



# Blockchain Health Solutions MAH Healthcare

Estonia, Europe.



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## WHITEPAPER

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## HEALTHCARE SECTOR CHALLENGES

Global healthcare Sector is estimated to be around \$24.24 trillion USD by 2040. It is a very large and highly resilient sector. However, it is mainly demand driven, service quality is always an issue. Although technology has alleviated some of the concerns for better service delivery, several problems cited below still persists.

### 1. INFORMATION SECURITY



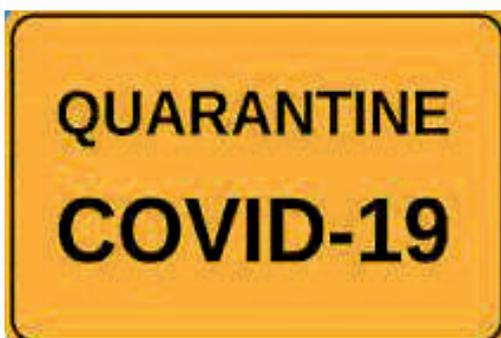
Privacy is paramount in health care. In almost all jurisdictions, there is a mandatory requirement to maintain proper security and keep all these cords safe and secure for all patient's medical history, doctors' details, laboratory and radiology center records. All these records considered as confidential information and restricted to specific persons working in health Sector only and have the required access level to reach and view these records. One major threat for privacy is the way information is stored. The records are prone to hacking and ran some malware attacks. In addition to that there is potential to record manipulations. This still remains as a major problem in healthcare/

### 2. IDENTITY VERIFICATION



Patient identity and validation is a major challenge for medical sector. The vulnerabilities associated with data transfer on the internet and identity thefts are common.

### 3. MOVEMENT RESTRICTIONS & HEALTH STATUS



The unprecedented movement restricts in the post-covid world brought many challenges to healthcare workers. There are world wide movement restrictions that affects both economic and social well being of many countries. Carpet rules of complete lockdown pushes economies into recession. We do not a clear mechanism on how to deal with patient records that can facilitate information on real-time health status for all the required stakeholders in the health eco system.

#### 4. COUNTRIES CLOSED BORDERS



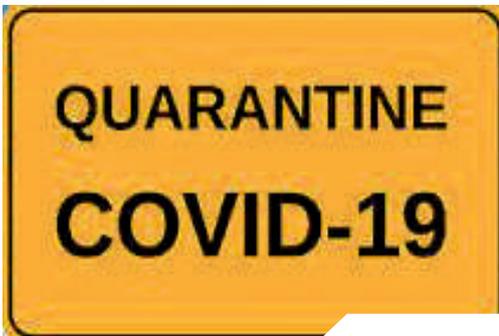
The global heterogeneity in vaccination process and the corresponding vaccines has brought another challenge in cross border travel. There is lot of confusion on travel restrictions and vaccine requirements for international trade. We do not have a mechanism for issuing a global digital passport with decentralized way of sharing information across countries.

#### 5. EMERGENCY HEALTH SUPPORT



Lack of timely access to a doctor is one of the major reasons for patient fatality rates. The problem is worse where access is an issue. Currently the fastest emergency support will be available after few minutes average sponse time between 7 to14 minutes.

#### 6. CONSULTATION DIFFICULTIES & AVAILABILITY



Patients sometimes facing difficulties for the consultation for many reasons like distance or walking difficulties or clinic location. Currently, after pandemic, visiting hospitals and clinics is highly restricted.

#### 7. LONG CLAIM SETTLEMENTS



Lack of digitalization and automation leads to manual claim settlement process with lot of paperwork back and forth. The patients and doctors along with insurance company has to invest lot of work and money to settle the claims and even then disputes occur. There is no single source of truth that can enable the trust and codify the physical contracts into the self-executable smart contracts

#### 8. INCENTIVES FOR HEALTHCARE



Patients who maintain the health based on the advice of doctors and doctors who are able to win the trust of patients with better and genuine recommendations are not incentivize in any modern healthcare system. There is no mechanism available to track the health parameters and enable the incentives based on maintenance of them

# BLOCKCHAIN

## 1. Introduction

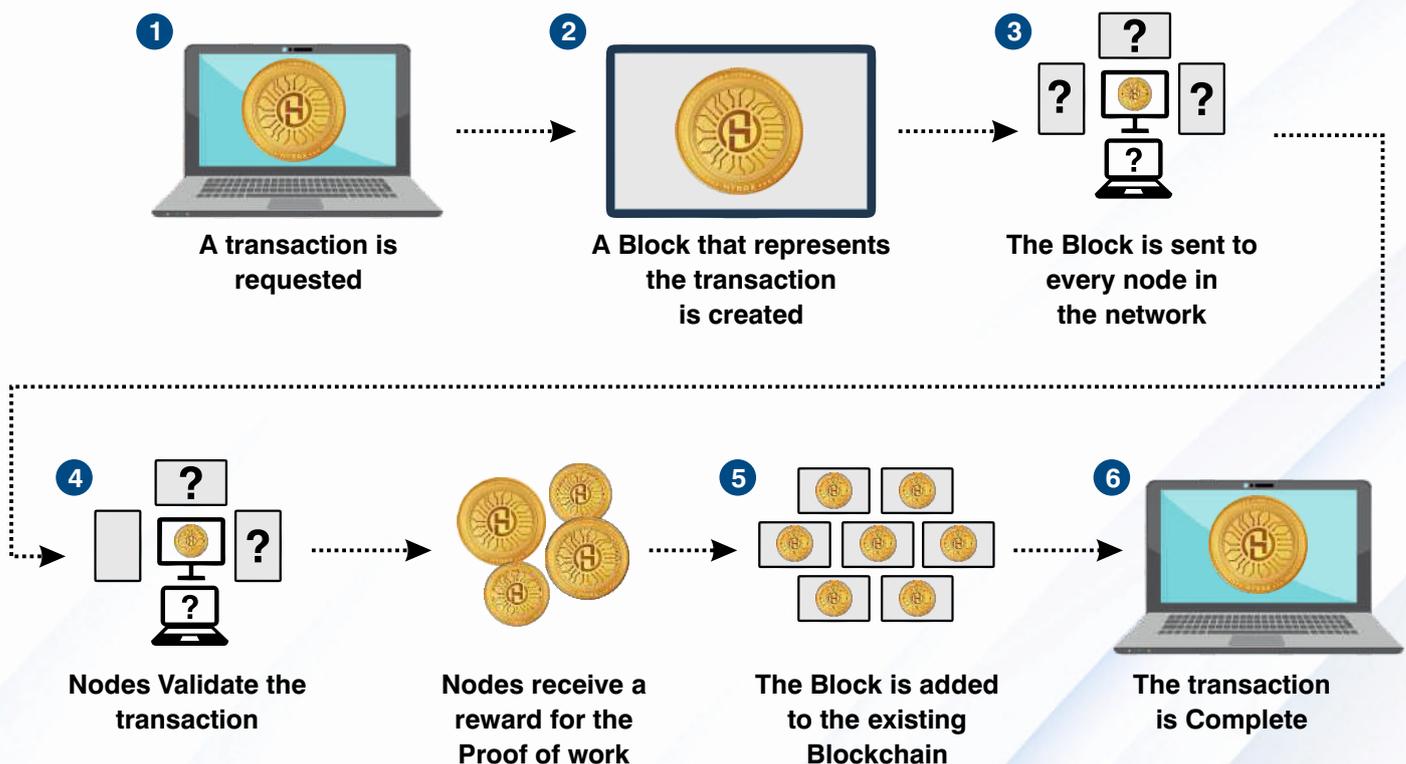
A blockchain is a chain of records, called blocks, used to maintain a cumulatively growing list of digital transactions, such as electronic healthcare records (EHR) or electronic medical records (EMR) in the healthcare industry. Each block contains a timestamp and a digital signature, and links to a previous block. The blocks also contain a nonce, which is an integer used during the mining process. The nonce fortifies the block from hackers or unwanted users by making the integer as unique as possible and extremely difficult to re-run or reuse.

Blockchain is poised to make our digital transactions more efficient by removing intermediaries from the process. Forrester's "Top 10 Technology Trends to Watch: 2018 to 2020" report predicts that by 2019 "a viable blockchain - based market will be commercialized."

## 2. Why blockchain matters

- Industry disruptor
- No central authority or third-party transaction verifiers such as auditors, legal services, payment processors, brokerages and other similar organizations needed to verify trust and the transfer of value
- Less oversight and fewer intermediaries save costs
- All participants have access to a copy of the ledger, eliminating the duplication of effort
- A smaller number of participants can use it privately by deploying a "Permissioned blockchain" to control who participates in transaction activity

## How Blockchain Works



### 3. How can blockchain help healthcare?

Blockchain is immutable, trustless, decentralized and distributed, it holds the potential to disintermediate processes, optimize work flows, cut operational costs, eliminated application of work and fight fraud. All of this improves transparency in the healthcare industry, saving billions of dollars.

