VPLedger

Veritas Persona Ledger

PDF

Memorandum

«Democracy in modern society and its digital manifestation. The VPLedger's role»

WHY WE DESIGNED VPLEDGER BLOCKCHAIN

This document introduces the vision of a blockchain which can be used for the use of SMBs and enterprises anywhere in the world. This blockchain does not come into conflict with national regulators, and offers all the advantages of currently available blockchain technologies and the possibilities of the worldwide cryptocurrency and financial market.

This blockchain is aimed at solving the issue faced by all platforms which use distributed networks: lack of interest from businesses due to the unregulated nature of blockchain-based deals.

We're sure that blockchain technologies are able to ensure reliability of scalable networks and to encourage elimination of cross-border barriers between businesses. And the main aim of creating the VPLedger blockchain is to deliver a fast and easily scalable protective blockchain for business, which will guard its users from the potential technical and legal issues of the real world, and offer an advanced ecosystem of useful services.

INTRODUCTION

Democracy, an integral part of modern society, ensures its further progress through the implementation of evolutionary changes. The traditional definition of democracy implies the existence of a system based on a method of collective decision-making, where all the participants equally affect the outcome.

In the city-states of ancient Greece in the 6th century BC, in the supreme body of power, the Ecclesia, decisions were made based on a majority of votes of the citizens. However, various types of democracy later appeared worldwide, some of which are very different from each other. At the moment, there are more than a dozen types of democracies: from classical and direct to developmental and protective ones. And now we're beginning to see the embodiment of democratic principles in blockchain ecosystems.

A blockchain is a great place to conduct experiments and to implement the most ambitious ideas that have existed for centuries but cannot be implemented in modern societies. Here, with minimal costs, we can bring to life the principles of an ideal democracy, where all the key decisions concerning the functioning and evolvement points are made directly through the expression of the will of each community member (user).

Blockchain provides an opportunity to identify the undistorted users' opinions and take them into account while making considered and legitimate decisions. We invite you to explore the existing blockchain consensus algorithms which differ based on which social principles are harnessed to construct them.

THE BASIC CONSENSUS ALGORITHMS

The Proof of Work (POW) mechanism appeared even earlier than the first cryptocurrencies. The first concept of the modern POW was presented in 1993, and in 2008 Satoshi Nakamoto introduced PoW as a consensus mechanism in the Bitcoin network. The POW mechanism delivers capitalist principles, which combine production (block generation) and distribution (coin distribution), based on private property, equality and freedom of entrepreneurship in the Bitcoin economic system. However, the example of Ethereum and Ethereum Classic shows that if the consensus mechanism does not initially include the possibility of effective decision-making, the common desire of developers to save any stolen funds by rolling back the network before the time of an attack leads to discontent of some users and the creation of a fork of the network (community division).

The POS (Proof of Stake) mechanism was first proposed in 2011. In the POS mechanism, the share size is used as a resource and determines which of the nodes will find the block and receive the reward. Therefore, the production of new blocks is not determined by the computing power capacity as in the PoW mechanism, but it rather depends on the number of cryptocurrency coins in the user's wallet (the share size).

The main reasons for creating POS to replace the POW were fewer computing resources requirements and lower transaction fees, so that POS becomes a cheaper, safer, and less resource-demanding mechanism. However, POS has become a consensus mechanism that delivers **oligarchic** principles within the blockchain.

It is important to note that within the framework of the modern economic system the oligarchy has outlived itself and does not stand up to criticism in comparison with democracy.

To address the shortcomings of the POW and POS mechanisms, many new mechanisms have been created, such as DPOS, POA, LPOS, POB, POC, and POI, which correct the weaknesses of older mechanisms, but also have their own shortcomings.

For example, DPOS (Delegated Proof of Stake) ensures the separation of voting and validating participants; i.e. coin holders are not validators of transactions, but they vote for the block producers, who will directly create the blocks and maintain the uninterrupted network operations.

In DPOS-blockchains, we observe the process of voting for a delegate who, with a pool of votes given to him, participates in strategic decision-making within the blockchain.

