SciMatic Hybrid Blockchain

Reshaping Academia, Education, and Finance

Whitepaper

https://scimatic.net

SCIMATIC HYBRID BLOCKCHAIN
SCI Coin

SUMMARY

Scientific data is held by few large companies. They cost authors for publishing the articles, then selling the same data to their institutions (universities and research centers). Monetary processes are getting expensive and complex on daily basis due to the "middle-man" like banks, persons; even centralized softwares. Public data is being used for marketing by few centralized companies like Facebook, Twitter, Instagram etc. Getting intellectual property rights is tough and time taking. A patent takes at least 3 years to be accepted.

Blockchain technology alone is not enough for big data, especially for long paragraphs, figures, tables, and large files. There is a need of hybrid decentralized system based on blockchain, decentralized filing system (e.g., IPFS) and classical databases. Extra earning resources are required for academicians, researchers, teachers, and students. Decentralization technology must be used in real-life DAPPs rather than just use in finance and cryptocurrency. Evolution of the internet towards web3.0 must be fastened.

There are many problems or deficiencies that force us to start this project. We will discuss them all in detail. Before that, I must state that, being an academician, scientist, researcher, teacher, writer, editor, student, earner, and payer, I felt that computer technology is not being used effectively in the stated fields.

In short, there is a need of a hybrid blockchain that would solve the problems of public, without prejudice. Herein this project is aimed to develop a decentralized network of nodes that is fully democratic, cheap and easy to use and solve the problems in the society.

OBJECTIVES

This project aims to establish a hybrid decentralized system based on blockchain, IPFS and traditional shared database to deal with big data and large files. This project will increase industry – academia – public sector collaboration. This project will prove that blockchain technology can be used for big data. Additionally, this project will bring true democracy and decentralization to the scientific literature. This project will result in SciChain (blockchain), SciNet (p2p network), and many decentralized applications to be used in the educational and research institutions in addition to the public usage in daily life.

TARGET GROUP

This project will help entrepreneurs, SMEs, and public & private institutions. Short term target groups are researchers, academicians, students, teachers, scientific journals, publishing companies. Long term target groups are universities, higher education institutions, financial organizations etc. There are also plans to do social projects for street animals in the later stages.

TOKENOMICS

Scimatic Hybrid Blockchain is charged with a total fixed supply of 10,000,000,000 SCI coins. There will be neither more coin minting, nor burning. SCI coins will be used in the dapps we produce.

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PROBLEMS IN PUBLISHING SCIENTIFIC RESULTS

Scientists are working hard to produce positive or effective results out of there projects. So, they must publish their results in some scientific peer-reviewed journals. From writer to readers, there are lots of problems either related to the centralization of scientific materials, large publishing companies, quality rules imposed by the higher education institutions, in-hurry authors, prejudiced editors or whatsoever. Let's count them with fingers.

Rules of Higher education institutions

Unfortunately, the quality parameter to rank scientists is, in many countries, the number of articles they publish each year. Mostly they are getting productivity awards for the greater number of articles. So, the only thing scientists are trying to do is the number of articles, not the quality of research. To have high quality articles, higher education institutions have certain limits based on impact factors or whether the journal, where the article is published, is indexed by some giant company like Thomson Reuters etc. This situation is directly or indirectly benefiting these giant companies and make the science more centralized. Scientists and universities must pay, first to publish their articles, the pay again to read their own articles.

Publishing companies

There are lots of problems with publishing companies. First, they mostly cost scientists to publish their articles. Then they sell back the materials to the writer's universities and organizations. Almost all the journals have different writing formats and templates. Scientists are wasting on average 2-3 days only to format the article as asked by the journal. This is a stressful process, especially if an article is rejected by a journal and must submit to another one (so the article must be reformatted). All these formalities are making the life of a scientist more tough.

Writers

Writers are mostly concentrating to increase the number of articles due to the rules of higher education commissions. Most of the journal's submission system is free, so what sometime authors do is to submit the article to various journals simultaneously to try their luck. Being an editor, I have faced problems where the manuscript is in the reviewing process and the author is requesting to withdraw the paper; most probably due to acceptance given by another journal. The time of the editor and reviewers is just wasted. This is unethical and must be couped.

