White Paper

ArmaChain

Distributed data exchange and storage network

London 2020

CONTENT

1. PURPOSE OF DOCUMENT
2. MAJOR CHALLENGES AND DRIVERS
3. DESIGN CONCEPT
4. INTERACTION PATTERN
5. LEGAL VALUE
6. SUPPORT SYSTEMS
7. INCENTIVE PLAN
8. PROJECTS SUGGESTED FOR PLATFORM-BASED IMPLEMENTATION

https://armacoin.info/

1 PURPOSE OF DOCUMENT

The Document declares the basic principles of operation of **Armachain** decentralized network, which is designed based on the blockchain-type distributed ledgers and data structure, and outlines the scope of its application.

The Document recites in sequence:

1. Setup drivers and objectives.
2. Requirements to technical implementation.
3. Concepts of the products which will be developed and optimized based on the blockchain technology, i.e. will operate via **Armachain**.
4. The Document is premised on the studies of the existing blockchain operation protocols, the relevant best operating practices and on the analysis of the engineering solutions currently available and applied in the business environment.

2 MAJOR CHALLENGES AND DRIVERS

As of today there are no standard and regulated blockchains both in the European market and in many counties, which hampers the legal use of the technology by stakeholders. So, the major driver for setting up Armachain is the need to design such a tool for the ATL innovation market which would enable its players to roll out their blockchain-powered projects within the environment being fully compliant with the British laws, while using the engineering solutions being compatible with the most common infrastructures of currently available blockchains and industry standards.

2 MAJOR CHALLENGES AND DRIVERS

DEFINITION

Armachain is a peer-to-peer access-controlled network the nodes of which intercommunicate based on *Ethereum* protocol upgrade.
Armachain enables its user to make a secure record of any data in a distributed ledger replicated in each node of the network.

GLOSSARY

Blockchain represents the data structure the multiple and variable replications of which may come to their eventual consistency by using a specified consensus algorithm.

Access-controlled network assumes centralized control of access to the network as applied to its nodes.

DRIVERS

The following constraints currently featuring in various business environments, including nationwide, call for **Armachain** to be in place:

01

The existing practice of making deals, effecting financial transactions and assigning intellectual property rights via credibility ensuring intermediaries does not provide means for reducing such transactional costs and sustaining the transparency of business operations and buildup of confidence between partners fundamentally.

02

Noncontiguous structure of transaction-related data makes implementation of audit and risk management procedures more complicated.

03

Lack of technical standards imposed to the application of blockchain technology impedes any integration of business processes and data run and used by different companies.

04

The aforesaid factors considerably narrow the opportunities for implementing any innovative technologies by advertising market players and entail the access thereto being unequal for the market stakeholders. Besides, the identified constraints make getting any up-to-date information which is essential for management decision-making less possible. In its turn, it smoothes the way for unethical practices and increases the risk of fraudulent transactions to be effected in the target market.

05

To meet the above challenges, we offer to set up a single project data exchange and storage network based on the blockchain technology (hereinafter referred to as Armachain) and therethrough to enable its members to automate the process of effecting their financial transactions using the built-in decision-making logic (hereinafter referred to as the smart contract).

3 DESIGN CONCEPT

The key principles of Armachain design are:

Armachain does not store any data being subject to specific handling procedure (proprietary information and trade secrets, personal data, sensitive data, etc.).

Any information processed via Armachain is of legal value (within the British jurisdiction).

There is no technical need for any trusted intermediaries.

It supports encoded contracts (smart contracts).

There is no single point of failure.

It assumes independent accounting of resources allocated by users to support the network operation.

It can be scaled (by number of users and transactions).

4 INTERACTION PATTERN

Any subscribed advertising agencies and publishers can use Armachain to automate their business processes.

PLATFORM

The given platform-related requirements employ the best practices of currently operating blockchains and are arranged in three groups:

1 Operational

2 Security

3 Functional

OPERATIONAL REQUIREMENTS

1. It is to be scaled by number of nodes. Any increase of the number of nodes does not affect the complexity of the platform's consensus algorithm

2. It supports the distributed system mode when all the following requirements are unfeasible at a time:

-Network connectivity is failure-free;

-Data transmission rate is constant;

-Network is secure (its traffic cannot be modified by any third party);

-Network topology is constant;

-Centralized administration of network;

-All nodes and all data channels are identical;

-There is a clock being universal for the entire network.

