.e. in future.

To resolve this issue we offer to use the internal token, which is actually a value container expressed in any convenient currency or cryptocurrency. In fact, an asset (e.g. X$) is lodged into the container. After the contract is executed the Contractor becomes an owner of the container, and he can exchange it for X$. We should put a special focus on the fact that the internal token is not admitted to stock trading and doesn't have inherent value.

AXEL – trade token of ALEHUB

In the light of the challenges described earlier, it was decided to create an internal ALEHUB token, used as a container for cost. This token is called AXEL (ALEHUB eXchange Element). The exchange rate of this token is pegged to the US dollar rate at the ratio:

$$1\ \text{AXEL} \equiv 1\ \$$$

There are several advantages in using this token. First, it encapsulates the change in the exchange rate. Since the account stores exactly AXEL tokens, user can at any time convert them into any currency at his own choice. Due to strict peg to the US dollar, there is no way to play on the domestic market of the system. Conversion of funds is carried out in two stages:

- Conversion of funds at the current rate from the currency provided by the client to dollars;
- Conversion of dollars AXEL.

Refund is carried out according to the same scheme, but in the opposite direction. The changes in the exchange rate against the dollar entail a change in its exchange rate against AXEL. Therefore, the actual amount of funds in a currency other than the dollar may be different at different times, but the ratio of AXEL to the dollar is always respected.

It is important that in the future the base currency may be changed taking into account the situation on the market. Changes will affect only the ratio of AXEL to the base currency. For example, if the dollar to euro exchange rate is 0.85, then changing one base currency to another will require only setting a new ratio:

$$1\ \text{AXEL} \equiv 0{,}85\ €$$

This conversion will not only save the users from losing their funds, but also protect them against instability of the base currency.

Utilization of an internal token, encapsulating the cost, will allow setting the cost of execution of one instruction in the virtual machine, which significantly reduces consumption of the system while searching a consensus on the current exchange rate.

Finally, AXEL allows reducing the number of actual conversion operations from one currency to another. Conversion occurs only twice - when the funds are placed into the system and when they are withdrawn. In fact, this approach allows the user to place the base currency in the system - and receive it back upon funds withdrawal. Conversion is carried out by the gateway, whose role in the initial operational stages of the system is performed by ALEHUB. It is worth noting that the token is not traded. It is created by the gateway (liquidity provider) when the funds are placed in the system and destroyed when the funds are withdrawn. In order to avoid exchange rate manipulation, a commission fee is charged when funds are withdrawn.

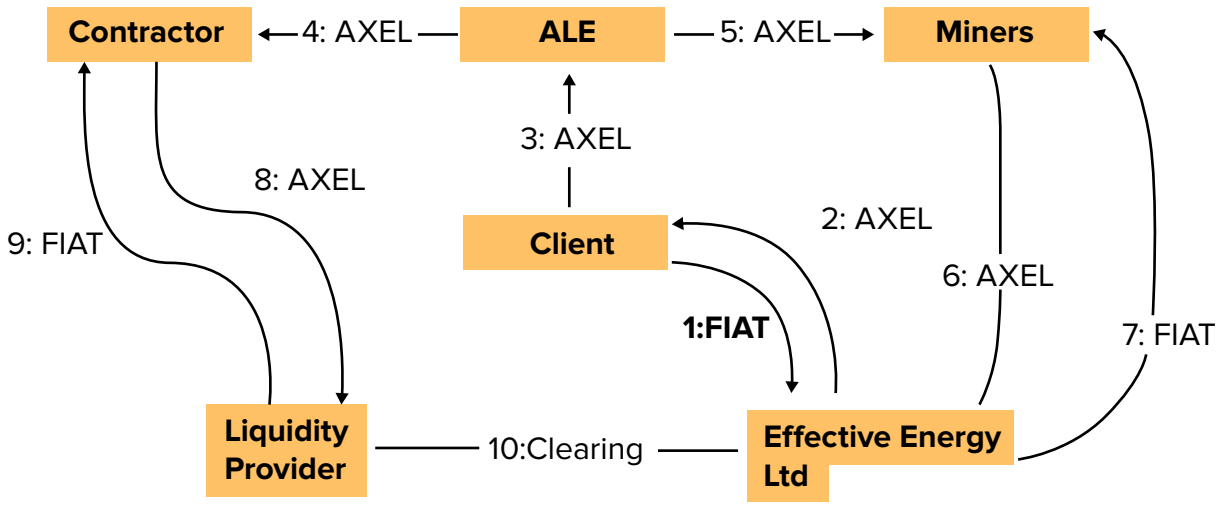


Figure 5 "Financial flows of ALE system".

Motivation of miners

As previously noted, the miners in the system are not anonymous. Therefore, distribution of tokens between them is carried out almost equally, once in an epoch (epoch is a sequence of time slots or, similarly, a sequence of blocks). The reward is generated from the commission fund and depends on the total volume of transactions in the system executed in the previous epoch. Therefore, the miners are motivated to include as many transactions in the blocks as possible. Transactions of the miners, however, may bring them only losses (or, more correctly, they cannot bring profit under any circumstances). Reward from all commission fees in favor of the miners is divided equally, so the miner that invested more than the others will receive less reward:

$$\begin{cases} 1{:}x \\ 2{:}x \\ \dots \\ N-1{:}x+k \\ N{:}x \end{cases} \Rightarrow \Sigma = x*(N-1)+x+k = x*N+k \Rightarrow \begin{cases} 1{:}\ \dfrac{x*N+k}{N} = x+\dfrac{k}{n} \\ 2{:}\ \dfrac{x*N+k}{N} = x+\dfrac{k}{n} > x \\ \dots \\ N-1{:}\ \dfrac{x*N+k}{N} = x+\dfrac{k}{n} < x+k \\ N{:}\ \dfrac{x*N+k}{N} = x+\dfrac{k}{n} > x \end{cases}$$

In the future, transition to a model similar to that used in Cardano is possible. It involves random selection of a group of miners to participate in the epoch. Nevertheless, the monetary policy does not undergo any changes: the miners still receive reward from the currency fund, and the amount of reward weakly depends on the number of transactions (Less than medium –Medium – More than medium) and is defined by a weak coefficient determined by the consensus of users.

It is worth noting that the miners divide among themselves not all the accumulated commission fund, but only a part of it equal to 40%. The rest of the funds are distributed according to generally accepted recommendations in proportions, including profit to the shareholders (ALE) and development of the project. The reward is distributed with due regard for contribution of users into the process of reaching a consensus and taking into account the mechanism of protection against "professional" miners.

Existing commission fees

- ALE system sets forth a commission fee for the following operations:
Transaction that fulfills transition of the system between states - in a fixed amount;
- When funds are withdrawn from the system - as a percentage of the amount withdrawn - instead of a percentage of transactions to encourage the development of internal cooperation;
- The execution of a smart contract - proportional to the number byte codes executed by a virtual machine.
- Verification in ALE system.

Takeaways

Thus, two tokens are available in the ALEHUB system:

- The first token, ALE, is a security-token (equal to a share in the economic environment). It is used to pay interest from the platform profit, as well as to make decisions about the future of the system.
The second token, AXEL, is used to encapsulate currency fluctuations and unify settlement instruments within the system.
- The liquidity of AXEL is ensured in the same way as the liquidity of the cryptocurrencies. This token allows making payments for services of contracting participants without binding to a particular fiat currency. This can solve the challenge with tax legislation: since information on payments is contained in a blockchain, control by the tax authorities becomes comparatively easy task. At the same time, participants are protected against currency fluctuations on fiat currencies exchange.

ALEHUB

Description

ALEHUB is the first project that uses the ALE platform. ALEHUB is targeted on the IT field usage and is meant to resolve the issues of project management. ALEHUB has pre-installed sets of Parties classes and Contract classes, specific for each particular industry. Mentioned sets of classes are the open lists, which can be extended in future.

