ΛENEΛS

Decentralized City-State

White Paper

Authors

Anton Kobrynets, founder and CEO
Andriy Markovych, CTO
Nursultan Esenbaev, senior developer

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Abstract

Aeneas platform is an element of the digital civil society ecosystem, designed to facilitate its sustainable development, arrange lobbying markets, increase the inclusiveness of political and legislative processes, expand minority opportunities to take advantages of their rights, to support small and medium-sized businesses, to hold call for tenders through crowdfunding campaigns and complex audit of projects by building a decentralized infrastructure of hybrid intelligence.

Aeneas platform will allow:

- initiate socially important or proprietary projects;

- audit based on crowd wisdom and machine learning algorithms;

- submit and satisfy requests for political lobbying;

- hold call for tenders among the performers;

- build the infrastructure of the blockchain economy and perform the creation of special economic zones;

- provide tools for local self-governance of civil society.

Contents

1 Introduction

All spheres of life continue to be actively digitized, the tendencies of transition of many social and economic processes to the network environment are clearly expressed. It can be confidently asserted that communication, transfer of various types of data, workflow, finances, many types of labor relations, trading, logistics, consulting, advertising etc are automated at the significant level and generally transferred to the Internet. It should be notified that the speed and nature of automation processes in different spheres are variegated and involves a number of difficulties, which were considered objectively insurmountable before the advent of Blockchain technology.

The most difficult thing is a formalizing of socio-political interactions concern to significant number of established informal practices and legal constructions, mental bias, digital inequality and the human factor.

Aeneas project is aimed to meet needs for facilities of sustainable development of the digital civil society at the national and international levels, to increase the inclusiveness of political and legislative processes, to expand abilities of the minority' opportunities to take advantages of their rights, to solve problems of small and medium-sized businesses (changing laws, obtaining licenses, interaction with local authorities, searching and attracting financing, etc.), to hold effective call for tenders through crowdfunding campaigns and complex audit of projects by building a decentralized infrastructure of hybrid intelligence.

Aeneas is a public open-source modular blockchain platform whose primary functions are: initiating projects (public or proprietary), placing requests for political lobbying, holding call for tenders through audits of published projects using methods of hybrid intelligence, including crowd-wisdom and machine learning.

Thus, Bitcoin is compared to money, and Ethereum to the law (the concept of smart contracts could be logically interpreted as a system of self-executing norms), the main address instance of Aeneas is the political-economic interface of the digital citizen, and the Aeneas hybrid intelligence services are the tools for analysts and auditors.

1.1 Purpose of Aeneas platform

Aeneas platform is aimed to hold fund-raising campaigns of socially important or proprietary projects, arrange a market for political lobbying, to audit initiated projects by applying hybrid intelligence methods, including deep system analysis, crowd wisdom and machine learning.

An important ideological aspect of the project is the supplying campaigns for special economic zones creation, expansion of their jurisdictions and involvement in the digital self-governance majority of the population.

Each special economic zone can be associated with any part of involved community, and a platform tokens could be considered like citizenship mandates for their holders.

1.1.1 Lobbying

The lobbying markets (markets of government relations) of the US and other countries are huge and quite specific. Only large corporations can afford to interact with them in a regulated formal way. Small businesses, social communities and individuals often do not have access to lobbying services because of high costs, opaque lobbying mechanisms, difficult communication with lobby groups, legal risks, etc.

To solve this problem, Aeneas platform arranges the market of government relations and makes lobbying services available to broad social groups.

The goal of Aeneas is to attract more people to political lobbying for their own interests, to benefit from social initiatives and to implement radical innovations.

1.2 Use cases

1.2.1 Crowdfunding

The idea of crowdfunding originates in the XVIII century, when eminent masters attracted money or pledge investments for their future artwork. After a while, this concept found application outside far from the field of arts.

The next step of development of pledge investment became possible due to the rapid growth of the Internet and electronic non-banking payment systems. Thanks to powerful marketing, several large crowdfunding platforms managed to gain a high popularity among users who need just to be registered for small money transfers through the Internet. Fundraisers accessed the rapidly growing Internet audience.