This imbues the DPOS mechanism with the features of **representative democracy**. But at the same time, in the system of DPOS-blockchains, we see manifestations of negative phenomena in the form of concentration of power and the appearance of signs of an **aristocratic** political system, where power is concentrated in the hands of the 'richest' users.

In addition, within DPOS, delegates tend to group and manipulate the votes.

Table 1.1. Comparison of disadvantages of blockchain consensus mechanisms

POW	POS	DPOS
1. Concentration of power in the hands of the major miners. 2. Exposure to 51% attacks 3. Anonymity and the lack of a common decision- making mechanism lead to the absence of democracy in this consensus mechanism	1. Centralization (concentration of votes cast for the richest users) 2. Exposure to 51% attacks 3. Blockchain oligarchy	1. Exposure to 51% attacks 2. Blockchain aristocracy 3. Votes manipulation

Based on the shortcomings of the consensus mechanisms, we propose a VPLedger Veritas Persona by Governance (VPG) mechanism which will ensure the security, scalability and high speed of the network without attracting significant computing resources.

CAPITALISM AND MODERN FORMS OF DEMOCRACY

In today's economic system and in modern blockchains, we see elements of free capitalism that users want to improve by introducing a native mechanism for public decision-making. This mechanism implies the application of democratic principles as the basis of the political system in the blockchain. But at the same time, as practice shows, in the real world democracy often degenerates into various forms of plutocracy or autocracy.

As we can see, the same problems are gradually emerging in the blockchain. Currently, users can not agree on the most important and vital issues of the community in various blockchains, and struggle to make strategic decisions for their development for a long time. The decisions made mainly project the position of the wealthiest users (owning a large number of tokens or capacities).

Let us turn to the theory, and note that the researchers of capitalism (Th. Schumpeter, I. Kristol, S. Lipset) believe: **democratic capitalism** does not claim the ability to definitely solve the most important universal problems, and the free market does not promise a happy future for each individual. In turn, the French economist Thomas Piketty believes that the capitalist society of the XXI century is doomed to new crises, which can be prevented **only by strengthening the role of the state** in the regulation of the economic sphere.

Is it possible to solve these contradictions with the help of blockchain? We believe that it is, but only if all the political and governance issues are moved beyond the blockchain, which should be reflected in the SHA (A ShareHolders' Agreement), and the **Constitution of the blockchain**; and if these issues are given in the hands of a professional and transparent legal entity; and if the users of the blockchain are given an opportunity to develop independently within the broad opportunities offered by the economic system of the blockchain. Let's look at the types of democracy that can allow the above-mentioned ideas to develop to their fullest.

Legal democracy implies the separation of the state from civil society while preserving the principles of the rule of law. At the same time, minimizing the state role should serve to create maximum space for individual freedom and the development of free market relations, where the rule of law is more important than both the state and the will of the majority. This creates the conditions for minimizing bureaucratic regulation of the society, and the activities of various interest groups have significant limitations. Moreover, in a legal democracy, it will not be possible to paralyze the political system under excessive group and electoral pressure.

Developmental democracy proclaims an open society, where through the direct participation of all

citizens in its political life, society creates a space for development and further improvement. At the same time, the state has a limited role as a training and development center.

The so-called **protective democracy** accumulates the advantage of all of the above-mentioned types. Its main purpose is to protect citizens from the abuse of the authorities and from the lawlessness of individuals. In a protective democracy, the state is separated from the civil society, and the non-interference of power in many spheres of life, especially in the economy, is proclaimed, which should expand the individual freedoms of each subject and the society as a whole, as well as ensure the development of free market relations.

If we try to transfer the principles of protective democracy to the real world, many issues appear, which are primarily associated with the imperfection of the governments that ensure the functioning of states. Therefore, inevitably, interference of the authorities in the life of society, including the economic sphere takes place. However, thanks to the development of digital technologies, **democracy in its best protective form can be integrated in the blockchain** and thus ensure the fair, effective, and legitimate functioning of blockchain platforms. That is why we intend to merge the best democratic ideas and modern technologies together; together, these can create the most perfect and the most popular network operating on the basis of cryptographic methods. We called this type of blockchain **the protective VPLedger blockchain.**

Yes, we understand that it is impossible to create an ideal consensus mechanism that would **suit everyone**. But we can create a mechanism on the basis of which **the blockchain would function for business** and be eligible for regulators; a mechanism that would be simple, quick and clear, which would not promise complete anonymity, or give the opportunity to develop anarchic ideas that are harmful to the business community.
We are well aware that any person is a part of society, and blockchain is also a part of the world economic system and cannot exist on its own. Therefore, the coherent combination of the ideas underlying cryptocurrencies, decentralized platforms and modern financial foundations of society is an inevitable consequence of the evolutionary development of social systems and institutions.