Classes of the parties:

1. Customer;
2. Contractors;
3. QA party (Quality Assurance Party) - the party responsible for testing and and checking quality of performed works;
4. Acc party (Acceptance party) – the party responsible for checking technical specification per the below parameters:
    a. Feasibility;
    b. Conformity with deadline;
    c. Conformity with cost of work;
    d. Conformity with other significant parameters.

The Contractor and QA party have the parameters that specify the field of their qualification. They are represented by the «keywords» - tags. For example, for the Contractor - system programmer, MS SQL, etc.

The standard classification of types of activities (ISIC, The Nice Classification (NCL)), occupations, official certification systems for QA Parties (ILAC, IAF, NANDO, etc) and Contractors are reserved on the standard designation level.

Each Party can accept one or more roles. In this case, the confirmation is needed to prove that his declaration is actual and complies with the requirements to index of classification.

QA party & Acc party classes can be either verified or not. The party initializes verification procedure. All parties can see the status of all other parties to the contract. The pre-installed classes of the parties can be identified by formalized parameters, such as software programming languages.

Contract classes

1. Publication contract (message, file, comment/ review);
2. Identification contract (personality, readings, QA);
3. Contract for receiving data out of Blockchain Database (unsaved on the Client) with definite time and size parameters;
4. “Multilateral agreement”class of contract.

For instance, contract class “Multilateral agreement” has a special block in addition to standard field heading, such as block addresses, parties signatures etc. This special block is in the contract code with the length of Nx9 fields, where N – is the number of contract parties, and the separate repeating fields are:

- party identifier (wallet address);
- contractual arrangement starting and termination dates;
- sum;
- class of dissolution algorithm.

The term of financial execution is a reference to QA party (class, its parameters and specific address can be selected). QA parties, identified with ALE system authentic algorithm, are selected by default or in case the User did not make the choice.

- contract party’s signature;
- date of signature;
- classes of additional conditions (determined by users via consensus procedures). Precedents are formalized in the menu of standard procedures.

Members activities

1. **Contractors’ resume publication with an option of identification;**
2. **Contractors’ commercial offer publication with or without prices;**
3. **Publication of technical specifications, order for technical specification, description of initial data and preferences, order for prototype, contract wording, determination of milestones and work schedule, determination of general QA parties.**

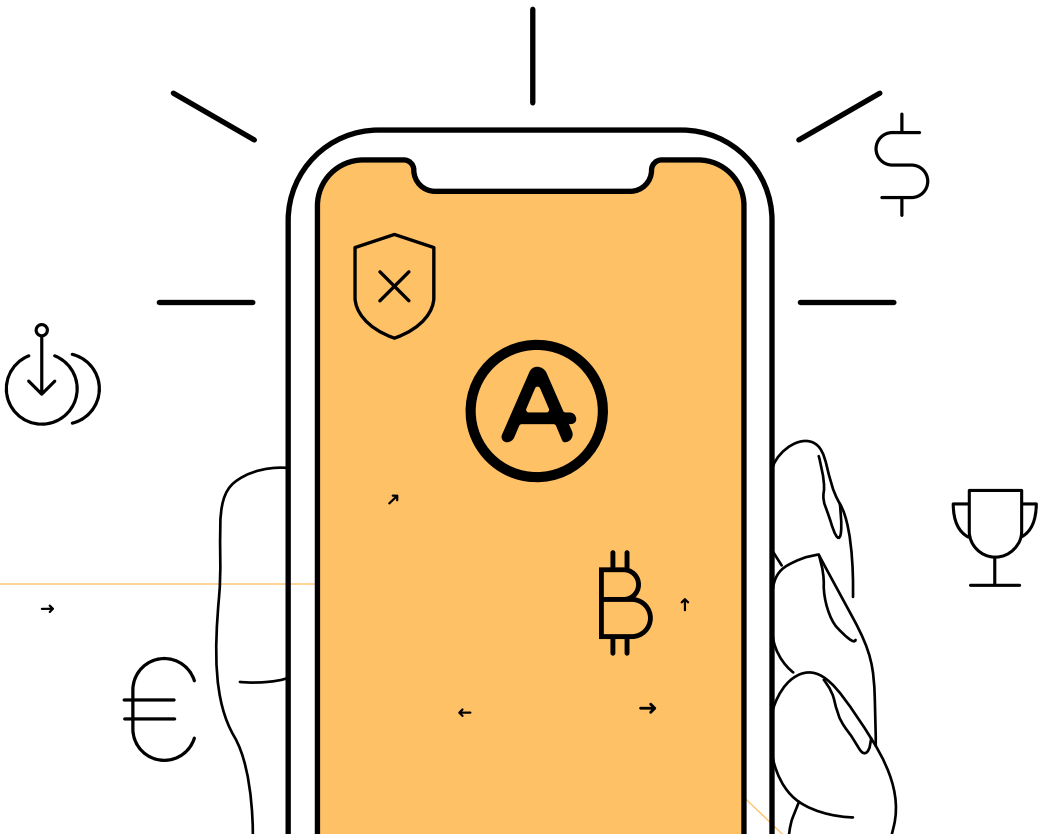
The procedures are oriented on a Customer, which has an option to choose the form of project initiation and continuation. Generally, the structure and all statutory procedures should be complied. Customer can start with any project phase depending on the actual state of its project.

So the “Order” publication automatically generates the smart contract in the generating block of the 1st level register. It contains identification attribute of one or a couple of future blocks in the 3rd level register where encrypted files (if any) are stored, and the reference to the generating block. The block of the 1st register level stores the contract sum (that can be undetermined, though), relevancy period and the data identification attribute in the 3rd level register with the hash.

There are fields in the contract body that enable to connect the actual contract with the previous contract by means of hash references to the corresponding blocks of the 1st level blockchain register. There are fields for Project identification attributes, and documents which are connected to them, and also fields for parameters of opening and closing of data related to specific accounts (in case of terms mentioned in the contract 3rd level register acceptance, (or a number of contracts) e.g. for the QA-service or the third parties that are mentioned in the contract).

Contract is completed by the front-end client and sent to the active network nodes for verification, to check the user account, consensus settlement and blocks generation to the corresponding registers. The block generation valued at (X) parameter, the preinstalled equivalent expressed in the fiat value. This value is taken at the same time with data loading to the registers of all levels through firm contract publication with the sum transferring to the ALE wallet.

4. **Execution**
Registration of signatures of all the qualifying parties, approved by all parties to the contract, is considered the sequential contract validation necessary for the future transactions to the parties' wallets. All contract parties can leave comments on other parties not only during the contract execution but also after its termination within the period of time that have been determined by consensus. It is done by the corresponding contract publication in the 3rd level register with references to the corresponding block numbers that generate the order.
Contract parties can easily send messages during project execution period. For this purpose special blocks are formed in the 2nd level register with references to the corresponding generating blocks of the 1st level register.
5. **Termination**
Actual depletion of agreed time period and amounts determined in the contract at the moment of the last actual signature.
6. **Execution and payment contestation**
Execution and payment contestation can be performed at any stage of the process. It occurs in the following way: first, a contract should be created where the complaints and accepted verification agents are stated. In case the other party approves verification agents, the contract goes for approval to such other party. It can be extended by additional credit and debit penal sums and bonuses (limited by the concluded contract), and then activated if signed by the approved verification agent. Contract execution depends on the corresponding amounts on the parties wallets and their intent to bring in the lack of the sum to their accounts.
When the verification agents verdict cannot be executed, the case papers can be published per intention of one of the parties, and remitted to the corresponding institution of justice.
Opening of the controversial contract is followed by transfer of X sum, that was fixed by consensus, to the ALEHUB wallet and conditional transfer to the wallet of the Verifier. Transfer to the Verifier wallet should be done in the amount defined by the Verifier itself



(e.g. 10% of disputed amount). Contract is actually signed (i.e., it is executed in monetary way with the use of electronic wallet). This process is accompanied with agents case summary publication in the 3rd level register and the contract with its all terms and financial conditions in the 1st level register.