In 2013, the idea of direct public funding was combined with the Blockchain technology, which allowed to reach a qualitatively new level. Using of crypto-currencies, involving direct, anonymous and equitable interaction, led to the emergence of the concept of ICO - Initial Coin Offering, the primary offering of crypto-currency assets in order to raise funds for the implementation of projects.

The significant and numerous benefits brought by the ICO to crowdfunding were associated with a numerous shortcomings, mainly due to the lack of investor's control of their funds and the inability to influence on project performers.

Aeneas platform assumes high detail and a complex life cycle of the application for raising funds, the mandatory stage of which is an audit of costs, fundraiser reputation, reality of set goals, market reaction etc. declared by the initiator of the project. Audit includes several stages, the passage of which involves using methods of hybrid intelligence, combining opinion of data scientists called crowd wisdom and machine learning algorithms.

1.2.2 Government Relations marketplace

Aeneas GR Marketplace is a decentralized market of services related to business, individuals, communities and government relations, implemented as a threshold pledge system, which connects GR requests form users with lobby groups offering.

Everyone, a representative of a business or social community who has an address in the Aeneas Blockchain, can submit a request for lobbying for his own interests or socially-focused initiatives.

Each professional lobbying group or an authorized expert verified by Aeneas (in the first phase of the project, verification is performed by authorized Ephor group accounts, accessed by the project's team.) In future, verification functions will be delegated to community members through direct votings.

Each verified lobbying group can submit proposals for lobbying or accepting GR's user requests, checking them and setting a price as a capitalization rank to obtain the funding necessary for the legal implementation of the request.

Each user can view accepted GR requests and participate in funding.

1.2.3 Call for tenders

The life cycle of each application implies the search and audit of project performers. In addition, Aeneas platform provides the necessary functionality for carrying out call for tenders of performers who have passed a preliminary audit and who wants to perform it for the project implementation.

All actions related to calls for tenders are special purpose transactions being stored in public Aeneas blockchain, which makes probability of abuse and fraud potentially extremely small.

1.2.4 Local self-governance

One of the goals of Aeneas project is to facilitate the sustainable development of civil society and to provide tools to organize local self-governance activity. Self-governance facilities contain public authorities constructor engine, multi-signature accounts, numerous type of votings, ability to delegate duties, reputation ratings, etc.

1.2.5 E-residency

Ordinary citizenship is one of the main institutions of constitutional and administrative law. Citizenship is manifested as a relationship between the state and persons under its authority: the state recognizes and guarantees human rights and freedoms, protects him; in turn, a citizen, observes the laws and regulations of the state, fulfills the duties established for him. The totality of these rights and duties constitutes the legal status of a citizen who differs from foreign citizens and stateless persons.

Usually, states forbid their citizens to have dual citizenship, thus, according to the authors of the project, violating the rights of their own citizens.

The ideology of Aeneas implies the initiation of projects for special economic zones creation, and the provision of digital citizenship to involved users.

2 Platform concept models

2.1 Hybrid intelligence

By hybrid intelligence we mean a system in which more than one method, simulating the rational activity of a person, is combined to solve problems. The most productive is an approach, in which methods of machine learning are combined with expert assessments and analytics obtained on a large user community. The benefit of such combination is a positive synergetic effect and mutual leveling of the shortcomings of each method.

Forecasting contains various methods of hybrid intelligence, which high accuracy makes possible to predict results of the user' initiated projects audit, results of votings, behavior of markets, etc. for the majority of human activities.

The components of Aeneas platform implement methods of hybrid intelligence in varying measures, the cognitive apparatus of which is constantly improving.

The essence of the conceptual model of the Aeneas Hybrid Intelligence is to collect and analyze data from many data scientists located in different parts of the world, performing research of information and giving forecasts about the necessary tasks.

