



SciMatic Hybrid Blockchain

Reshaping Academia, Education,
and Finance

Lightpaper

<https://scimatic.net>

SCIMATIC HYBRID BLOCKCHAIN

SCI Coin



SUMMARY

A hybrid blockchain has been created to address the problems faced by both web2.0 and web3.0 users. The current state of scientific data is centralized, with large companies monopolizing information and charging for access. Additionally, public data is exploited by centralized platforms for marketing purposes, and obtaining intellectual property rights is a lengthy process. The hybrid blockchain solution aims to decentralize scientific literature, establish a democratic network, and facilitate collaboration between industry, academia, and the public sector. It combines blockchain technology, IPFS, and traditional databases to handle big data and large files. The project also aims to utilize decentralization technology in real-life applications beyond finance and cryptocurrency, expediting the evolution of the internet towards Web3.0. Ultimately, the project aims to provide a user-friendly and affordable solution that benefits academia, research institutions, and the public.

TARGET GROUP

This project aims to benefit a diverse range of stakeholders in both the short and long term. In the short term, the target groups include researchers, academicians, students, teachers, scientific journals, and publishing companies. These individuals and organizations will directly benefit from the decentralized network and increased accessibility to scientific data.

In the long term, the project extends its reach to universities, higher education institutions, and financial organizations. These entities will be able to leverage the hybrid blockchain solution to enhance collaboration, streamline processes, and improve the dissemination of knowledge.

Furthermore, the project has future plans to undertake social initiatives for street animals, reflecting its commitment to broader societal impact. By incorporating these efforts, the project aims to contribute to the welfare of animals in later stages.

TOKENOMICS

The Scimatic Hybrid Blockchain operates with a predetermined total fixed supply of 10,000,000,000 SCI coins, ensuring stability and predictability within the ecosystem. The supply will not be subject to additional minting or burning processes, maintaining the integrity of the coin distribution. SCI coins will serve as the primary utility token within the decentralized applications (dApps) developed by the project. These dApps will provide various functionalities and services, offering users the opportunity to utilize SCI coins for transactions, access to premium features, or participation in governance mechanisms.

The utilization of SCI coins within the dApps will foster an active and vibrant ecosystem, incentivizing users to engage and contribute to the growth and development of the Scimatic Hybrid Blockchain. The coin's utility will create a strong and interconnected network of participants, promoting the adoption and value of SCI coins within the wider community.



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As the project progresses, further enhancements and functionalities may be introduced to expand the utility and value proposition of SCI coins, fostering a dynamic ecosystem that continues to evolve and adapt to the needs of its users.

PROBLEMS IN PUBLISHING SCIENTIFIC RESULTS

The publishing sector in scientific research faces multiple challenges. Higher education institutions prioritize quantity over quality, leading to a focus on publishing more articles rather than impactful research. Scientists and universities bear the financial burden of publishing and accessing their own work. Publishing companies charge fees for publication and sell materials back to institutions. Authors face time-consuming formatting requirements and often prioritize quantity to meet institutional rules. Editors and reviewers are typically unpaid, potentially leading to careless assessments. The sector is centralized, with few large companies controlling published literature. Open Access options are costly, creating an unfair and undemocratic system.

SOLUTION – DEJOURN, SCINET

We present two solutions to address the problems in the publishing sector: DeJourn and SciNet.

DeJourn is a decentralized journal platform that resolves issues faced by researchers, writers, and journal owners. It offers features such as

decentralized data storage, submission with SCI coins, reviewer and editor fees, and distribution of earnings among stakeholders. Accepted articles are converted to non-fungible tokens (NFTs) and can be purchased for citation. DeJourn ensures a fair and mutually beneficial system for all participants. The platform will launch in 2022, starting with existing journals hosted at <https://scimatic.org/journals>.

SciNet is a peer-to-peer network that operates alongside the SciChain (SciMatic Hybrid Blockchain). It consists of node computers within member universities and organizations. Nodes continuously communicate, sharing new articles, research results, projects, and courses among members. Producers can choose to charge for content, preferably in SCI coins. The goal is to eliminate the dominance of large publishing companies and provide decentralized access to scientific literature. Any organization can join by setting up a node computer, enabling ownership and unrestricted access to materials within SciNet.

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.