It is important to note that most of the wrong decisions in the management of any system arise from a lack of reliable information. Due to the presence of a transparent blockchain, users are able to rely on the completeness of the reliable data for making informed decisions, and thus most effectively implementing the idea of a real democracy. But at the same time, to build the relationship of such a democratic blockchain with the real society and state authorities, an unbiased participant is necessary. This participant will only be servicing potential obligations arising from the functioning of the blockchain, the sustainable operation of which the subject is obliged to ensure. That is, the subject shouldn't affect the economic life of the network participants in any way, but is legally and technically obliged to ensure its functioning.

We do not intend to duplicate the imperfect democracy inherent in modern society on the blockchain. We want to put all these tasks on our shoulders, and give users the opportunity to accomplish their goals within the framework of the newly-created free and democratic blockchain economy. The model of Protective Democracy used in our blockchain will provide a direct connection between users and economic decisions, ensure the availability of complete information at all levels of the social process, and provide users with a fully transparent public system.

THE NEED TO USE A NEW CONSENSUS MECHANISM IN THE PROTECTIVE VPLEDGER BLOCKCHAIN

The VPLedger Veritas Persona by Governance (VPG) consensus mechanism is a reinterpretation of the Proof of Stake mechanism, which uses the validator identification (Proof of Authority) rather than a share of ownership in order to achieve consensus. In the VPLedger network based on the VPG mechanism, operations and blocks are validated by the confirmed accounts (validators).

However, the functioning of a large number of nodes is not required, and the first validator, which is the Governance (OpenLedger ApS legal entity) chooses a new validator. Further on, by a democratic vote, the validators choose the new nodes. This process is carried out dozens of times so that later the blocks validation can be decentralized. The required number of validators in this case does not exceed 25 units, which is specifically done in order to ensure the efficient use of computing resources, flexible possibilities for managing network security, and enormous scaling opportunities.

The main characteristics of the network based on the VPG mechanism are low computing power requirements, and absence of need for communication between nodes to achieve consensus. The stability and reliability of the network does not depend on the nodes quantity, since all the functioning nodes were previously identified and verified. The anonymity of the validator's identification is provided by data encryption using cryptographic methods, and the validator's public disclosure is carried out only if it has carried out fraudulent or malicious transactions.

The majority of consensus mechanisms are vulnerable to 51% attacks, which is a serious disadvantage for any mechanism. This problem is not present in the VPG mechanism, as there are legal obligations of the authorized node to blockchain users. In addition, users are protected from unfair validators at the consensus level. If the validator attempts to replace the block chain, it goes into the fork of the network, but the rest of the network continues to work in the normal operation mode, and its users continue to operate within the primary network.

The only significant disadvantage of the VPG mechanism is its higher degree of centralization, which is balanced by its advantages of speed, scalability, and security. These are the crucial characteristics for the target audience of the Protective Blockchain, which is global businesses.

THE NEED FOR IDENTIFICATION (KYC) AND VERIFICATION OF USERS IN THE PROTECTIVE VPLEDGER BLOCKCHAIN

Business and institutional processes that take place in society are complex and diverse, and their effective interaction within the blockchain can not be ensured only by the safe transfer of tokens from account to account and the use of smart contracts.

In many cases, these mechanisms are insufficient, and additional mechanisms are needed to ensure stable and trusted relationships between two or more counterparties within the blockchain.