Blockchain can benefit healthcare in the following ways:

#### 3.1. Claims and billing management.

Blockchain implemented in the claims adjudication and billing management process will help all parties be aware of their share of the projected cost for a service. It can further reduce administrative costs by automating the billing and insurance related (BIR) activities.

#### 3.2. Medical data management.

Blockchain can improve interoperability and secure the exchange of healthcare information. The ability to track patients in real time improves care coordination, which is also a fundamental requirement for value-based and cost-effective care.

#### 3.3. Reducing fraud.

Fraud costs the insurance industry more than \$80 billion annually. 3 Blockchain can help determine if a submission is valid, mitigating fraudulent activities by securely pulling data from multiple sources at any point in a transaction.

#### 3.4. Health research and clinical trials.

An estimated 50% of clinical trials go unreported.<sup>4</sup> Using time-stamped records and results, blockchain advancements can address selective reporting and the manipulation of results, which will reduce fraud and errors in clinical trial records.

#### 3.5. Tracking counterfeit drugs.

Pharmaceutical companies incur an estimated annual loss of \$200 billion due to counterfeit drugs.<sup>5</sup> Blockchain could create a “single source of truth” surrounding the movement of goods and help maintain integrity by tracking each step of the drug supply chain at the individual drug/product level.

#### 3.6. Securing protected health information (PHI).

From 2015 through 2016, 140 million patient records were breached, affecting more than 27 million patient records.<sup>6</sup> Apart from hacking and Ransomware, 43% of such breaches (192 incidents) were internal due to insider error or wrongdoing.<sup>6</sup> The existing healthcare IT architecture may not be sufficient to monitor and secure connected devices (internet of medical things, or IoMT). Using blockchain can alleviate privacy and reliability concerns.

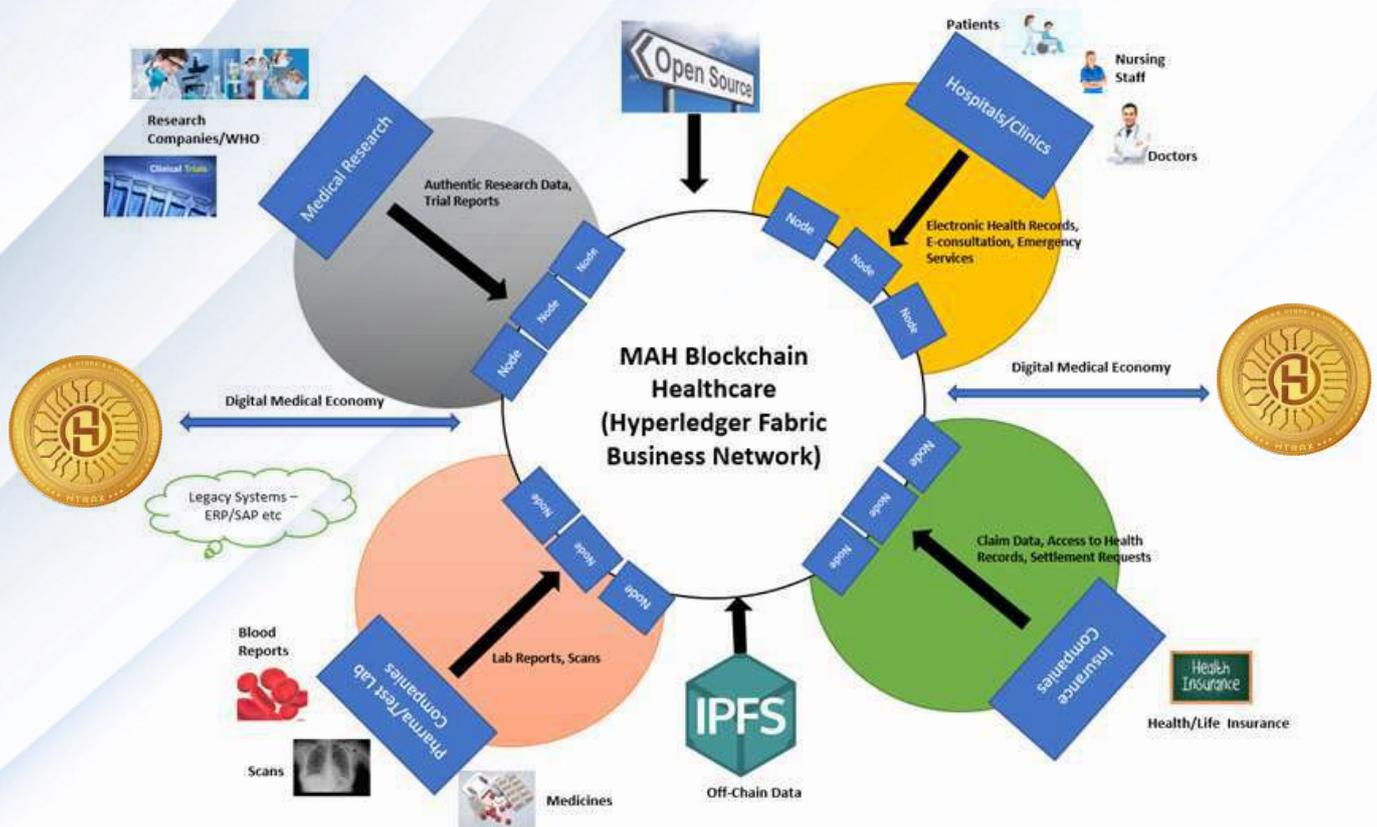
### 3.7. Reducing healthcare costs and improving transparency with blockchain

Today, the healthcare industry is using automation and artificial intelligence (AI) across the payer and provider landscape. While payers can significantly reduce costs and improve efficiencies with robotic process automation (RPA), providers are using AI-powered systems to improve the accuracy of diagnostics and create seamless patient experiences. As the healthcare industry gets smarter about the use of data analytics and starts adopting automation and AI-powered solutions, many innovative and expedient solutions will be implemented across the industry. But the real benefit will come from adding blockchain technology to this AI-powered system, what MAH Health

PASSPORT calls AI-blended blockchain. Let's put this into context. Although the healthcare industry has been adopting electronic transaction systems over the last 20 years, manual transaction processes still account for roughly \$10 billion USD and Eligibility and Benefit verification accounts for more than half of this spend.<sup>7</sup> Several factors contribute to this, including convoluted rules that actually decrease efficiency, complex administration costs primarily associated with BIR, gaps in care coordination such as fragmented care delivery processes, and loss of continuity of both patient data and provider assessments. Other challenges include recent changes in the legislative landscape, namely the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Patient Protection and Affordable Care Act (ACA). Introducing blockchain solutions and weaving in RPA across the provider, agent and payer landscape can have a tremendous impact on the healthcare industry. The blockchain solutions can bring much-needed efficiency and transparency by making every transaction unique, immutable and accessible in real time, while automation can bring in speed and cost efficiencies. Such a system can ensure patients are better informed of projected costs, because payers and providers will have all the data (both historical and current) at hand. It will also enable accurate reporting, hitherto a difficult task, because all data will be available and processed in near real time. Together, blockchain and AI-powered systems can drive down overall costs, significantly reduce BIR and, most importantly, root out fraudulent transactions. This can improve the customer experience by expediting overall system performance from days or weeks to minutes and even seconds.

Medical records also prove critical for research. The ONC's report emphasizes that biomedical and public health researchers "require the ability to analyze information from many sources in order to identify public health risks, develop new treatments and cures, and enable precision medicine". Though some data trickles through to researchers from clinical studies, surveys, and teaching hospitals, we note a growing interest among patients, care providers and regulatory bodies to responsibly share more data, and thus enable better care for others. In this work, we explore a blockchain structure applied to EHRs. We build on this distributed ledger protocol originally associated with Bitcoin. The blockchain uses public key cryptography to create an append-only, immutable, timestamped chain of content. Copies of the blockchain are distributed on each participating node in the network. The Proof of Work algorithm used to secure the content from tampering depends on a "trustless" model, where individual nodes must compete to solve computationally intensive "puzzles" (hashing exercises) before the next block of content can be appended to the chain. These worker nodes are known as "miners," and the work required of miners to append blocks ensures that it is difficult to rewrite history on the blockchain. Our MAH Health passport blockchain implementation addresses the four major issues highlighted above: fragmented, slow access to medical data; system interoperability; patient agency; improved data quality and quantity for medical research.

# PRODUCT ARCHITECTURE



## 3.9. HYPERLEDGER FABRIC BLOCKCHAIN

The solution aims to use Hyperledger Fabric as a permissioned Blockchain solution. Hyperledger Fabric is by far number one business blockchain with high throughput and features enabled to cater requirements for this solution. Fabric CA / MSP will be used to establish credible identities for the patients/doctors and others in the system. Channels and private data collection will be used to keep the data privacy and selective sharing.

## 3.10. INTEGRATION WITH IPFS

Interplanetary file system is a decentralized file system that will be integrated with the Blockchain solution to store the documents and scans to keep the database size optimal and increase the efficiency.

## 3.11. Open-Source Design and collaboration

The product will list open-source components and will invite the community-driven additions to make it better and market-ready for different GEOs. The strategy will allow mass adoption and integration opportunities for the product.

