

Zereum Labs

White Paper : 1.0



Our Vision

To be in the Top 10 companies World-wide by year 2025 in
Offering Blockchain end-to-end solutions

Our Mission

Zoreum Blockchain Labs to be the best company to work for to
invest in and to innovate



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The objective of this document is to inform recipients about the ideas, business potential of Zoreum especially in relation to its upcoming STO (Security Token Offering). As well as directions that could be taken as an approach of attracting investments through the cryptocurrency market. This document has not been registered or approved in any jurisdiction. However, much effort has been taken to make sure that the information, valuation, and forecasts are accurate with the information we have available today.

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Executive Summary

Zoreum Labs is Blockchain Marketplace that aims to create a 360-degree ecosystem with a network of connected players. The lab is committed to develop cutting edge decentralized applications DAaps and products which are secure, reliable and fast. This is possible because we have the right mix of talent and support system that is rapidly recognizing the potential of Blockchain, AI, IoT and Decentralized Systems.

Having experienced positive impacts introduced by Blockchain technology across various industries we identify our starting point within the supply chain where there is dire need and also huge untapped potential.

Zoreum Labs is also engaged in providing 'Blockchain as-a-service' [BCaaS] solution.

We have an exciting set of dApps in development in advanced stages which include:



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Introduction

Company Overview

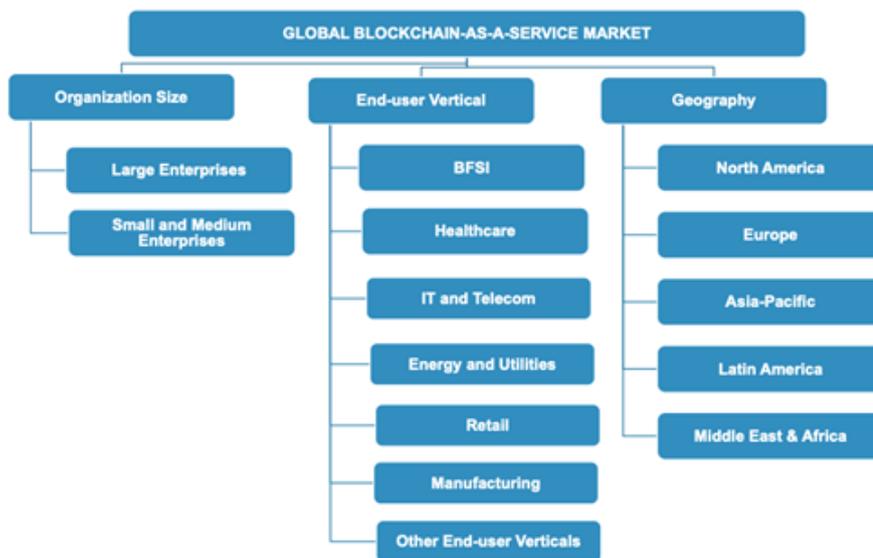
As a Blockchain asset marketplace, Zoreum labs operates in two complimentary industries namely the Blockchain as a service and dApps developed mainly targeting various sectors within the supply chain industry. The latter uses Blockchain as a service to develop products and services aimed at revolutionizing supply chain industry for instance 'AsliMedicine' targeting pharmaceutical spurious/fake drugs sector, EMRChain disrupting electronic health records and AsliStamp going for the general counterfeit niche area.

A Case for and overview of BCaaS Market

In April 2019, India as a market has close to 550 million online users and this is expected to go to 850 million in another 3 years.

Blockchain as a Service (Baas) refers to offering customers who are entrepreneurs in this case to leverage on cloud based solution to start the process of building, hosting and using own Blockchain apps, smart contracts and other functions. The cloud based service (provider) undertakes the role of managing all necessary functions and activities that will maintain the infrastructure operationally and keep it agile.

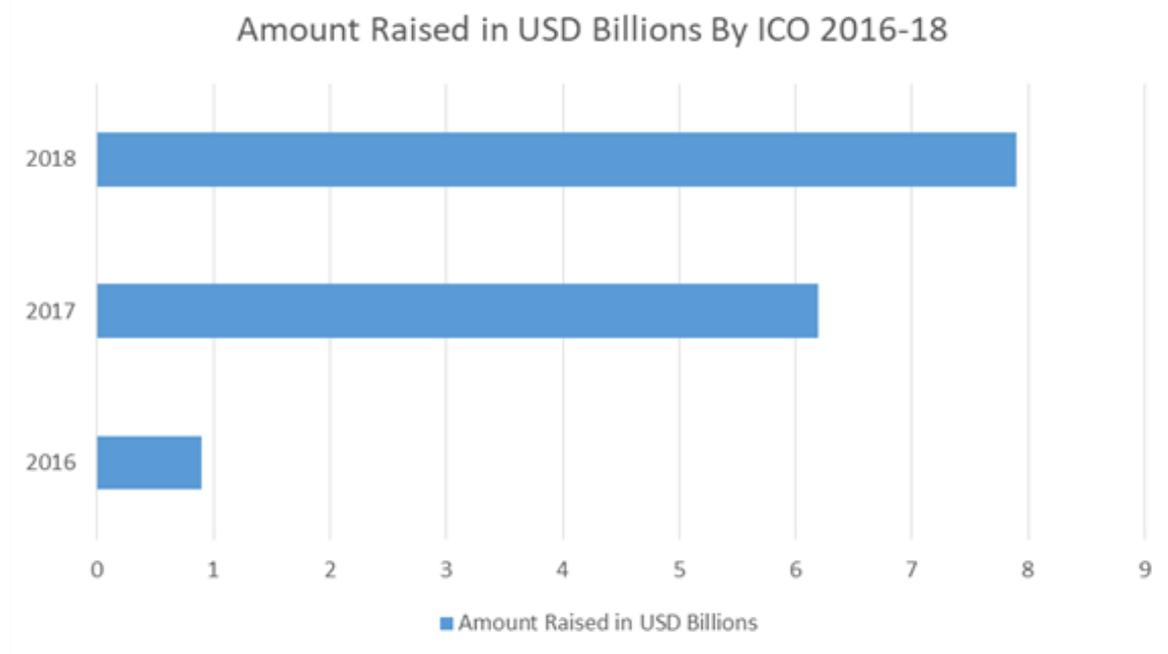
Classification of Baas Market



Evidently, the global Blockchain as a service industry is huge and presents lots of opportunities. For instance, there are numerous areas of applying Baas as presented in the above charts including healthcare among other industries with data provenance challenge in their supply chain and logistics management. A good example, is the pharmaceuticals industry where international trade in counterfeit drugs will amount to USD \$1.82 trillion by the year 2020. Largely, this is due to the inability of end users that is manufacturers and other end user's points in this supply chain being unable to verify authenticity of drugs in the market.

Cypto Market Outlook

The expansion of the cryptocurrency market in the year 2017 December many businesses and individuals are gaining an understanding of the cryptocurrency and Blockchain concept. More so, the industry has evolved to create new approaches of business financing through the ICO model of crowdfunding. Amount raised over the years has continued to soar despite the recent plummeting of cryptocurrency prices especially Bitcoin and Ethereum.



Source of Data : <https://www.icodata.io/stats/2018>

Crypto Market Outlook

Noteworthy, the Blockchain industry is gaining traction among SMEs as they turn to this technology due to its beneficial features such as speedy transactions, cost effectiveness and need for security measures.

However, adoption of Blockchain technology especially among the SMEs is proving to be difficult. This is due to operational issues including alignment and configuration of infrastructure and complexity of the technology. IBM has been running several cloud based Blockchain services and notes lots of the organizations' clients find it difficult to understand how to work with Blockchain in their operations and or even have an understanding of the technology. Other expert organizations such as Deloitte explain the fundamental challenge facing or slowing down adoption of Blockchain technology among businesses is the lack of awareness of the technology itself, and it's potential benefits outside banking industry.

Further reports by IDC postulate companies such as IBM, Microsoft among others have spent over \$ 1.5 Billion on Blockchain technology aiding Baas that is Ethereum and Hyperledger as of 2018[1]. The figure is expected to grow by a CAGR of 73.2% to reach an enormous \$11.7 billion by 2022. Similarly, a quarterly report by Upwork (a top freelance online marketplace) in 2018 that indexes top skills revealed Blockchain development talent is the most sought after skills in the US market[1]. This is an addition of some of the challenges facing the Blockchain industry hindering increased adoption of the technology despite market demand.

Why Zoreum

Zoreum is a Blockchain assets marketplace with an innovative 360-degree ecosystem. We are anchored as an enterprise based Solution Company offering Blockchain as a Service (Baas) solutions. Enabling us to create a solution rich eco-system bringing together entrepreneurs, technology developers and governments to innovate on cutting edge products which are fast, secure and reliable.

Zoreum Value Proposition

- a. Opportunity to join a Blockchain lab that supports start-ups from the on-set of idea conceptualization to operating as fully fledged business. Some of the support services under Zoreum Labs include; business consultancy, incubation, acceleration and financing.
- b. Access to an audience of at least 10 million users by the time we get to 5 years in operation.
- c. Zoreum is the first decentralized platform with a centralized marketplace all round supporting developers and entrepreneurs. Interaction with Blockchain technology advocates, influencers, developers, entrepreneurs and other users all under one roof.

Current Business Scenario

Zorem Labs chooses to create a Blockchain as a service platform to further encourage and accelerate adoption of Blockchain technology in different sectors. However, owing to the team experience, research and business interest Zorem initial products will focus on routing out fighting fake products such counterfeit drugs, address challenges in Electronic Health records (EHR) and product authentication problem. Some of pioneering products from Zorem Labs at the time of publishing this whitepaper are:

- a. AsliMedicine
- b. EMRChain
- c. AsliStamp

General problem

A counterfeit is something that has been imitated, forged or copied to represent an original brand with the party doing so, not having the right to do such acts. The counterfeiting party will do this with the objective of extracting money from either consenting or credulous consumers. Counterfeiting may take the form of copying trademarks, an infringement of patents, copyright and licensing or faking industrial designs, consumer goods, currency etc.

There is a growing global problem of counterfeit with such goods costing the global economy at least \$650 billion per year which is between 3 to 7 percent of the total global world trade. Cheap copies of original products (counterfeits) contribute to hurting innovation which makes it hard for businesses to compete sustainably. Worse, there is no industry where counterfeit products do not exist. It will affect every level of good's prices, market segment, and quality and along each point on the supply chain.

Current Business Scenario

As per reports by OECD in 2016 goods highly counterfeited and according to their respective worth in dollar terms included, footwear, clothing, leather products, electrical devices, watches medical equipment, perfumes, toys, jewelry and pharmaceuticals. Most of these goods were established to have an origin from China, Hong Kong, UAE, India, Singapore, Turkey and Thailand.



Source: <http://www.oecd.org/newsroom/trade-in-fake-goods-is-now-33-of-world-trade-and-rising.htm>

Pharmaceutical Industry Overview

The pharmaceutical industry has a key role in the development of medication and vaccines aimed to reduce incidences of disease as well as treat diseases. All this is in order to improve population's quality of life.