Examples of usage

The Customer wants to offer a problem for solution but has no idea how much it can cost. He publishes the set of terms and approximate budget (optionally). The Customer chooses the correspondent options in the Client: order, completion terms, preliminary budget. Then the requirements are input/loaded into the Client. The Client automatically enters the order number and wallet number. Then all data is sent for verification and registration in the 1st level register. The corresponding block is recorded in the 1st level register (if sufficient sum is available in the wallet of the initiator), where parameters fields are opened for reading. All requirements are entered into the 3rd level register together with hash reference to the corresponding block of the 1st level register that contains the contract. Clients of potential Contractors get data from the 1st level register, find open Order and download documents out of the 3rd level register, if any available.

As an example: three days after the Customer checked data in the Client, he finds discovers four “answers” from four interested parties (from 4 accounts with hash reference to the 1st level register, where the order is placed). It means that corresponding blocks with Contractors offers were registered in the 3rd level register and they use the hash references to the generating block with the order number.

All text files are kept in the 3rd level register together with the reference to the generating block of the 1st level register, where all sums, calendar dates, QA parties, and logical sequence of calendar dates and QA parties connection are specified.

Contractors offers:

Contractor A: «please add the following data»

Contractor B: «ready to develop the pilot prototype for 1500$, to confirm the approach and collect the missing data»

Contractor B: «are you ready to increase your budget and incur costs of business trip for two of our employees for software installation on your site»

Contractor C: «We evaluate budget to be 3000$»

Contractor D: «We have a ready-to-use product available. 10,000$ including adaptation and installation. Advance payment - 10%»

Customer’s feedback:

To Contractor A: ignored

To Contractor B: «2,000$ - confirm», «deadline 2 weeks from now », «ready to pay 500$ for business trip – all is included to the total sum»

To Contractor C: «will installation be on site », « do you have enough data available or may have additional requests?»

To contractor D: «ready to pay 5 000$ without advance payment»

Contractors comments:

Contractor C: «Need additional data X»

Contractor D: «offer for 7 000$» «without advance payment»

Contractor B: «signature»

In one day from Contractor D: «offer for 1.500$» « deadline - 2 days»

As the Customer confirmed 2000$ to the Contractor B in the contact, the only thing left to do for the Contractor B is to sign it in case of "500$ for business trip" requirement acceptance. As a result the indicated sum will be reserved till the moment of fulfillment and Customer's signature about job acceptance. Confirmation of any sum for satisfying user's liquidity is checked first by the Client, and then by the virtual device. If the Customer offered only 500$ for business trip it would be impossible to accept the order automatically. First the parties would have to exchange contract-messages with new price indicated, and only then get confirmation..

So, one day later the Customer receives an offer he likes more (from Contractor D). What can he do?

Employer:

Contractor D: «signature»

Contractor B: «storno» «5%- money penalty» «100$ to Contractor B wallet»

Since Contractor B has not insisted on the QA of the third parties, the Customer can refuse to confirm acceptance of the product. It can be challenged in the court, though it is impossible with small volumes and rather costly & time-consuming with big volumes of the product.

In such cases we recommend to reject the offers with automated contract sum charges writing-off when rejecting it or when the third offer with more cost efficient offer is done.

If QA of the third parties is documented, the rejection would be possible only in case of QA rate payment.

If you want to refuse from the contract execution N days after it have started, it is possible by paying the tariff (Contract Summ/M)*N*2.

When the Customer signs the contract with Contractor D, he automatically agrees for QA, specified in the Contractor D offer (including QA rate).

Customer has a Technical Specification and the determined contractual agreement conditions with a Contractor.

Customer has an option to choose the corresponding options in the Client: order, completion terms, preliminary budget, and describes requirements in the Client. Then he uploads the technical specification and the Contract in a closed (encrypted) format with a reference to template of confidentiality contract, which already exists in the ALEHUB system. Then he sends an order to the execution. The contract is registered in the 1st level register and all the encrypted files are loaded into the 3rd level register.

Let us assume that the Customer doesn't want to publish the technical specification and Contractual terms without confidentiality contract and without potential Contractor analysis.

One day later:

Contractor A: «confidentiality contract for order xxxxxx is signed».
Contractor A, wallet XXXX

Contractor B «confidentiality contract for order xxxxxx is signed».
Contractor B, wallet XXXX

Contractor C. «confidentiality contract for order xxxxxx is signed».
Contractor C, wallet XXXX

Customer has an option to load resume from any level register, as well as the activity history, reviews, active technical specifications and the message history with potential Contractors. They can be evaluated by the Customer for some personal options.
Customer selects the Contractor. He uploads the Contractor's public signature out of the 2nd level register and makes the contract-message. This message contains all the hash references to the order number and the initial contract, and the access to the encrypted task specification and the Contract in the 3rd level register.

Two days later:

Contractor: «Payment terms: 1000$ to visit the installation location;
3 visits will be needed. total sum: + 3000$»

It means that the contract has been signed conditionally, i.e. only if the Customer would agree with the additional conditions.

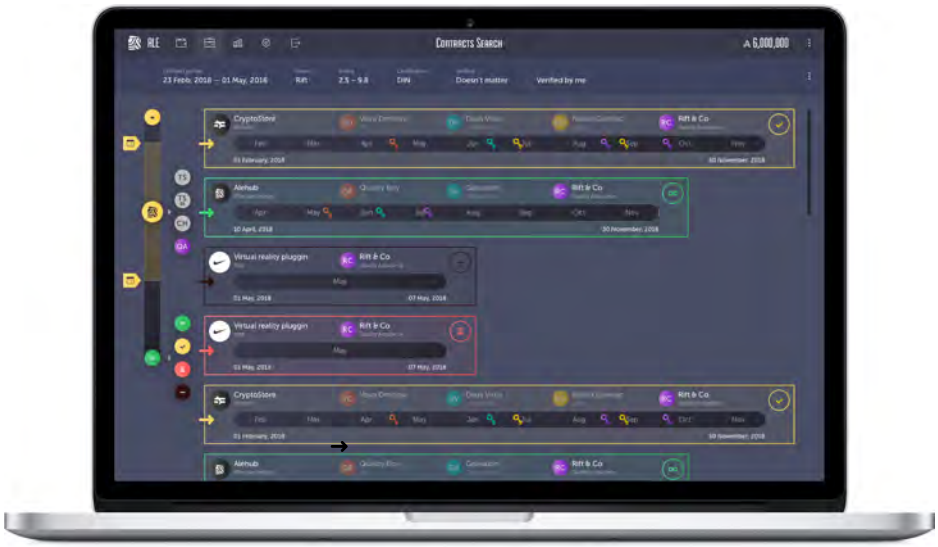
Customer: «Contract sum + 3000» «Signature»

Customer deposits the initially indicated sum with an extra-payment if offered. In this case the only thing to do for the Customer is to put his Signature, as the contract is considered to be already signed by the contractor (with all new terms taken into account).
In case Contractor just sends a proposition to raise the cost of work, the automated contract fulfilment will not happen, as an additional Customer signature is required.
In other words, the system must not be held back by operating procedures variations. Each action task is to set the direction for the following users' actions, until the contract is approved and signed by all its parties. There are no limits for the actions to be done, as one and the same Order with one and the same Contractors might require changes or approval.