### 3.12. INTEGRATION WITH TOKEN

The product will have provision for fiat as well as crypto payments. The crypto payments will be enabled thru HTraxcoin built specifically for medical domain digital economy, The crypto-currency will also be used to incentivize the patients, doctors and development community based on various parameters.

### 3.12. INTEGRATION WITH HEALTH INFORMATION SYSTEM

The product will present a layer to integrate with existing HIS systems thru the open REST APIs. This will give an opportunity the shape up the product as per the policies of specific medical institutes and insurance companies. It will also help in mass adoption and scaling of solution. The solution also plans to build its own HIS.

## 4. REVENUE AND MONETIZATION MODEL

The revenue models are tightly based around the following factors

- Patient subscription
- Insurance companies' subscription
- Medical Research companies' subscription
- Clinics / hospitals/Medical chain subscription
- Pharmacies / Labs subscription

#### • Patients –

The pricing model is based on subscription services enrolled by various parties. Since this is a patient centric system, most of the services at the patient enrollment will be free. Only after certain data storage usage and post certain numbers of consultations the patient will be asked to pay the minimal subscription charges in form of a token. The incentivization model for patients will include the rewards earned by maintaining the health parameters, subscribing to insurance companies in the eco-system and providing access to health records to the research companies based on payment model. The system is likely to bring lot of monetary benefits to the patients against the conventional medical system.

#### • Insurance Companies –

Insurance companies will subscribe to the services by investing the tokens into the system. The major advantage for insurance companies is major customer base part of the system and hassle free and trusted claim settlements, taking out lot of costs from their operations. They will also get a large base to sell the insurance plans customized to the audience and hospitals that are part of the system. The system will bring huge monetary benefits for insurance companies.

#### • Medical Research Companies

Medical Research companies will subscribe to the services by investing the tokens into the system. The major advantage for medical research companies is major customer base and authentic data available on request. In key challenge in front of any medical research company is amount of investment and manual processes around collecting patient data. The problem is resolved with this system and research companies can come up with drugs much earlier thereby creating a huge advantage for them.

- **Clinics/Hospitals/Medical Chains**

Hospitals will subscribe to the services by investing the tokens into the system. The major advantage for hospitals is major customer base with tele-calling facility and verified and trusted electronic health records of the patients. Doctors can monitor real time statistics of critical patients in real time. The system has integration possibilities with HIS systems in the hospital so that it becomes easy for medical institutes to use and adopt this solution.

## DIGITAL HEALTH PASSPORT



### **IMMUTABLE DATA:**

All information stored on the blockchain is permanent and unable to be changed.



### **ANONIMITY & PRIVACY:**

Crypto currencies built on top of blockchain technology gives individuals the capability to carry out transactiona anonymously.



### **NO MORE INTERMEDIARIES:**

Banks, Paypal, Visa and Western Union are all example of intermediaries. Customers rely on them to facilitate monetary transactions.



### **DIGITAL FREEDOM:**

Blockchain are decentralized. There is no organized company controlling the information stored on them how they operate.



### **SECURITY:**

Public blockchain are distributed across hundreds of thousands of computers. It would be impossible to attack every simultaneously.



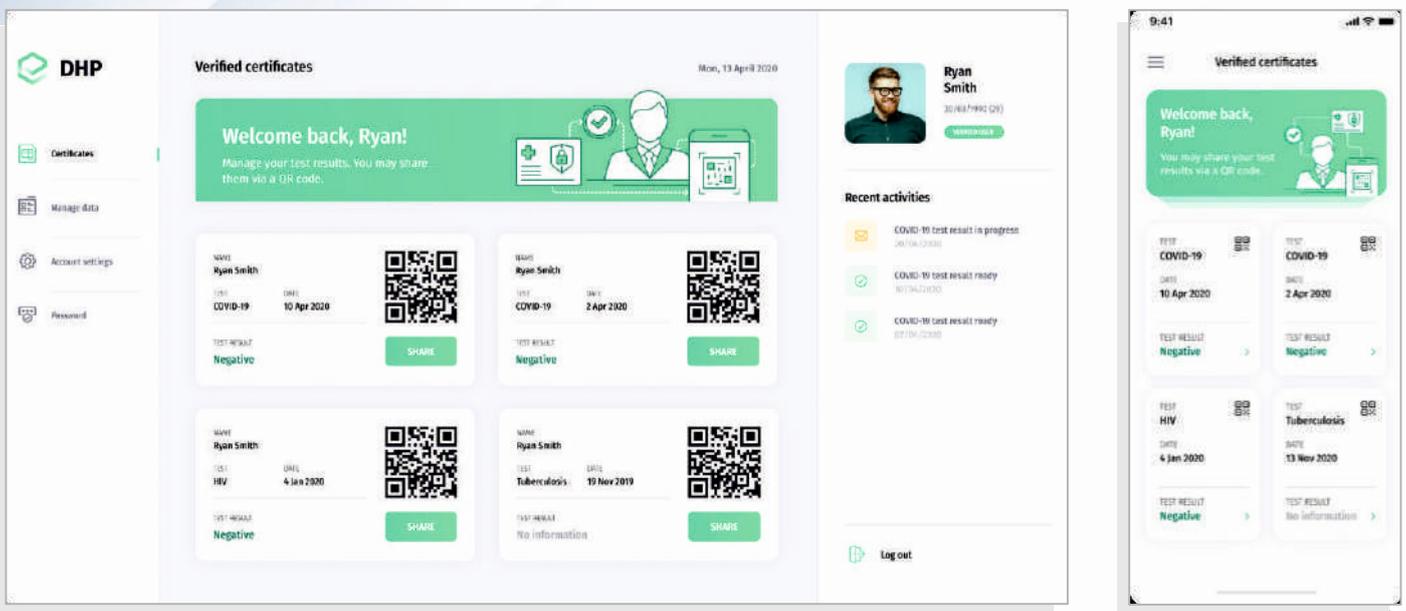
### **LOWER TRANSACTION FEES:**

Users can transfer millions of dollars worth on blockchain network for less than \$1.00.

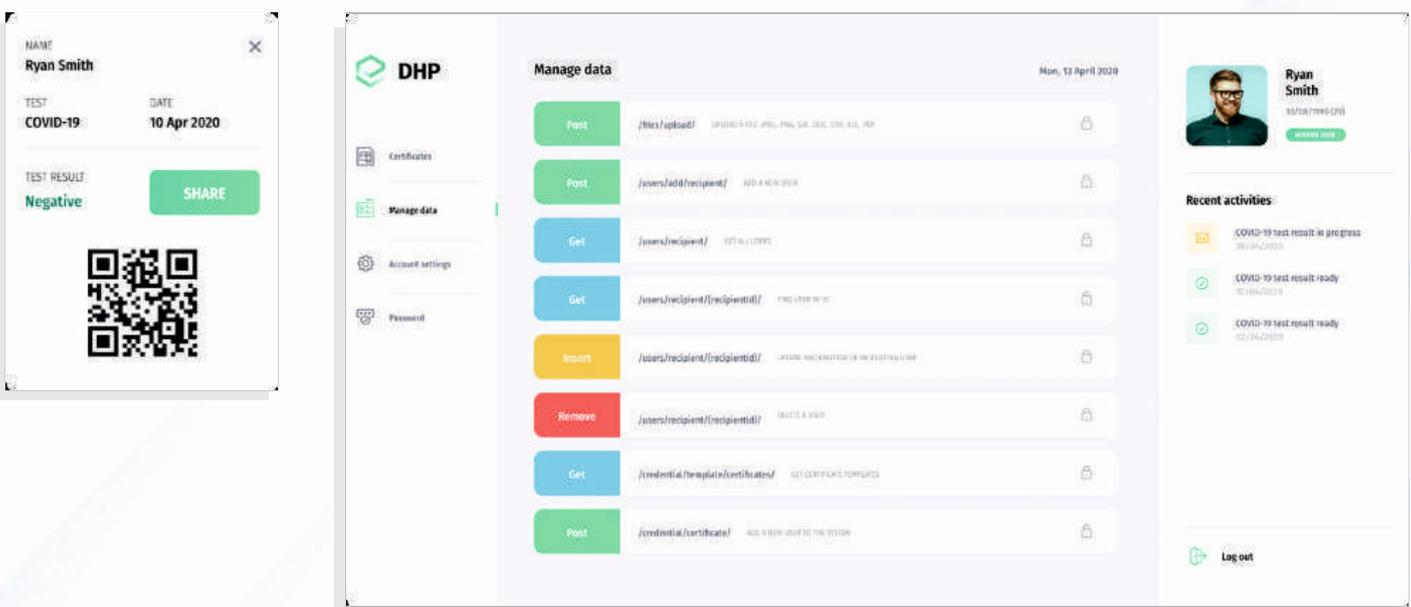
## DIGITAL HEALTH PASSPORT

The pandemic of corona virus infection in 2020 has triggered the importance of fast response to health issues. Now that the companies slowly return to pre-epidemic life, employees' health checkup has become crucial to prevent a disease outbreak followed by business collapse.

MAH Technologies, A software R&D and developer, has created Digital Health Passport, or DHP, a blockchain based application for verifying and storing personal health history with no need for multilevel validation of information.