Editors and Reviewers

Most of the journals do not pay to the editors. Almost all of them do not pay to the reviewers, even if they are costing 3500€ to the author. So, the editors and reviewers can be careless in accepting or rejecting the scientific work. They must be paid for their time and abilities.

Centralized Literature

The published literature is mostly centralized and hold by few large companies in the world. There are certain companies offering "Open Access", that means pay more money to give your article for free

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to the readers. The fee of Open Access varies from journal to journal somewhere in the range of 50$ to 3500€. Only rich authors, or those who can pay this amount from a project, can pay this amount, and get more citations as compared to the non-open access articles. This is unfair and undemocratic.

SOLUTION – DEJOURN, SCINET

We are going to solve all these problems with two applications: 1) DeJourn and SciNet.

DeJourn

DeJourn stands for decentralized journals that will make the life of researchers, writers, and journal owners easy in many senses by solving the problems stated in the previous section. DeJourn has the following properties:

- Totally decentralized, data stays in blockchain and every member organization.
- Authors submit SCI coins while submitting to the journal using their wallet address.
- Editor earns 20% of the coin as fee to check the paper and forward to the reviewers.
- Each of two reviewers earn 20% as a reviewing fee.
- If the paper is accepted, 30% goes to the journal owner.
- 10 % goes to the manuscript submission system owner.
- These amounts may show variation from journal to journal.
- After acceptance, each article is converted to a non-fungible token (NFT).
- Each author has a list of the article NFTs in their wallet.
- Inside Dejourn system, person want to cite that NFT, must buy it to the author.
- DeJourn is a win-win system. From authors to the publishing company, everybody earns.

In the year 2022, we will start DeJourn from our current journals hosted at https://scimatic.org/journals.

SciNet

SciNet is a P2P network, parallel to SciChain (SciMatic Hybrid Blockchain). It is a collection of node computers staying in the member universities and other organizations. The nodes are continuously gossiping with each other. The addition of any article, research results, project, course etc. at any node will be shared to the member nodes. So, together all of them grow logarithmically. There will be consumer and producer organizations. So, the producer organization may or may not charge the network or the consumer universities/organizations. The preferred system would be to pay the producers in SCI coins. We will cost only one time to setup the node computer in any organization to connect to the SciNet. SciNet is a decentralized system that would finish the ruling of large giant companies over scientific literature. So, everybody is the owner of the system and can use any material anytime.

NOTARY RELATED PROBLEMS

Throughout the world, ownership transfers, agreements and similar processes occur in the

office of notary public. There are useless/useful, time-consuming, and expensive procedures connected to human factor. Lots of stamps, waiting in the queue, loss of the agreement documents and reproducing them are further problems. A Blockchain can make the notary process easy and practical.

SOLUTION - DENOTA

Within the scope of this project, we will release the DeNota that stands for decentralized notary. All the agreements, ownership transfers, affidavits etc. will stays there forever, thus no chance of losing. All the documentation and signing process will occur with the wallet address. Agreements and related documents will stay in the wallet of the owner as NFTs.

One can sign an agreement without going to notary. Just write a text sign and send through email to the next party. After they sign, and both sides agree, the data mints in the blockchain; both parties become equal owners of the NFT. Just like ERC721, we will create smart contracts as standards for this type of NFTs.

If desired by the law or jurisdiction, there can be a validator party who owns the notary office. This will also reduce the requirements of renting large offices, bills, personnel etc.

INTELLEC. PROPERTY RIGHTSON

The present model of intellectual property rights is expensive, take consuming, complex, and stressful. As an example, an average time to obtain a patent in Turkey is 3 years. While is EU and USA, it can show variation.

Another problem is different countries have different policy for patents and copyrights. A patent owner in India cannot claim the intellectual property rights for that idea or product in Brazil. There are some countries having agreements to accept each other's patents and other documents. However, there is a need of global intellectual property right system.

SOLUTION – IDIDIT

We are going to develop a portal named IDidIt (stands for "I did it") for registering ideas, designs, copyrights etc. This product will have its own standard but will derive certain functions from ERC721.

