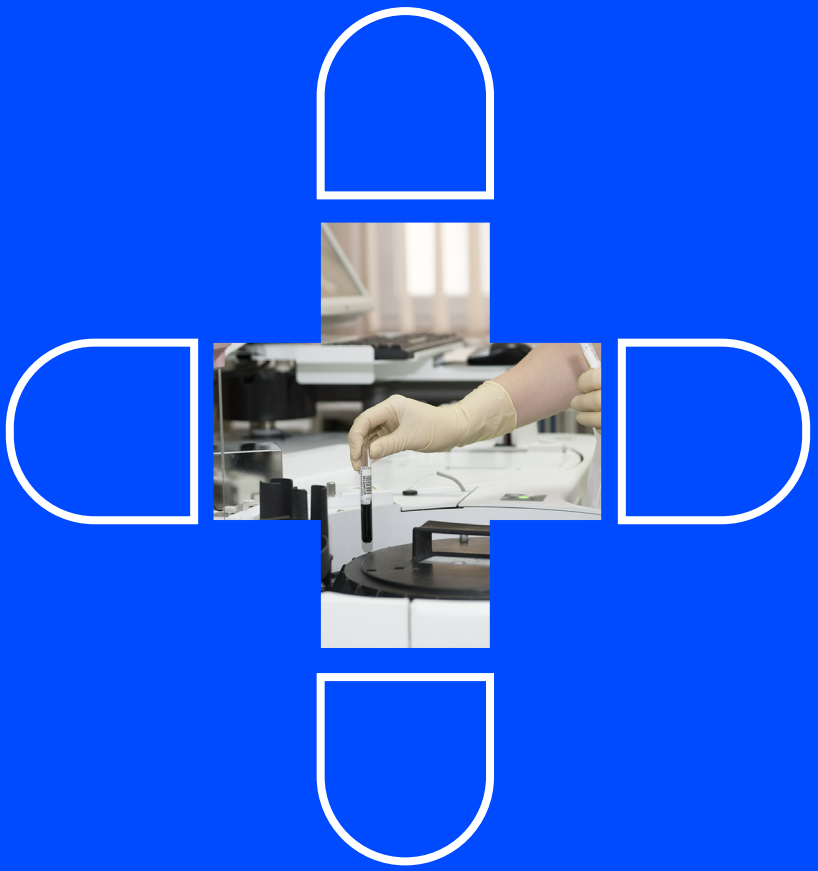
PMI



Precision Medicine Initiative

Content

Prologue

"You know, when paper money replaced gold, people also remained skeptical."-***Goldman Sachs CEO, Lloyd Blankfein***

"Digital currency may have a bright future, especially if this innovation can make the payment system faster, safer, and more efficient."-***Ben Bernanke, former chairman of the Federal Reserve Council***

Blockchain technology has always been regarded as the next-generation disruptive core technology after steam engines, electricity, and the Internet. If the steam engine releases people's productivity, electricity solves people's basic life needs, and the Internet completely changes the way of information transmission, then the blockchain, as a machine for constructing trust, it may completely change the way the entire human society transmits value.

The distributed nature of the blockchain can also allow participants on the entire chain to share the economic benefits of the entire ecology without forming a monopoly. It can be used to break through the island effect of the industry, let the entire industry compete in collaboration, exchange basic data and facilities, and form more benign technical and commercial cooperation.

The medical industry is an island-style industry that strictly adheres to its own data and technology. However, because the medical industry is another industry that needs to work together to maintain the safety of human life and health, many diseases need to share data and technology between companies to increase the cure rate. The medical industry is currently fighting on its own and guarding against it. The island effect is very serious. Although the medical data interoperability initiative has been used by various national governments and UN-administered companies to collaborate to serve the health of all mankind, it still has little effect. The root cause is that the traditional business model is not conducive to medical business collaboration and data sharing.

The Precision Medicine Initiative (PMI) team hopes to effectively solve the problem of data sharing in the health and medical field, promote the meaningful use of personal health data information, integrate health industry resources, enhance the value of health data, and maximize the value of participants in the chain. PMI is the world's first application system that uses blockchain technology, artificial intelligence and big data analysis to be shared and generated by users. The system circulation certificate is PMI currency, issued by the PMI team, with a total circulation of 200 million, and it will never be issued regularly. Repurchase and destruction mechanism. Institutions, users, and patients rely on PMI tokens to upload and manage their private medical records simultaneously. Medical records are open to institutions or organizations with private keys and cannot be tampered with.