After the application request for the project passes a series of stages of its life cycle, including input of all the necessary information, preliminary verification and approval, the Platform AI formalizes the obtained data by allocating audit predicates and sends their fragments to experts in encrypted form including a set of pre-developed solutions for the proposed task. Such kind of format is necessary to anonymize many factors and ensure impartiality of work on the analysis of information.

The data scientists have to make accurate choice between proposed solutions for encrypted fragments of anonymous business plan or propose a new algorithm or model that more closely matches the fragment.

The next step is to check the predictive models on real objects, after which researchers who offered closest to reality solution receive a reward.

2.2 Crowdfunding

Each user of Aeneas platform can submit a public or proprietary projects in application form for attracting investments and/or lobbying request needed for the implementation of submitted project.

Submit of application is a separate type of transaction and involves user to fill all necessary information about the project. After confirming the transaction by the Aeneas blockchain, the application becomes available for review in a special section of the client software - Application Sanctum. The life cycle of each application consists of a publication, several stages of verification, including the conclusion of Aeneas hybrid intelligence (HI), offering from performers, the release of definitely priced tokens, possible participation in the monthly Ecclesia votings (if the project did not raise the necessary soft capitalization funds during crowdfunding, but was chosen as socially important) and the stage of implementation by chosen performers (or removal from the active list, in opposite case).

The ideology of Aeneas platform does not limit the types of entities and the nature of the initiated projects, applications can be published by individuals and companies. If the applicant is a public company, he can place a fund-raising offer by issuing tokens, and therefore become a subject of legislation regulating of investment activities, issuance and circulation of securities in a state jurisdiction. In this case, the entire responsibility for the campaign will fall on the applicant.

After application request has passed all the approval stages (including votings by master-nodes), and soft capitalization reached, the platform collects 5% of collected funds in token form and distributes them proportionally among all active nodes at the moment of fundraising campaign finishing - running with unblocked non-zero client balances).

If the implementation of the declared project implies gaining profit or other material benefits, in form of discounts, manufactured products, services, fundraiser distributes them among persons who have supported his project as well.

2.3 Lobbying

Each account holder who passed personal verification as a professional lobbyist or representative of an existing lobbying group can submit lobby service offering and view users applications and requests for lobbying of individual or socially important projects, and take part in calls for tenders.

The lobbying request includes all the features and stages of the life circle of a regular application and further extends by stages of auditing and calls for tenders for finding its performers. Each verified lobbyist can audit posted requests (according to his the professional competence), establish the costs of implementing the request (based on the price of services needed) and take part in the calls for tender.

After participation in the calls for tender, lobbyists mark those applications for which they are ready to undertake, indicate the terms of cooperation (based on costs of implementation according to the audit and the lobbyist reputation). Selection of the lobbyist is carried out during the fund-raising campaign. Platform users indicate the preferred lobbyist when transferring funds. If a certain lobbyist has successfully collected funds for the relevant application, the amount is transferring to the lobbyist account and he can start working.

2.4 Polity

Achieving the state of sustainable development, the ecosystem of civil society forms a digital type of polity. The Aeneas platform is a public-oriented open-source project, where management, responsibility, vector of development and property rights are transferred to the community that is the users of the platform and its owners. Aeneas Polity is called upon to combine the virtues of the polities of the past and reduce their shortcomings.

The problem of classical democracy is the incompetence of the majority making decisions. The history of many formations has shown that the most successful democracy can only be in small associations where people personally knew other community members and delegate authority to the most worthy.

In larger communities the effectiveness of democracy has plummeted and in case of multimillion states goes to absurd or even to tragic form. This restriction is connected to human brain physiology, capable to remember and effectively interact with 100-200 representatives of its community. Anthropologist R. Dunbar proposed an average number of maximum 150 social ties, which can be qualitative.

To avoid the limitation of the Dunbar's number, Aeneas combines reputational delegation mechanisms and ownership motivation. The platform belongs to those who owns its shares. The platform shares are represented by digital tokens Ash. Initially, the project is centralized and belongs to Aeneas team. At the genesis moment there will be a single verifier account and only representatives of the project team will have access to it.