Digital Health Passport by is a digital profile with user's disease status such as infection with HIV, COVID-19, tuberculosis and others.



Medical institutions can use the DHP platform for national and regional control over the nation's health.

# 1. FEATURES OF HEALTH PASSPORT

**GENETIC INFORMATION:** as an integral component of medical treatment, genomic data in the EHR must therefore be continuously and easily accessible to both patients and providers, while simultaneously receiving appropriate privacy protection, to achieve the goal of personalized medicine and quick treatment of any emergency. Genetic Information provides personalized information about your health, disease risk, and other traits.



**DIABETES SCORE:** show the average score and show the last measure and all historical measures as a graph to highlight the changes over the last few weeks. Also provide family basic diabetes records and highlight if any relatives having diabetes so the health provider can be fully aware about the person.

**PREVIOUS DISEASE, MEDICATION & COMORBIDITY:** User's / Patient's previous disease along with all medications and Comorbidity details will be available and accessible for concerned providers after applying the verification process, Low level details including all symptoms and treatment for any disease, the exact dose and duration for each medicine



## VACCINATION RECORDS

provides a history of all the vaccines received with exact dates, vaccination type, dose, purpose and any other information related to the vaccination.



## Advantages of Health Passport



### Reliable protection

A blockchain- powered application allows to create digital assets, or documents, that cannot be falsified. Blockchain securely encrypts data against its loss or hacking.



### Instant verification

Blockchain and AI algorithms automatically check information for compliance removing necessity for intermediaries.



### Ease of use

You may update your Digital Health Passport in a click. A user adds recent test results and digitally signs the update confirming data originality. Data is permanently stored on blockchain.



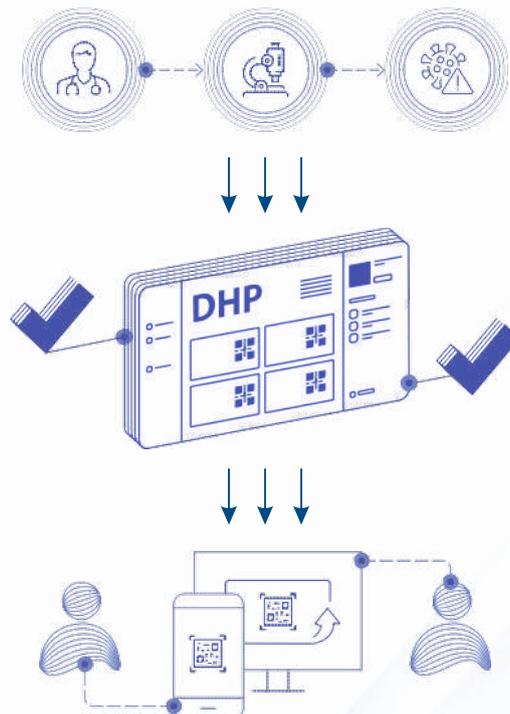
### Full compliance

DHP uses technologies of encryption and cryptography for e-document flow in full compliance with GDPR requirements, California CCPA, HIPPA and other regulations.



### Unified database

DHP can be integrated into enterprise software as an employee filing system providing trusted information about employees' health for better optimized processes within a company.



## 2. HOW IT WORKS

A medical institution carries out testing of a person to check whether they are infected or immune to COVID-19, or other disease, and adds the test result to medical history.

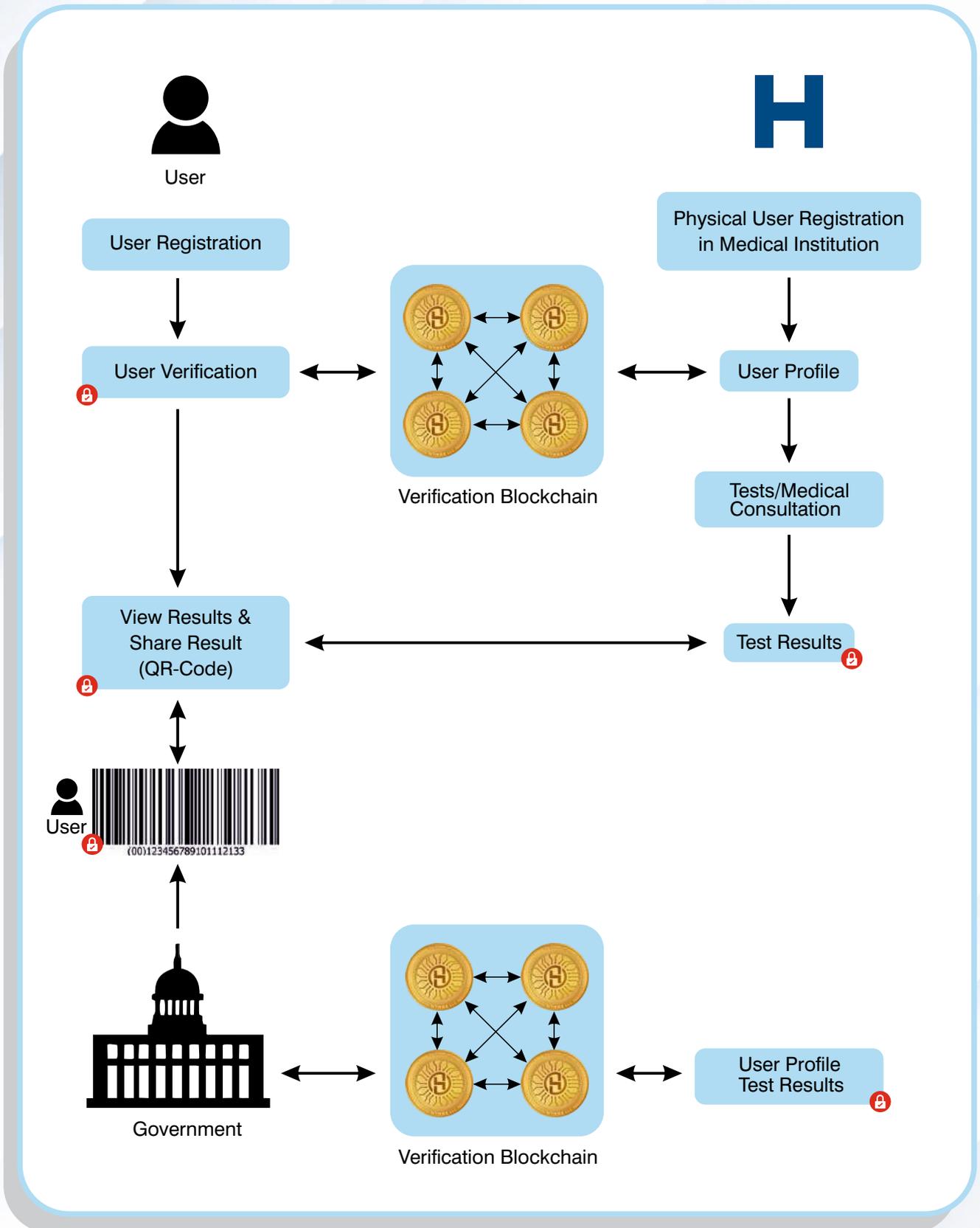


The examined person creates a digital profile in DHP and passes account verification. Then they add test results to their digital profile and receive an individual QR code.

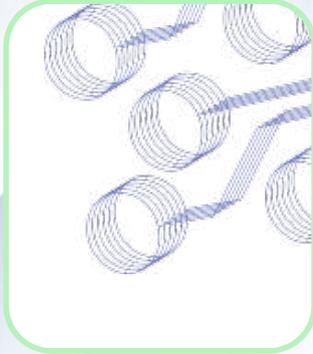


The QR code can be shared with an employer or any other authorized person for secure view of the health account via a web browser or a smartphone.

### 3. BUSINESS FLOW



## 4. TECHNICAL ADVANTAGES OF MAH SOLUTION

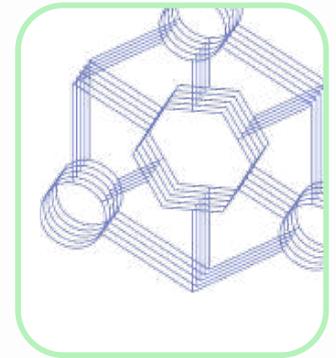


### Integration in enterprise software

DHP can be easily integrated into corporate software. Medical data can be collected through web forms, CSV data import, JSON feed and API applications customly developed by MAH technologies for you. We can create a private or public blockchain per your requirements, so that all information will be sent directly to it from your SAP, Oracle, or JD Edwards-based system.

### Use of own API

MAH develops API applications in accordance with any blockchain requirements needed. This means that your in-house developers escape the routine of smart contract coding, blockchain building, or DHP-specific application development. MAH's solutions are blockchain-agnostic meaning that they can be modified to fit any type of blockchain.



### Health passport by MAH

For each digital passport, DHP creates an individual digital wallet owned by an examined person. Each wallet is individually cryptographically encrypted in blockchain. Blockchain records each interaction with a wallet and health passport. Health passport and wallet data can be downloaded, viewed, and managed through a web browser interface of a mobile application.