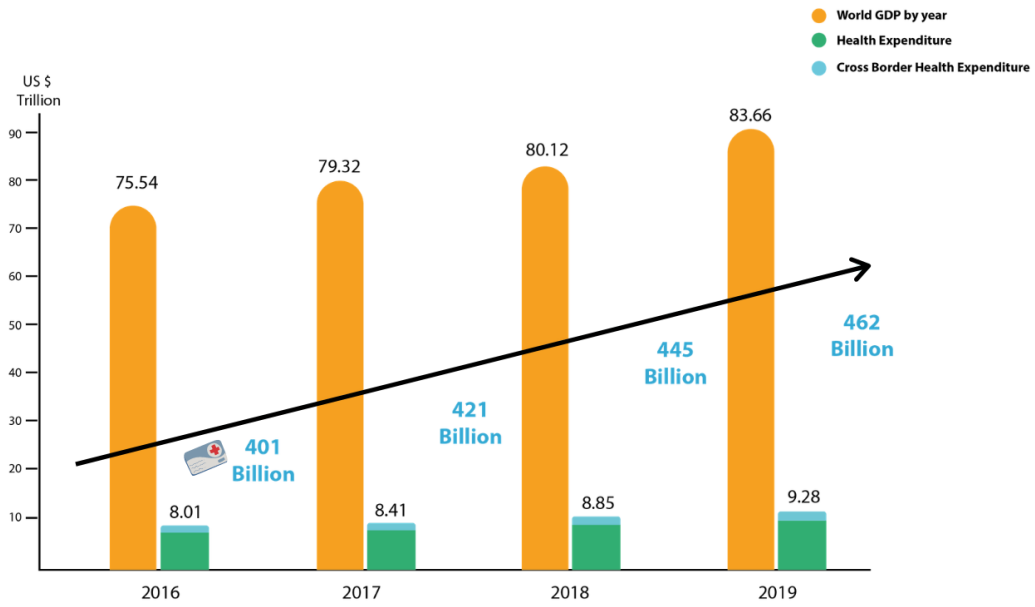
PMI will implement precision medical treatment for users through genetic testing. Genetic testing will detect and analyze DNA through blood, other body fluids or cells, which will make the diagnosis and classification of diseases more accurate and predict the risk of diseases. PMI transfers the rights of tracking, knowing, and access control of vital signs data to the owner. Users can authorize and open their own data or sell them directly to relevant medical institutions, thereby realizing the free transaction of medical data.

1.0 Background Introduction to the Blockchain Medical Industry

1.1 Project Background

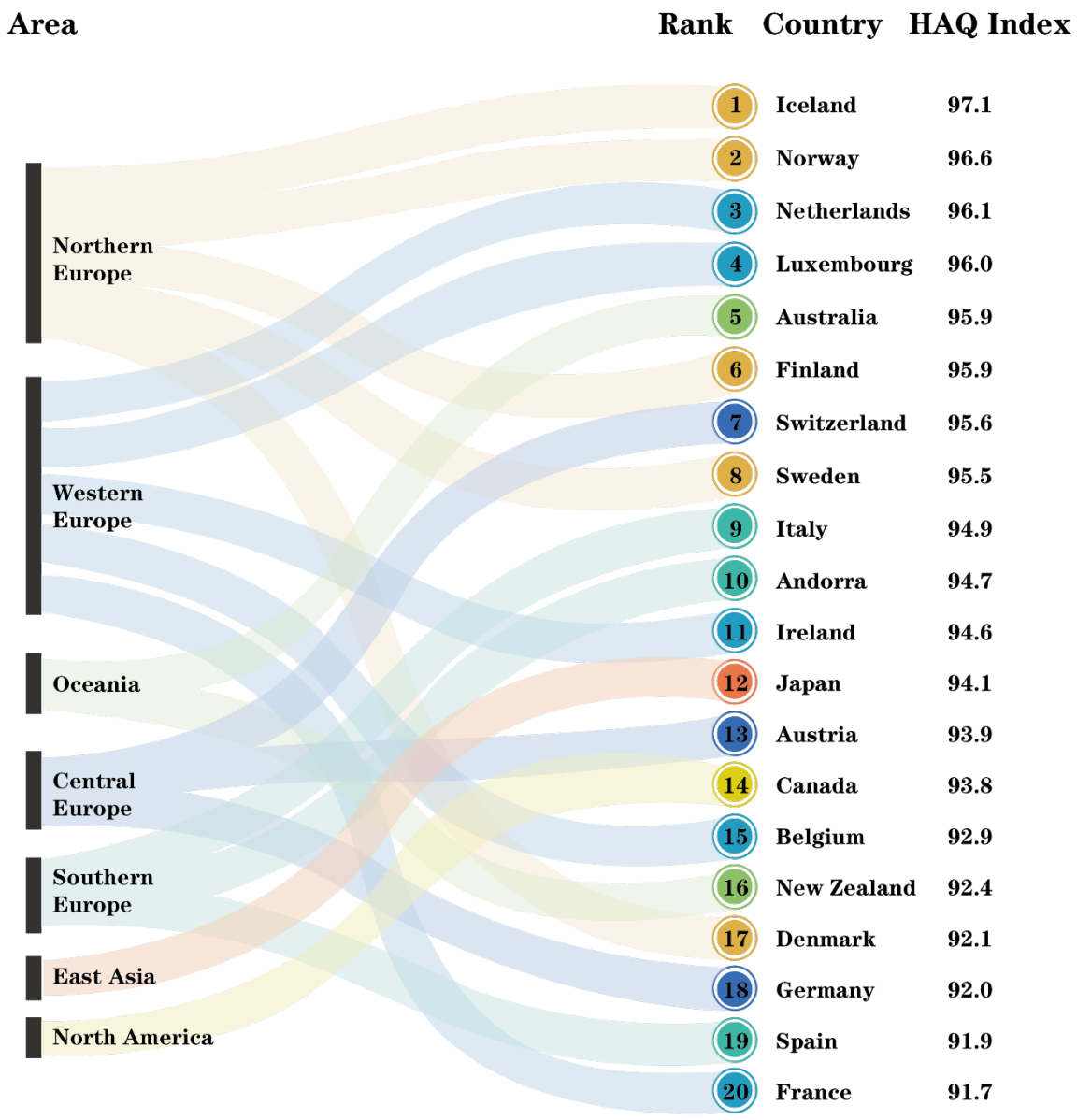
In the past ten years, the global population's demand for domestic and cross-border medical treatment has been increasing. With the intensification of the global population aging, the income of middle-class families, medical insurance and medical expenditures of various countries, coupled with the continuous increase of people's income in developing countries, all are promoting the development of medical demand. As of the end of 2018, the annual global medical market cost could reach more than US$8 trillion, and the global demand for cross-border medical services could also reach US$421 billion.

