

SSOT BLOCKCHAIN HEALTH

A White paper on Blockchain Healthcare framework



BRIGHTSTART HEALTH FOUNDATION

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INTRODUCTION

Abstract

A Smartcontract and Blockchain powered health information network (HIN) can fundamentally reengineer the current healthcare systems and networks. This system of networks have potential to improve the seamless interoperability, cyber security and ultimately achieve meaningful use of the patients data. There are opportunities of data integrity, single source of truth, decentralized and efficient transactions of data without trust-based system. The HIN based system enable patients to own and control their medical history data, thus care providers are empowered to provide care continuum with single source of truth. Also, its reduces or eliminates duplicates of tests, inaccuracy of medical data, reduces cost and improves and poor outcomes for the patients healthcare, while fully compliance with HIPPA standards. A cutting-edge, patient centered protocol supported by Smartcontract and Blockchain powered medical records system , SSOT Health is fundamentally reengineering the way the healthcare providers and stakeholders manages the electronic healthcare records and interact with healthcare teams.

What is Blockchain

Blockchain is a term widely used to represent an entire new suite of technologies. There is substantial confusion around its definition because the technology is early-stage, and can be implemented in many ways depending on the objective.

“At a high level, blockchain technology allows a network of computers to agree at regular intervals on the true state of a distributed ledger,” says MIT Sloan Assistant Professor Christian Catalini, an expert in blockchain technologies and cryptocurrency. “Such ledgers can contain different types of shared data, such as transaction records, attributes of transactions, credentials, or other pieces of information. The ledger is often secured through a clever mix of cryptography and game theory, and does not require trusted nodes like traditional networks. This is what allows bitcoin to transfer value across the globe without resorting to traditional intermediaries such as banks.”

On a blockchain, transactions are recorded chronologically, forming an immutable chain, and can be more or less private or anonymous depending on how the technology is implemented. The ledger is distributed across many participants in the network — it doesn’t exist in one place. Instead, copies exist and are simultaneously updated with every fully participating node in the ecosystem. A block could represent transactions and data of many types — currency, digital rights, intellectual property, identity, or property titles, to name a few.

How Healthcare System Works

Current healthcare system are driven by the distributed, procedures driven rather “Patient Centered Healthcare ” (PCHS) approach. In order to have a PCH system, care providers requires to establish “networks” driven approach. Network driven approach would enable all care providers to work together towards achieving the best care outcomes for the patients. In order to achieve best care outcomes for the patients, the cooperation between various stakeholders care providers, specialists, lab and insurance companies are a Network have enhanced and resulted in increasing use of electronic medical records system. Regardless of the improvement resulted coordinated care, the data are stored in silos of healthcare systems.

Health and government organizations spend a significant amount of time and money setting up and managing traditional information systems and data exchanges; requiring resources to continuously troubleshoot issues, update field parameters, perform backup and recovery measures, and extract information for reporting purposes.

Federal laws and incentive programs have made health care data more accessible, in response to hospital pushback regarding EMR implementation. However, the vast majority of hospital systems still can't easily (or safely) share their data. As a result, doctors are spending more time typing than actually talking to patients.

Although there exists the notion of “individualized” health information both on the clinical as well as wellness front, these have not translated into “Patient Centered –Personalized ” plans of care. Furthermore, even though there is a plethora of data, the overall healthcare ecosystem is incapable of adequately engineering a value or risk to big data to help better predict future care episodes of a patient.

Our Vision

The current solutions pursued by the Health Care technology industry have resulted in a difficult choice between care and privacy/economic fraud for patients. We see this issue greatly expanding as more data is being created by the industry. Blockchain's secure technology, properties, distributed nature can help reduce the cost and efficiency of these operations as well as provide a viable security infrastructure.

FROM POOR DATA SECURITY

Current approach to the data security is hackable. There are so many reported incident about health records are compromised due to poor security.

FROM SILOED DATA

Every personal healthcare data are stored in different EHR systems and there is no single source of truth. It leads to failure of quality health care passed on a medical history.