It is a highly fragmented and segmented industry owing to the scope of activities involved in the industry. Globally, it is an industry of immense importance and receives huge investments also generates huge revenues in return. Notably, in 2014, the total global revenues for the industry surpassed 1 trillion US dollars meaning the industry fetches this amount in revenues each year.

By next year (2020) the pharmaceutical industry is expected to grow at yearly rate of 4.9% reaching \$1.3 trillion[1]. Leading countries in terms of value of pharmaceutical market are USA, Japan and China as show below.

Rank	Country	Value of Pharmaceutical Market (in millions of \$)
1	USA	339,694
2	Japan	94,025
3	China	86,774
4	Germany	45,828
5	France	37,156
6	Brazil	30,670
7	Italy	27,930
8	UK	24,513
9	Canada	21,353
10	Spain	20,741

Source: <https://www.worldatlas.com/articles/countries-with-the-biggest-global-pharmaceutical-markets-in-the-world.html>

Even though India does not make to the above list, it is the third largest by scope of volume produced and number thirteen in terms of value. The country is the largest producer of generic drugs worldwide accounting for 20% of global volume exports of generic drugs. Indian pharmaceutical industry has shown a robust growth of 15 percent from the year 2015 and this is expected to continue to 2020[1]. This way above the global pharmaceutical industry growth as noted to grow at a rate of 4.9%. Meaning there are huge opportunities and challenges to be faced by India as it continues to mark its spot in the global pharmaceutical industry. Pertinent to the challenges which is of interest of Zorem Labs and an identified business opportunity includes prevalence of counterfeit drugs in India and worldwide.

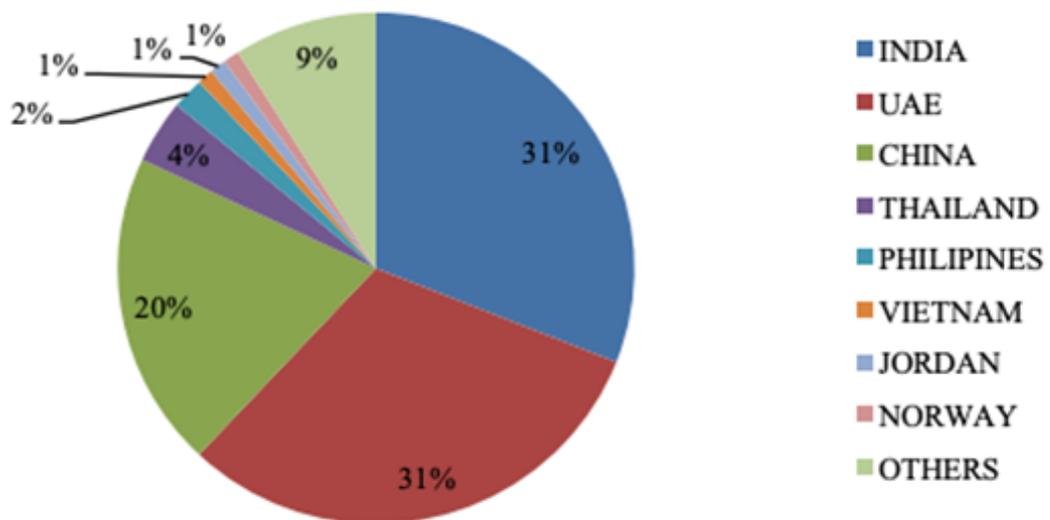
The Counterfeit Drug Overview

Global Scenario

Counterfeit drugs are highly present in developing and industrialized nations. However, there is a sharp contrast of these drugs prevalence between developed and developing nations. For example, in the US the total market share of fake drugs is below 1 percent, similar to European Union and Japan. However, in developing nations such as countries in Africa, Latin America and Asia the percentage on prevalence of these drugs can soar up high to 60 percent.

The total international trade in fake drugs as per expert's estimation could be worth up to \$200 billion and with the fast expanding pharmaceutical industry and other factors such as emergence of online pharmacies the figures will keep soaring if not tamed[1]. At least 15% of the drugs sold globally are fake, with 30% of the counterfeit drugs finding their way in developing nations. In fact, it's impossible for patients to identify the fake drugs because they are always appropriately branded. Consequently, high deaths in countries with high incidence of counterfeit medicine for example, in China alone at least 300,000 people die annually due to intake of counterfeit drugs or bad quality medicine.

Worldwide World Health Organization reports one in ten drugs especially in low and middle income countries is sub-standard[1]. This means it may either be fake, substandard, expired, have inappropriate active ingredients, contaminated or has misleading labels and packages. The same report highlights countries leading in the trade or source of counterfeit drugs to include India, China, UAE, among others as shown below.



Source: <https://www.downtoearth.org.in/news/health/substandard-drugs-finding-way-into-global-market-low-income-countries-most-affected-who-59253>

Globally, governments have realized the potential risks with increased market penetration of counterfeit drugs in the market. Therefore, most nations are enacting legislations and policies aimed at tightening up the pharmaceutical supply chain. For instance, in the European Union the Falsified Medicines Directive orders that every pharmaceutical company and any other active player in the meds supply chain to serialize all their products for ease of track and trace by February 2019. Additionally, the United States of America enacted the Drug Supply Chain Security Act of 2013. The legislation provides all stakeholders in the pharma industry to implement a full system of track and trace for every products moved through the supply chain by 2023.

India Scenario

The pharmaceutical industry in India is fast growing and strongly contributing to the country's economic growth. India's pharmaceutical industry is well established and has a strong network made up of 10,500 manufacturing units and at least 3,000 medicine companies. Notably, the well established pharmaceuticals industry in India has its own challenges leading to the problem of spurious and counterfeit drugs in the country which later find way in the global supply chain. For example, out of the above stated drug companies and manufacturing units, only 1400 units possess the WHO GMP approval. 584 only are approved by the US Food and Drug Administration (USFDA) while only 950 follow the TGA guidelines (therapeutic goods administration). Lack of approval by relevant authorities plus other factors prevalent worldwide especially in the pharma supply chain and with an expanding industry leads to proliferation of counterfeiting drugs in India.

Pain Points in Pharmaceutical Supply Chain

The present pharmaceutical supply chain is highly complex and fragmented. For instance, drugs are manufactured using ingredients sourced from different countries. Final formulation is processed after export to other countries. Packaging, repackaging, labeling and sale happen in many other countries. This is evidence of the many times medicine change hands from the manufacturer before reaching a patient. Consequently, this creates an opportunity for proliferation of counterfeit drugs to infiltrate the market along the supply chain. Among the pain points Zorem identified include:

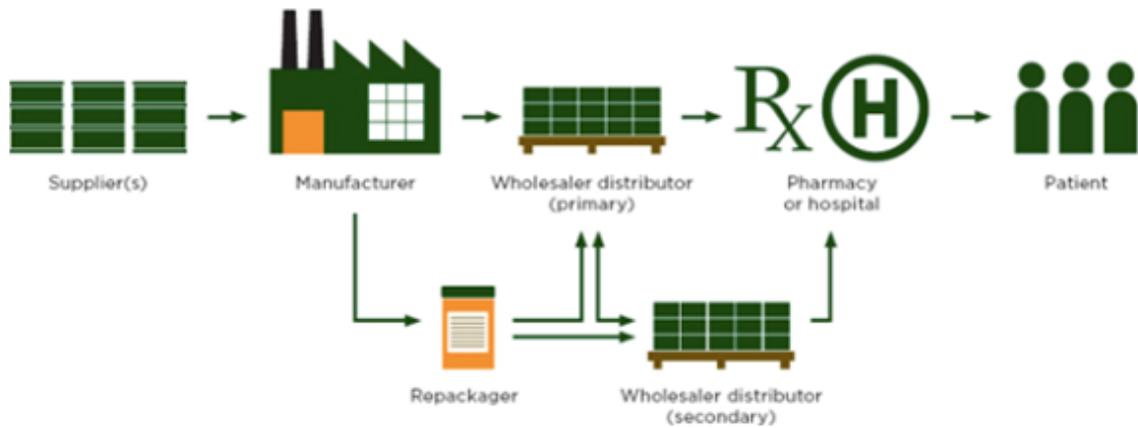
1. Logistics

Manufacturing supply chain in the pharmaceutical industry is characterized by a high number of incompatible computer systems that do not visibility to manufacturers data about end consumer sales. Manufacturers need real time data and visibility across the whole supply chain. This helps in gathering data relating to supplier's product ingredient product codes and data on pharmacies count on dispensed prescriptions to patients.

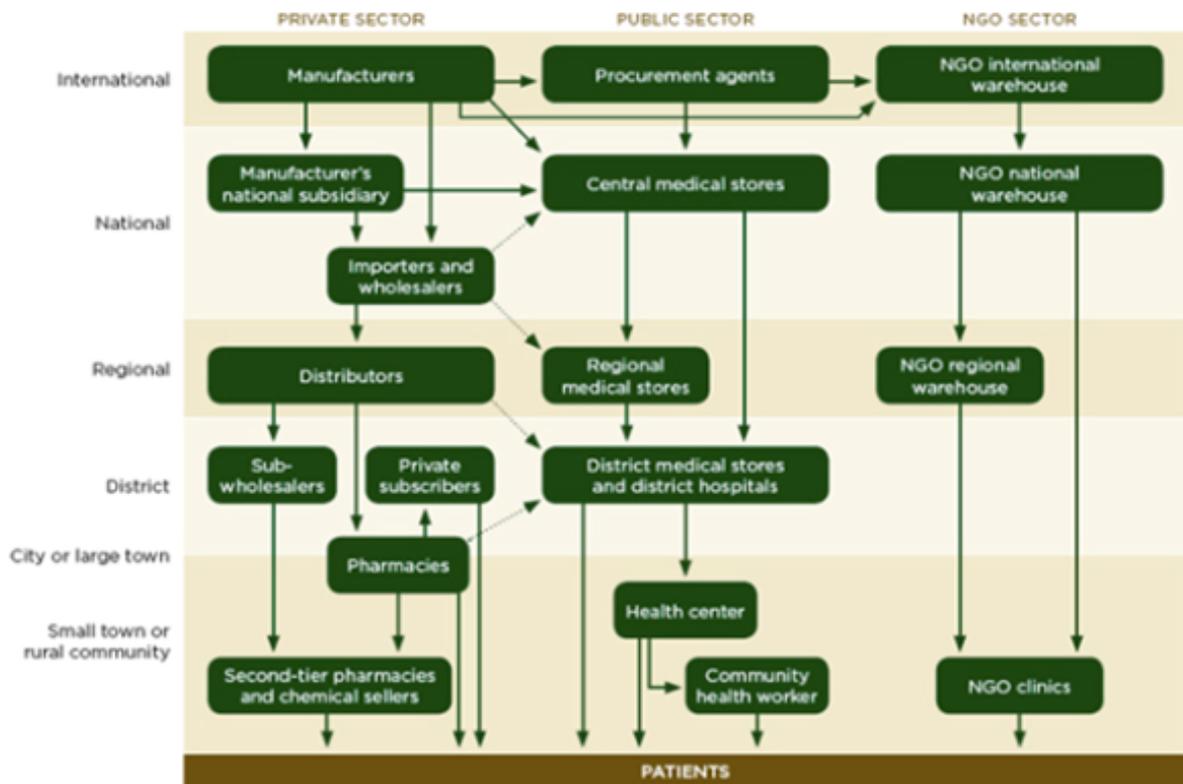
At the moment suppliers in the pharma industry are plagued by an infrastructure challenge that is highly centralized and still participants enjoy little or no security. Pharma companies and retailers also participate in marketing alliances which involve coupons and rebates thereby deflating the value of products. This is done as a strategy of boosting their business exposure while undermining the objective of understanding performance of their drugs in the market.