Figure 1.1: The Scale of the Global Medical Market



In the first quarter of 2020, the context of the global spread of the novel coronavirus pneumonia epidemic, global medical demand has increased on a large scale, and hospitals around the world have long been unable to carry out normal medical activities due to lack of medical resources. In this situation, important resources such as ventilators, protective equipment and even medical staff are increasingly scarce, and doctors are forced to choose which patient to treat first.

Figure 1.2: HAQ Index of Global Countries



Looking at the above data as a whole, the medical capacity of countries around the world for the coronavirus epidemic is roughly related to the level of national economic development. The top 20 countries with global medical capabilities are mainly concentrated in Europe. It is worth reflecting that, in this epidemic, medical capabilities that lead the world have not become a protective umbrella for many European countries. Italy, which ranks among the world's top 10 in medical capacity, has accumulated more than 1.94 million confirmed cases as of December 2020. Countries with severe epidemics such as the United States, Spain, and Germany also rank high in medical capacity.

This shows that in the face of a sudden epidemic, medical treatment can only form part of the ability to fight the epidemic. In addition, the operating efficiency of the country's medical equipment, the industrial production capacity to ensure the supply of materials, and the people's concepts and habits will all determine whether a country can effectively curb the development of the epidemic. When the wave of preventive medical treatment continues to sweep us over, how to respond to the health needs of the society and keep more people away from disease is an urgent task for the world.

However, in addition to medical treatment and remote assistance, how to further narrow the gap between regions is a greater challenge. The PMI team firmly believes that through the technology of genetic testing, on the basis of understanding individual genes, environment and lifestyles, it will be possible to better achieve precision medical and maximize medical resources.

The "Future Vision" of healthcare is constantly being realized, and all organizations and departments need to prepare for future reforms. Through blockchain technology to help the physical medical field, PMI plans to establish an ideal medical information management system for medical data smart contracts to solve data management needs.

These data are aggregated into a user-centric health report with authoritative content. With an individual's complete genome map, clinical history, family history and social factors, clinicians can truly formulate targeted health care programs. This ability can truly put the best personalized treatment into practice and use it at any time. PMI will surely bring a wave of innovation and development to the entire medical industry.

1.2 The History and Current Situation of the Blockchain Medical Industry

On March 4, 2016, the Estonian Electronic Health Foundation announced its cooperation with a data security company to use blockchain technology to ensure the security of 1 million patient medical records and integrate the company's keyless signature infrastructure (KSI). Blockchain technology and Foundation Oracle data engine to realize real-time viewing of patient cases.

On May 31, 2017, the U.S. medical blockchain solution provider officially opened the cryptocurrency sales, which is the first cryptocurrency in the medical and health field. The project uses a secure closed-loop distributed ledger system to connect all parties in the medical and health ecosystem to seamlessly exchange medical and health data in a highly secure and blockchain-enabled medical and health information exchange platform (HIE).

In August 2017, the state of Illinois optimized the sharing of medical certificate data and smart contracts with distributed ledger and blockchain technology to help automate interstate related medical and health licensing workflows. In October 2018, a medical blockchain pilot project for personal health management in South Korea was launched, focusing on consumer personal health data management and analysis.