FROM POOR INTEROPERABILITY

Integration of multiple EHR systems are very complex and expensive due to varied data structured and different protocols used in the different EHR and providers system of records.

FROM CONCENTRATED DATA MONETIZATION

EHR system providers, Data providers are major beneficiary of the medical data. Patients, Care providers or researchers are not involved in the benefit of the data monetization.

TO BLOCKCHAIN ENABLED DATA SECURITY

Using Blockchain technology and Ethereum Smart contract Trust free distributed ledger system, thus the data security is the core of the SSOT framework.

TO PATIENT OWNS THE DATA

Medical history data tied to Patient Global ID. So every encounters of the patient with care providers are stored in patient authorized distributed system,

TO GLOBAL INTEROPERABILITY

SSOT frameworks enables trust free, blockchain encrypted, Ethereum Smart Contract driven protocol is removing obstacles of interoperability.

TO DISTRIBUTED DATA MONETIZATION

Medical data is one of the most valuable digital assets which will be owned by patients and SSOT framework facilitates the tokenization of the data across various players.

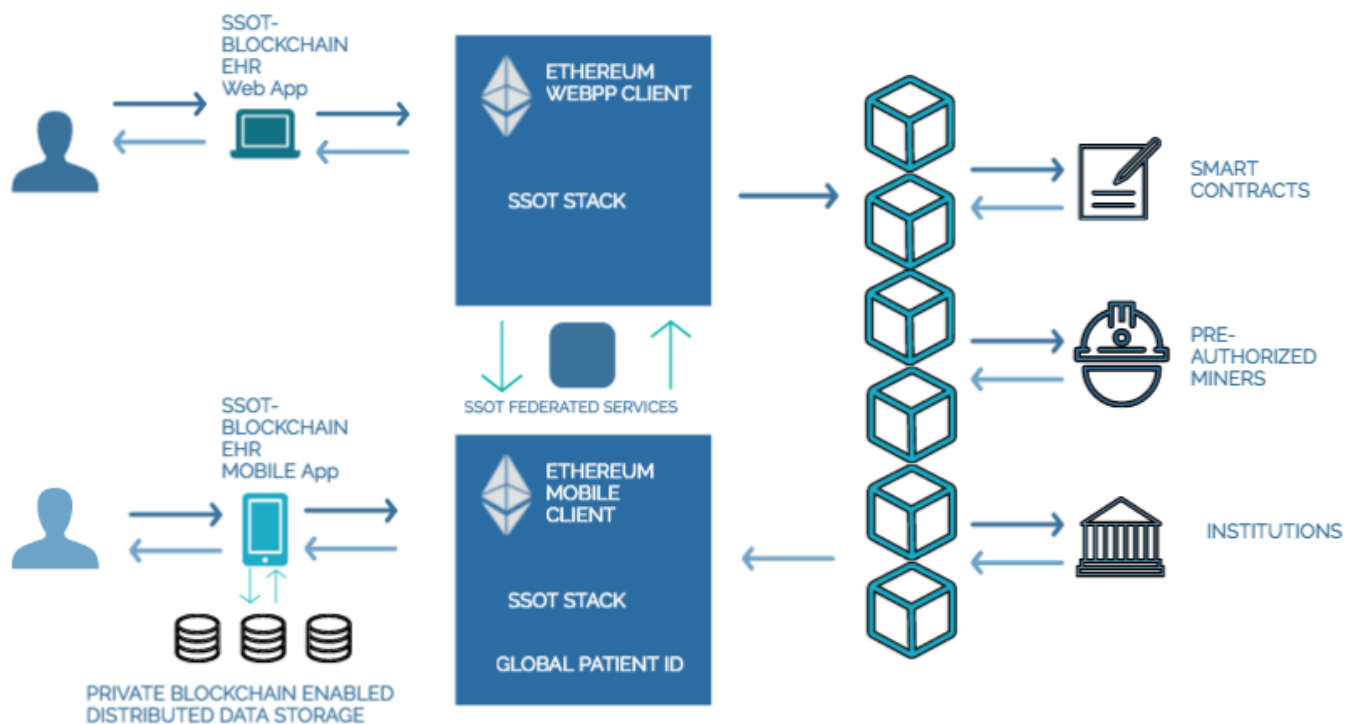
Our Solution facilitates to offer best healthcare for the patients, better cashflow and optimum patient services KPIs for care-providers and cost reduction and efficient process improvement for the insurance industry.