A major logistics and supply chain management challenge is experienced by pharma companies and retailers in low and middle income countries. Supply chain in most of these countries is characterized by lots of middlemen which reduces profit margins expected by manufacturers and creates a highly fragmented market with possible points of entry of counterfeit drugs.

As illustrated in the figures below there are many small chains featuring small companies involved in the pharma supply chain of low and middle income countries.



Source: FDA, 2011- Drug Distribution System



Drug Distribution System in Low and Middle Income Countries

Source: (Yadav et al., 2011)

A financial burden incurred by manufacturers owing to payments made to third party companies due to their provision of research services on the movement of pharmaceuticals.

1. Drug traceability and safety

There is a supply chain issue relating to how drugs are manufactured initially. More so, the acknowledgement of difficult process of tracing active pharma ingredients during the actual manufacturing. Such lack of detecting drugs without intended active ingredients jeopardizes life of patients and can even cause death. Explaining the recent increase in death toll owing to intake of fake medicine over the past years.

2. Inventory management

It is a difficult task for supply chain managers to prepare inventories based on demand for pharmaceuticals. This is due to lack of proper or having no visibility on inventory of wholesalers. Thereby, denying inventory managers' capacity to plan their different inventory levels for instance during periods of shorter overall hold period. Otherwise, if they had a system that aids their inventory management it would be possible to determine and achieve an efficient flow of products as well as steady financial gains. More pressure on inventory management is realized as pharma companies and inventories grow due to the need for serialized tracking and tracing of drugs in the industry.

3. Consumer awareness and public safety

Pharmaceutical supply chain lacks efficiency to deliver safe and effective drugs to end consumer patients. Lack of access of real time data is another challenge faced by present companies. This affects retailers and pharmacies ability to improve own internal and external inventories required for product tracking purposes from in-store to in-transit data. Deficiency of such information creates lack of trust and its easy to perpetrate unsafe practices affecting patients and a population in entirety.

Our Counterfeit Drugs Solution



AsliMedicine

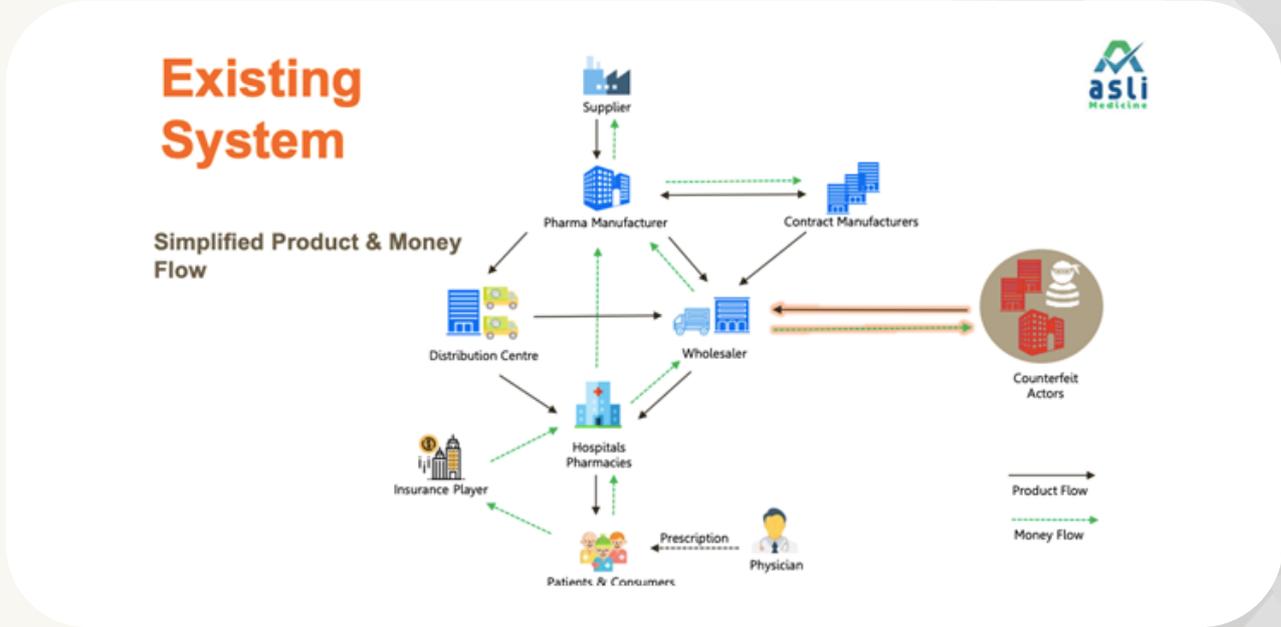
Zorem first applicable project is the AsliMedicine DAap. It seeks to disrupt the pharmaceutical's supply chain industry. The project is tackling the problem of drug traceability as well as enhance supply chain efficiencies through the use of Blockchain technology and smart contracts.

Problem AsliMedicine Tackles

Drug traceability is not an easy feat because of multiple partners and enormous transactions involved within this supply chain. For example, there are numerous transactions that occur between the multiple partners which include ordering, purchase orders, invoicing and advance ship notices among others. More so, a product will make numerous stops along the supply chain prior making its way to end company or patient. Within the pharmaceutical industry this creates the following challenges and which AsliMedicine seeks to address:

- o Lack of visibility of supply chain especially end to end management
- o Data security
- o Deterioration of brand sanctity
- o Reduction of profit margin to key stakeholders in the industry
- o Poor industry insights
- o Inaccurate drug provenance

All these challenges are created by high level of pharmaceutical industry supply chain fragmentation, infrastructure gaps and lack of trust in the industry. Present pharmaceutical industry is very chaotic with drugs bouncing as much as 20 times between a manufacturer and patient and this does not include the logistics to distributors, warehouses and wholesalers. Additionally, complexity leading to high fragmentation in the industry is due to involvement of many large and independent organizations all which have different and diverse needs and objectives. Some of these organizations include numerous government agencies, drug manufacturers, distributors, hospitals, retailers, clinics, research organizations and pharmacy chains. Compounding these chain further, insurance companies, health management organizations, GPOs and distribution network responsible for drug prescription, generic drugs and over the counter medicines all operate in this vast supply chain with diverse nature and needs. Profit making is one such need that induces many organizations to venture into the pharmaceutical industry owing to its high return and an economic outlook that is robust in years to come. Consequently, evident industry fragmentation from the numerous and chaotic system explained the present supply chain network creates opportunity for drug diversion, arbitrage, re-labelling and counterfeiting as shown below.

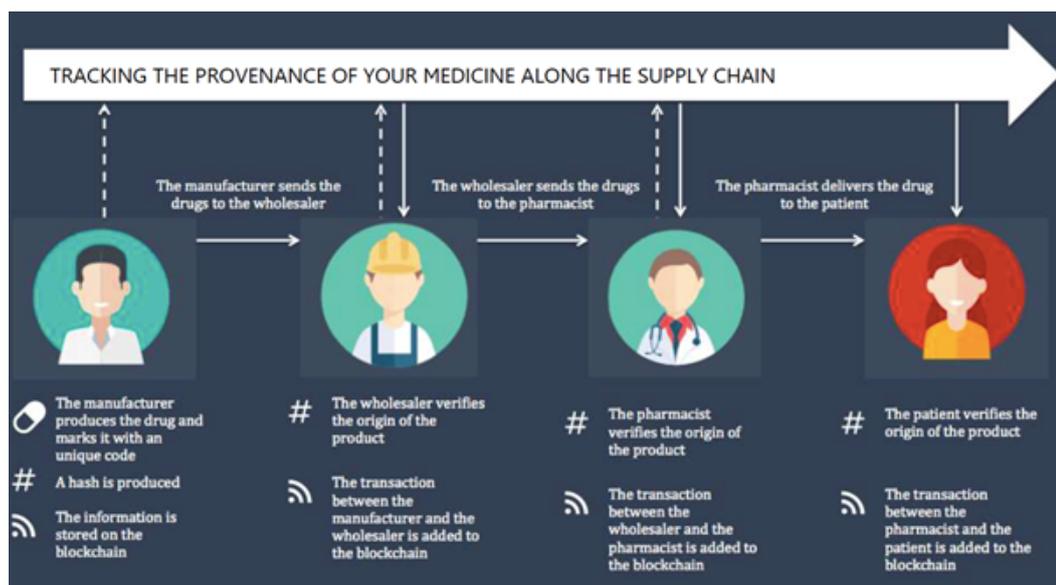


AsliMedicine Solution

Our solution based on AsliMedicine proposes the following solutions in the drugs traceability and supply chain improvements:

1. Provide Drug Provenance and Brand Sanctity

Our solution has the benefit of tracking drugs route at every step. For instance, drug manufacturer who produces the drug will be able to mark a unique code of attached with each drug. The Blockchain network with the code produces a hash and this information is stored on Zorem Blockchain. When a wholesaler receives the drugs from manufacturer they are able to scan the code on to the Blockchain to verify origin of the product. Upon satisfaction of Blockchain results the transaction between manufacturer and wholesaler is added to the Blockchain. The same process is repeated between other parties in the supply chain for example between wholesaler and pharmacist up to the end point of the chain that is where a patient verifies origin and authenticity of the drug.