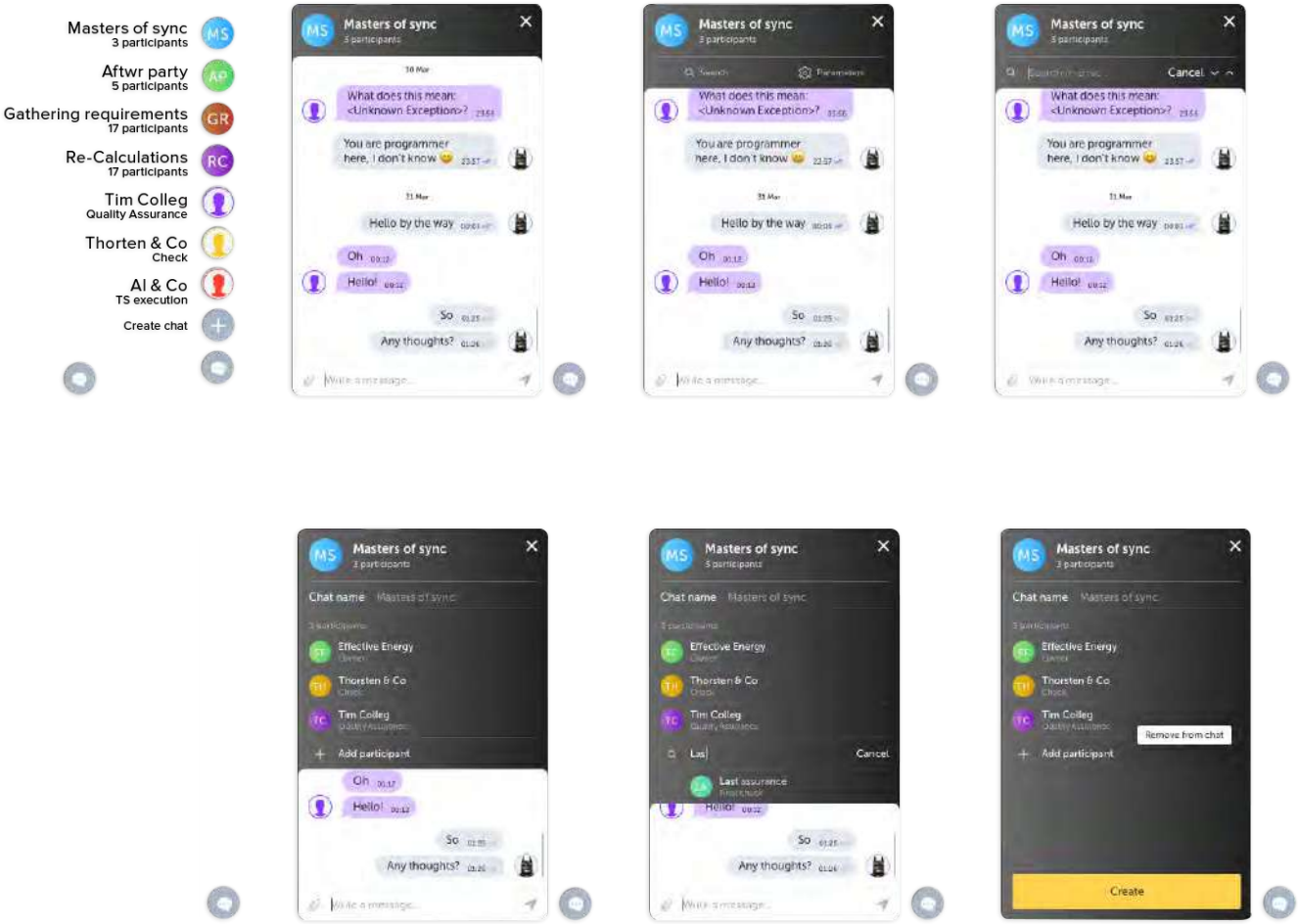
Client application

Graphical user interface of the client application is divided into several desktops (“dashboards”). Every dashboard is dedicated to one of the system’s entities: wallet, Customer, Contractor, QA, smart contract etc.

The final summary of stages and their sequence had been worked out over some time. The conventional sequence is represented in Technological Standards of all the developed jurisdictions and looks as follows: START –technical specification development- technical specification and budget approval – execution-control –testing – compliance - acceptance. The standard image shows all stages and possible entities. The user can fill all or some of them at its sole discretion. All mentioned procedures are not controlled anyhow, as they all can be edited according to the clients’ interests.



In a chat one can refer to any part of documents and contracts, dates etc., simply touching the symbols/images on the corresponding parts of calendar, small circles or pull down menus. It allows making fast messages and documenting them, and using data they contain without additional restoring of data in the contact bodies of basic register.



PROJECT ECONOMICS

ALE - is an investment project, that has an already existing on the market model with clear economics and server-centered structure as a prototype. The protocol advantages are converted into the open, user-friendly and cost-efficient platform with variety of extra services. Thus, you will be able to predict the expected profit your project might give.

Economic model

ALE platform collects small fee for every publication. Its amount is defined by the consensus. This fee allows:

- Evaluating fees accurately based on competition statistics and number of users. The clients do not have a psychological barrier because of the large tariffs and liabilities.
- Automating percentage distribution of fees revenues towards active nodes that support operation and processing of the whole system ("miners" and verifiers), profit distribution between investors.
- Complicating malicious activity.

Expense portion of the project is calculated per standards of the classical economy based on expected achievement of 3% share in the target market (results of key players are publicly known and updated). With that, breakeven is reached during 6 months from the active entrance to the market, and ROI-50% (for the initial pool of investors + ICO) is reached in 12 months (without regard to increase of asset value, i.e. ALE share-token).

Monetary system

In accordance with its main concept and strategy, ALE system is capable to integrate all types of financial instruments:

- Internal token – in fact this is a container for currencies allowed by the law of the selected jurisdiction. This allows the user to freeze risks in the needed currency.
- Smart contract – analogue of "financial infrastructure", i.e. the set of contracts, rules and relationship alongside with analogue of the lawyers, notary officers, insurance, verifiers, certifiers and other required mediators, as well as arbitrators, experts, competent associations and other bodies required by law, and freedom of choice.
- ALE TOKEN – analogue of a preference share, i.e. the tool that allows capitalizing success and rights for corresponding monetary effects.

Therefore, business community has optimal conditions from classical economy standpoint (analogue of monetary policy) - price stability, stable rate of exchange, financial strength and support of balanced economic growth.

ALE long-term strategy

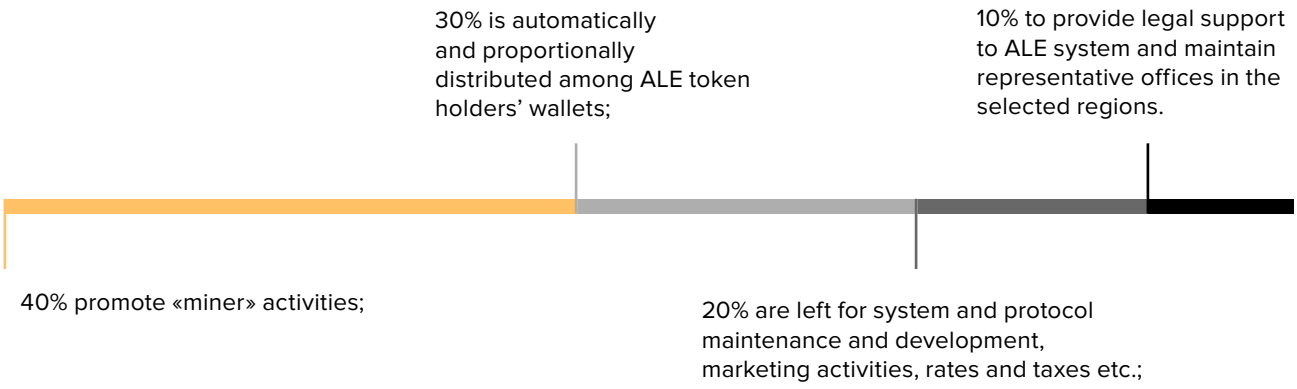
Development of a platform based on distributed ledger technology, which is mostly applicable for existing business practices in the world: freedom to contract and make financial transactions in compliance with the law. Due to internationalization of the business at large, the team has decided to develop a platform, which would support international contracts based on main legal systems. The key advantages of the platform – possibility to output it to the distributed network (therefore, expensive server facilities and security structures are not required), integration of financial arrangements (decrease of financial intermediaries), developed system of search for and recording a compromise (saving legal, time and financial resources).

We offer a new level of options for the clients. As for the investors, we offer a share in the profit resulting from pre-estimated benefits after implementation of new functionality, as well as full control and automated revenue distribution mechanism.