# TELE-HEALTH CONSULTATION

## 1. INTRODUCTION

Tele health is a method of treatment by using telecommunication technology such as telephones, cell phones, text messages, PDA's, the Internet and videoconferencing. Telehealth care systems are becoming more popular due to its mobility. Nowadays the word telemedicine is well-known among physicians, medical experts, bio medical engineers and others.



***“Telemedicine utilizes information and telecommunications technology to transfer medical information for diagnosis, therapy, and education”***

Telemedicine is a part of telehealth, which is based on the technologies by using tele-communication for the interaction between health professionals and patients in order to execute medical actions at distance. Telemedicine is a very vast field in today's world, which is widely used to reshape the systems in the health care. Telemedicine is helping different healthcare system to solve the problems in many ways.

With telemedicine, there is higher likelihood of maintenance of records and documentation hence minimizes the likelihood of missing out advice from the doctor other health care staff. Conversely, the doctor has an exact document of the advice provided via tele-consultation. Written documentation increases the legal protection of both parties. Telemedicine provides patient's safety, as well as health workers safety especially in situations where there is risk of contagious infections. There are a number of technologies that can be used in telemedicine, which can help patients adhere better to their medication regimens and manage their diseases better. Telemedicine can also enable the availability of vital parameters of the patient available to the physician with the help of medical devices such as blood pressure, blood glucose, etc. management.

Telemedicine will continue to grow and be adopted by more healthcare practitioners and patients in a wide variety of forms, and these practice guidelines will be a key enabler in fostering its growth.

## 2. PURPOSE

The purpose is to give layout of Tele-Health Application to ensure seamlessly smooth and secure communication between Patient and Health Practitioners. It provides norms and protocols relating to physician-patient relationship; issues of liability and negligence; evaluation, management and treatment; informed consent; continuity of care; referrals for emergency services; medical records; privacy and security of the patient records and exchange of information; prescribing; and reimbursement; health education and counseling.

**Telemedicine applications can be classified into *four basic types*:**

- 1. Mode of communication (Video, Audio, Text),**
- 2. Timing of the information transmitted,**
- 3. Purpose of the consultation**
- 4. Interaction between the individuals involved** RMP-to-patient/caregiver, or RMP to RMP.  
(RMP is registered medical practitioner)

## 3. MAJOR SEVEN ELEMENTS FOR TELEMEDICINE

Seven major elements to be considered before telemedicine consultation

### Seven Elements to be considered before any telemedicine consultation

- |   |                                   |
|---|-----------------------------------|
| 1 | Context                           |
| 2 | Identification of RMP and Patient |
| 3 | Mode of Communication             |
| 4 | Consent                           |
| 5 | Type of Consultation              |
| 6 | Patient Evaluation                |
| 7 | Patient Management                |

## FRAMEWORK FOR TELEMEDICINE

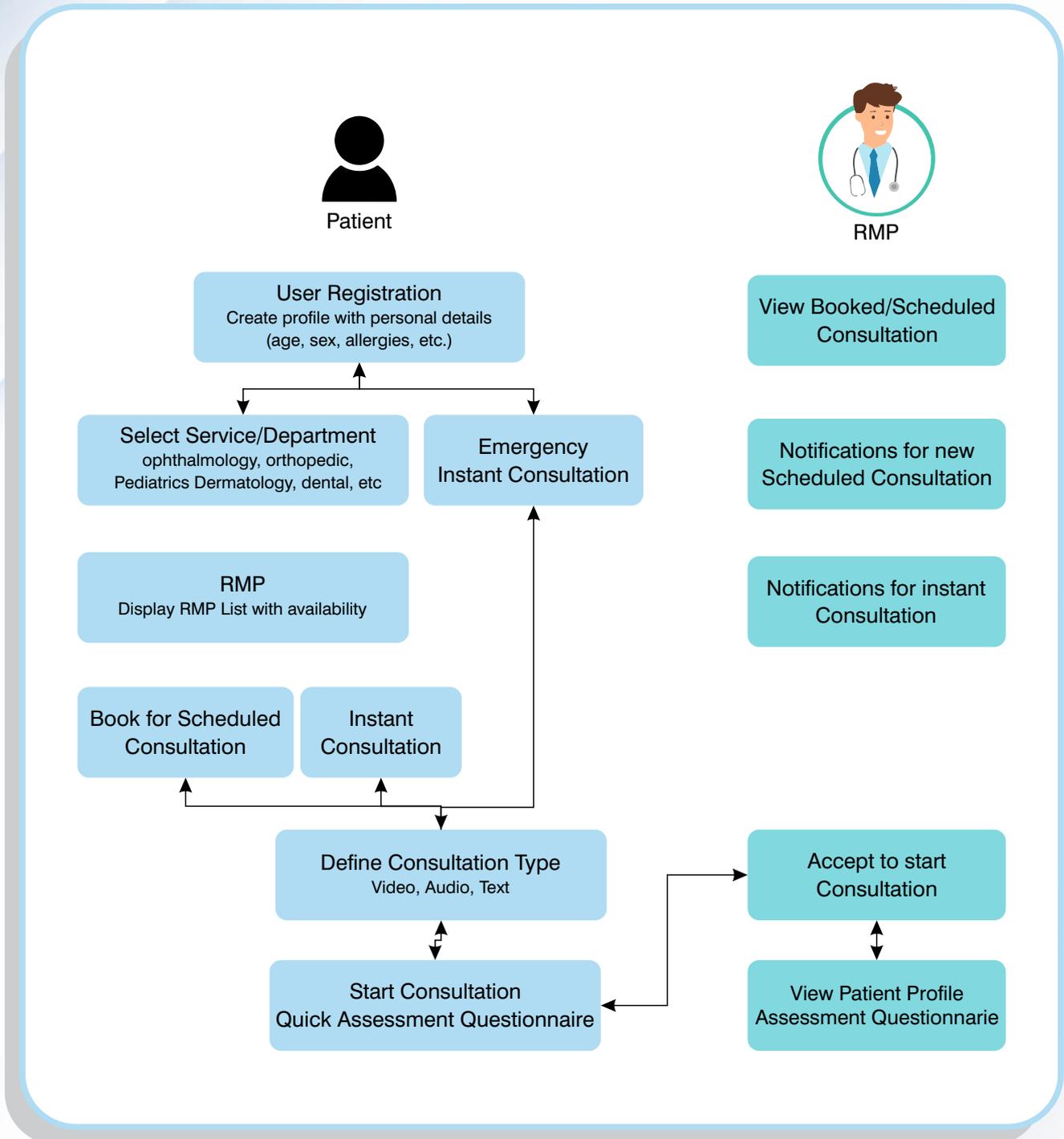
This section lays out the framework for practicing telemedicine in 5 scenarios:

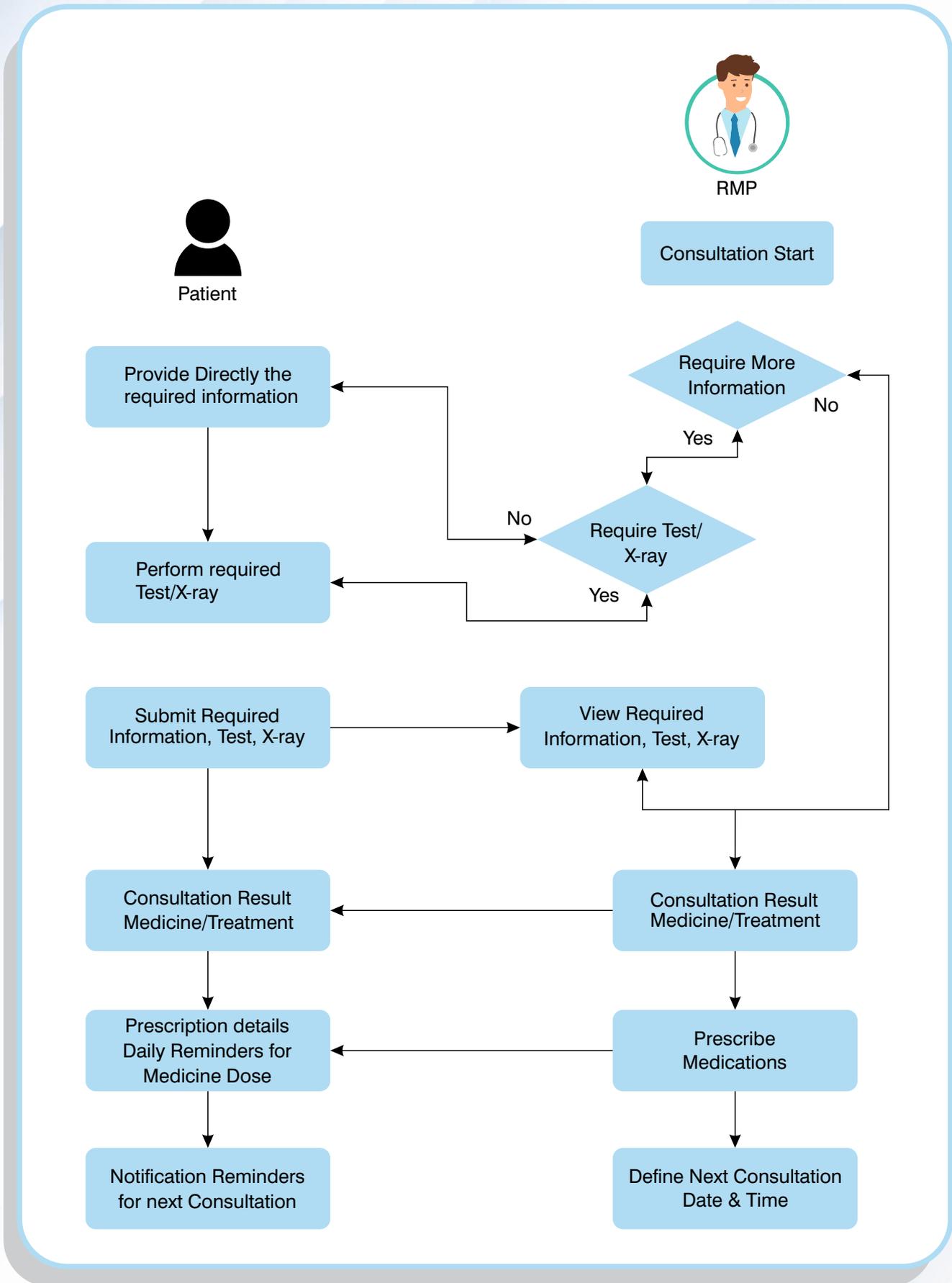
1. Patient to Registered Medical Practitioner
2. Care giver to Registered Medical Practitioner
3. Health Worker to Registered Medical Practitioner
4. Registered Medical Practitioner to Registered Medical Practitioner
5. Emergency Situations