IDidIt will have two options for the intellectual property rights, public and private. The public part will be open to public and searchable while the private will be kept secret and only the owner can access it.

SIGNING & AUTHENTICATION

Signatures

More than 80 % of the world is still using pen signatures for signing documents to prove their validity. Few countries including Turkey, are using electronic signature; but only in organizations that can be counted on fingers.

The problem with e-signatures is that you need to carry a device always with you (mostly a USB stick) to sign certain documents on the computer. These

types of USBs are provided by only few companies. In case a person loses the USB, he/she cannot sign any document, even in they are present.
Another problem with the e-signatures is the Operating System compatibility; they mostly work on windows but not or hardly work on Linux and Mac OS. They have using Java that is abandoned by many companies and browsers. There are installation problems.
E-signatures can also be given to somebody so that a person can sign a document in the absence of the owner, and that is not ethical. So there is a serious need of an alternative that cannot be given to someone.

Authentications
Computer applications which are dealing with the user data and user logging, they are generally a username/email and a password for user authentication. There is always a risk of stealing/hacking/phishing the password with a third-party viruses/illegal code etc. A key logger can be used to store any key pressed while entering a password. Only rare applications are using virtual keypads for entering the numerical code. So there is a string need of user authentication systems that do not use a username/email and password but still recognize the users identity.

SOLUTION - DESIGNA

We are offering the use of wallet for signatures instead of e-signatures. Wallets (e.g., MetaMask) can be installed as an extension to the browser (Firefox, Chrome, Brave etc.) in addition to a mobile application. As a mobile phone is in continuous usage, there are very less chances to lose the phone as compared to the USB stick or to give to someone for the distant signing.
In this project, we will also develop an authentication api that will recognize the users from their wallet address. Think for example, a person is signing to his/her email or social media platform without entering password and username etc.
These signatures and authentications will be performed by using our mobile application and browser extension, DeSigna, the decentralized signatures that will work with a combination of public and private keys.

FOREVER DOCUMENTS

Is this possible to store my precious and legal documents, certificates etc. somewhere, where I do not have to pay an annual fee and there is no risk of losing, stealing and expurgation?
This is a big problem. Many institutions including schools, colleges, universities, courts, conferences etc., are giving paper documents that the owners must keep in a safe place. There are chances of getting lost, they get yellow with time, disrupt, and sometimes they become unreadable. They can be put in a rented safe or banks, that are always paid; monthly or annually.

SOLUTION - DECERTA

DeCerta is a solution to keep your documents, diplomas, conference or course certificates, legal documents, award letters etc. safe forever. Once they are minted in the blockchain like NFTs. An NFT

can be sold to any other person as a property, however it is not logical to sell or send your certificate NFT to someone. Thus, we will develop new standards for this type of security tokens.
DeCerta is very suitable for educational institutions. After the results are finalized and approved by a committee, they can be minted in the blockchain by an authoritative person using the school's authorized wallet through a smart contract.

AWARDS AND PREJUDICE

There are various awarding systems in the world where a certain class of peoples are given the awards while other are kept away due to racial, religious, or geographical reasons. Time to time we see report where people are refusing to accept an award due to categorical prejudice.
Nobel awards, film and TV awards, NFC awards are just few examples where that type of prejudice may occur/have occurred. Celebrities are public properties, thus they should be voting and selecting. There is a strong need of decentralized awarding system.

SOLUTION - DEWARDS

We are going to develop DeWards under the scope of this project. DeWards will be introduced into various fields where the awardee will be selected by a complete democratic system; without racial, religious, or geographical prejudice. Every year, SciMatic will be giving DeWards to the authors who have sold NFTs of their articles through DeJourn or DeLitera.

OTHER PRODUCTS

Other products that are being planned to be developed in this project are as follows:

DeMole • decentralized molecules

Chemists are synthesizing thousands of new molecules every year, but once they publish, they have no rights over them. Through DeMole, they will get the intellectual property rights of their molecule. They can convert their molecules into NFTs, own them or sell to chemical selling companies.

DeCono • decentralized economy

Decono will drive small economical ecosystems that continuously transfers money to each other's through banks. By exchanging SCI, banking costs will be eliminated.