TECHNOLOGY

SSOT Blockchain Technology

SSOT Blockchain is Smartcontracts driven , encrypted distributed database system. Any interfaces to the external actors are processed by SSOT private chain powered techstack. Institutional transactions are validated by SSOT powered side chain. There are 2 clients are used

- SSOT Ethereum Web App client
- SSOT Ethereum Mobile Client



SSOT Webapp client is an plugin application for any EHR application which would enable public key based transaction. Also provide a gateway application to care providers SSOT Wallet.

SSOT Mobile client is run on SSOT Blockchain tech stacks facilitates authorized transactions between Web app client and distributed database where all the medical records are stored by the patients.

SSOT Blockchain Solutions

SSOT BLOCKCHAIN EHR

A revolutionary EMR app powered by SSOT BlockChain Technology

The SecuredEMR is the first app developed ground up using Blockchain technology in the world. Everyone has the right to own their own medical data in a secured system, SecuredEMR is a data wallet with anyone and who has control to whom share using iron-clad security protocol powered by SSOT Blockchain.



Features of SSOT EHR

Keep all personal medical records up to date

Integrated with any medical system operates on Blockchain

Authorization by the user's discretion

Granularity of the access level is defined by the Patients

You can export data in CCR format

Data are in your hands of individual in a HIPPA/CMS compliant storage

Blockchain enabled SSOT-ID creates SecuredEMR user accounts

SSOT Blockchain Solutions

SSOT BLOCKCHAIN PHARMA

The SecurePharma is the first ground-breaking Blockchain based Pharma application. Improved workflow, built in AI based algorithm helps individual , pharmacy, PBMs and drug manufacturers in the supply chain. The product is regulatory compliant and audit ready app.

Pharmacy system drivn by verify, adjust and adjudication drivern process.

Fully compliant SSOT pahrmany Bloackchain and SmartContract enabled encrypted system.

Features of SSOT PHARMA

SSOT Pharma offers SmartContract enabled Pre-Auth solution eliminates pre authorization process and reduce the cost and increases Efficiency

SSOT Pharma offers SmartContract enabled Adjudication management eliminates Adjudication process by SmartContact and machine learning

SSOT Pharma offers SmartContract enabled Pharma Procurement management eliminates high inventory and poor distribution process and it reduces the distribution time by 90%



SSOT Blockchain Solutions

SSOT BLOCKCHAIN CLAIMS

The SSOT Blockchain powered application with SSOT AI engine handles complexities of insurance claims. It manages fraud in various lines of business in the insurance industry. Append only ledger process with SSOT framework is fully securing the the insurance data from fraud.



Features of SSOT PHARMA

SmartContract enabled 99% First pass acceptance.

SmartContract powered real-time claim adjudication

Artificial Intelligent powered CODE management powered by SSOT Blockchain eliminates submission of claims with wrong Codes.

Roles of adjudicator and clearing house are eliminated thus services provided by the insurance companies are improved at reduced cost.

Overall revenue cycle time reduced to 90% which would improves running capital and better cashflow for the care-provider practices

For insurance companies, overhead to process claims are reduced by 65% by SSOT Smartcontract driven claim verification management.

Patients play role in pre-approval of the claims submission, so it eliminates wrong claim for the services provided by the care-providers.

HIPPA REGULATION GUIDELINES

Prior to any meaningful discussion of implementations, the restrictions enforced by the mandates of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) must be addressed. Those rules of primary concern are the Privacy Rule, the Security Rule, and the Cloud Computing Guidelines. The intent of this paper is not to perform a full investigation of HIPAA law. Those elements that are pertinent to the implementation discussion shall be defined and further discussed upon the moment of relevant application.