Additionally, AsliMedicine will also integrate private keys and smart contracts which will help towards building proof of drug ownership. A key benefit of using this technology and its use through AsliMedicine is the ability to gain market leadership because there is lack of interoperability between the different industry players. AsliMedicine will grant access to only trusted parties who scan and verify origin of drug using barcode. It helps in drug identification, verification, detection and any possible altering in event of dishonest practices

Benefits of AsliMedicine

Apart from promoting drug provenance AsliMedicine has the following benefits to various users:

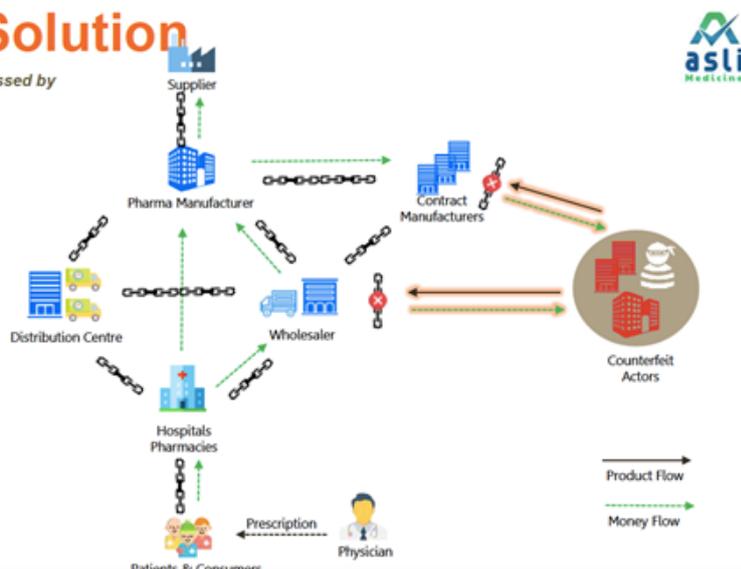
- Stakeholders in the pharma supply chain will be able to maximize their efficiency when distributing drugs to a big customer base.
- Patients will have authority to verify origin of drugs at every stage thus reduce possibilities of intake of fake or counterfeit drugs
- Incentive for customers to report fake/counterfeit drugs and gain rewards.

Our proposed solution through AsliMedicine locks out entry of fake participants in the drugs supply chain network as illustrated below:

Proposed Solution

Traceability elements are API accessed by following functions:

- CreateAsset()
- GetAssets()
- AssetHistory()
- TransferAsset()
- SellAsset()
- ValidateOwner()
- GetAPIInfo()



GS1 supply chain standards:
The GS1 DataMatrix barcode must, at minimum, carry the GTIN (Global Trade Item Number), Expiration Date, Batch or Lot Number.

Supply Chain Visibility

Use of Blockchain will provide a secure and immutable log detailing movement of drugs across the supply chain. Data logged on the Blockchain is encrypted thus cannot be tampered with and by use of our Hyperledger only people authorized can access and participate in the network.

Enhanced Data Security

We use a distributed ledger which provides immutability feature and this aids data security of all information logged on to the AsliMedicine platform powered by Blockchain. Consequently, prevents malicious parties from accessing or altering drug information. Additionally, eliminate the risk of fake drugs finding their way into the supply chain.

Provide Accurate Insights

Like any other industry use of supply chain analytics is key to improving processes in pharmaceutical sector. Stakeholders in the pharma industry will need access to accurate information in order to make informed decisions. Thus, use of AsliMedicine will increase transparency into freight management, monitor performance of drug making machinery and system, market insights such as tracking customer feedback.

AsliMedicine Key Features

Use of Blockchain will provide a secure and immutable log detailing movement of drugs across the supply chain. Data logged on the Blockchain is encrypted thus cannot be tampered with and by use of our Hyperledger only people authorized can access and participate in the network.

- **User Centric-** It is an end to end management system and an enterprise solution allowing users to access own data according to their respective roles in the supply chain.
- **Decentralized System-** We utilize a distributed ledger to achieve decentralization of data storage system. This makes it easy to maintain data provenance and tracking of information without possibility of alteration.
- **Safe and Secure System -** AsliMedicine is backed by top notch encryption technologies including Blockchain and other techniques making it fool proof to cyber-ware attack.
- **Integrity -** Data accuracy aided by immutability nature of Blockchain network and use of token system helps in the identification of spurious entities or individuals. As a result, our clients or AsliMedicine users will benefit from an opportunity of maintaining their brand sanctity and provides assurance of getting the original medicine for what the customer is paying for.

Market size

Market worth of global pharma industry estimated at \$1170 billion by 2021 with growth of 5.8 percent[1]. The counterfeit drugs within this market worth is estimated at 15 percent which is \$175.5 billion.

Market Opportunity for AsliMedicine

The Indian market which is approximately 25% of the global prevalence of counterfeit drugs and with a market worth of \$8 billion, thereafter the company will roll out globally with a focus on to developing countries expansion including Asia and Africa. AsliMedicine will target 25 percent of the global drug counterfeit market in the first 5 years of operation.

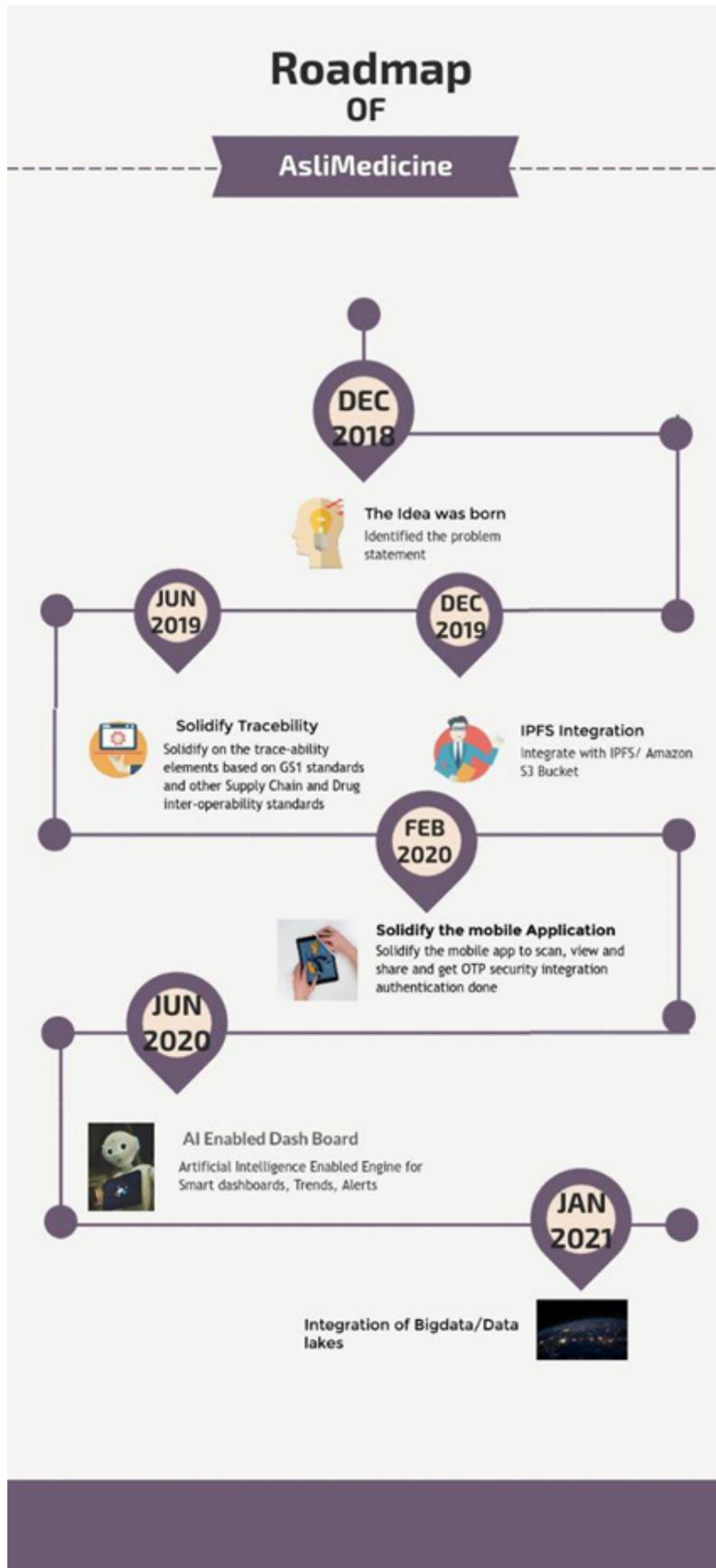
AsliMedicine Value Proposition

AsliMedicine creates a system backed by Blockchain technology to improve tracking provenance of drugs along the supply chain rooting out fakers from the network. Through our user friendly platform, a patient can verify origin of a product by simple use of SMS, android and web application. Additionally, in order to enhance reporting of fake medicine and awareness of the platform, AsliMedicine through Zorem Labs has a reward mechanism to entice participation and draw awareness of the platform.

Competitor Analysis

Criteria	Asli-Medicine	Farma Trust	Synthium Health	Modium
Blockchain Powered	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SMS, Web and Android, iOS Apps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Incentive Model	<input checked="" type="checkbox"/>			
Team Reputation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
User Centric	<input checked="" type="checkbox"/>			
Strong Background	<input checked="" type="checkbox"/>			
Revenue Model	<input checked="" type="checkbox"/>			

Roadmap





EMRChain

EMRChain is an innovative approach using emerging technology namely Blockchain to revolutionize and improve handling of Electronic Medical Records (EMR).

Overview

Medical records serve as a repository of observation by clinician and aids conducting of analysis on patients. It contains history of a patient complaint this starts with the key complaint to history of patient's present illness, past medical history, family history and social history. Medical records server numerous purpose including documentation of a patient being seen by a physician and tested. A medium of communication between different clinicians and other ancillary professionals such as nurses or physical therapists who attend later to a patient. Medical records can be used to place claims with health insurance companies, serve as legal record in case of claims related to malpractice or occupational injury and finally it's a source of abstract data in medical research. In recent years medical records are being used to quantify quality of medical care by governments, assurance companies and other payors.

Evidently, from the above discussion on significance of medical records it is apparent of the various participants and users of medical records. This creates the problem of medical records despite in recent years being digitized they remain a major headache for healthcare providers. Electronic Medical Records are known in every healthcare specialty to be a source of stress, burnout and frustration for physicians. A report done in the US in 2017 involving 1752 physicians found out that near half of them at 44.6% to believe to spend an excessive to moderately high amount of time at home working on EMRs.