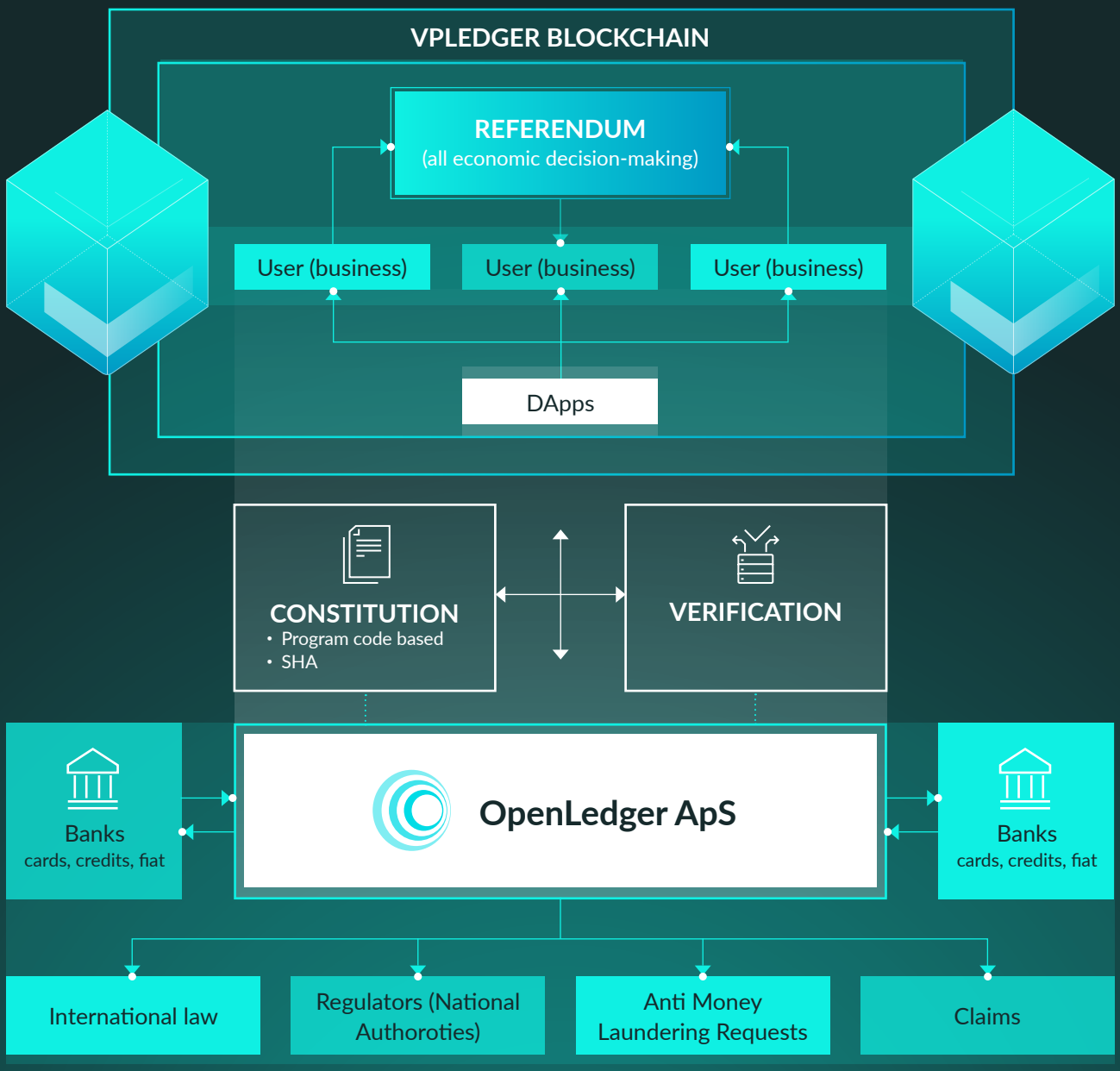
First of all, the ability to identify users who remain completely anonymous (GRP) within the whole blockchain, but if necessary, can disclose their individual data to their counterparty, is required. In addition, user identification data may be disclosed upon the request of the regulatory authorities in accordance with international and local law. Identification, in this case, means the procedure by which it is possible to unambiguously identify a network participant. However, if the users themselves provide the identification data, there is a possibility that they will submit false information, which in the future may adversely affect the relationship with the counterparty and lead to damage for the latter. Therefore, there is a need to identify individual user with an independent, unbiased, and transparent mechanism.