After the announced date of mainnet launch, at the time of generation the genesis block and beginning of processing, the time when user nodes start generating blocks and issuing Ash, the ownership of the platform will be transferred to those who owns Ash tokens. The right to create projects, submit applications requests for lobbying, initiate fundraising, delegate rights and duties of an identity verifier and many other important functions will be transferred to the owners of Ash tokens.

The authors of the project are guided by the philosophy of technocracy and believe that the law should be a code. Those issues that can not be resolved by self-enforcing norms, passing the human factor, must be submitted through a direct votings of all participants corresponding to formalized criteria.

The most important issues concerning an architecture of the platform will be solved through votings of master-nodes with a total balance of 100,000 Ash - the Archon level (up to 1000 knots), less important issues - the size of commissions, the implementation of a new types of transactions, etc. - at the level of Ecclesia (100,000 master nodes). Any other issues are solving through regular votings - the Demos level, where anyone has the right to vote who has at least 1 Ash on his balance.

2.5 Ash token

Aeneas blockchain platform uses an internal Ash token to ensure the functioning of domestic economy, votings and supporting projects. Users can make transactions by sending Ash tokens to each other.

Important notice of Ash tokens are the conditions of issuing, distribution and use. Aeneas team are NOT issuers of Ash tokens.

Issue of Ash. To motivate users to perform work on the network processing, an algorithm calculates the reward in Ash tokens and transact it to block generator account. Thus, each person who consider motivation as a sufficient and consciously work on Aeneas Blockchain processing by leasing his own computing power is an issuer of Ash tokens.

Ash distribution. The fair distribution of tokens looks like to the distribution of money in society and is the subject of heated discussions and fierce confrontations.

To solve problem of fair distribution, issue of Ash supply will be occur according to the PoW (Proof-of-Work) algorithm, without premine, pre-sale, ICO etc. The essence of the Proof-of-Work algorithm is to add additionally difficulty to the work of ensuring the processing of the network, and, thus, to make the competitive component for the users involved in processing. The nature of difficulty is computational, and more powerful computing systems will be able to cope with it, which in turn will affect to the number of performed blocks by a node, and, consequently, to the number of Ash tokens that block generator will eventually receive. Number of Ash tokens at genesis moment is 0.

The planned network configuration implies blocks generating in 30 seconds - 1 minute period and the approximate number of blocks per day will be 1440.

Ash total supply will be 100,000,000 (one hundred million Ash) and will be issued in first 4 years of the platform existence. The reward for the block will decrease every 525 600 blocks (once a year) and can be expressed by the formula:

$$N + N/2 + N/4 + N/8 = 100\ 000\ 000\ Ash. =>$$

N   = 53 333 333,33333333 Ash first year.
N/2 = 26 666 666,66666666 Ash second year.
N/3 = 13 333 333,33333333 Ash third year.
N/4 =   6 666 666,66666668 Ash fourth year.

After reaching 100,000,000 Ash issued supply, reward for blocks generation will be discontinued, and the processing algorithm of the network is replaced by PoS (Proof-of-Stake, "Confirmation by shares").

The Ash Token can be divided to 10,000,000 factions. The smallest fraction is 0.00000001 Ash and called Sand.

Ash token use. Users can make transactions by sending Ash tokens to each other or performing other special types of transactions provided by platform functions.

Each transaction is a collection of data that includes, among other things, the input and output addresses. Input refers to address of the previous holder and output refers to address of the new token owner. Algorithmically, the Aeneas cryptographic protocol implements the principle of triple-entry accounting.

It should be noticed that each user, based on his experience and preferences, himself determines what is the point of investing in Ash tokens, beyond what the authors of the project offered, whether his own meaning like digital goods, any time of id, certificates, mandate for digital citizenship, etc.

Types of alternative applications for Ash tokens are discussed and being voted by Archon and Ecclesia groups.

2.6 Reward Distribution Policy

The initial reward for block generation is 100 Ash, the initial minimal fee for the transaction is 0.001 Ash.