## 4. FLOW CHART

### 4.1. PATIENT FLOW

Patient Flow describe the exact actions and steps required from each patient to start the teleconsultation with RMP (Registered Medical Practitioner)





## HEALTHCARE INFORMATION SYSTEM HIS

“MAH HIS” is a fully integrated, single-solution information system. An Enterprise Resource Planning (ERP) system built exclusively for healthcare based on a multi-tiered network design concept that has become the new standard for computer solutions,

“MAH HIS” allows for scalability, central management of business rules and reduced maintenance and overheads.

### PRODUCTS & SERVICES

Healthcare ERP System	Lab Information System
Radiology & Imaging Information System	Pharmacy Information System
Referral System	Inventory Management
Interfacing with Equipment's	Payroll
Help Desk (Patient Enquiry)	Healthcare Staffing Solution

### FEATURES

• Service Schedule & Appointments	• Patient Registration
• Inpatient Admission Reservation	• Patient Information: Reception Area
• Insurance Management	• In-Patient Management System
• Inpatient Admission Reservation	• Billing & Revenue Cycle Management

### 1. BENEFITS

- Seamless administration and control.
- Advanced MIS reporting both in graphics and printed form.
- Parameterization: Easy Customizable features.
- Increases profit and reduces costs considerably by handling information in an efficient and effective way.
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- Automatic calculated payment generation to Consultants, Outsourced Facilities etc.
- Portability Analysis and Growth Analysis at Department level, Service Level based on patient category.
- Tracking of patient outstanding based on unique PID, even after a patient visits after many years, or if a patient has multiple policies.
- Handles incorrect bills, client rate adjustments through administration control
- OP, IP, Day-Care, Surgery – different billing and payment procedures configurable to multiple locations and categories
- Rate determination based on multiple parameters – days, time, service type, eligibility

## 2. E-CLINIC CLOUD SOLUTION

E-Clinic is state of the art lab management software provided to you as a service at nominal monthly fees.

It helps generate reports and publish them in a secure portal online for the patients and doctors to view at any time, it helps manage accounts and referrals.

E-Clinic is a platform dedicated to one thing: EMR! It's beautifully designed, secure cloud based.



### CLOUD BASED

Available to you anytime, anywhere! On a vacation, need to check accounts or authenticate reports? Do it with your phone on Wi-Fi!

### FAST AND SAFE

Your data is kept protected always. Your monthly accounts report, sales analysis is available to you in the blink of an eye!

### FOREVER REPORTS

Using our electronic health record system, your reports would be forever available for the doctors and patients to check through our secure portal

### EASY TO LEARN AND EASIER TO USE

Planning to switch? The software has been made keeping you in mind, so it is intuitive and comes naturally!

## MAJOR FEATURES:

Patient Self-Registration	Patient Login	Billing
Appointment Scheduling	Patient EMR	MIS Report
Prescription Online	TPA Online	Mobile App

## DIGITAL DOCTOR

Online platform for all type of customers providing medical consultancy and advices, Platform is AI powered and will work as a personal health advisor and will maintain all the customer health history in order to allow AI and ML engines to provide the best medical advice. The platform will provide valuable suggestions and reminders to patients related to lifestyle changes, medicine reminders, exercise routine, alternate therapies links and guidance. This utility will be capable of accepting the medical data from various IOT devices such as smart watches, Glucometers, BP machines, Oximeters etc. It will provide the overall health score of a patient and will provide transformative guidelines to make it better in an iterative manner. The model will continue to evolve as more patient history and data is added in the tool.

## OBJECTIVES

- The easiest way to provide medical consultancy and advices by Artificial intelligence platform.
- Virtual health assistant remotely monitoring customer's everywhere & every time.
- Provide direct communication channel between customers and health professional.
- Notifications & Alerts for urgent medical advices / recommendation.
- Medical Tips periodically every day/week/month.
- 24 / 7 monitoring and regular updates to patients.
- Interconnects with IOT devices for continuous monitoring and statistics.
- Integrates with Blockchain ledger and DHP for storing critical information on a ledger.
- Continuous learning model and evolves with more data and history.

### CLAIMS PROPENSITY

For : Insurance Companies

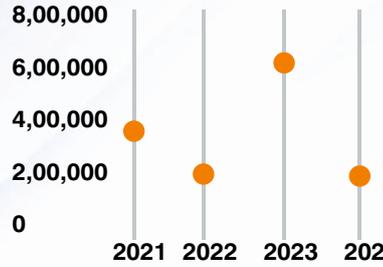
■ Average Demography Claim  
■ Expected Individual Claims



### PREDICTING MEDICAL EXPENSES

For : Health Funding Providers

Expected Cost (Rupees)



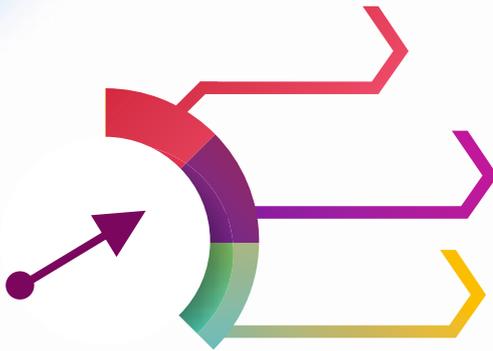
### PRECOMMENDING MEDICAL TESTS

For : Lab Chains & Health Aggregators

- ▶ Diabetic
- ▶ CVD
- ▶ Heart
- ▶ Respiratory
- ▶ Hypertension
- ▶ More
- ▶ Kidney