Deducate • decentrailzed education

Deducate will decentralize educational systems like exams, quizzes, scoring systems, scholarships, in-class bounties, and awards etc.

PLATFORM

SciMatic Hybrid Blockchain is based on Hyperledger Besu while the SciNet is composed of nodes that are storing data in classical databases like MySql.
The blockchain has RPC, validator and member nodes using Proof-of-Authority algorithm. It is a permissioned-based network having permission at two different levels:

1. Blockchain Level: only allowed nodes can do the transactions and sync with the network.


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2. Node Level: Every node can permit further nodes and persons to do transaction. Persons who are not added to the allowed list may not perform transaction.

If a node does not want permission, all the users can have full access to the usage.

All nodes must have necessary information about their users (KYC) to hinder illegal transactions and frauds.
All commands offered by the Hyperledger Besu are applicable to the SciMatic Hybrid Blockchain. Here are few examples:

`eth_getBalance`:
Returns the account balance of the specified address.
Example usage:

```
curl -X POST --data
'{"jsonrpc":"2.0","method":"eth_getBalance",
"params":["0xfe3b557e8fb62b89f4916b721be55ce
b828dbd73", "latest"],"id":53}'
http://127.0.0.1:8545
```

where `0xfe3b55…` is the account for which, the balance is desired to check.

`eth_getTransactionCount:`

Returns the number of transactions sent from a specified address. Use the pending tag to get the next account nonce not used by any pending transactions.
Example usage:

```
curl -X POST --data
'{"jsonrpc":"2.0","method":"eth_getTransacti
onCount","params":["0xc94770007dda54cF92009B
FF0dE90c06F603a09f","latest"],"id":1}'
http://127.0.0.1:8545
```

where `0xc9477.….` is the account address.

More api methods can be found in the link given below:
https://besu.hyperledger.org/en/stable/Reference/API-Methods/

SciMatic Hybrid Blockchain works with smart contracts written in solidity language. Smart contracts can be minted into the blockchain using truffle or Ethereum remix (https://remix.ethereum.org).

RPC SETTINGS

The following RPC setup can be used to add a custom network in the MetaMask or another wallet.

Network Name:	SciChain
RPC Url:	https://chain.scimatic.net/
Chain ID:	481
Symbol:	SCI
Block Explorer Url:	https://explorer.scimatic.net/

Opening https://sale.scimatic.net inside the browser of MetaMask will automatically add SciChain to the network list and ask the user to switch the network.

Project is currently hosted at https://scimatic.net

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TEAM

SciMatic Hybrid Blockchain project has versatile team members. From academicians to students and from financial to marketing experts. Most of the team members are working in universities and are experts in their fields. Together, they are all making the ecosystem of SciMatic Hybrid Blockchain.

 **Dr. Said Nadeem** CEO Creator and developer of SciMatic products	 **Prof. Dr. Hilal Şahin Nadeem** Co-Founder Food Engineer, responsible for food chain	 **Assoc. Prof. Hüseyin Gürüler** Information Systems Engineer IoT, Blockchain of Things and embedded systems
 **Dr. Shafqat Ur Rahman** Software Engineer Web3.0 and decentralized apps	 **Kadir Baysal** Marketing Manager Expert of bounties and air drops	 **Gültekin Aslan** Public Relations Social media influencer

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 **Dr. Yunus Çetintaş** Chemist Decentralization of scientific literature	 **Syed Attaullah Shah** International Relations Dealing country and university coordinators	 **Dr. Waqar Badshah** Financial Advisor Researcher of Modern and Islamic finance
 **Assoc. Prof. Dr. Engin Çakır** Public Relations Multi-Criteria Decision Making Operations Research	 **Alperen Uyan** Finance and Monetary Master of finance and monetary matters	 **Suna Savran** Project Secretary Documentation and bookkeeping
 **Assoc. Prof. H. Emre Zeren** Public Administration Public administration and relations, writer	 **Vehbi Emre Oflaz** Financial Advisor Experienced Financial Manager and Economist	 **Fatih Ulutaş** Advisor Financial and Technical Advisor

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