The business model of SSOT Health provides that the Privacy Rule requirements must be observed due to the electronic storage and transmission of private health information. Applicability of the privacy rule is summarized as, "The Privacy Rule applies to health plans, health care clearinghouses, and to any healthcare provider who transmits health information in electronic form". In addition to these agents, those parties that act on their behalf, as service providers, are also responsible for HIPAA compliance. These second hand agents are termed Business Associates (BA), and the legal document that define the rules and regulations that the BA must adhere to is termed Business Associate Contract (BAC). HIPAA places strict requirements on the nature of these agreements.

The points of merit, from an initial investigation, are those requirements that specify the authorization of use, the use of de-identified information, and the definition of private information. Private health information (PHI or ePHI for electronic data) is defined as all individually identifiable health information held or transmitted by a covered entity or its business associate, in any form or media, whether electronic, paper, or oral.

HIPPA and SSOT BlockChain

De-Identified data use restrictions are summarized by the following There are no restrictions on the use or disclosure of de-identified health information. De-identified health information neither identifies nor provides a reasonable basis to identify an individual" . The boundary of identifiable data to de-identifiable data is defined as any information that may restrict the possible number of individuals a collection of information is associated with to less than 0.04% of the total US population.

Implementation of blockchain technology to ensure and enhance data security for all the medical records associated with the system can minimize health breaches and ultimate decentralization of record ownership. The process of encrypting data when sent to database using different algorithms and decrypting it during the retrieval will be used. Data shall be encrypted using NIST compliant algorithms during transmission and retrieval as is mandated by law. Thus, all exchange of information will comply with those best practices outlined in the NIST specification

The limitation of the blockchain to host private information may be overcome through data obfuscation, such as encryption, but in the event that the decryption key is ever leaked, there is no way to remove the sensitive data itself from the blockchain. For the purpose of HIPAA compliant data, this may potentially result in a persistent, uncorrectable leak of information due to the immutability of the blockchain itself. Although de-identified data may, in theory, be stored on the Public Ethereum Blockchain, it would be disastrous to assume that the de-identification filtering mechanism will never fail, or that the sideband information associated with blockchain interactions can not inadvertently reveal identity. This conclusion was also reached by the MIT Media Lab during the formation of the MedRec Protocols and summarized in the MedRec Whitepaper. Mining this sideband information may be as simple as observing timestamps and interactions with known data storage contracts.

We implement a mechanism for the persistent storage of sensitive information through the use a private implementation of an Ethereum based blockchain

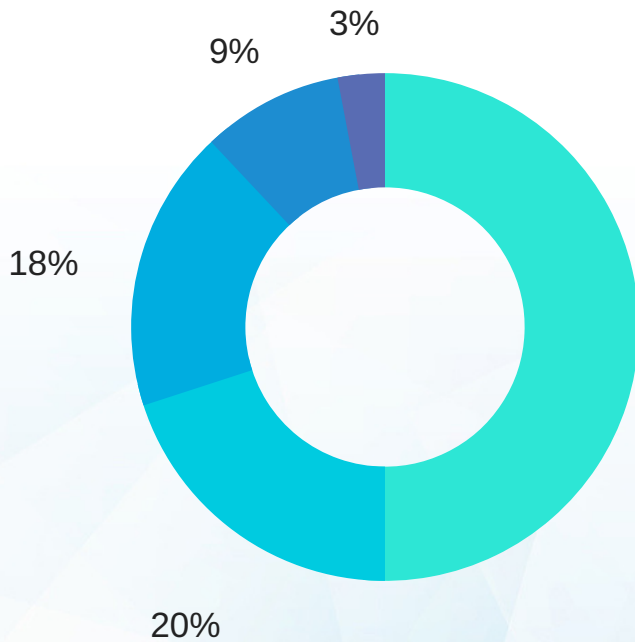
FOUNDATION FINANCIALS

Funding and Budget SSOT Token

SSOT Token Distribution

SSOT is a limited supply token.