### MAH Score

530  
Hhealthy



- Need Attention 0 - 400
- Average 300 - 499
- Healthy 500-

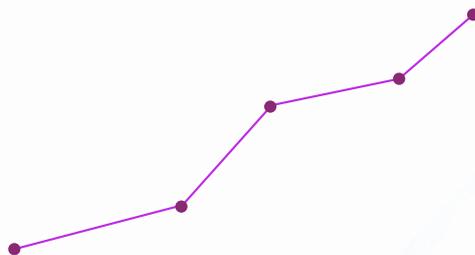
### Factors Affecting Health

For : Fitness, Gym, WellnessApp, Nutrition

- Smoking Tobacco
- Alcoholic Drinks
- Unhealthy diet

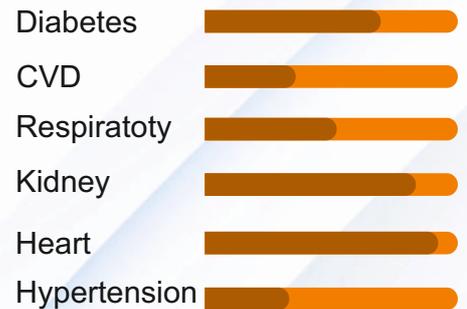
### Reports & Analytics

For : Public Health & Pharmaceuticals



### Identifying Diseases & Risk

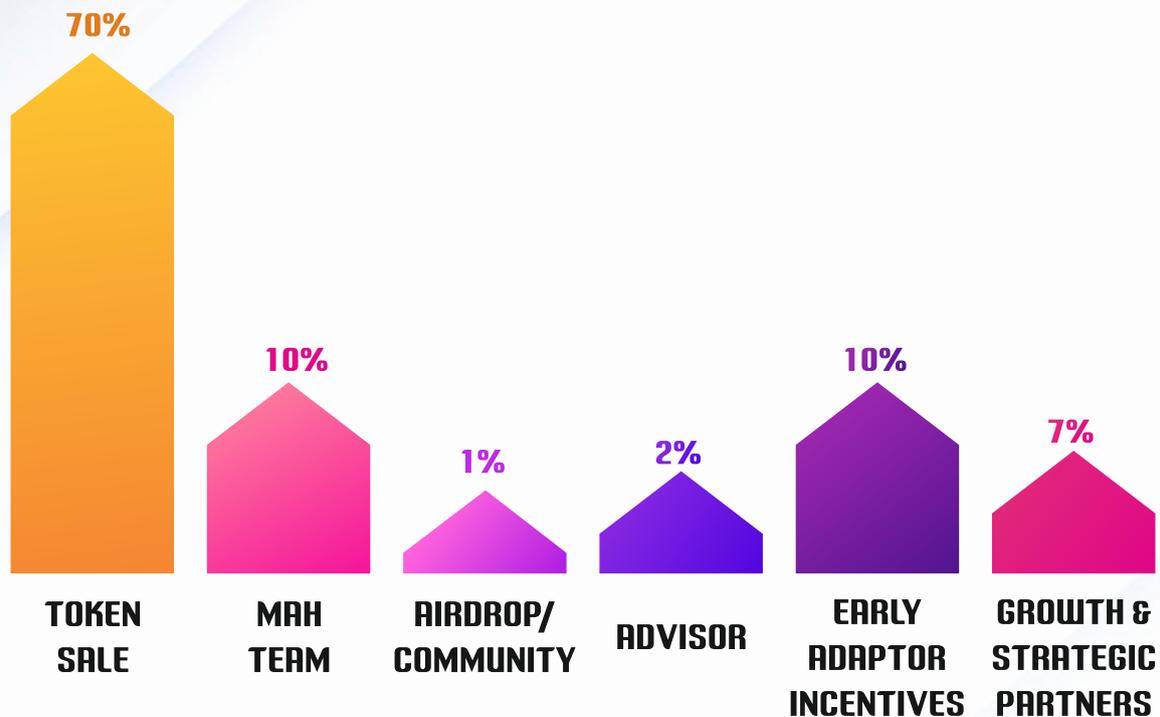
For : Disease Mgmt & Primary Care



## TOKENOMICS

Tokenomics are the set of rules relating to the monetary policy of crypto assets. It also describes the role token plays in the ecosystem and how it accrues value. It is important to have a set of rules in public blockchain platform like Bitcoin or Ethereum as it is open to everyone, including good and bad actors. In our current structure, tokens will be issued mainly as utility tokens, however with no equity dilution from the founders. The value of the tokens is a function of their usage by all the ecosystem players in our blockchain platform.

## PLANNED DISTRIBUTION OF TOKENS:



Tokenomics are set of rules relating to the monetary policy of crypto assets. It also describes the role token plays in the ecosystem and how it accrues value. It is important to have a set of rules in public blockchain platform like Bitcoin or Ethereum as it is open to everyone, including good and bad actors. It aligns the behavior of each actor, strengthen the protocol and create trust ultimately. The major actors or four pillars in public blockchain ecosystems are: 1. Founders: who build the project; 2. Miners or Validators: who run the blockchain and provide security; 3. Investors: who provide required capital; and 4. Consumers: the users of the blockchain project. In our current structure, tokens will be issued mainly as utility tokens, however with no equity dilution from the founders. The value of the tokens is a function of their usage by all the ecosystem players in our blockchain platform.

## TOTAL NO. OF COINS AND VALUE

### No. of Coins

135,000,000



### Total Value (USD)

375,000,000  
135 million \$



## PRE ICO - 14<sup>th</sup> OCTOBER 2021

### No. of Coins

93,750,000



### Total Value (USD)

33,750,000  
33.75 million \$



**PRE SALE : USD 6.75 MN**

**PUBLIC SALE : USD 27 MN**

**PUBLIC SALE : JANUARY 15<sup>th</sup> 2022**

**EXCHANGE LISTING : FEBRUARY 22<sup>nd</sup> 2022**

## Technical note to Tokenomics:

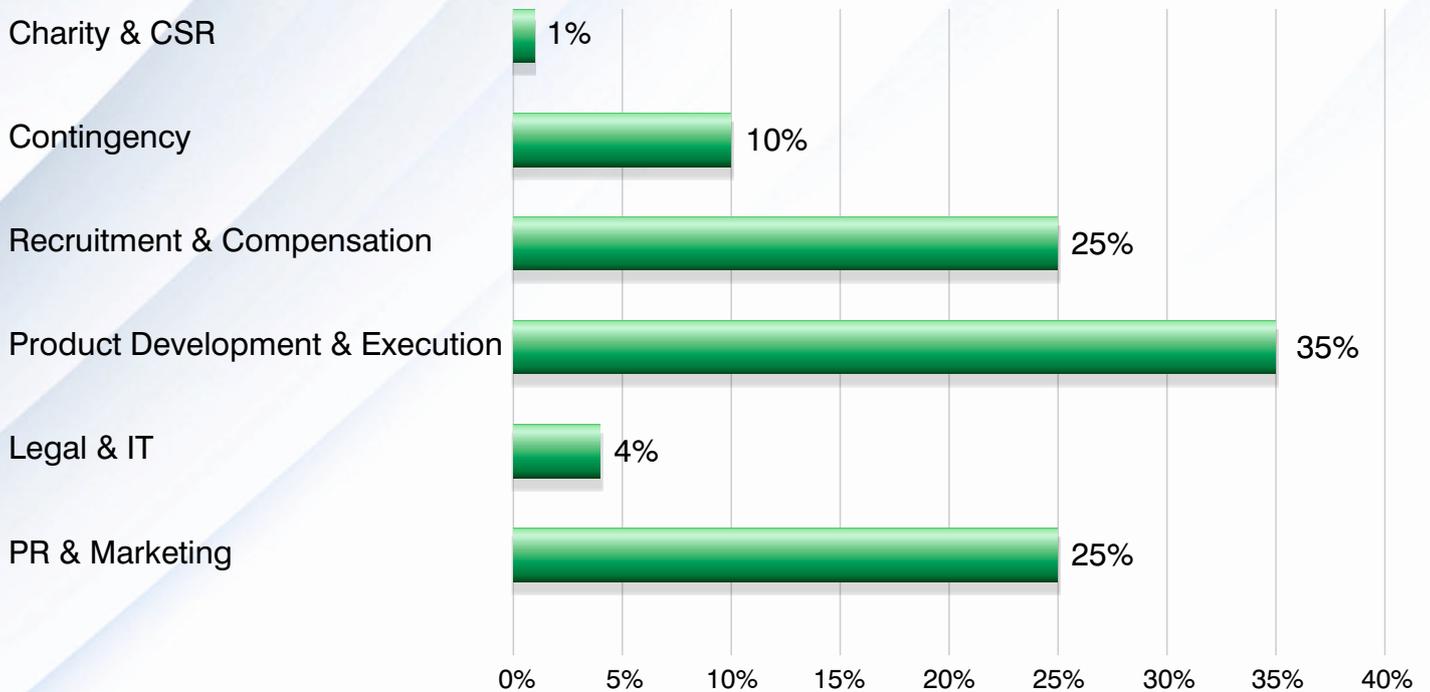
H-Trax will be first created using Binance platform for optimum transaction costs. In the later phases, H-trax will be launched on several other platforms. The coin follows BEP20 standard for contract and deployment on the chain. Total supply will not be minted at the launch time, it will be restricted to preferred value and minted only on request. This strategy will help in maintaining and keeping track of the balances on all chain platforms in the future. H-trax website will allow users for buying H-Trax tokens either directly or through public platforms like Pancake swap and other exchanges.

## Governance-Protocol:

Once this platform emerges as a complete ecosystem platform by on boarding all stakeholders of healthcare ecosystem, complete decentralized operations are imperative. The MAH health care blockchain community (hospitals, patients, insurance companies, pharma companies, diagnostic centers etc.,) should impose governance protocols. Governance protocols will be used for Identifying who all need to be on boarded, min/burn schedule of the H-Trax token, data transparency rules and censor-resistant review mechanism.

**Link:** <https://bscscan.com/address/0x434fA8c0bA1629f55932BFc8062Ed593A0732919>

## PLANNED UTILIZATION OF FUNDS



**Charity & CSR:** This budget will be used for charity work in the medical domain primarily helping poor people to get medical facilities.

**Contingency:** There is a strong acceptability prediction for this product in the market. However, if needed, we might have to strategize again to make it market ready, this budget will be handy for the same.

**Recruitment and Compensation:** The product will need a stable and long-term development team along with marketing, sales, HR and other support functions. This head will be used to fund the recruitment and compensation costs.

**Product Development and Execution:** The product development will require manpower, infrastructure, tools, simulation environment etc. This head will be used for the same and has got highest stake among others

**Legal & IT:** This head will be used to fund legal and IT expenses for the project. We aim the deliver the project will GDPR and HIPPA compliance and following the regulations of government of the country where we launch this product.