Profit distribution

ALE-project profit comes from fees charged from every operational payment for X-sum to the special wallet of ALE system (SSW). The fee for successfully completed agreement is transferred to this wallet too. The sum of such payments is indicated and fixed in the separate ALE contract field, together with the contract total sum

100% of the profit is distributed out of the SSW in the following proportions:



So ALE token gives the profit to investors both by actual dividends, and by its capitalization growth, that is possible due to its quantity increasing, and also by the ALE-system agreements number ramp up, expansion in the number of users and the time they spend in the system.

ALE profit generation

ALE profit is generated from the commission fees charged by the Platform. Note that commissions, their volume and subjects are determined by the consensus of the ALE token holders. When ALE platform will be launched, the tariffs for its users will be as follows:

Operation	Rate
Verification	$5,00
Document publishing	$0,10
Withdrawal fee	0,1%

Verification is carried out at cost. In the first days after launch, when ALE will still act as the sole verifier, the raising fund of verification fees will be used for the expansion of the verifiers network.

The withdrawal fee is 0,1%, which makes $ 10,000 with the project of merely $ 10,000,000, which, given the duration of such projects, makes no more than $ 850 per month. These costs, for companies leading projects of this scale, are much less than the costs of maintaining the server infrastructure and Enterprise-class software.

Financial plan and dividend yield

As a result of the marketing campaign, it is planned to hold a 3% market share by the end of the first year of the system operation.

SEGMENT	SEGMENT VOLUME	SHARE OF CUSTOMERS	AVERAGEVOLUME OF PROJECT	AVERAGE NUMBER OF SUCCESSFUL PROJECTS	TOTAL
Large E.	105,240	90%	1,000,000$	1	$2,841,480
Medium E.	2,960,000	75%	340,000$	4	$90,576,000
Small E.	26,040,000	45%	45,000$	6	$94,915,800
Micro E.	131,000,000	30%	1,000$	7	$8,253,000
Self-employed	193,000,000	5%	600$	5	$868,500
					TOTAL: $197,454,780

Table 3 «Estimates of revenue from successful projects»

SEGMENT	SEGMENT VOLUME	SHARE OF CUSTOMERS	AVERAGE NUMBER OF DOCUMENTS	AVERAGE NUMBER OF SUCCESSFUL PROJECTS	TOTAL
Large E.	105,240	90%	200	1	$56,829,60
Medium E.	2,960,000	75%	80	5	$2,131,200
Small E.	26,040,000	45%	30	8	$94,915,800
Micro E.	131,000,000	30%	12	12	$9,903,600
Self-employed	193,000,000	5%	4	5	$579,000
					TOTAL: $18,998,350

Table 4 «Estimates of revenue from document publishing»

Total forecasted revenue for 1 year subject to achievement of 3% market share: $ 239,615,765.

ITEM	SHARE	VOLUME
promote «miner» activities	40%	$ 86,581,251.84
distribution among ALE token holders' wallets	30%	$ 64,935,938.88
system and protocol maintenance and development, marketing activities, rates and taxes etc.	20%	$ 43,290,625.92
legal support of ALE system and maintenance of representative offices in the selected regions	10%	$ 21,645,312.96

Table 5 «Revenue distribution structure»

With a maximum emission of ~ 143,000,000, the annual profit per 1 token makes 45 cents. Given the cost of the token without taking into account bonuses as of $ 0.3, dividend yield will make 150%.

ICO

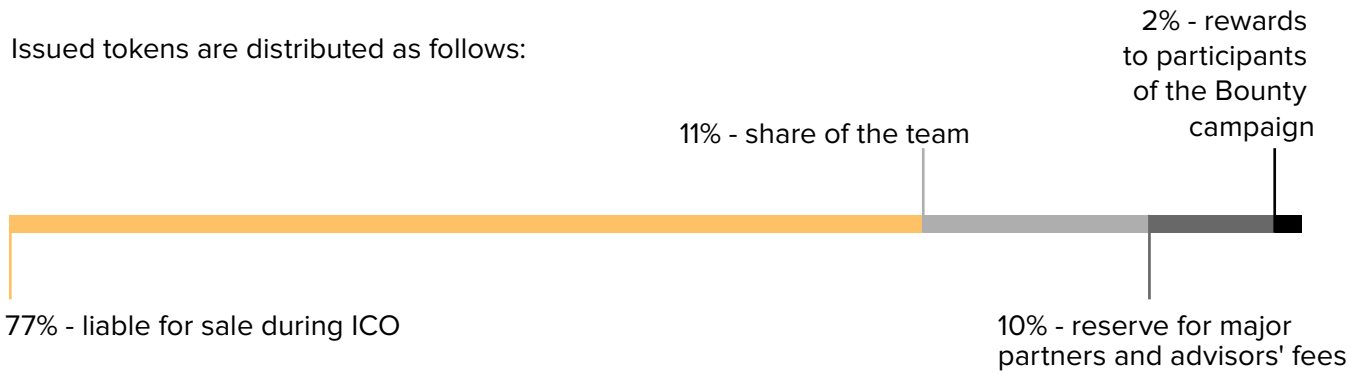
ALE token

To assure liquidity of investment tokens under ALE project, ALE protocol is being mirrored on the platform, until stocks are ready to list tokens in their own protocols.
An automation of the owner's engagement in the ALE-project profit distribution is included into the contract. The profit is calculated according to the world auditors recommended proportions for enterprises. As a result a strictly limited tokens quantity is emitted, that in fact correspond to 100% of preferred shares of the company-holder of the system and ALE protocol. The instrument of distribution is directly integrated into the protocol

ALE issuance & emission distribution

ALE tokens are issued upon results of ICO depending on the amount of the collected funds at the exchange rate of 3333.33 ALE tokens for 1 ether.

Issued tokens are distributed as follows:



Share of the team in absolute terms depends on the results of ICO. For example, if 100 million tokens were sold during ICO, total amount of issued tokens would be 130 million units, and share of the team would be approx. 14 million tokens.

Share of the team is frozen for 1 year after ICO is completed.
Withdrawal of ALE tokens may be frozen for 1 month to avoid fraud.

Application of collected funds

To establish financial model of the project we outline 7 main groups of expenses. Their volume varies depending on the amount of collected funds.
1. Development of mathematical model and making technical specification based on such model;
2. Development of a protocol and services based on such protocol;
3. Test (using selected 10,000 users) with the involvement of leading specialists in project management and security alongside with the world Universities;
4. Planning and running marketing events: from establishment of sales department to conferences and training seminars;
5. Establishing representative offices in the leading countries: USA, Japan, Switzerland, Great Britain, Singapore, P. R. China, United Arab Emirates, Israel and Russia;
6. Legal consulting for coordinated actions within different jurisdictions and preparation of contracts templates;
7. Reserve fund.

There are several options of application of funds depending on the amount of collected funds. We present them in absolute terms due to incomparability under different conditions.

GROUP OF EXPENSES	7,500,000 (SOFTCAP)	15,000,000	33,000,000$ (HARDCAP)
Mathematical model and technical specification	500,000$	500,000$	500,000$
Development	3,500,000$	3,500,000$	3,500,000$
Testing	900,000$	3,000,000$	10,000,000$
Marketing and sales	900,000$	5,000,000$	12,000,000$
Representative offices	300,000$	600,000$	2,500,000$
Legal expenses	200,000$	700,000$	1,800,000$
Reserve fund	-	500,000$	1,500,000$

Table 6 «Allocation of collected funds»

If the amount of collected funds makes from $7,500,000 (softcap) up to $15,000,000, project implementation period may be increased till 4 years in reverse proportion (~10,500,000 – 3 years).