User identification is directly related to the KYC (Know Your Customer) procedure, which came to the world of blockchain and cryptocurrencies from the banking sector and exchange trading.This procedure implies that each company that works with the funds of individuals, must identify the counterparty before carrying out a financial transaction. In general, KYC is not an integral component of decentralized financial services, but the multibillion turnover of the ICO industry drew the attention of state regulators from around the world.

Primarily, in order to counteract the legalization of funds acquired by illegal means and the financing of terrorism, government agencies oblige blockchain projects, which operates with the funds of individuals, to identify their users. Despite the deanonymization of users for public authorities, the KYC procedure contains a number of advantages both for an individual subject of the blockchain network and for the entire network as a whole:

- simplified interaction with banking authorities;
- simplified work with institutional investors;
- legalization of income within the blockchain;
- rapid development and growth of the number of users;
- avoidance of various kinds of sanctions delivered by state bodies, etc.

This mechanism should contain a set of methods that allow the authorized and lawful authority to identify users. At the same time, we plan to use the services of an independent professional legal entity, which will be responsible for the accuracy of the user identification data. VPLedger, in its turn, will encrypt the data necessary for business communications in the blockchain. This procedure is called verification, or proving the correctness of the data on the identified user using a number of formal methods. This mechanism is designed to ensure the highest degree of trust between remote contractors who wish to disclose their data within the framework of their relations, as well as to public authorities. From our point of view, such a mechanism should be an integral part of the blockchain, which is supposed to be attractive and useful for business.



WHAT THE VPLEDGER BLOCKCHAIN BASED PROTECTIVE DEMOCRACY GIVES TO THE WORLD

The main audience of our blockchain is business, and business needs to have comprehensive information about its clients. It is important for a business to know not only the details of the counterparty but also to have additional information about the client, for example, to see his rating. That is why, in addition to identification, it is necessary to carry out user verification.

For the sake of effective functioning of our blockchain, which is based on democratic principles, one user must be identified with only one account. We oppose the manipulation of users' votes, creating bots and any other fraudulent activities. Businesses need to focus on the direct will of each proven member of the ecosystem.

Based on our internal motives, we oppose the possibility of opening user data to the third parties, i.e. government bodies.

At the same time, maintaining the security and stability of the society (the reason such measures were taken) requires the KYC procedure implementation for the simple and unhindered functioning of the business within the synergetic relationship of the blockchain network, business, and existing financial institutions. From our point of view, such a protective mechanism should be an integral part of the blockchain.

An additional advantage for businesses will be the ability to disclose their data in a transaction with a specific counterparty for the conducting of permanent operations without the need for additional identification (for example, to issue invoices or accompanying documents). In addition, a business can immediately position itself as a public entity on the platform, making its data accessible to all other users.

TARGET AUDIENCE

The target audience of our blockchain global businesses that want access to a simple, reliable and democratic network; one that allows you to carry out the usual business processes using the advantages of the modern blockchain platforms.

Besides small and medium B2B and B2C businesses, the target audience includes startups, individual entrepreneurs, freelancers, self-employed individuals, as well as people who use remittance transactions.

In addition, the blockchain's capabilities can be used by crypto enthusiasts and developers who might benefit from a stable blockchain with a solvent audience to implement their projects.

THE BENEFITS OF THE PROTECTIVE VPLEDGER BLOCKCHAIN

The protective VPLedger blockchain gives users the ability to create, store, exchange, transfer, and sell digital assets. Also, the user is able to use internal tools, such as:

- smart contracts;
- API;
- creating their own tokens;
- creating all kinds of decentralized applications (dApps) within the blockchain, etc.

The duties of the legal entity of OpenLedger ApS will include ensuring that existing and future tools operating within the blockchain comply with the international law.

Non-compliant tools will be banned from releasing within the blockchain. Using the API (application programming interface) of our blockchain, the user can directly integrate the network in their software.