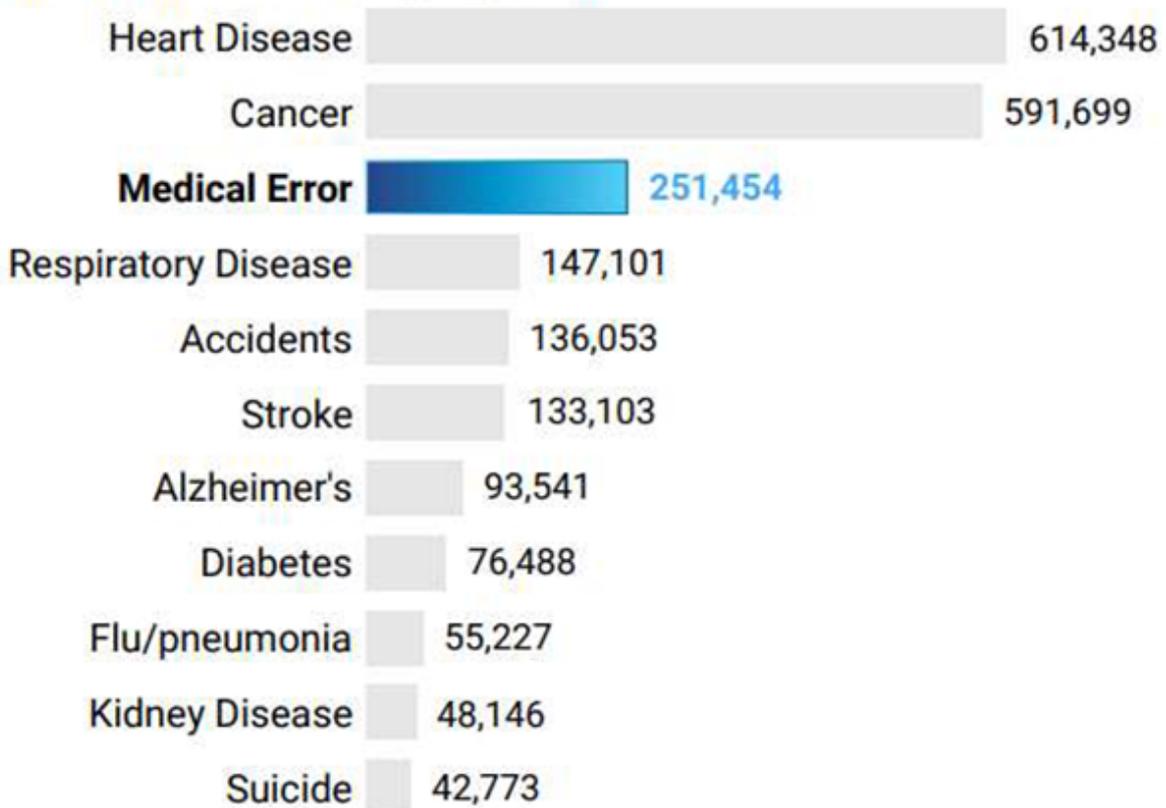
Pain points in Electronic Medical Records

- a. Lack of interoperability- EMRs can only be used in one place a time. It is a problem for patients with complicated medical problems thus interact with different and numerous specialists such as nurses and therapist. Consequently, each health specialty uses own system which hinders successful information interchange between different healthcare providers especially across the healthcare and pharmaceutical industry.
- b. Fragmented and disorganized EMRs- this is due to lack of industry set standards that would lead to successful interchange of information. At the moment only standards available relate to transmission of pure data namely, test results, diagnosis codes and billing information. Consensus lacks in areas such as symptoms and signs of patients, tests and procedure codes interpretation as well as radiology.
- c. Lack of patient centricity- existing EMRs systems are designed without the patient in mind and a patient has little authority over own personal information. Consequently, creating the problem of patient confidentiality and security among existing EMRs. For instance, medical records are routinely copied to different people either through faxing or email. This does not guarantee confidentiality needed when handling a patient's medical records and it is done without consent of patients.
- d. Ill-informed clinical decision making- mainly due to errors during documentation of EMRs onto a system. Not many practitioners because of time constraints do undertake audit of electronic records plus the belief whatever is recorded in digital format is correct compared to paper based systems. Therefore, it is easy to record inaccurate information and forwarded to other stakeholders in the industry. It leads to more cases of medical error which results in ill-informed medical decisions which can cause death of patients or worsening of patient condition.

A report by National Center for Health Statistics indicates medical errors are at number 3 of leading causes of death in the United States (figure below). Noteworthy, is the findings illustrating most errors being as a result of systemic problems and this includes poorly coordinated care.

Death in the United States

Johns Hopkins University researchers estimate that medical error is now the third leading cause of death. Here's a ranking by yearly deaths.



Source: National Center for Health Statistics, BMJ

EMRChain Solution

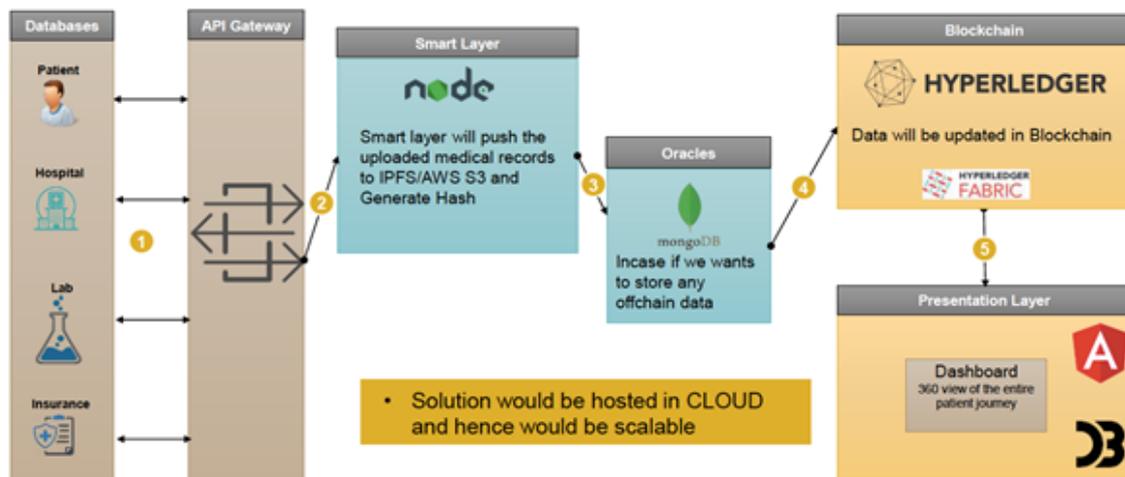
Medical records are data rich thus creating a need to have a system that maintains and promotes data integrity. The team at Zoreum understands this and the reason the created an EMRChain dApp that identifies different players in the sector and have each act as own node to the system. Each node will be a point of data entry and this is later broadcasted onto the platform that is Blockchain powered to maintain the ledger as incorruptible as illustrated in the architecture of EMRChain below:



End State Architecture



EMRCHAIN (DApp) Architecture



An interesting element of our EMRChain proposed solution to EHR is the fact all this is done with patients at the center because most of the data stored by EHRs comes from patients. Therefore, users will be able to upload their own data into the system in form of an application to aid ease of use by all patients. Links are generated by the system of the application and this is transmitted onto our Blockchain network for immutable storage. Thereby, it will not be possible for any agent to use incorrect data while administering health care services to a patient. More so, when a patient visits an OP he or she will have the control over the data thus can give consent to any other user within the system such as doctors, insurance companies etc. Similarly, a patient has the right to revoke any other user's access to his or her data when deemed not necessary. This informs we will add an extra advantage of Blockchain use by integrating a permissioned Blockchain to allow patients give and revoke access to their data. Further, in order to improve EMRChain, artificial intelligence (AI) as a technology is integrated in the system. Its role within EMRChain will be to aid the ability of the system especially applications used by patients to conduct analysis from patient's data.

Consequently, it will be possible to have suggestions or trends illustrated by applications on certain issues relating to a patient's health for instance, pattern and occurrence of disease even before one gets ill.

Additionally, EMRChain will incorporate telemedicine technology with the aim of improving patient's accessibility to healthcare services without having the need to travel physically to healthcare outlets.

Features of EMRChain

- a. **Immutable data storage** - EMRChain uses Blockchain technology to achieve data integrity through one core key element of Blockchain technology that its immutability in nature.
- b. **Artificial Intelligence Analytics** - We integrate artificial intelligence in EMRChain applications to enable analysis and give an outlook of a patient's health status which is helpful in preventive care.
- c. **Accessibility** - A fundamental cause of increased death especially in low income and middle income countries is inability of patients to access healthcare at all or on time. EMRChain adds to its system use of telemedicine technology to achieve this improved healthcare accessibility.
- d. **Interoperability** - Existing EHRs lack interoperability and this is a major problem facing the all healthcare organizations. Medical information is usually scattered across various medical units making it difficult to make easy and inference. EMRChain introduces a framework for interoperability of EMRs by providing a system where all units/stakeholders involved can share information and with consent of data holder. Therefore, establishing single point of truth relating to patient information as well as improve ease in accessing such information.

EMRChain Market Analysis

Market size and Opportunity for EMRChain

The global EHR market will reach \$33,294 million by 2023 and this a growth of 5.0 percent starting from 2017 (at \$23,592 million) to the year 2023. It is the objective of EMRChain to capture 25 percent of this global market and 40% within the Asia Pacific (APAC) region. The latter has a higher CAGR of 6.5% compared to the global growth rate between 2017 and 2023.

EMRChain can be applied to various units within the healthcare sector including; financial function, reporting, clinical care applications such as results management, decision support order entry and support. Each of these application of EHR application has shown an upward trajectory since 2016 and it is expected to continue soaring to 2023 as illustrated below:



Source: (Alliedmarketresearch.com, 2019)

Competitor Analysis

Element	EMRChain	Patientory	MedChain	Medblox
Blockchain Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Interoperability	<input checked="" type="checkbox"/>			
Additional Technology	AI & Telemedicine			
Limited to EHR		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Team Reputation	<input checked="" type="checkbox"/>			
Strong Background	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Revenue Model	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

EMRCHain Value Proposition

EMRChain has focused on improving electronic health data integrity and using Blockchain technology alongside other auxiliary tech to improve global healthcare. For instance, the team working on EMRChain understand the need to foster preventive healthcare as opposed to curative thus the platform through use of AI technology it will be possible for platform users especially patients to monitor their health progress especially on recurring diseases and prompt healthcare assistance ahead of being ill. More so, EMRChain promotes healthcare accessibility by integrating telemedicine features on the platform to allow faster treatment of patients without having to visit health centers or hospitals.

EMRChain Roadmap

2019

Phase 1: Blockchain + IPFS +FHIR Based
Medical Records Storage System

1

2

Phase 2: Artificial Intelligence Enabled
Engine for Smart dashboards, Trends, Alerts
etc.

2020

Phase 1: Integrate Telemedicine •NLP
Summarization Engine

Phase 2: Integration of Bigdata/Data lake to
store all the medical records

Phase 3: Integration of wearable devices and
Mobile device data • Fitness data

3

4

2021

Phase 1: 360 Degree User medical history
stories- Smart Notification

Phase 2: Enablement of IOT Based Feature



AsliStamp

Advanced data integrity with Blockchain based QR-codes
Blockchain and AI powered label identifier to bring trust,
transparency and tractability.

Problem:

Globally, data is increasingly being used to influence decision making. For instance, number of votes a candidate requires to win an election, financial decision on credit worthiness of a borrower. Apparently, this illustrates in today's world how data has become significant. However, over time manipulation of data has been witnessed due to the need to influence eventual outcome in decision making. As an addition to this is the latest evolution data attacks that involves data sabotage affecting enterprises.

Evolution of Data Attacks



An adversary of data breach will infiltrate data storage try and obtain thereafter sell it for a financial gain. Notable data breaches include OPM, Ashley Madison and Equifax. Noteworthy, relevance and value of this data continues to diminish over time as more copies are made and sold.