Although the development of global medical and health data blockchain is still in its infancy, mature blockchain applications need to be improved, but the broad application prospects of blockchain technology in the medical field have formed a general consensus in the industry, the "medical + blockchain" era of has come. In 2019, the construction of a data interconnection system based on blockchain technology began to realize the true interconnection of business data and improve the experience of doctors and patients.

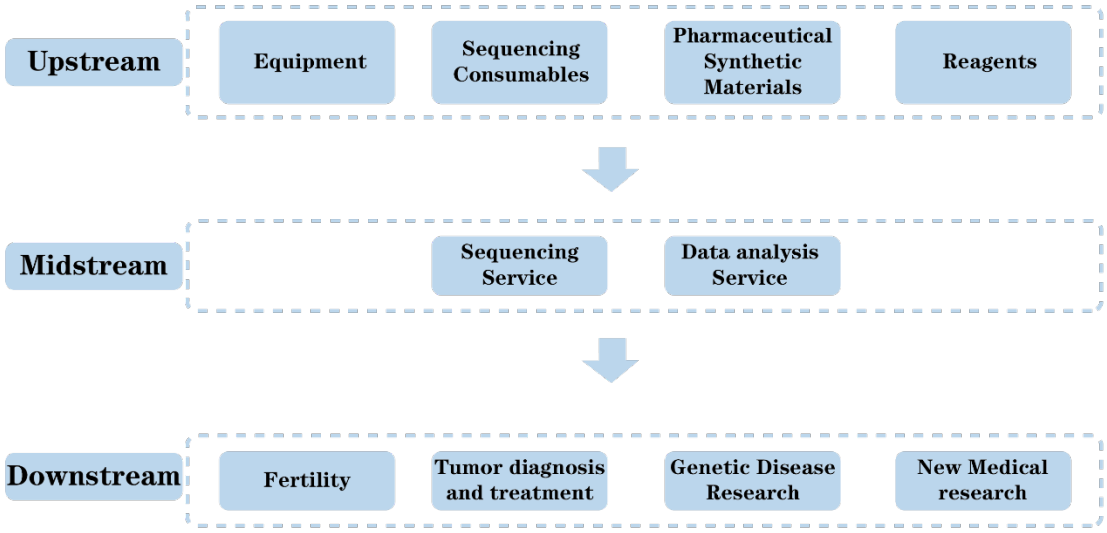
During the 2020 epidemic, many domestic government agencies, research institutions and enterprises in various medical industries have expressed that they are closely following the wave of the disruptive new technology of blockchain, and have begun to actively research and explore the application of blockchain technology in medical care. Current application research hotspots of blockchain technology in the medical and health industry include: personal health management, medical insurance claims, electronic medical records, clinical trials, medical claims, medical knowledge bases on interconnected platforms, etc.

The sniper war against the epidemic also gave birth to opportunities. Of course, it must be a crisis first, because no one knows when the epidemic will end. The precision medicine initiative token has even spotted the trend and entered the big market of precision medicine.

1.3 Precision Medicine Initiative Industry Chain

The industry chain of precision medicine initiative includes upstream equipment, sequencing consumables, drug synthesis materials and reagents, midstream testing service providers, and downstream application fields. The current development time, technology maturity, and barriers of different links have led to a slight maturity of each link. There are differences, so different investment opportunities are also presented.

Figure 1.3: Precision Medicine Initiative Industry Chain

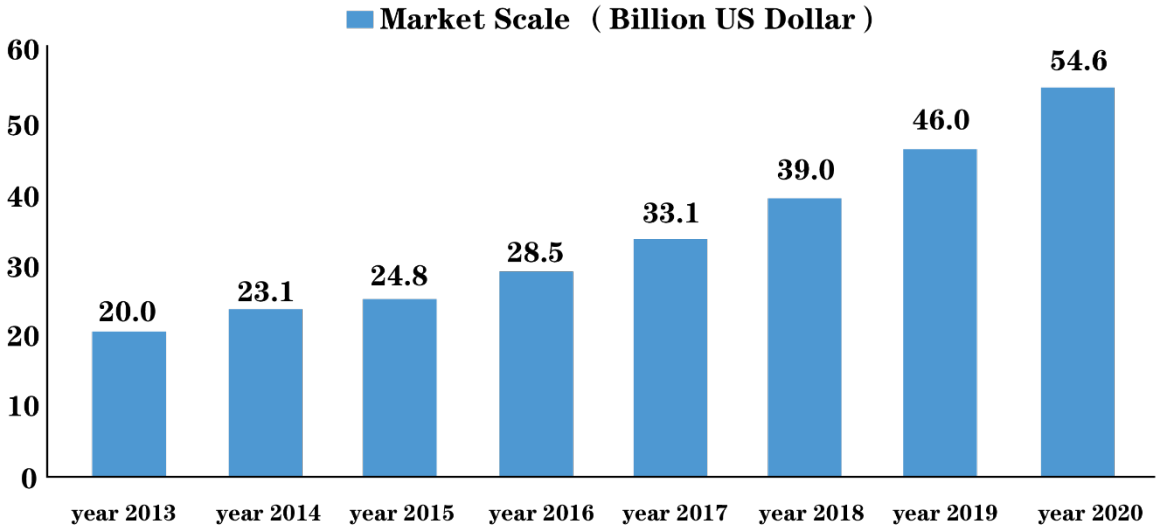


The precision medicine initiative industry can be divided into upstream, midstream and downstream:

1. Upstream of the Industrial Chain: Diagnostic Instruments and Reagents

Primary diagnosis is the core foundation of precision medicine initiative, while molecular diagnosis is the core supporting technology. Molecular diagnosis includes a variety of methods. Among them, polymerase chain reaction (PCR) technology is relatively mature, and high-throughput gene sequencing is rich in information. It is currently the fastest growing sub-field and the future direction.

Figure 1.4: Market Scale of Gene Sequencer



In recent years, the gene sequencer market has developed rapidly. According to relevant data, the global gene sequencer market has grown from US$2.04 billion in 2013 to US$3.9 billion in 2018, a year-on-year increase of 18%. It is predicted that in 2020, the global gene sequencer market will exceed US$5 billion.

2. Midstream of the Industry Chain: Gene Sequencing Service Provider

The middle reaches of the precision medicine initiative industry chain are sequencing services and data analysis services. Due to the rapid expansion of the application fields of gene sequencing, the size of the gene sequencing market is growing rapidly. Compared with upstream gene sequencing services, midstream only needs to purchase sequencing instruments and reagents to provide sequencing services, and the threshold is lower, so it is convenient for many sequencing service organizations to participate.

3. Downstream of the Industrial Chain: End Users, Continuous Demand Release

The downstream application of precision medicine initiative has a vast market space. As it grasps most of the end-user resources, driven by the accumulation of big data in the midstream and the mature commercialization model in the future, the downstream application end is expected to be used in disease prevention, clinical diagnosis, and personality. Realize expansion in fields such as chemical medicine. Tumor diagnosis and treatment is the application market with the most development potential. Cancer has become the second leading cause of death in the world. The application of sequencing in the tumor field will have huge development potential, and the downstream application market demand will continue to be released.

1.4 Analysis of Pain Points in the Traditional Medical Industry

With the continuous improvement of living standards and technological level, people's demand for high-quality medical and health services continues to grow. People are now more willing to pay for quality medical care. People's demand for medical services and insurance services has become a multi-institution, cross-regional and even globalized situation. In such a diversified medical and health system, the traditional methods of medical data management have become obsolete due to the lack of sharing and collection functions.

Although the medical system has strict policies, laws and regulations that require the privacy of patients' medical data to be protected, the increasingly large and dispersed medical data poses problems for data management, and digital workflows also bring risks to information security. The globalization of medical services has also made it more difficult.

I. Data Security and Management Requirements

The security management of medical and health data and the realization of effective privacy protection are facing challenges. In addition, to relying on data encryption technology, hardware problems, hacking, illegal logins, data loss and other issues that endanger data security frequently appear.

The low level of medical data, the relative isolation of medical institutions, and the high pressure on network security are current problems. The digitalization of medical health is a trend. Health data sharing, precise customized medical treatment, health data exchange and interoperability, quantified self, and value-based medical behavior are the directions of the global medical industry. Improving medical quality services, comprehensively improving medical supervision, and reducing the cost pressure of the medical industry will be medical problems that need to be resolved.

II. The Phenomenon of "Information Islands" is Serious

A large number of patients around the world can only hold paper medical records issued by hospitals, including test results, X-rays, treatment reports, etc. When patients go to different medical institutions, they need to re-establish their personal medical records or be required to transfer the records from the old hospital to the new hospital. However, paper records are easily lost, damaged, and mishandled. Once the paper records are lost or damaged, the information cannot be recovered. If a medical or insurance institution requires relevant medical records, all lost personal information and medical record data must be recreated, and the patient may need to undergo a clinical examination again, which will cause unnecessary problems for patients, medical institutions, and insurance institutions loss.

There are many "information islands" in the medical information system, and the degree of interconnection between the systems is not high, and it cannot satisfy the needs of various stakeholders (government departments, insurance industry, medical institutions, health service providers, researchers, and patients). Data sharing makes the value of medical and health data not fully utilized.

III. The Privacy of Patient Medical Data is not Guaranteed

With the continuous innovation and development of Internet technology and the lack of related supporting legal systems, issues related to the protection of patient privacy and data security have once again become the focus of attention. The use of medical data has not been supervised in the whole process, and the privacy of medical data has not been effectively protected. If medical data is improperly processed or accidentally leaked sensitive information, it may cause quite serious consequences and may infringe the privacy of patients. Failure to take effective measures to protect medical records may also lead to patients' distrust of medical institutions.