By using smart contracts, which also work as legal contracts without any risk of delays, censorship or third-party interference, the user is able to significantly reduce their transaction costs. The participant has the opportunity to use the network as a traditional cryptocurrency, i.e. to make quick and cheap international payments, or conduct

international money transfers. In addition, the user will have access to the freely integrated services.

The blockchain itself is immutable, secure, transparent, legitimate, and offers the minimal possibility of fraud. The use of cryptographic techniques makes the network immune to hacking. Transparency is ensured with the public availability of all the network records. Legality is ensured by compliance with the requirements of state regulators. The lack of technical ability of restrictions application gives users complete economic freedom within the network. User verification eliminates the possibility of fraudulent schemes.

USER SECURITY AND PROTECTION

For all-around protection in the VPLedger blockchain, the existence of an independent legal entity OpenLedger ApS is envisioned, which will carry out both the protection of the blockchain at the technological level, and the protection of users from fraud.

Due to the transparency of operations in the blockchain, any interested party can apply to the legal entity supporting the network, and, referring to the information recorded in the blockchain, require exercising of its rights in accordance with the Constitution of the protective VPLedger blockchain.

At the same time, in addition to the benefits arising from the security, scalability and high speed of the network, all legislative requirements (for example, the transfer of information to regulatory authorities) will be carried out directly by the legal entity responsible for the operation of the network, which should also reduce the overhead costs of business.

THE MAIN PRINCIPLES OF THE CONSTITUTION OF THE PROTECTIVE VPLEDGER BLOCKCHAIN

1. VPLedger is a democratic blockchain based on a protective democracy, where economic decisions are made directly by the users.
2. The user is a person who has passed the verification.
3. Each user can have only one verified account.
4. A blockchain user might be any person.
5. The user, and his economic rights and freedoms are the highest value. Recognition, observance and protection of economic rights and freedoms of the user is the responsibility of the Executive Body **(Governance)** that ensures the functioning of the blockchain by the legal entity OpenLedger ApS.
6. Direct electronic referenda about the economic issues of the ecosystem are the highest direct expression of the users' power.
7. Only verified users have full access to blockchain features. Verification is carried out only upon the consent of the user.
8. Each user within the blockchain has all the rights and freedoms and has equal obligations under this Constitution.
9. The user may not be deprived of his right to use the blockchain, unless a referendum or the requirements of law enforcement agencies have established otherwise.
10. The blockchain guarantees the economic freedom of each user.
11. All decisions made by the results of the referendum, as well as all decisions of the legal entity of OpenLedger ApS is subject to official publication on the blockchain website.
12. The norms of international and local law are an integral part of the blockchain. If the rules of international or local law contain rules other than those provided in the Constitution or by referenda, the rules of the international law shall apply.

13. The basic rights and freedoms of the user are inalienable and belong to everyone from the moment of verification completion.
14. The exercise of the users' rights and freedoms shall not violate the rights and freedoms of other users.
15. The rights and freedoms of the user are directly applicable. They determine the meaning, content, and application of decisions made in referenda.
16. No one can be discriminated against within the blockchain. No one can provide identification and verification data about a user to a third party without the voluntary consent of that user.
17. Everyone has the right to a reasoned expression of their opinion in relation to other users by rating them via a special blockchain service.
18. Rating of another user cannot be carried out in the absence of mutual operations.
19. The collection, storage and use of information within the blockchain is carried out on the basis of the public program code embedded in it.
20. Each user must be identified to access the blockchain.
21. Each user must be verified to access the financial assets.
22. Each user must pass the KYC procedure to access the work with institutional units operating outside the blockchain.
23. Freedom of opinion expression is guaranteed. Censorship is prohibited.
24. The right to inherit users' crypto assets is guaranteed under the conditions of providing supporting documents.
25. The user can independently exercise their rights and obligations in full if the age of majority is reached.
26. Proposals on amendments and revision of constitutional provisions may be the result of a referendum.
27. The legal entity, OpenLedger ApS has the right to change the jurisdiction or form of a legal entity.
28. The blockchain community has the opportunity to propose the abolition of the published OpenLedger ApS decision (veto rights) and call a referendum.
29. The voting on the change of the Executive Board of VPLedger can only be initiated by the Executive Body of VPLedger.