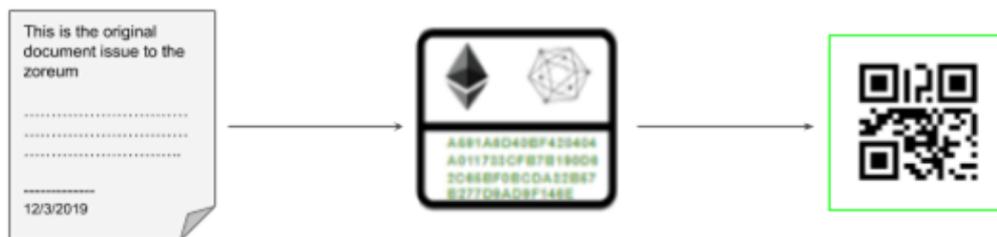
Consequently, leading to questions of data integrity attacks evident with an adversary tampering with the data instead of gaining access to steal or encrypt it. Essential to note not every data integrity attack is with an objective of financial gain or even manipulations of elections. Data integrity attack may in a huge influence decision making amongst policy makers in governments, business executives or even individual users perception towards certain activities such as use of a product in the market.

Solution:

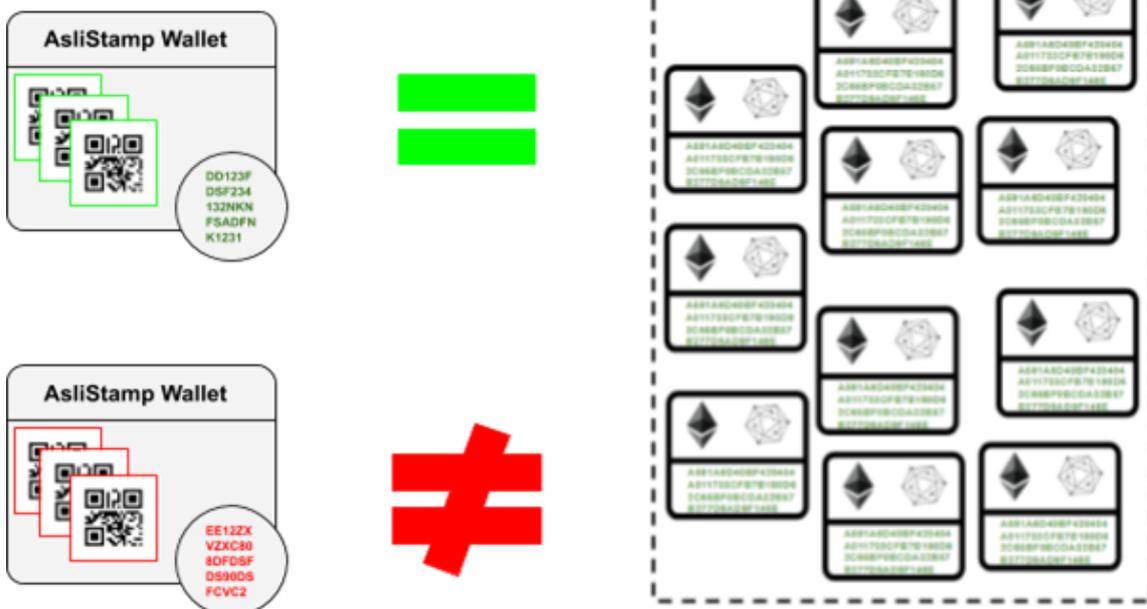
Zorem Global is a multinational technology company and provides anti-fraud document verification solutions using blockchain and smart contracts. These solutions ensure that a user is looking at a true and correct document created by the issuer.

Zorem Global has developed an AsliStamp DApp to provide fast and cost-effective services with patented digital security and Quick Response (QR) Code technologies.

Document to QR Generation



QR to Document Verification



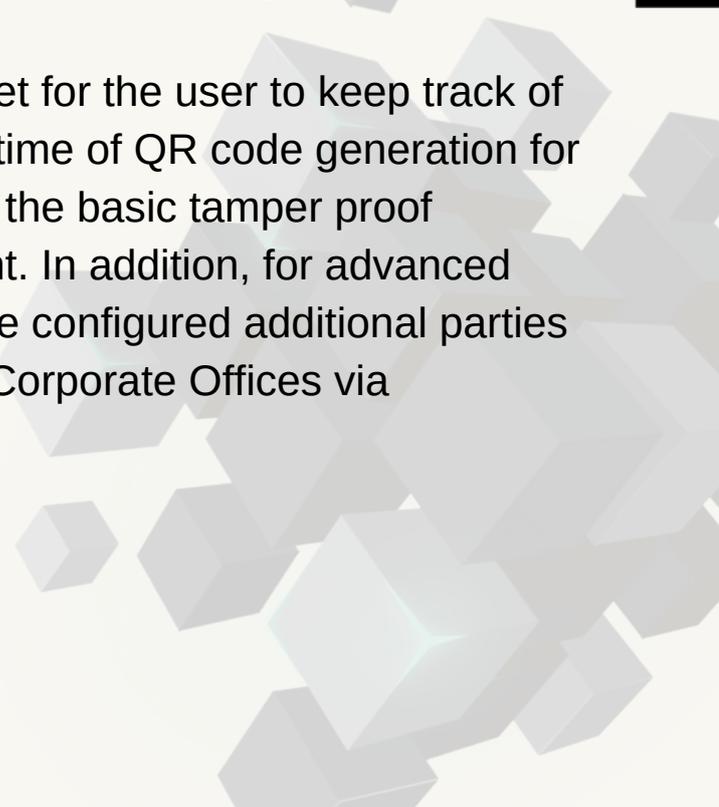


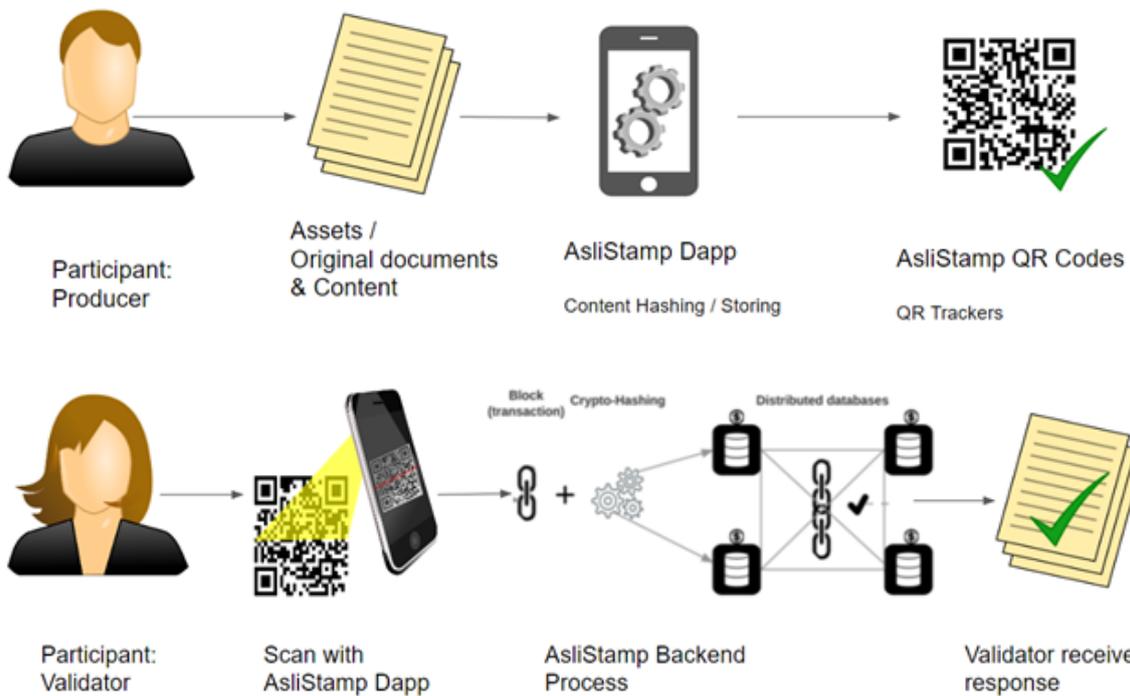
Our solution combines Artificial Intelligence capability with Blockchain and other Distributed Ledger Technologies. As blockchain stores hashes of the data on an immutable ledger at the genesis of the original document. If any of the original document distributed outside the blockchain is corrupted or tampered with, it will no longer match what is on the blockchain or distributed ledger. Voilà, now you can prove your data hasn't been tampered with—while maintaining the ability to distribute it—without photocopying it! Proof of original documents (as created by a document originator such as a bank, university or law firm) have typically been undertaken manually through sealing or certifying.

In most of the cases, when original document to be submitted to authorities, these documents are presented in an original or certified format, physically or a digital copy but there is no way using existing methods to prove that the digitised original has not been manipulated.

To address this basic problem, Zorem Global has created unique AsliStamp solution to seal and secure the Integrity of the content. The verification of the original document is carried by any QR reader app or AsliStamp DApp.

AsliStamp DApp creates a digital wallet for the user to keep track of your documents in QR Codes. At the time of QR code generation for your document you would able to use the basic tamper proof solution to seal your document content. In addition, for advanced proof of verification DApp will allow pre configured additional parties such as GOVT Entities, Universities, Corporate Offices via Verification as a Service (VaaS).





Zoreum team has a wide experience in developing blockchain-based solutions for multiple industries. We leveraged this knowledge to design and develop solutions.

Using Ethereum smart contracts allowed us to deliver a flexible and highly configurable platform that can interact with multiple third-party software modules through API.

All the textual details are stored in the MongoDB in the cloud, and only the transaction hashes are stored within the blocks.

This leads to minimal usage of system resources and allows the transactions and checks to happen in milliseconds.

We delivered both a web portal and a lightweight blockchain wallet for checking the QR-code status through a mobile device

Use cases:

Health Care

In healthcare, data from late-stage clinical phases is sent to regulators before approval and companies have to prove that the data hasn't been tampered with since originally obtained. This opens up the door to protecting research and clinical type of data.

Education

The Universities Education institute will produce many documents like merit certificates and transfer certificates throughout the year. These certificates are carried by the student for entire career and these certificates plays key role in career development.

On the other hand, Public and Private organizations expected these original certificates from the applicant and again they need to do background verifications for originality of the documents which intern cost effective and time intensive so having tamper proof document from applicant will great savings.

Logistics

In the current business relationships, a significant part of the cost savings depends on the possibility and ability of the customer to manage supplies transparently and timely between multiple parties. The blockchain system allows making a technological breakthrough in the logistics by creating a transparent system of interaction between all participants. A decentralized logistics system based on smart contracts will help all participants to gain measurable benefits and a unique transparent economic environment, as well as it will ensure complete security of the entire supply chain.

The functionality of the system allows to protect cargo owners and carriers, eliminate problems of trust between participants, remove information barriers and avoid suit costs.

The key takeaway is organizations rely more and more on data to make critical decisions and data tampering is a rising threat.

Your data can be your competitive advantage only if it can be trusted. Data integrity is a big deal!

Why Blockchain:

Simplistically, the blockchain can be presented as a large distributed database, which has the following significant differences from the "traditional" widely used in our time arrays of information:

- Storage of the database for all participants of the system, in the form of interconnected copies
- The data does not exist separately from each other, but it is linked into a continuous chain of blocks in a way that each new data block refers to the previous one, which practically excludes data forgery in any block.
- one of the most reliable cryptographic methods is used - hashing or hash functions to protect data.
- As a rule, the blockchain records are open and transparent for all users of the network.