ICO legal information

The ICO project “ALEHUB” is developed by our corporation, Effective Energy Limited, legal entity, registered in Hong Kong, Certificate of incorporation № 58994455-000-09-11-4, Date of issue 14.09.2011, located: 18/F Wanchai Central Building, 89 Lockhart RD Wanchai, Hong Kong. According to the «Statement on initial coin offering» of the Securities and Futures Commission of Hong Kong from 05.09.2017 some tokens, proposed in our offering («Mastercoins») can be qualified as securities, in particular shares. At the same time, the overall process of public offering can be expressed by the term «CIS» (collective investment scheme) as far as token proceeds «are managed collectively by the ICO scheme operator to invest in projects which goal is to enable token holders to participate in share of profits generated by the project». Consequently, in case of offering to Hong Kong investors, our company could face compulsory licensing or registration with the SFC («Regulated activities», as specified in Part 1 of Schedule 5 to the SFO). In order to comply with the local legal requirements, our ICO does not offer Mastercoins to Hong Kong public unless we are authorized for such by the SFC. It should be mentioned that we are working in this direction. The required authorization will be received by the end of our ICO.

TEAM

Two teams are involved in the development of ALE: Serokell, the developers of Cardano SL, and Effective Energy.
Serokell acts as a technical partner for the development of the backend part: the protocol and the platform. Using the accumulated experience in the development of Cardano, the Serokell team can lead the backend project on high quality level and in an efficient manner.
Effective Energy independently develops the middle-ware, frontend of all components of the product, conducts research in cooperation with the National Research University of Information Technologies, Mechanics and Optics, deals with legal, marketing and organizational issues. Effective Energy fully owns all the rights and bears responsibility for the implementation of the project.

Effective Energy Team

Mihail Gromyko
CEO

Alexej Osipenko
Executive Director

Anton Beliakov
Senior Research Manager

Egor Loktev
Project Lead

Dr. Vladimir Grudinin
Blockchain expert

Ilya Shilov
Chief Technology Officer

Artem Levashov
CLO

Aleksandr Vorontsov
Fullstack Developer

Denis Tikhonov
Frontend Developer

Elena Tsymbaliuk
Head of Marketing Operations

Arseniy Voytenko
Head of Communications

Vadim Dudin
Fullstack Developer

Galina Sergeeva
Frontend Developer

Sergey Ponomarev
Graphic Designer

Evgeniy Korobitcin
Graphic Designer

Evgeniy Zhitkov
Graphic Designer

Sergey Timohin
Community Manager

Serokell Team

Arseniy Seroka
Lead developer

Alexander Rukin
UX/UI designer

Yon Mostovoy
Lead developer

Kirill Elagin
Lead developer

Mihail Gromyko
CEO

Since 1994, he was involved in a number of projects conducted in the developing Russian sector of Internet. In 1995, he took a position as Development Director of WestMind, a software provider for manufacturing automation processes. He developed his own methodology for implementing the automation system, which allowed speeding up the process more than twice. WestMind has been as provider for more than 200 companies in Russia. In 2006, he sold his share in the network of computer clubs, expecting decline in their popularity, and entered the investment market. By 2009, 2 projects, in which Mikhail participated as an investor and mentor, entered the international market. In 2010, Mikhail expressed an interest in a new world trend - cryptocurrencies. After analysis of growth rates of Bitcoin and other cryptocurrencies, he decided to focus his investment interests in this area. In 2014, Michael set up the company in Hong Kong – Effective Energy Ltd, which develops software products in cryptography based on blockhain technology.

Alexej Osipenko
Executive Director

Alexey studied in Saint-Petersburg Engineering and Economics Academy (now Saint-Petersburg State University of Economics). Already during last years of education actively participated in creation of St. Petersburg branch of Aizkraukles Bank (later ABLV bank). For 6 years Alexey was developing second in size branch of ABLV bank in Commonwealth of Independent States. In 2005 Alexey established company in Singapore, Fu Long LLC, which specialized at private investments and developing of investment strategies. In 2009 with the experience of working on the market of investment Alexey started developing software for stock market analysis. After five years of work aimed at connecting finances and IT, noticed cryptocurrencies and together with Mikhail Gromyko established company Effective Energy Ltd.

Ilya Shilov
Chief Technology Officer

In 2013 entered ITMO University. Was engaged in programming, data mining and network security. Diploma title – “Evaluation of abnormal behavior of nodes in wireless sensor network based on statistical methods”. Has publications in the proceedings of international conferences:

- Zikratov I.A., Korzhuk V., Shilov I., Gvozdev A. Formalization of the Feature Space for Detection of Attacks on Wireless Sensor Networks//Proceedings of the 20th Conference of Open Innovations Association FRUCT, IET - 2017, pp. 526-533
- Korzhuk V., Krivtsova I., Shilov I. The Model of the Attack Implementation on Wireless Sensor Networks//Proceedings of the 20th Conference of Open Innovations Association FRUCT, IET - 2017, pp. 187-194
- Korzhuk V., Shilov I., Torshenko J. Reduction of the Feature Space for the Detection of Attacks of Wireles Sensor Networks//Proceedings of the 20th Conference of Open Innovations Association FRUCT, IET - 2017, pp. 195-201

Created a model of attacks against wireless sensor networks based on OMNeT++ simulator, which is currently used as means for investigation of wireless sensor networks security. Besides, created a feature set for automatic detection of abnormal situations in the network infrastructure.
Graduated with distinction from ITMO University and in 2017 entered Master's course at the same university on the direction "Information Security". Scientific research topic – "Multidimensional Blockchain and its Applications" – is devoted to development of blockchain, which is a basis for the majority of existing cryptocurrencies nowadays. Also attends course "Financial Management" at ITMO University.
In 2016 graduated from Saint-Petersburg State University of Architecture and Civil Engineering with specialty "Translator in the sphere of professional activities".
Participates in Capture the Flag competitions. Participated in Kaspersky Summer Lab in 2017.

Egor Loktev
Project Lead

Egor Loktev studied at the St. Petersburg State University. While carrying scientific activities he aligned his interests in programming and economics: as an area of research, Egor has selected XBRL accounting statements, their implementation, adaptation of the standard to Russian conditions, elaboration of a roadmap for promotion of the standard in Russia, and development of software products for the implementation of XBRL in companies. In 2014, he founded the company Crowd-Systems. Egor was in charge for business planning, promotion of the company in the Russian and foreign markets, as well as for marketing of the projects conducted by Crowd-Systems. In 2015, Crowd-Systems became the general contractor of the nonprofit partnership in the development, production and circulation of medicine remedies and medical equipment "Medical-Pharmaceutical Projects. 21 century" for the implementation of the project "Pharminnotech". The project unites Russian leading pharmaceutical companies and industry-specific universities and colleges. Pharminnotech offers the best young professionals to the pharmaceutical companies. In 2015, he has started cooperation with Cliff Edge LLC, NY, where he developed business planning and marketing of the company's investment projects. In 2016, he established collaboration between Crowd-Systems and Technopark of ITMO University. Since 2016, he has been interested in digital economy based on blockchain technology. He spent one year carrying scientific activities in this area at several Russian universities. However, having no possibility to conduct empirical research using the gained experience, he started research at the premises of private companies.

Elena Tsymbaliuk
Head of Marketing Operations

Elena has over 13 years of business experience – 5 years of them in the sphere of social marketing management, communications and brand building. Elena has graduated from Saint-Petersburg State University. She has master's degree in «Social communication». Her master's thesis: «The models of communication in event management».

Elena's experience in the marketing industry began in 2005 at marketing agency; marketing sport agency WAIS in 2012; and switched to the IT industry with «Effective Energy Ltd» in 2017 (IT development). She has thorough knowledge and understanding of all aspects of marketing and she set her focus in the IT marketing.

Elena utilises data driven insights into marketing and business challenges to achieve optimal results and create sustainable solutions.

Advisors

Nikolay Shkilev
Advisor

Nikolay Shkilev, advisor - Crypto enthusiast and mentor. Rated Top 5 in People of Blockchain. Has 20 years of experience in large-scale transaction projects. He has many awards and titles in the IT business. Self-Made Russia award. Tech guru. Super TOP award etc. Founder and CEO of Private Business Club. His Holding received "Enterprise of the Year" award in the Kremlin. Has a business in various directions. Co-Founder "Top ICO advisors".