IV. Lack of a Sustainable Business Model

Because of data ownership and privacy protection issues, data is concentrated in governments and medical institutions, and data cannot be easily authorized and circulated. Third parties such as medical research, healthcare, and drug suppliers cannot collect and meet the individual needs of patients and develop individuality. Modernized service models and business model innovations cannot form sustained benefits of medical data and cannot promote the development of medical ecology.

V. Lack of High-Quality Data Analysis System

Artificial intelligence and big data analysis technology have been successfully applied in various fields. The application of artificial intelligence and big data analysis in the field of health care continues to develop. The application of data and artificial intelligence in the field of medical services provides the underlying foundation. At present, due to the diversification, decentralization, and lack of verification of medical data, the accuracy of the data and its analysis results cannot be guaranteed. The rapid accumulation of medical information through the blockchain can form a valuable big data analysis database, and finally realize highly accurate diagnosis and treatment consultation with artificial intelligence.

VI. Patients Lack Management Authority Over Medical Data

From the perspective of the patient, the traditional way of storing medical records keeps the patient in a passive state. Medical data is generated by users, but most of them are stored in medical institutions. Users do not know or have control over their own medical and health data. When users see a doctor, they have only limited information to refer to. This often increases the difficulty of clinical decision-making and is not conducive to the user's disease diagnosis and treatment process.

Moreover, users cannot enjoy the benefits brought by their own medical data research. In 2005, United States, a leukemia patient's blood contained a biological mechanism that could cure leukemia. The medical research institution that treated him used his medical data to research related treatment technologies without notifying him, and benefited Billions of dollars.

PMI believes that by storing data on the blockchain, the entire chain used can be traced, and users have complete control and right to know their own data, and they can also enjoy the benefits of medical data research.

2.0 Design Concept of Precision Medicine Initiative Token

2.1 Ecosystem

The PMI ecosystem is composed of three parts, Hyperledger Fabric distributed ledger, IPFS decentralized and distributed medical system, and cloud data artificial intelligence.

The decentralized medical system is used to carry medical data content, to ensure the safety and private of sharing. The PMI medical chain is used to carry the circulation of assets and the execution of rules. The clearing and settlement system allows assets to have high liquidity while ensuring high availability.

Through this structure, the precision medicine initiative system can achieve a completely decentralized operation. Next, the characteristics or principles of each part will be introduced separately.

I. Hyperledger Fabric Distributed Ledger

PMI adopts three indispensable core technologies of blockchain consensus mechanism, cryptography principles and distributed data storage. Hyperledger Fabric is an open-source enterprise-level licensed Distributed Ledger Technology (DLT) platform based on IBM’s in-depth development and construction in combination with the characteristics of the medical industry. It is designed for use in an enterprise-level environment and is different from other popular distributed ledgers or blockchain platform.

Fabric (referred to as "chain code") has a highly modular and configurable architecture, and has become one of today's platforms with better performance in transaction processing and transaction confirmation delays. Provide innovative, diverse and optimized services for including but not limited to banking, finance, insurance, healthcare, human resources, supply chain and digital music distribution.

Fabric is the first distributed ledger platform that supports general programming languages to write smart contracts (such as Java, Go, and Node.js), and is not limited to Domain-Specific Languages (DSL). This means that most companies already have the skills needed to develop smart contracts and do not need additional training to learn new languages or domain-specific languages.

II. IPFS Decentralized Distributed Medical System

PMI has developed a set of IPFS decentralized and distributed medical system. The Inter Planetary File System is a distributed network, point-to-point hypermedia protocol. The Internet of precision medicine initiative can be made faster, safer, and more open. The multi-node storage feature solves the risk of data loss and tampering in centralized databases.

The P2P network will also reduce the pressure of a single node and accelerate the transmission capacity. The smart contract system also reduces the high operation and maintenance costs. Retrieving data at any time and the characteristics that cannot be tampered with can maximize the value of medical data and promote the sustainable development of medical and health big data.

Compared with centralized storage, decentralized storage has the following advantages:

a) Decentralized storage nodes are distributed more widely and densely, closer to the edge, and have faster response speeds.

b) Naturally supports P2P acceleration and other technologies to make file reading faster.

c) Centralized storage may have idle or insufficient resources. It cannot cope with many 5G and edge computing scenarios well in the future.

d) Decentralized storage and point-to-point transmission of data can effectively reduce bandwidth costs.