Thus, the blockchain is a kind of an open electronic account book reliably protected from false data, where records are sequentially linked and are stored in identical copies by peers.

In context of data integrity protection, the blockchain would ensure such advantages:

Transparency — due to the blockchain architecture, the system is able to highlight the status of each item, whether it is tampered or original.

Immutability — the open ledger ensures the records cannot be altered and the destination of each item can be tracked for the originality.

Legitimity — the QR codes cannot be forged, as scanning a forged code will reveal the fact of counterfeit at once.

Feasibility — replacing the expensive (and forgeable) excise stamps with inexpensive (yet unforgeable) QR-codes would ensure both cutting the stamp production costs and increasing the tax revenues from the distribution of excise goods.

Market Opportunity:

The market opportunity primarily being in industries where important documents are regularly manipulated.

This causes economic, brand and goodwill losses for the recipient of the manipulated documents:

1. Document Manipulation

Document manipulation has become commonplace in banking and finance both internally by bank officers and by the applicants themselves. There is a cost of this type of fraud which is ultimately passed on to the consumer through increased cost of funds.

2. Regulatory & Statutory Requirement for Document

Security and Retrieval Compliance with regulatory and statutory requirements for secure data storage (and retrieval) must comply with privacy laws. With the increase in the spate of 'hacking' scandals the consumer is becoming more sophisticated with their data security requirements.

3. Identity Fraud

Manipulation of identity documents has also become commonplace. Those that rely on proof of identity are being presented with increasingly sophisticated manipulated identity documents. More than just documents,

Zorem is currently in discussions with food manufactures and equipment manufacturers to solve issues surrounding food fraud and equipment fraud. The ability to verify that a product is genuine, whether it's baby formula, collectibles or industrial equipment will be a huge benefit to the public and extends far beyond the document security market.

Some of the industries that can benefit from AsliStamp include:

- Education Industry
- Pharmaceuticals
- Logistic
- Luxury goods
- Artwork
- OEMs (Original Equipment Manufacturers)

AsliStamp Authentication procedure

The birds eye view of the authentication process is the following:

1. User scans QR code with mobile app on ID consumer site. QR code contains information about ID consumer, URL where to retrieve ID consumer public key, security and attribute requirements.
2. Mobile app loads public key of ID consumer, security key and URL where to publish identity data.
3. Mobile app requests approval from user to share identity details with ID consumer identified by Ethereum address. Underlying blockchain protocol provides validation for this address and user can be sure about the trustworthiness of identity data receiver.
4. Identity data is signed by user's Ethereum key and encrypted using asymmetric encryption for public key of ID consumer.
5. Encrypted payload is sent to ID consumer together with security key.
6. ID consumer uses the security key to decrypt the private key, that is encrypted at rest and is specific to this login session.
7. When private key is recovered, consumer uses it to decrypt the payload.
8. The signature in decrypted payload is used to recover the signee Ethereum public key and address. If address matches the one in payload, we can assume successful login.

Features of AsliStamp

- **Data Integrity** - AsliStamp uses two technologies significant to improving data integrity namely SQRC and Blockchain systems. Therefore, users who need to store data of their products or documents can rely on AsliStamp platform owing to this improved technology integration.
- **Real Time** - AsliStamp enables traceability of documents and products along a distribution network with real time feeding of information along all data points within a supply chain or any other network that requires tractability of products.
- **Communication** - AsliStamp enables between involved parties with a need to authenticate a product or documents. For instance, businesses and product owners to engage with end consumers or users. This is because by applying AsliStamp on products it leads to digitized products with two-way communication channel between owner and end user. This channel is highly beneficial to brands as they can capitalize on it to receive consumer feedback about their products, educate on product provenance also improve their marketing tactics by delivering loyalty campaigns by use of smart packaging on their products.
- **Transparency and traceability** - Users of AsliStamp will benefit from improved transparency and ability to trace their products all along the supply chain. Any eventuality such as product tampering is recorded and stored securely on the platform secured by Blockchain thus not possible to alter information which is a problem for most track and trace platforms.

Competitor Analysis

Element	AsliStamp	Veridoc	Scan Trust	EndChain
Blockchain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ease Customization	<input checked="" type="checkbox"/>			
Strong Team	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Industry Application		Documents	Packaging	Multiple
Token Backed	<input checked="" type="checkbox"/> ZRS Backed			
Use of AI	<input checked="" type="checkbox"/>			
User Friendly	<input checked="" type="checkbox"/>			

AsliStamp Value Proposition

Our AsliStamp solution provides secure and convenient solution to undertake authentication without present challenges such as having to use two screens in order to gain access to sought information. More so, AsliStamp is applicable to almost every industry with authentication problems thus much needed by users to be sure they are accessing the right information or products and with the use of AI this will be happening in real time.

AsliStamp RoadMap:



STO Details and Token Information

Zoreum will be issuing tokens via STO known as Zoreum Shares (ZRS) and crowd sale starts in 3rd quarter of 2019.

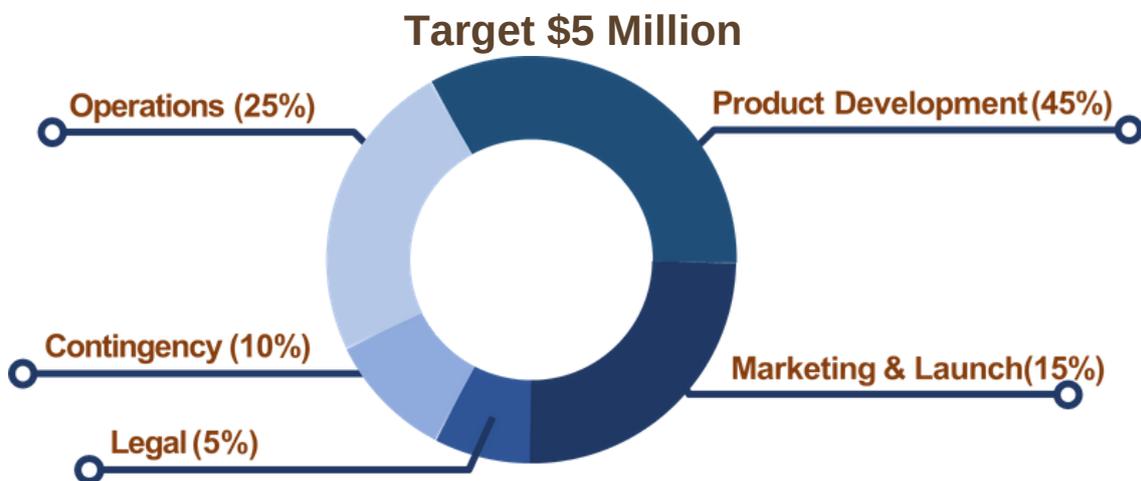
The tokens are security backed and dividends issued twice per year and Token Holder Rights include:

Profit Sharing
Equity Ownership.

Zoreum Shares is listed on Polymath Network Exchange. This is a reputable security token platform in the US, with a token code: ZRS.

Funding Requirements

Our AsliStamp solution provides secure and convenient solution to undertake authentication without present challenges such as having to use two screens in order to gain access to sought information. More so, AsliStamp is applicable to almost every industry with authentication problems thus much needed by users to be sure they are accessing the right information or products and with the use of AI this will be happening in real time.



Zorem Token Information

Total Supply	850 million tokens/shares
Owners Share	425 million tokens/shares (3 Years Lock)
Angel Investor Share	50 million tokens/shares
Private Sale	50 million tokens/shares
Pre-STO Sale	120 million
STO Sale	150 million
Airdrop/Marketing	20 Million tokens/ shares
Core/Founding/ Advisory Team	20 Million tokens/ shares
Legal/Regulatory/Listing	10 million tokens/shares
Events and Media	5 million tokens/shares

Meet the Zoreum Team

Executive Team



RamKrishna- CO-Founder and COO

Mr. Ram Krishna has an all-encompassing experience in the field of marketing and the financial sector. He is a philanthropist by heart and humorist by nature. With all this, he is a techno-entrepreneur & blockchain-technologist and is popularly known as RK in the Fintech circle.



Smita Varakhedhar- Co Founder & Chief Communication Officer

Smita is an expert in Blockchain and Digital asset, maintaining robust client relationship, management services and driving Technical groups to supply extraordinary support to the Clients. With a proven track record of creating a seamless communication structure among various departments within an organization. Previous experience at Dakuce, Pranko Technologies as a core team member. Having belief in the potential of Blockchain deliverables she is been handling projects such as ICO Catalyst, The Cryptostar and presently at Zoreum.com.



Akshay Patil -Associate Partner - Blockchain Support

Patil is a highly motivated Executive with strong business development skills. Team player and company leader with an influential network in Cryptocurrency market. Experience in strategic marketing, IT Development operations, ICO Marketing, Community building, and management.



Advisors

Aravind Voruganti- Vice President

Mr Aravind is a successful Blockchain specialist and an entrepreneur founding various start-up entities including S Hub, SAHASRADHAARA SERVICES PRIVATE LIMITED and now at Zorem as a co-founder too. Skilled in Research and Development (R&D), Innovation, Community Development, Start-ups Management, and Blockchain. Strong business development professional with Executive Education in Blockchain Technologies & Solutions from IIIT Hyderabad.



Varadharaj N- Associate Vice President

Varadharaj has a successful career in the finance and entrepreneurship world. He is a CEO and Founder of Everest International and joins Zorem as an associate Vice President.



Timothy Kingery- Senior Advisor

Mr Kingery is a marketing guru and has advised several projects on various issues including marketing and business development. Some of the projects include KoinFox and XCOYNZ and he brings an international expertise to Zorem within these areas of specialty.

Ravindra Chebiam- Strategy and Products - Lead & Co-Founder

A seasoned Software Product Engineering & Program Management Professional with 25+ years of enterprise application experience in diverse domains with a proven track record of building and managing large global product development teams. He is also a Blockchain solution architect and technologist.



Anil Kumar_ Advisor

Kumar is a serial entrepreneur and joins Zoreum as advisor and will be a key resource towards our market expansion and outreach.



Abit Ghimire- Advisor

Abit is a cryptocurrency expert and entrepreneur which saw him open Bitsewa the first crypto exchange in Nepal. Other exploits include he is well seasoned in marketing and public relations and has been engaged in various projects including InDax.

Kishore M- Strategy Advisor and Investor Relationships

Kishore is a serial entrepreneur and is a renowned member of Singapore Fintech Association. Addition he has experience working in the Silicon Valley and has passion to connecting people within the Blockchain and Fintech start-up community.



Charles Markette- Advisor Compliance and Regulatory Affairs

Markette is a Blockchain and cryptocurrency consultant and entrepreneur. He has experience in business development, regulatory and compliance affairs.

Morris Gitonga- Business Development Manager – Africa

Gitonga is an experienced Blockchain and cryptocurrency researcher and has advised various projects on how to improve their ideas including ExtraCredit, Cryptoprofile among others. Currently, he joins Zoreum as the Business Development Manager- Africa.