Phillip Nunn
Advisor

Philip Nunn, advisor - Entrepreneur, CEO and international speaker on Blockchain, Cryptocurrency and fintech. Phillip Nunn founded The Blackmore Group in 2013. Today it's grown into a business with substantial assets under management and a suite of investment products across multiple classes for individuals and institutions in the UK and overseas. With more than 15 years' experience in financial services. He founded The Blackmore Group on the core belief of giving clients real and tangible alternatives to poor investment performance and providing "future proof" investment strategies. Phillip has sat on the advisory boards of many ICO's over the past 12 months and has helped structure and fund some of the biggest companies of the future. Along with his business Wealth Chain, Phillip will be launching his own crypto fund that looks to invest in ICO's along with existing blockchain technology companies.

Vladimir Nikitin
Advisor

Vladimir Nikitin, advisor - professional and legal consultant with over ten years' experience in the legal, finance, retail, and IT industries. Renown cryptocurrency expert and ICO advisor (Top-5 worldwide ICObench Expert). As an active supporter and advocate of blockchain technology, provide consultancy and advice to selected ICOs in the CIS region. Network in the crypto community counts over 30 000 members. In portfolio: 10 ico projects with more 200 million dollars

Purushotham Maralappa
Advisor

MCA (Masters of computer application) with 9 Years of experience as Business Intelligence specialist, Business Analyst and Project manager. Extensive experience of analyzing current and potential business processes to identify clear opportunities in business with a background of Business Intelligence and Software development with agile Project Management and streamlining procedures for Fintech, Logitech and Healthtech.
Focused in Blockchain industry and offering advice, consultation services, connections to Blockchain experts and cyrptocurrency investors, organizing blockchain events and roadshows in Tokyo for oversea startups.

Bonnie Normile
Advisor

Advocate of the blockchain/cryptocurrency evolution. Assistance with business development, funding, public relations, bringing tokens to market. Analyst at ICOBench; Board member of Israeli Blockchain Association; U.S. ambassador to Perhalic Group; Partner at Coinsulters Blockchain Media; Member of the International Blockchain Association Foundation. Advisor to specialty blockchain projects; manage client accounts in branding, strategy and research

PROJECT ROADMAP

Stage	Steps	Timing	Description
Preparatory stage	Conception	01.2017	The idea
	Expertise from specialists in project management Definition of requirements	02.2017 – 03.2017	Consultations with specialists in project management from the real sector of the economy Collection of requirements anddefinition of problems
	Construction of a mathematical model	04.2017 – 05.2017	Consultations with financiers Mathematical modeling, together with the University of ITMO
	Formation of the Terms of Reference	06.2018 – 07.2018	Consultations with block-experts and developers Forming an image of a product and a technical task
Development start	Partnership with Serokell OU	08.2017	
Private preSale		11.2017 – 12.2017	Raised more than 1,200,000 $;
First development milestones	Pre-alpha blockchain release	15.03.2018	Release of pre-alpha version of ALE blockchain. Available on Github.
	MVP&prototype release	15.05.2018	MVP – an installable wallet for ALE coin Prototype – web version of ALEHUB system.
ICO	Pre-ICO	25.05.2018 – 25.06.2018	
	ICO	25.07.2018 – 24.09.2018	
Pilot projects	ITMO University	From 01.09.2018	Start of pilot projects for ALEHUB testing
	Bayer AG management	From 15.11.2018	Start of preparation for ALEHUB industrial testing

PROJECT ROADMAP

Project roadmap

1. Technical documentation development

1.1. Development of Yellow Paper

Yellow Paper is a technical description of system operation. The document covers general features of system architecture, protocols of network nodes interaction and other technical details that do not affect details of implementation. In other words, it describes the system in mathematical language.

1.1.1. Formalization of the top level blockchain

25.09.2018 - 30.10.2018

ALEHUB system includes several design levels and several subsystems. Therefore, design of each subsystem requires individual attention, and Yellow Paper covers it in separate sections. Blockchain of the top level is designed to conduct financial transactions and conclude contracts. Therefore, it is necessary to determine:
System status (allowing for further extension);
Protocols of transactions;
Order of contracts conclusion (simplified smart contract).

In other words, the order of platform's operation is determined. The solution itself is based on this platform. MVP version uses a simplified approach without the actual implementation of a blockchain, because in a centralized solution blockchain can be replaced with a file or relational database. This replacement is user-transparent. Enterprise-level solution does not allow applying such approach.
Result: Yellow Paper, v0.1

1.1.2. Formalization of mining procedure

30.10.2018 - 19.11.2018

In ALEHUB miners are not anonymous since the system complies with the laws of the countries all over the world. ALEHUB is not exactly a cryptocurrency, but a platform for freelancing and project management. Non-anonymous nature of miners makes unnecessary any proof of work or other mechanisms to solve the Byzantine Generals problem when no information on the number of users in the system is available.
This stage involves a formalized description of the miners voting procedure for new blocks and a way of technical verification of their contents. We examine stability of mining against existing attacks and justify the convergence of the algorithm used.
Result: Yellow Paper, v0.2

1.1.3. Formalization of embedded blockchains
19.11.2018 - 25.12.18
Embedded blockchains are designed to implement the logic of interaction between participants of contractual relationship. To utilize this system functionality, it is necessary to formally describe the method of building such blockchains and their usage procedure. Special attention should be paid to the safety of technology that can be proved using mathematical tools for evaluating cryptographic protocols (Canetti protocols) or, even simpler, with assistance of finite state machines.
Result: Yellow Paper, v0.3

1.1.4. Formalization of a dispute system
25.12.18 - 22.01.2019
Dispute is the main form of conflict resolution in ALEHUB system. To implement this system, it is necessary to have a formalized description of the subsystems that are represented by basic blockchain which contains contractual obligations (described at step 1 of this stage), and embedded blockchains which contain the project data (described at step 2 of this stage). At this stage, a dispute system is formally described and the order of conflict resolution is determined. It is required to build a multi-level system of disputes and define formal procedures of conflict resolution. Each conflict is resolved in at least 3 stages:
Review of the disputed assessment by a verification agent (a group of verification agents);
Review of the disputed assessment by a qualified verification agent;
Review of the disputed assessment by all verification agents.

Result: Yellow Paper, v0.4

1.1.5. Development of a virtual machine
22.01.19 - 26.02.19
By now, the system has defined a complete set of transactions and messages that are sent during interaction. The most flexible and general approach is to implement a virtual machine that executes all smart contracts. It is important that Web Assembly is planned to be the basis for the virtual machine. Therefore, the description made at this stage formalizes the programming language for smart contracts, which is translated into the bytecode for Web Assembly.
Result: Yellow Paper, v0.5

1.1.6. Formalization of changes procedure
26.02.19 - 26.03.19
ALEHUB has implemented a system of voting for and against possible changes affecting operation of the system. Changes may affect both technical and economic features of system operation. The holders of the share of the system, who invested during the ICO stage, are entitled to participate in the voting. This step implies the description of this subsystem - provided that the system operation description is ready.
Result: Yellow Paper, v0.6; Yellow Paper, v1.0

1.2. Development of technical description of implementation

Technical description of implementation reveals the specifics of construction of a specific software implementation of the system. This document examines the components of a software system, data structures, algorithms, and other aspects of a particular implementation. In the future, the approach to building some system modules can be revised.

1.2.1. Development of technical description of system modules

26.09.2019 - 09.04.19

The system is basically a project consisting of several modules that interact with each other. This step is needed to formalize the modular structure and determine the order of interaction between modules. The project should be a formal description of modules and a set of intermodule calls that take into account specific programming language used for implementation.

Result: Blue paper, v0.1

1.2.2. Development of requirements for frontend-module

09.04.19 - 23.04.19

Based on description of the system operation, the requirements to the site (graphical user interface) are formalized. Development of a graphical user interface can be carried out step by step, in parallel with development of the basic functionality of the system. It requires implementation of a frontend to all components of the system - from transactions and orders publishing through to a system of disputes.