TOTAL SSOT TOKEN ISSUED 1000M



50% 500M SSOT tokens offered (via pre-sale and sale)

18% 180M Reserved for team

20% 200M Community

9% 90M Long term foundation budget

3% 30M Token Sale Expenses

- SSOT Foundation has issued a total of 1000 million SSOT tokens
- No more SSOT tokens will be issued
- 500 million SSOT tokens will be offered via Pre-sale and Token sale
- 500 million tokens are reserved for team, foundation and community
- Unsold tokens will be burned

SSOT Vesting Schedule

Vesting schedules are typically used to focus and reward the executives and team for growing the company and platform. Vesting schedules are a fair and transparent method to reward the team incrementally, instead of all upfront or all at the end.

- 500 Million SSOT tokens are reserved for the Foundation members, advisors and early supporters
- The reserved tokens will be allocated at the sole discretion on of the governance council
- The reserved tokens when allocated are subject to the vesting schedule below
- Vesting schedule begins from the date Token sale completion
- Reserved tokens cannot be sold at a discount to issuance price

Reserved TOKENS VESTING TERMS

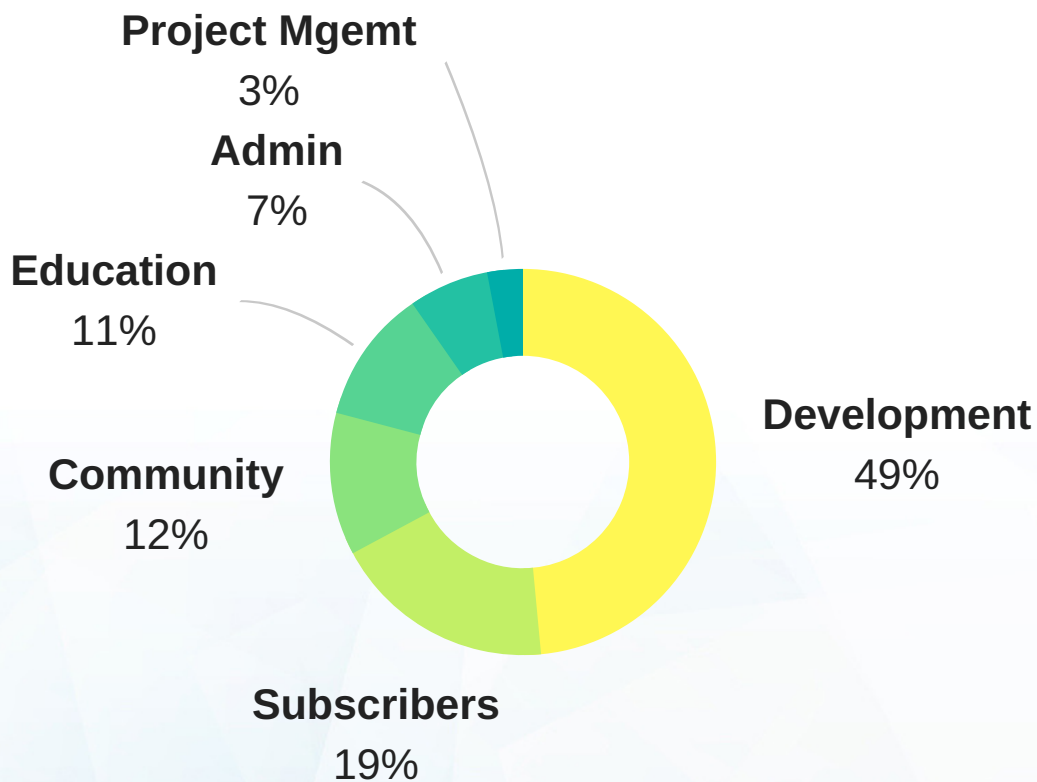
Executive and Team	→	20% every 6 months, 100% vesting at 30 months
Advisory Board members	→	50% at 12 months and 100% at 24 months
Consultant and partners	→	50% at 6 months and 100% at 12 months
Early Supporters	→	100% at comple on of Early Adopter and Regular sale

How Vesting Works

A team member who has been granted 1000 SSOT tokens with a vesting schedule of 20% every 6 months, will receive 200 tokens at each of the 5 vesting events, over a period of 30 months

Use of Proceeds

Planned use of proceeds as below. Will be reviewed and approved by the governance board.