III. The Assistance of Intelligent AI

The precision medicine initiative chain will store large amounts of data. Through AI analysis, it is possible to find potential failures, predict failures, identify performance bottlenecks, and upgrade the performance of the precision medicine initiative chain system. There are four different levels of data analysis, including: descriptive analysis, diagnostic analysis, predictive analysis and prescriptive analysis. At the same time, the descriptive analysis of smart log data helps to monitor the real-time performance of the blockchain system and identify potential failures. In addition to diagnostic analysis of precision medicine initiative chain data, predictive analysis is also necessary to predict the performance bottleneck of the precision medicine initiative chain system. Different from diagnostic analysis and predictive analysis, prescriptive analysis can simulate and optimize the precision medicine initiative chain system, thereby improving the reliability of the precision medicine initiative chain system.

(2) Precision Medicine Initiative Chain

The immutability feature makes the blockchain a database for recording medical information. This point-to-point architecture enables the patient's information to be updated simultaneously across the entire network, even if the data is stored in different computers. In fact, every node has a copy of the information stored on the entire chain, and these nodes communicate in real time on the chain to ensure timely update and accuracy of information. Therefore, decentralization and data distribution are also important aspects.

Precision medicine initiative serves three types of user groups: medical institutions, patients, and data requesters.

• **Medical institutions (such as hospitals):** Each hospital receives a large number of patients who come for medical treatment and maintains a database that stores patient medical records.

• **User:** Each time a user goes to a medical or health care institution for testing, the institution will create one or more testing records for the user.

• **Data requester:** Any individual or organization that wants to obtain valuable information from medical institution data. For example, start-up companies want to use this data to build predictive health applications, and insurance companies want to know statistics about certain diseases.

Existing blockchain systems (such as Ethereum and Hyperledger) construct a data layer on top of key-value storage (such as LevelDB or RocksDB) and provide tamper-proof support based on the protocol design of the blockchain. However, experiments show that the malleability of such a data layer design is limited. More importantly, such a data layer design cannot efficiently process blockchain-oriented queries, and at the same time inevitably causes a large amount of redundant data storage. In fact, the mediocre data layer design will inevitably lead to the implementation of the upper blockchain and even the design of the application layer become complicated, which makes it difficult for the entire blockchain system software stack to prove the correctness and cannot bring performance benefits.

The precision medicine initiative blockchain abandons the traditional key-value storage design, and independently developed the world's first multi-version, multi-branch storage engine that is deeply optimized for the characteristics of blockchain data storage: ForkBase. ForkBase can greatly simplify data application scenarios that require one or more of the following attributes: version control, data set, branch management, tamper-proof, de-redundancy, etc. These attributes are exactly what the blockchain data layer design must support. In addition, the application development of various types of collaborative analysis can also be simplified with the powerful support of ForkBase, such as collaborative data cleaning, collaborative data review, and collaborative data engineering (such as multi-dimensional feature extraction).

The artificial intelligence layer of precision medicine initiative is built on the precision medicine initiative blockchain. It can not only train the machine learning model by directly accessing the data stored in the blockchain, but also encapsulates a set of development interfaces for upper-layer applications, shielding. The complex underlying data sharing protocol enables users who develop intelligent applications on the precision medicine initiative platform to focus more on artificial intelligence-based business logic, thereby saving the development and maintenance costs of intelligent medical applications.

2.2 Mission, Vision and Values of Precision Medicine Initiative Token

"In order to improve the quality of medical visits and services, Precision Medicine Initiative Token will redistribute the value of everyone's medical information and accelerate the decentralization of everyone's medical information."

The PMI team aims to achieve the goal of decentralization of personal medical information based on professional knowledge in the medical field. PMI transforms the medical inspection information management system from a medical institution-oriented to a user-oriented, so as to achieve the reliability, transparency and security of information exchange that the existing medical information system does not have.

PMI will extend various high-quality health care related services based on medical information stored on the chain. It will also provide all participants of the chain with a unique opportunity to obtain rewards.

2.3 Technical features

PMI is a blockchain project that promotes global medical integration. By using blockchain technology, PMI can provide safe, reliable and fast data exchange. PMI can effectively solve the problems in the medical industry described above.

1. PMI is a blockchain project that uses blockchain, OCR, big data technology integration, artificial intelligence, and global medical services.

The decentralized function of blockchain technology can realize the instant distribution of information. OCR can make it convenient for patients to take pictures and upload medical-related materials in the handle and interact with structured and modifiable (modifiable before block creation) data. Then, it provides accurate analysis through artificial intelligence and big data technology to provide users with global medical solutions.

2. Safe and Reliable Medical Data Circulation

The PMI system greatly improves data security. The encryption feature of blockchain technology ensures the safe circulation of information. Patients can provide medical institutions with encrypted medical records and authorize doctors and other institutions to view the data.

3. Efficient Data Sharing between Users

Users can send medical experience data or medical records to doctors or institutions that need to learn from.

4. Utilize Global Medical Services

Individual users can obtain global medical service data from PMI's analysis. Medical big data can solve the problem of information asymmetry, provide patients with safer and more transparent medical information, including medical service information, treatment plans, satisfaction and other related information, and help patients choose the best medical care that meets their medical needs on the global chain Institution or project.