Milojko Gavrilovic- Sales & Marketing

Milojko is Blockchain / STO / ICO Advisor - Worked with some of the companies around: Marketing - (Viral Content, Exposure, & PR), Partnerships, Exchange listings, Investor Relations, & Strategy. Skilled in Blockchain, Cryptocurrency, Investment, Advisory, Digital marketing , Programming, Augmented Reality, Social Media Marketing, Initial Coin Offering, Social Media Influencer Marketing, Digital Strategy, Mobile Marketing.

Anything is possible attitude, always eager to learn new things, no barrier with any language or framework."



Michael Atkinson- STO Consultant

Michael is Experienced in cryptocurrency trading and investments and Blockchain technology. Providing managerial, advisory and administrative services to Initial Coin Offering projects and Security Token Offerings. Qualifications in business and retail management, I.T. networking, electronics and certification in real estate. Founder of KCS services within the Australian retail industry.

Strong believer about the technology that will bank the unbanked. Looks forward to the creation of a future his young son will enjoy with blockchain technology.

Anthony Abunassar- STO Consultant

Anthony built his experience within the most prominent financial institutions. Starting at PwC then Rothschild&Co and Vice President at Goldman Sachs and JPMorgan, before moving into the world of STO Advisory and crypto trading. His expertise in Finance is unparalleled.



Misha Osaula- STO Advisor

Misha is Founder and CEO LoanBit, crypto enthusiast and investor. A consultant with 10 years of financial and IT industry experience. During this time, I have more than 5,000 contacts of people associated with cryptocurrency and investing. I consult and help you choose the right development strategy for your business. I actively work with countries (Ukraine, Russia, Moldova)

Eloisa Marchesoni- Business Analyst



Eloisa, Specialised in Tokenomics, Blogging Etc. At only 21 years old, Eloisa Marchesoni has established herself as the youngest ICO, IEO and STO Advisor in the Crypto environment at the moment.

She has been nominated Europe's #1 Token Model Architect and Due Diligence Expert, as stated in Irish Tech News and in ICOIndeed.

Eloisa is one of the leading women in the blockchain industry, listed as such by Humans of Blockchain, and actively involved with the NYC Women in Blockchain.

Ultimately, she has helped 25+ ICO, IEO and STO in reaching the soft cap by providing them with the right token model and business plan structure and with the the needed economic structure to attract the biggest investors out there.



Randeep Melhi- Consultant - Blockchain Strategy



Mr. Randeep is an Experienced Chief Operating Officer with a demonstrated history of working in the information technology and services industry. Skilled in Investor Relations, Leveraged Finance, Securities, Mutual Funds, and Visual Basic for Applications (VBA). Strong operations professional with a Masters of Science focused in Global Finance from HKUST- NYU Stern MS in Global Finance

Mickael DAMOUR- Growth Hacker

Mickael Damour is Experienced in Blockchain - DLT / distributed ledger technology - Smart Card Solution & Cryptocurrency hardware wallet - ICO / initial coin offerings - digital marketing - social media - growth hacking - networking. advised several Blockchain projects and currently with Flashmoni.



Kyeong Gu Kim - CryptoExchange Consultant

Kyeong Gu Kim graduated from Korea University and worked on the cryptocurrency financial platform project for a year. Since then, he has been an advisor to blockchain and is planning a new cryptocurrency exchange.

Heath Muchena- Business Development Manager



Heath Muchena is a blockchain entrepreneur based in Cape Town, South Africa. He helps connect businesses with the African market and enables projects to scale ideas and products in every field of application by boosting upsurge and ensuring global adoption of the technologies under development.

As a blockchain business solutions consultant, he is dedicated to pushing blockchain technology value upstream and helping companies discover new opportunities from a world in transition.



Boris Otonicar- Blockchain & Scrum Master

Boris Otonicar has a Masters degree in Economics and Psychology from the University of Zurich. Additionally, he is a certified Blockchain Specialist and Scrum Master. He consults companies how to implement the blockchain in their daily business. He advised many start ups successfully in blockchain sphere. He is a speaker on different events and he teaches classes about bitcoin and blockchain.



Jonathan Ruiz Gamez- Business Strategy Director

Jonathan is Business Strategy Director and CEO for International companies for more than 12 years. Business Founder and Advisor. Entrepreneur, Visionary and Enthusiastic about Blockchain Technology and International Relationships.

Results oriented with a focus on developing successful business collaborations globally.

Engineering mind coupled with business and management expertise with business experience in different industries:

Aerospace, Telecommunications, Automotive, Chemical and Real Estate, in several countries around Europe, but also in China, US, LATAM and EMEA.



Joseph Browne- Token Sale Advisor

Joseph Browne, founder of Bitmoderate inc (marketing and community management firm),ico/ieo/sto advisor,marketing strategist .



Risks Factors and Legal Issues

PLEASE READ THIS SECTION CAREFULLY. IF YOU ARE IN DOUBT AS TO THE ACTION YOU SHOULD TAKE, OR THE LEGAL IMPLICATIONS OF THIS SECTION, YOU SHOULD CONSULT YOUR LEGAL, FINANCIAL, TAX OR OTHER PROFESSIONAL ADVISORS.

Introduction

The release of the Zoreum token as described in this whitepaper is meant primarily for its use on the Zoreum marketplace. This whitepaper is not any solicitation of investment or an offer of securities, and this document does not establish any legal relationship with any person, nor shall any person be bound to enter into any agreement or commitment as a result of this document.

The Zoreum team is continually assessing and evaluating the project as described in this whitepaper, and as such, the contents of this whitepaper, including any description of the project, the tokens, or the business model as described in this whitepaper may ultimately be different from what is eventually launched. While the Zoreum team will endeavor to update this document to reflect such changes, these may not be fully reflected in the final versions of the whitepaper. In this manner, you agree that Zoreum shall not be responsible for any deviation between what was described in the whitepaper and the eventual product that is released. Zoreum continues to evaluate its group structure, and, if deemed commercially sound and necessary, may assign or transfer the development of the project to another suitable entity associated with Zoreum. Any definitive agreements entered into pursuant to any contributions will also be subject to such transfer rights.

Important disclaimers

Zoreum and its team shall not bear any liability (in tort or otherwise), whether indirect, special, incidental or consequential damages or any other damages arising out of or in connection with any actions taken in reliance of the descriptions contained in this whitepaper. Zoreum and its team does not make any representations or give any warranties as to the credibility or the completeness of this information contained in this whitepaper, and does not give any representation, warranty, immunity or indemnity to any party who acts in reliance on the contents of this whitepaper. Further applicable disclaimers are contained in the governing document for the purchase of the Zoreum Shares.

Risks

There are inherent risks in this project given its nature and the nature of the industry it is in and the new technology which it employs. It is critical that you consider the various risks associated with contributing or being a part of this project, and you are strongly encouraged to seek independent and objective advice as to your participation in this project. You are strongly encouraged to ensure that you have sufficient knowledge and experience in business and financial matters, including a sufficient understanding of blockchain or cryptographic tokens and other digital assets, smart contracts, storage mechanisms (such as digital or token wallets), blockchain-based software systems and blockchain technology, to be able to evaluate the risks and merits of the project before participating. Key risks include, but are not limited to:

(A) RISKS RELATED TO THE ZOREUM MARKETPLACE AND THE COMPANY

1. Zoreum development

The development of the Zoreum eco-system is still in its early stages, and certain technology which it employs may be new. As a result, the platform may face challenges in terms of completion, implementation or adoption, and there is a possibility that the blockchain utilizing the tokens or the operational platform it is meant to be utilized on fails to launch. Even if these are successfully implemented and adopted, they might not function as intended.

2. Bankruptcy

Zoreum, like any other company, will incur day to day expenses in its activities as it pursues this project. Revenues of Zoreum will be dependent on the successful uptake and adoption of the Zoreum platform. Similar to any other operating business, there is a risk that Zoreum may become insolvent and subject to liquidation, which may drastically impact the value of the tokens. In such event, holders of the tokens should note that they will have no rights to any distribution of any residual assets.

3. Security

The tokens may be subject to expropriation and/or theft. Hackers or other malicious groups or organisations may attempt to interfere with the systems of the Zoreum marketplace, or the sale of the tokens in a variety of ways, including but not limited to malware attacks, denial of service attacks, consensus-based attacks, Sybil attacks, smurfing and spoofing. Furthermore, because the Ethereum platform rests on open source software, and the tokens are based on open source software, there is a risk that Ethereum smart contracts may contain intentional or unintentional bugs or weaknesses which may negatively affect the tokens or result in the loss of the tokens, or the loss of ability to access or control the tokens. In the event of such software bug or weakness, there may be no remedy and holders of the tokens are not guaranteed any remedy, refund, or compensation.

(A) RISKS RELATED TO THE ZOREUM MARKETPLACE AND THE COMPANY

4. Blockchain technology

Blockchain technology is still largely in its nascent stage, and as it continues to develop, may bring about further unforeseen risks. Blockchain, a distributed public ledger, is difficult but not impossible to manipulate. As with other decentralized cryptographic tokens based on the Ethereum protocol, the tokens are susceptible to attacks by miners in the course of validating the token transactions on the Ethereum blockchain, including, but not limited to, double-spend attacks, majority mining power attacks, and selfish-mining attacks. Any successful attacks present a risk to the Zorem marketplace and the tokens, including, but not limited to, accurate execution and recording of transactions involving the tokens.

5. Future regulation

The regulatory status of the token and distributed ledger technology will continue to evolve, and currently is unclear or unsettled in many jurisdictions. It is difficult to predict how or whether regulatory agencies may apply existing regulation, or implement changes to law and regulation affecting distributed ledger technology and its applications. Regulatory actions may negatively impact the Zorem marketplace and the tokens in various ways, for example, if the purchase, sale and delivery of Zorem shares constitutes a regulated activity that require registration or licensing of those. Zorem may cease operations in a jurisdiction in the event that regulatory actions, or changes to law or regulation, make it illegal to operate in such jurisdiction, or commercially undesirable to obtain the necessary regulatory approval(s) to operate in such jurisdiction.

(B) INDIVIDUAL INVESTMENT RISKS

1. Loss of private key and other errors

A private key, or a combination of private keys, is necessary to control and access the tokens stored in your digital wallet.

Accordingly, loss of the requisite private key(s) associated with your digital wallet storing the tokens will result in the loss of your tokens.

Third parties that gain access to such private key(s), including by gaining access to login credentials of a hosted wallet service you may use will be able to misappropriate your tokens. Any errors or malfunctions caused by or related to the digital wallet you choose to receive and store your tokens in, including your own failure to properly maintain or use such digital wallet, may result in the loss of your tokens. If you fail to follow precisely the procedures set forth in buying or receiving the tokens (for example, providing the wrong or an incompatible address), this may result in the loss of your tokens.

2. Taxation

The tax characterization of the tokens is uncertain, and may result in adverse tax consequences to you, including withholding taxes, income taxes and tax reporting requirements. Please seek your own tax advice in connection with purchasing the tokens.