SSOT Network Stakeholders Model

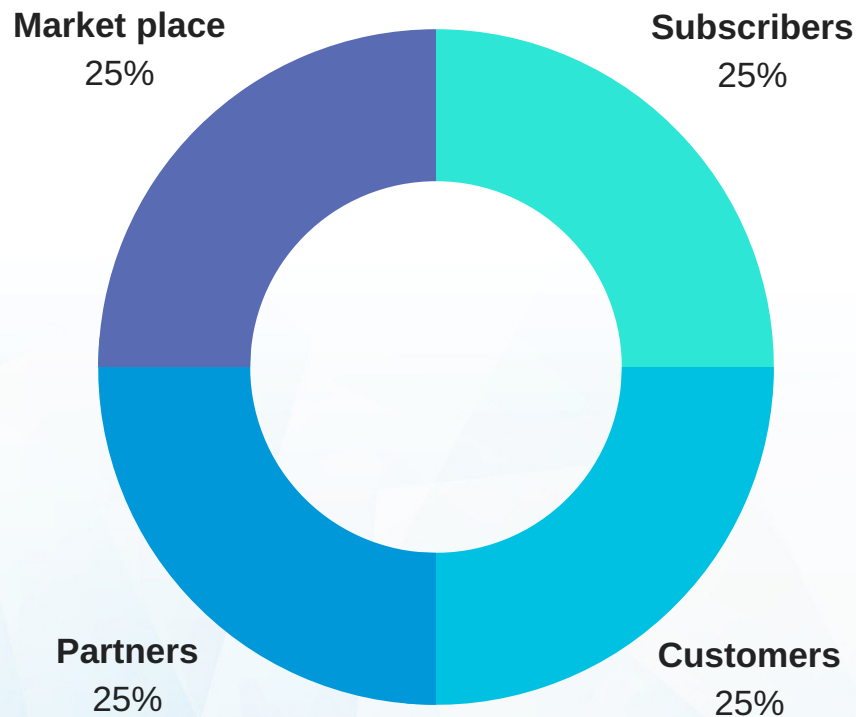
SSOT Network revenue is collected in SSOT and can be organized into 4 categories

Market Place

Revenue from SSOT market place, Apps creation fees and apps revenue sharing

Subscribers

Revenue from SSOT subscribers as transaction fees.