The peculiarity of the Aeneas reward distribution model is that part of the rewards at both stages is blocked and distributed among socially important projects monthly through direct votings and between the owners of the master-nodes. The initial value of the blocked part of the mining reward is is 20%. (10% - goes to the fund of socially useful projects, 8% - are distributed proportionally between the owners of master-nodes, 2% - goes to support and development of the project).

To participate in votings for the distribution of socially useful income user will have to place 1000 Ash or more on his balance.

2.7 Master-nodes Archon and Ecclesia, PoS-stage of the system operation

After completion of the PoW stage of the system operation (the size of the emission is 100,000,000 Ash), snapshots (fork and backup of the database called Eschaton) will be performed and the network processing algorithm will be changed to PoS.

Owners of those accounts whose account balance is greater than or equal to 1000 Ash will be able to participate in the processing of the network. A node with a balance of 1000 Ash and more is called a master-node, the group of such nodes has the symbol used name Ecclesia, has the right to participate in votings for the distribution of the

shares of income from mining for socially useful projects. A group of nodes with a balance of 100,000 Ashes and more has the designation Archon, and participates in the most important votings related to the architecture and development of the platform.

2.8 User verification

Creating an account is anonymous and includes generation of cryptographic key pair. Each user can have an unlimited number of accounts. In case of user needs to de-anonymize himself for public activities, personified digital signature use, etc., he can submit a verification request. Technically, verification is a special transaction and adds personal user data (passport id, bankID) to Aeneas Blockchain after being verified by special verification account called Ephor. From the start access to this account belongs to Aeneas Team and will be delegated to community in future by direct master-nodes votings.

Demos is a group of successfully verified users who have been de-anonymized themselves by their own will. They have a public reputation, some privileges etc.

Ecclesia is group of master-nodes with has no less than 1000 Ash on a balance of each node. May be anonymous. Participate in PoS processing of Aeneas Blockchain. They claim 8% of block generating rewards and can take part in a monthly votings for funds distribution. Due to limited total supply, there may not be more than 100,000 accounts of this group.

Ephor is a group of network verification accounts. Initially, the is 1 account of «personal verifier» type and 1 account of «professional verifier» type with initial Aeneas team access. In future, the number of Ephor accounts and persons having access to them can be expanded by votings at the level of Archon or Ecclesia.

Archon is a group of super master-nodes, who has at least 100,000 Ash. May be anonymous. Participate in PoS-processing of Aeneas Blockchain. They claim 8% of block generating rewards and can take part in a monthly votings for funds distribution. Compared to the accounts of Ecclesia group, they have maximum power in case of votings related to the most important issues and the architecture of the project. Due to limited total supply, there may not be more than 1000 accounts of this group.

The protocol of the Aeneas platform means the storage of any personal data only in an encrypted form, and the access rights are their owner prerogative.

3 Development and used technologies

3.1 Introduction

Aeneas platform is a complex blockchain solution that implements numerous FinTech models. The platform has a modular structure, and the selected Scala technological stack (Scala - the functional language used in core) allows you to relatively quickly make significant architectural changes and obtain the potential for further project development.

3.2 Scala language

Scala is a functional, modular, and object-oriented programming language. There are several reasons for choosing Scala:

1. Scala runs on the JVM, which allows it to be cross-platform.

2. Scala interacts with Java.

3. Scala is fully functional and therefore provides a compact and more readable code.

4. Scala has powerful designs for concurrency.

5. Scala has a powerful type system. Scorex 2 uses multilingual language functions.

3.3 Scorex 2 framework

Aeneas Blockchain core uses the Scorex 2 framework, which supports all necessary technical definitions for creating blockchain platforms written on Scala language.
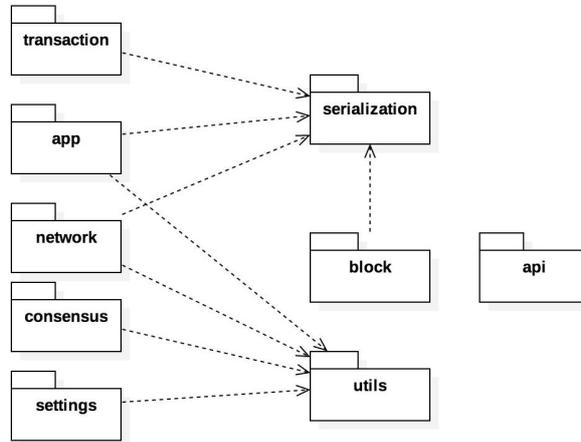
Figure 1: diagram of Scorex 2 framework packages
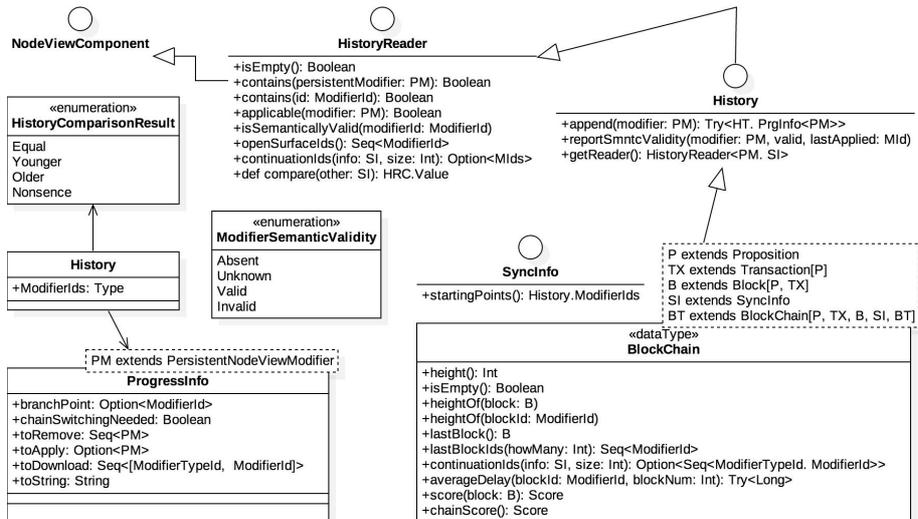
Figure 2: Scorex 2 class diagram - consensus
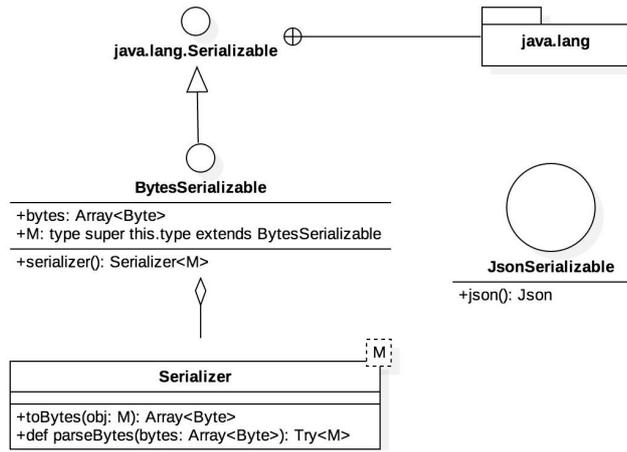
Figure 3: Scorex 2 class diagram - serialization

3.4 Aeneas platform structure

Aeneas platform consist of couple of components which are Aeneas Sanctum frontend, the Aeneas Lepton crowdfunding, call for tenders module, the hybrid intelligence system consisting of the Euclid and the expert evaluation crowd wisdom module (VP), self-governance constructor engine Polity, smart contracts system, Aeneas Marketplace and a votings module.