**PR and Marketing:** To make product popular and usable, we will introduce earn back opportunities and incentives for patients, doctors and insurance companies based on certain norms. This head will be used for the same along with marketing expenses.

## USE CASES

### USE CASE 1: CONSULTATION FEES PAYMENT

#### Key Points:

- Patient will pay the fees for doctor consultation from his wallet in HTRax coins.
- Number of coins will be directly proportional to the fiat currency fees for doctor.
- Patient will need to have enough coins in the wallet prior to setting up the appointment.

#### Additional Information:

- There will be a provision of voucher-based payment in case doctor does not prefer crypto payment in his wallet.

### USE CASE 2: PURCHASE INSURANCE POLICY

#### Key Points:

- Patient can purchase insurance policy from his wallet in HTRax coins.
- Insurance plans and conditions will be advertised on the platform by the insurance companies.

#### Additional Information:

- Insurance companies will be provided EHR access by the patient to provision the policies.

### USE CASE 3: INSURANCE CLAIM SETTLEMENT

#### Key Points:

- Insurance companies will receive the claim budget and approval in HTRax coins and payouts to hospitals will also be done in HTRax coins.

#### Additional Information:

- The validity of claims, amount, doctor's notes etc will be done via Blockchain backed smart contracts enabling automated approvals and payments without delays.

## USE CASES

### USE CASE 4: EHR SHARING WITH RESEARCH COMPANIES

#### Key Points:

- Patients can share EHR data with the research companies based on requirements.
- The data sharing will be incentive via payments to patients in Htrax coins. The amount will be pre-fixed and will be visible to patient before sharing of information.

#### Additional Information:

- Research companies can bank upon EHR data as it is verified and immutable and can provide quick and real time access to research companies.

### USE CASE 5: PAYMENTS FOR LAB SERVICES

#### Key Points:

- Patient will pay the fees for lab services from his wallet in HTRax coins.
- Number of coins will be directly proportional to the fiat currency fees for lab services.
- Patient will need to have enough coins in the wallet prior to setting up the appointment.

#### Additional Information:

- There will be a provision of voucher-based payment in case labs does not prefer crypto payment in its wallet

### USE CASE 6: WALLET CONNECTED WITH EXCHANGE

#### Key Points:

- All actors including patients, doctors, labs etc can sell or purchase Htrax via application.
- Crypto wallet will be linked with fiat platform to enable payments and recovery.

#### Additional Information:

- All actors can also sell / purchase Htrax on a regular exchange or any other crypto wallet compatible with BEP20 standard.

## USE CASE

### USE CASE 7: INCENTIVISATION FOR PATIENTS

#### Key Points :

- Platform will enable direct incentives to the patients as they manage their health based on doctor's advice
- The amount will be pre-fixed on different scenarios such as daily exercise routine, daily BP checks, Sugar checks etc.

#### Additional Information:

- IOT devices will be integrated with the platform to measure and calculate the health parameters on regular basis.
- The policies of incentives will be defined by platform and will be presented at on-boarding for information.

### USE CASE 8: INCENTIVISATION FOR DOCTORS

#### Key Points :

- Platform will enable direct incentives to the doctors as they get ratings from patients.
- The amount will be pre-fixed on different scenarios such as user ratings level, no of patients handled, medical practice type etc.

#### Additional Information:

- The policies of incentives will be defined by platform and will be presented at on-boarding for information.

### USE CASE 9: ON-BOARDING FEES PAYMENT

#### Key Points :

- All actors will need to pay certain Htrax coins on on-boarding except patients.
- The fees will be payable to platform.
- Based on policies, this can be recurring fees per year or quarter.

#### Additional Information:

- The fees can be increased, decreased or eliminated based on policies enforced by platform.

## USE CASE

### USE CASE 10: CHARITY PAYMENTS FOR POOR

#### Key Points:

- Platform can define policies for doing charity payments to poor in scenarios such as consultation, purchase of insurance policies, free vaccinations, free hospitalization etc.

#### Additional Information:

- The policies can be added / removed by platform admin specific to region or country.

### USE CASE 11: PROVISION OF VOUCHERS BASED PAYMENT

#### Key Points :

- Voucher based payments will be enabled for doctors who want fixed money to avoid variability of crypto currency.
- Vouchers can be converted to corresponding fiat currency.
- Internally voucher transactions will be handled by Htrax and profit and / or loss will be bear by platform.

#### Additional Information:

- The option of voucher vs crypto can be set at initial on-boarding by the doctor and can also be changed at later stage via settings

## PHASE 1 :

Our products will be ready to implement by June 30<sup>th</sup> 2022

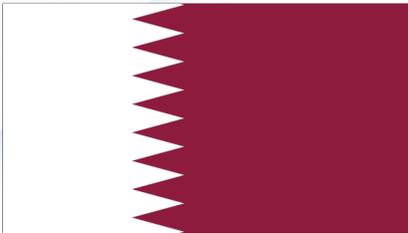
We will start the implementation of 1<sup>st</sup> phase by July 1<sup>st</sup> 2022



**UAE**



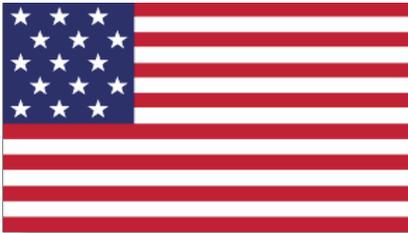
**ESTONIA**



**QATAR**



**MADAGASCAR**



**USA**

## PHASE 2 (RE-RAISE)

Total no. of coins – 93750000

We will start the implementation of 2nd phase by December 15th 2022



**SAUDI**



**BAHRAIN**



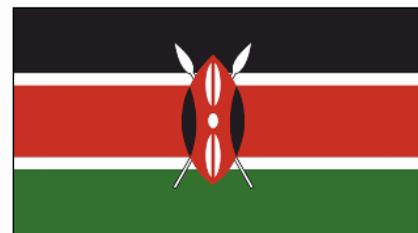
**UKRAINE**



**ANTIGUA**



**SOUTH AFRICA**



**KENYA**

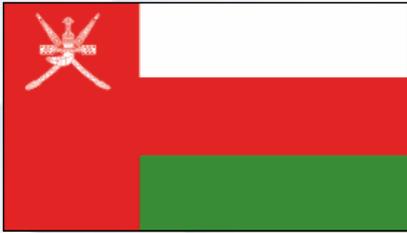


**INDIA**

## PHASE 3 (RE-RAISE)

Total no. of coins – 93750000

Implementations will be done in following countries based on the strategic decision after successful completion of phase 2.



**OMAN**



**BELARUS**



**GREECE**

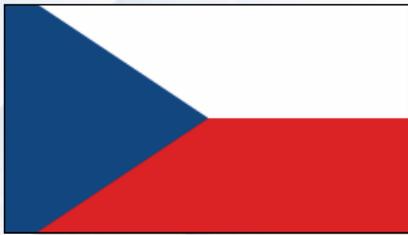


**TANZANIA**

## PHASE 4

Total no. of coins – 93750000

Implementations will be done in following countries based on the strategic decision after successful completion of phase 3.



**CZECH**



**SLOVAKIA**



**TRINIDAD & TOBAGO**



**UGANDA**

## MEET OUR PROFESSIONAL TEAM

A team with valuable blockchain achievements, who combine market experience, resources and data assets to create a winning solution for you



**MAYUR KUMAR GOHEL**  
FOUNDER AND CHAIRMAN

Follow Us On: 



**KARINA NIZINKAJA**  
AML DIRECTOR

Follow Us On: 



**MOHAK SHAH**  
DIRECTOR NORTH AMERICA

Follow Us On: 



**RAM PRASAD**  
DIRECTOR

Follow Us On: 



**KEYUR PATEL**  
DIRECTOR GCC

Follow Us On: 



**ANUJ KUMAR GARG**  
CHIEF TECHNICAL ADVISOR

Follow Us On: 



**ITHIHAS REDDY**  
CRYPTO ADVISOR

Follow Us On: 



**IAN SCARFFE**  
ADVISOR

Follow Us On: 



**KRYSTELLE GALANO**  
CHIEF MARKETING OFFICER

Follow Us On: 



**SVETLAN LLIEV**  
**HEAD LEGAL & COMPLIANCE**

Follow Us On: 



**DR. MUKESH DWIVEDI**  
**CHIEF**  
**MEDICAL CONSULTANT**

Follow Us On: 



**MANISH AWASTHI**  
**CHIEF ARCHITECT**

Follow Us On: 



**DINESH B.**  
**TECHNICAL ADVISOR**

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**VIJAYA MARISETTY**  
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**DR. SHALINI**  
**MEDICAL CONSULTANT**

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**IMTIAZ SHAH**  
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**BLOCKCHAIN DEVELOPER**

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**ANKIT PANCHAL**  
**MANAGER COMMAND CENTER**

Follow Us On: 



**JYOTI DUBEY**  
**PR & COORDINATOR**

Follow Us On: 



**BHAVYA BATRA**  
**MEDICAL COMPLIANCE OFFICER**

Follow Us On: 



**Dr. Mayuri Mehta**  
**AI Consultant**

Follow Us On: 



**Thank You !!**