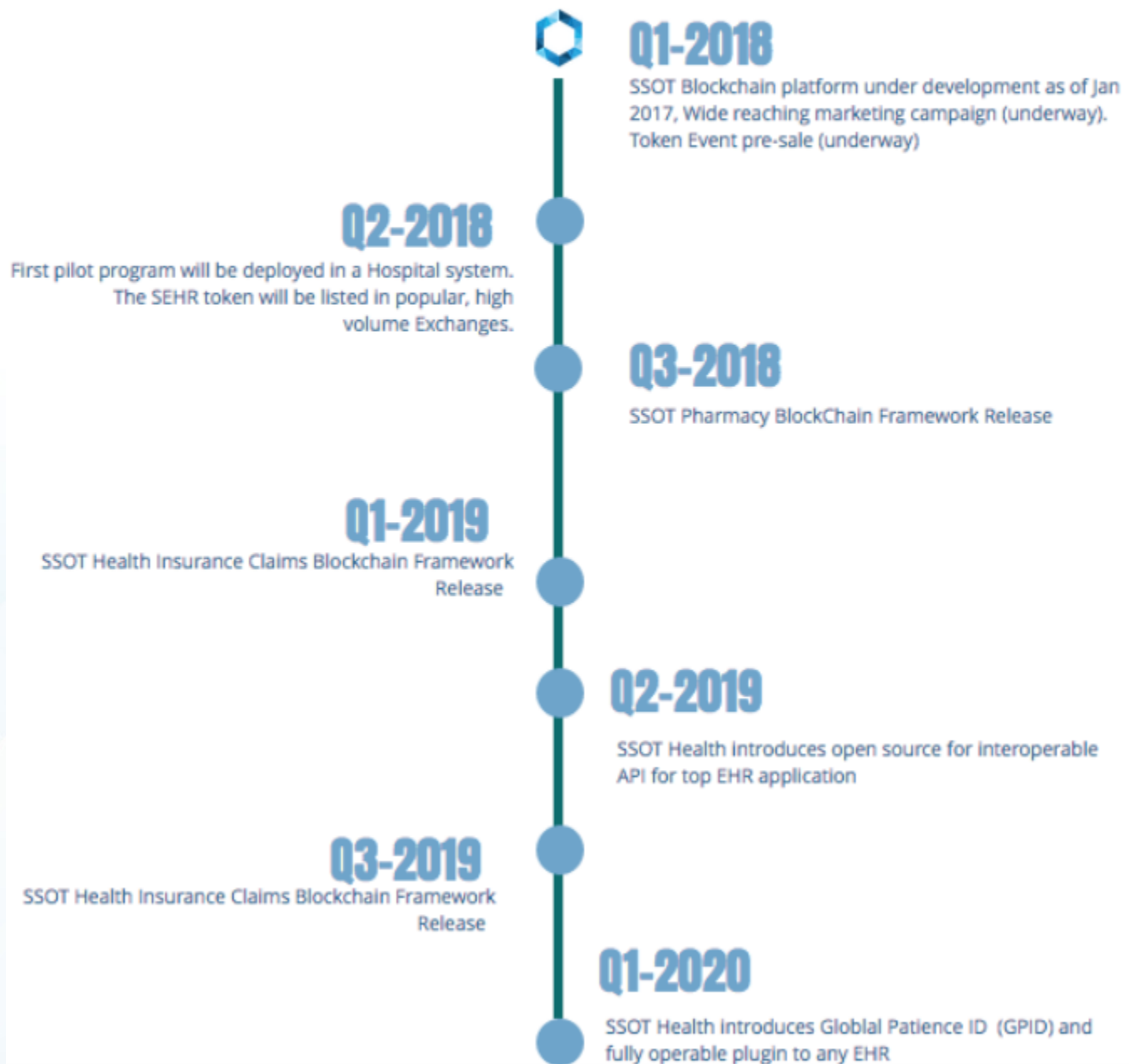
Partners

Revenue from SSOT partners when partners using SSOT ecosystems


Customers


Revenue from SSOT customers configuration, professional services and Integration


ROADMAP





Team Members

Moses Rajan: Co-Founder , 25 years of experience health technology Entrepreneur with 4 startups in healthcare and analytics. Having MBA and MS from Brandeis University, USA and educated at Harvard University , Cambridge. IBM Certified Blockchain Developer. 

Anita Suri: Co-Founder , 21 years of experience technology Entrepreneur with 2 startups in healthcare and analytics. Have MS from BayBath University, USA. 

Dr.Kalyan Kalwa: 25 years of experience health technology Entrepreneur with 17 startups in healthcare and analytics. Dr.Kalwa is a Medical Doctors and founder of Health Innovation, Cambridge MA . 

Mohit Verma: 30 years of experience Insurance technology Expert performance and solutions architecture. Having MS from Brandeis University, USA 

Dr.Daniel Prabakaran: 30 years of experience in biotech, pharmacy and health industry Entrepreneur with 7 startups in healthcare and analytics. Postdoc from Harvard University , Cambridge. 

Advisory Council

Dr.Steven Abreu MD - Lahey Clinic

Dr.Nicolas Jabbour MD - BayState Medical

Dr.Micheal Reale MD - Yale, Trinity Health

Dr.Rob Evans - Brandeis University

Dr.Greg Norris - Harvard University

SSOT BLOCKCHAIN HEALTH

Building BlockChain powered healthcare ecosystem



BRIGHTSTART HEALTH FOUNDATION