3.5 General use case diagram
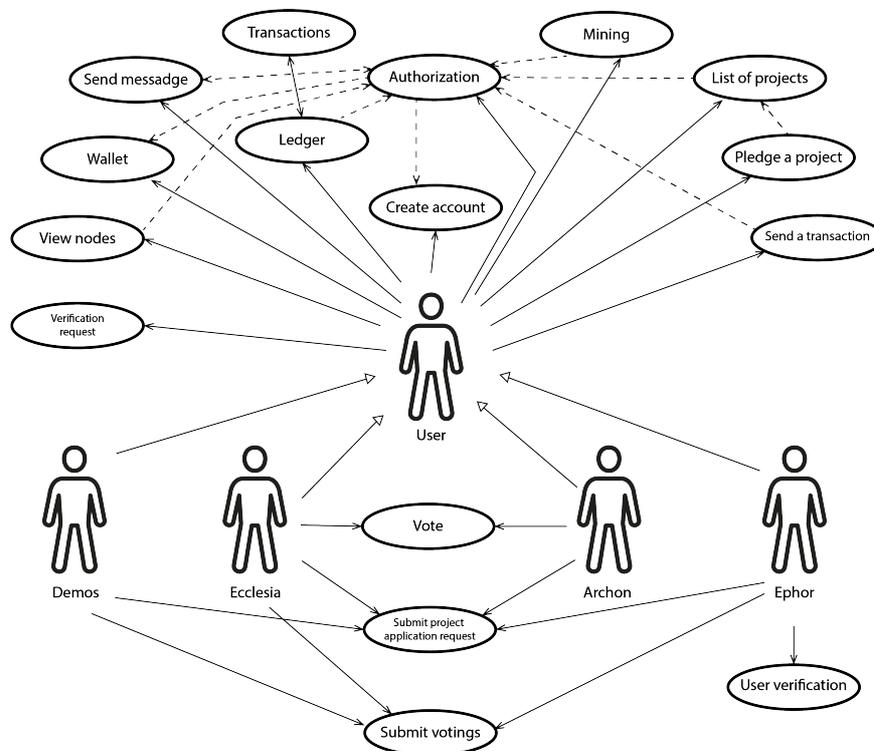
Figure 4: general use case diagram

4 Roadmap

Q4 2017

October 2017 - The emergence of the idea of the platform for political lobbying. Beginning of research. 2017.10.10

December 2017 - First public presentation of the concept. 2017.12.15

Q1 2018

March 2018 - Testnet launch and the first version of the wallet application Aeneas Sanctum.

Q2 2018

April 2018 - Start of the mainnet. Beginning of network processing and mining of Ash tokens.

May 2018 - Creation of Verification Accounts.

June 2018 - Encrypted messages.

Q3 2018

July 2018 - Start trading of Ash tokens on cryptocurrency exchanges.

September 2018 - Crowdfunding Aeneas Lepton. P1. User application requests. Master-nodes monthly votings for reserved funds distribution between users requests and applications.

Q4 2018

December 2018 - Launch of the decentralized exchange Aeneas Exchange.

Q1 2019

January 2019 - Multi-signature accounts.

March 2019 - Crowdfunding Aeneas Lepton. P2. Involvement of experts to cooperate with the platform.

Q2 2019

April 2019 - Aeneas Sanctum mobile application.

May 2019 - Crowdfunding Aeneas Lepton. P3. Testing of AI Euclid.

June 2019 - Crowdfunding Aeneas Lepton. P4. Testing of crowd wisdom module V.P.

Q3 2019

July 2019 - Crowdfunding Aeneas Lepton. P5. Smart issuing of digital assets based on the audit of Euclid and V.P.

August 2019 - Launch of the first special economic zone creation campaign through the Aeneas Lepton platform.

September 2019 - Launch of the votings system.

Q4 2019

October 2019 - Arbitrary messages.

December 2019 - Launch of the Aeneas Polity self-governance constructor engine.

Q1 2020

March 2020 - Smart contracts sytem.

Q2 2020

April 2020 - Creation of the first smart laws.

Q3 2020

July 2020 - Aeneas Sanctum Light client version.

Q4 2020

October 2020 - Creating hybrid intelligence API.

Q1 2022

March 2022 - Ash token issuing reaches its ending at 100 000 000 Ashes total supply. Aeneas Blockchain snapshot called Eschaton. PoW replaced with PoS network consensus algorithm.

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