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SOLUTION - DENOTA

As part of this project, we will introduce DeNota, a decentralized notary system. It ensures the permanence of agreements, ownership transfers, and affidavits, eliminating the risk of loss. The documentation and signing process will be conducted using wallet addresses, and agreements will be stored as NFTs in the owner's wallet. By utilizing this system, individuals can sign agreements without the need for physical notary visits. Instead, they can send a signed text via email to the other party, and once both parties agree, the data is minted on the blockchain, making them equal owners of the NFT. We will establish smart contracts as standards for these NFTs, resembling ERC721. Additionally, if required by law or jurisdiction, a validator party can serve as the notary office, reducing the need for large physical spaces, bills, and personnel.

INTELLECTUAL PROPERTY RIGHTS

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

Another problem is that different countries have different policies 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 for a 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

Currently, more than 80% of the world still relies on pen signatures to validate documents, with only a few countries, like Turkey, adopting electronic signatures, but limited to select organizations. However, e-signatures come with their own set of issues. Firstly, they require individuals to carry a specific device, usually a USB stick, to sign documents on a computer. If this device is lost, even if the person is present, they cannot sign any document. Additionally, e-signatures face compatibility problems, mainly working on Windows but struggling with Linux and Mac OS. They often utilize outdated technologies like Java, leading to installation difficulties. Furthermore, e-signatures can be easily given to someone else, allowing them to sign documents in the owner's absence, raising ethical concerns. Therefore, there is a pressing need for an alternative solution that cannot be delegated to others.



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Authentications

Many computer applications rely on username/email and password combinations for user authentication, posing risks of password theft, hacking, and phishing through third-party viruses or illegal code. Keyloggers can be used to capture keystrokes, including passwords. While some applications use virtual keypads for numeric codes, there is a significant need for user authentication systems that don't rely on traditional username/email and password credentials while still recognizing and verifying the user's identity.

SOLUTION - DESIGNA

We propose the use of wallets, such as Saymatik (saymatik.com), as an alternative to e-signatures. These wallets can be installed as browser extensions (Firefox, Chrome, Brave, etc.) or as mobile applications. Since mobile phones are consistently in use, the risk of losing them or providing them to someone for remote signing is significantly reduced compared to USB sticks. As part of this project, we will also develop an authentication API that recognizes users based on their wallet address. This means that individuals can sign into their email or social media platforms without the need for passwords or usernames. These signatures and authentications will be facilitated by our mobile application and browser extension called DeSigna, which utilizes a combination of public and private keys for decentralized signatures.

FOREVER DOCUMENTS

Is it possible to securely store my valuable legal documents, certificates, and other important records without incurring annual fees and the risk of loss, theft, or damage? This is a significant challenge that affects various institutions, such as schools, colleges, universities, courts, and conferences, which issue paper documents that owners must safeguard. However, there is always a chance of misplacement, discoloration, deterioration, or rendering the documents unreadable over time. Traditional solutions like renting safes or utilizing bank storage come with ongoing payment requirements, whether monthly or annually.

SOLUTION - DECERTA

DeCerta provides a secure solution for preserving important documents like diplomas, certificates, and legal papers by storing them as non-fungible tokens (NFTs) in the blockchain. These NFTs cannot be easily transferred or sold, ensuring their permanent safety. Educational institutions can benefit from DeCerta by securely minting documents using authorized wallets and smart contracts, guaranteeing the integrity and longevity of academic records.

AWARDS AND PREJUDICE

The existing awarding systems often suffer from biases based on race, religion, or geography,



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excluding certain individuals from receiving recognition. Instances of people declining awards due to categorical prejudice are not uncommon, seen in prestigious events like the Nobel awards, film and TV awards, and NFC awards. As public figures, celebrities should have a say in the voting and selection process. Therefore, there is a clear demand for a decentralized awarding system that promotes fairness and inclusivity.

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 DeJour or DeLitera.

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.
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": [{"0xfe3b557e8fb62b89f4916b721be55ceb828dbd73", "latest"}, {"id": 53}]'
https://chain.scimatic.online
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}]'
https://chain.scimatic.online
```

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

More api methods can be found in the link given below:



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<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>).

Chain ID: 482
Symbol: SCI+

Block Explorer Url:

<https://explorer.scimatic.online/>

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.

RPC SETTINGS

Saymatik Crypto Wallet comes with preset rpc settings. The following RPC setup can be used to add a custom network in the MetaMask or another wallet.

Network Name: SciPlus

RPC Url:

<https://chain.scimatic.online/>

SAYMATIK- DECENTRALIZED WALLET

Saymatik is a decentralized wallet that can be downloaded from App Store and Play Store. It has various functions like dex buy and sale, lock the coins, p2p sale etc. It also has pre-added scimatic, Ethereum, binance smart chain, avalanche, polygon etc.

For more info, check out saymatik.com



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