3. There is global practice in operating the platform in Internet with uncontrolled access thereto and its source codes being available to users.

- The transfer rate was not treated as an essential operational requirement since it cannot be administered effectively when the system operates without centralized control (is distributed) and the number of its users is indefinite.

SECURITY REQUIREMENTS

1. The chain is shown to be authentic. It assumes a unique algorithm applied to the only true version of blockchain.

2. Inner-chain data do not affect the consensus algorithm logic.

3. The system compromise rate can be estimated quite accurately.

4. Access of nodes to the network is controlled.

5. It applies European certified encryption algorithms.

FUNCTIONAL REQUIREMENTS

1.It supports the option of producing new instances of the code within the network which, once followed, entail certain events (smart contracts).

2. Validators' operations are recorded (mining).

3. Access to the network is controlled.

COMPROMISE DEFINITION

Any platform is deemed compromised when at least one of the following events is possible:

Deliberate alteration of the blockchain data on which the network has already been in consensus.

There are some conflicting blockchain options at a time while there is no a single-value feature enabling to choose the true one.

5 LEGAL VALUE

The eIDAS (Electronic IDentification, Authentication and Trust Services) Regulation has been in effect in the EU countries since July the 1st, 2016. It entered into force after the EU Regulation N°910/2014 was enacted and the Electronic Signatures Directive dated 1999 was repealed. The Regulation sets general standards for electronic signatures, electronic seals, timestamps, eDelivery services and authentication certificates of websites.

UA TYPES

Process units of account (PUA)

They are applied to record the transaction processing operations (service fees). They are set up by validators while generating blocks.

Designated units of account

They are applied for value-added transactions. They are set up within regulator-administered smart contracts.

6 SUPPORT SYSTEMS

Support systems apply the blockchain to perform the following classified tasks:

1. Speeding up the transaction processing.
2. Processing the data being subject to specific handling (personal data, payment information).
3. Network status monitoring and troubleshooting.
4. Integration with any third automation systems.
5. Integration with other blockchains via Interledger protocol.

7 INCENTIVE PLAN

Any **Armachain** mining node features a mechanism of service fees generated as a reward for effected transactions and performed smart contracts being similar to the one implemented in Ethereum platform.

Each transaction (including the one that entails a smart contract performance) is followed by a service fee denominated in PUA. Such service fee is calculated based on an abstract unit called "*gas*". *Gas* is a unit measuring the resources needed to process a transaction and to record it in the blockchain. A gas unit coincides with the PUA number set by the node's administrator. Accordingly, the minimum required inputs in a transaction are estimated via multiplying the quantity of gas needed by the number of PUA corresponding to the gas unit (set by administrator).

PUAs received by a miner for transaction processing are used to account the following inputs:

- The ones in computations performed within a transaction;
- Fee for the quantity of data recorded in the blockchain.

Along with the input accounting, such service fee performs as an adaptive defense against DoS attacks with spam transactions: the one who is attacking (like any user) has to spend PUAs to employ the resource, including computations, the size of transmitted transactions and data storage.

8 PROJECTS SUGGESTED FOR PLATFORM-BASED IMPLEMENTATION

Here are some short-term projects suggested for implementation within Armachain.

"DECENTRALIZED CONTENT DEVELOPMENT MANAGEMENT SYSTEM" PROJECT

GOALS

1.To put into operation in conformity with the British and overseas copyright laws;

2.To engage enough content developers and publishers;

3.To cut costs of project documentation storing, recording and securitizing and to speed up the relevant operations.

OBJECTIVES

-To establish a network of market stakeholders, including AR/VR promotional and publicity content developers, with the aim to build up a transparent market.
-To develop and put in place a decentralized project management system (hereinafter referred to as DCDCS) as an out-of-the-box open source option.
-To put it into trial operation.
-To set up a dedicated company to simplify contractual relationship between customers and service providers.

PROJECT PROFILE

-It complies with the legal framework, the stakeholders' roles and functions remain split;
-It generates a distributed project data storage cloud;
-Inter-stakeholder processes are automated via smart contracts conforming to the logic of the laws in force.

PROJECT STAKEHOLDERS

-Web studios, design studios and digital agencies;
-Patent offices;
-Publishing houses;
-Expert individuals.

ECONOMIC EFFICIENCY FORECAST

-Considerable reduction of fraud incidence
-Piracy risk mitigation
-Project data storage security
-Enhanced market transparency

https://armacoin.info/