Result: Blue paper, v0.2

1.2.3. Development of technical description of a top level blockchain

23.04.19 - 28.05.19

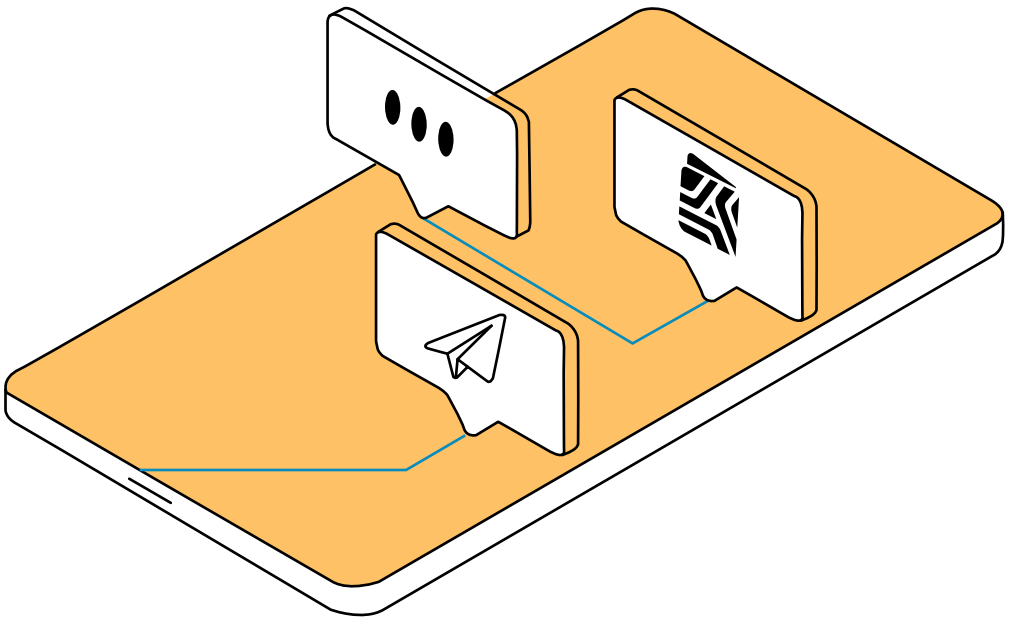
As of today, all functions that should be provided by the system at the level of the basic blockchain have been described. Blue Paper contains description of a module that implements this functionality. In the meantime, all special aspects relating to operation at this level are projected:

System status;
Transactions;
Economy of colored coins (resources);
Peer-to-peer network;
Dispute;
Mining.

Result: Blue paper, v0.3

1.2.4. Development of technical description of an embedded blockchain
28.05.19 - 02.07.19
As of today, all functions that should be provided by the system at the level of the embedded blockchains and basic blockchain, which the system interacts with, are described. Blue Paper contains description of modules that implements functionality of embedded blockchains. In the meantime, all special aspects relating to operation at this level are projected:
System status;
Data exchange;
Message protocol;
Issues of shared state.
Result: Blue paper, v1.0

1.3. Final formation of the development team
Preparation of technical specification for the development team. At that time, a system development team should be formed. The stage involves setting specific tasks for the contractors. Theoretically, it is possible to use agile software development methods. At the same time, the structure and composition of the project office should be finally formed.



2. Alehub system implementation

2.1. MVP solution decentralizing

2.1.2. Implementation of peer-to-peer network
02.07.19 - 06.08.19
Peer-to-peer network is a base for decentralized implementations. The goal of this step is to build the level of the system responsible for implementing functionality of peer-to-peer network.
Result: Peer-to-peer network with basic blockchain operating on top of it.

2.1.2. Implementation of basic blockchain and mining
06.08.19 - 03.09.19
Blockchain is a system with application functioning on top of it. Blockchain provides shared states and protection functions against blocks changes. At this stage, a blockchain is built on top of the peer-to-peer network. This blockchain will eventually contain published states including accounts, smart contracts and transactions.
Result: Blockchain abstraction without reference to application logic

2.1.3. Implementation of application logic
03.09.19 - 12.11.19
At this stage, the application logic is formed:
Transactions;
Accounts and smart contracts;
Logic of concluding contracts in the limit of the order (smart contract);
Economy of colored coins (resources);
It is important that at this stage functionality of embedded blockchains is only implied. Since the system has a modular structure, it is necessary to implement the logic of interaction on the part of the module which is responsible for the basic blockchain.
Result: pre-alpha, v0.1

2.2. Implementation of private blockchains
Development of private blockchains and their integration into existing infrastructure. Ensuring flawless operation of oracles. Registration of the completed version of the entire system - except for the mechanism of dispute (arbitration).

2.2.1. Implementation of template for building embedded blockchains
12.11.19 - 17.12.19
All embedded blockchains have similar structure. Therefore, their implementation can be done in the form of a template adaptable to requirements of a specific embedded blockchain.
Result: template for building embedded blockchains

2.2.2. Implementation of embedded blockchains based on a template
17.12.19 - 14.01.20
On top of the template, implemented at the previous stage, the following ALEHUB subsystems are implemented:
Chat
Version control system
Errors control system
Document management system
Contract management system
Result: pre-alpha v0.2

2.2.3. Integration of embedded blockchains into the platform
14.01.20 - 11.02.20
At this stage, the logic of embedded blockchains is combined with the logic of the basic blockchain. All contracts entail creation of embedded blockchains. Therefore, it is necessary to implement the logic of interaction between the contractor and the customer, as well as create embedded blockchains when concluding a contractor agreement.
Result: pre-alpha,v1.0; alpha v0.1

2.3. Implementation of a dispute system
Improving the dispute system to resolve conflicts within the framework of a decentralized application. This is one of the most critical parts of the application.

2.3.1. Implementation of verification agents logic
11.02.20 - 10.03.20
At this stage, results of the project (all previously completed projects are considered to have no conflicts) are reviewed. For this purpose, we implement the logic of verification agents, which verify the results of work and complete execution of the contract.
Result: alpha v0.2

2.3.2. Implementation of a first level dispute
10.03.20 - 24.03.20
At this stage, the logic of re-examination of the completed project and functionality to cancel its completion (possibly, partially cancel) in case of any conflict, are implemented.
Result: alpha v0.3

2.3.3. Implementation of a second level dispute
24.03.20 - 14.04.20
At this stage, the logic of re-examination of the completed project and cancellation of the first level arbitration, if one of the parties disagrees with it, are implemented. The second stage is the review of a conflict by a certified user of the system (initially - ALEHUB).
Result: alpha v0.4

2.3.4. Implementation of a third level dispute
14.04.20 - 12.05.20
General arbitration is the final authority for resolving conflicts within the ALEHUB platform. At this stage, all verification agents take part in reviewing the conflict.
Result: alpha v1.0; beta v0.1

2.4. Implementation of a system for voting for changes
Enhancement of the system to ensure its variability over time.

2.4.1. Implementation of system of voting for monetary policy
12.05.20 - 02.06.20
At this stage, the voting functionality is implemented to adjust the token circulation order . Shareholders should act as a controlling unit which can influence inflation, deflation, and other adverse processes that occur with the token.
Result: beta v0.2

2.4.2. Implementation of system of voting for technological upgrade
02.06.20 - 23.06.20
At this stage, the voting functionality is implemented to make technological upgrade of the system, its parts and protocols. Shareholders should act as a controlling unit which can influence platform's development and expansion of its functionality.
Result: beta v1.0

Release of the system

Closed testing of the system
23.06.20 - 25.08.20
Integration testing of the system in closed mode. Corrective actions.
Result: beta v1.1

Publication of the system source code and documentation
04.08.20 - 25.08.20
Publication of the system source code and documentation in an open access repository. Open testing of the system
Result: beta v2.0

Putting the system into operation
25.08.20
Result: fully operational ALEHUB system

CONTACTS

Web
https://alehub.io
https://sale.alehub.io

Messenger

https://t.me/alehubnews

https://t.me/alehub

WeChat is cooming soon

Join us

https://bitcointalk.org/index.php?topic=3676768.new#new

https://github.com/effective-energy

https://medium.com/@alehub

https://twitter.com/alehub_io

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