5. Establish a Medical Ecological Chain that Benefits Everyone

PMI is an application with a wide range of users. Every individual or institutional user who provides and shares medical data can obtain PMI cryptocurrency ("PMI") as a reward for contributing to the medical ecosystem. Individual users can upload medical records and save encrypted medical records on PMI to convert them into digital assets.

3.0 Economic Theory of Precision Medicine Initiative Token

3.1 Token Model

PMI (Precision Medicine Initiative)

PMI is the value token of the precision medicine initiative system. All PMI system participants can participate in precision medicine initiative projects by holding PMI digital assets, contribute to the vigorous development of precision medicine initiative projects, and enjoy related rights and benefits.

In addition, the more PMI held by a user, the greater the proportion of their equity, that is, the revenue of the system is closely related to the amount of PMI cryptocurrency held by the user. PMI cannot be circulated within the precision medicine initiative system for the time being, but once the token is listed on the exchange, the withdrawal function can be activated immediately.

3.2 PMI Token Settlement Income

When the PMI pass is circulated on the precision medicine initiative blockchain, the user of the precision medicine initiative system with the PMI cryptocurrency will be uploaded to a block for each user's medical information and physical parameter information, and the private key of one party is open. The smart contract sets the user to get 1 PMI for every 1 PMI consumed. Similar to the principle of Bitcoin mining, PMI also supports mining, and the corresponding feedback multiplier π (0.25%) of the PMI token is released from the precision medicine initiative mining pool every day.

The number of PMI obtained by the user on day i is:

$$\pi_i = \left(Q_i - \sum_{j=0}^{i-1} \pi_j \right) * a$$

Therefore, the total amount of PMI obtained by the user on day i (Total):

$$Total_i = \sum_{j=0}^{i} \pi_j$$

Example: The user consumes 100 PMI and obtains 100 PMI. It gets 0.25% PMI every day in a decreasing manner.

Day 1: 100*0.25%=0.25 PMI

Day 2: (100-0.25)*0.25=0.249375 PMI

Day 3: (99.75-0.2249375)*0.25=0.24875156 PMI

.....

* And so on, decreasing every day.

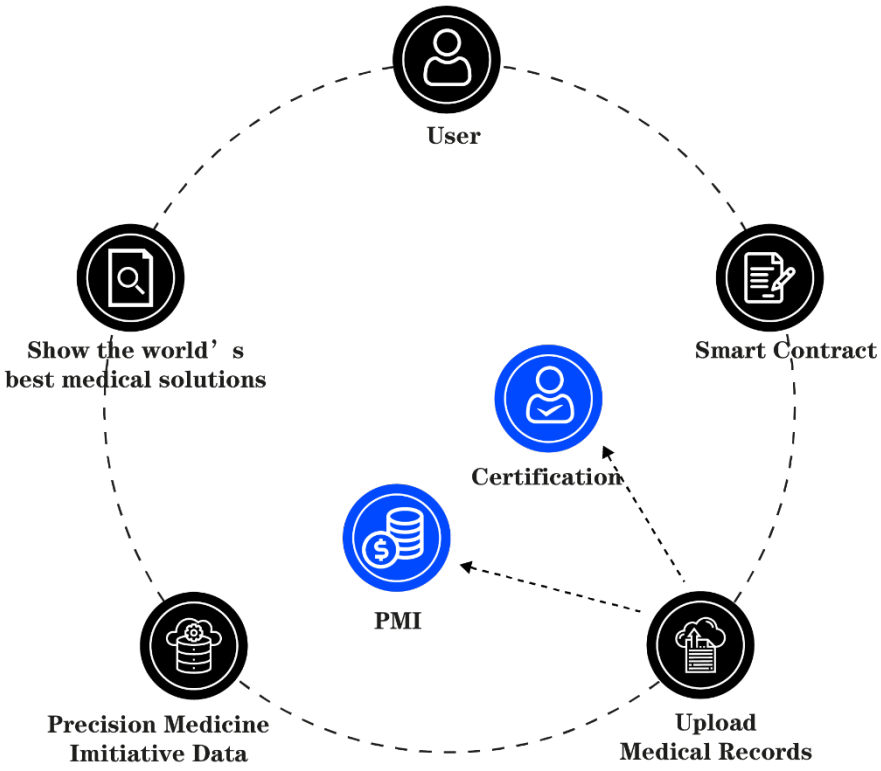
* Airdrop to users in the form of monthly PMI distribution.

3.3 PMI Circulation Method

(I) PMI's Token Model

By cutting into the “Blockchain + Precision Medicine Initiative” field, Precision Medicine Initiative Token will create a shared ecological environment that can benefit all users (users and medical institutions) and ensure that medical information is accurate and effective.

Figure 3.1: PMI's Token Model

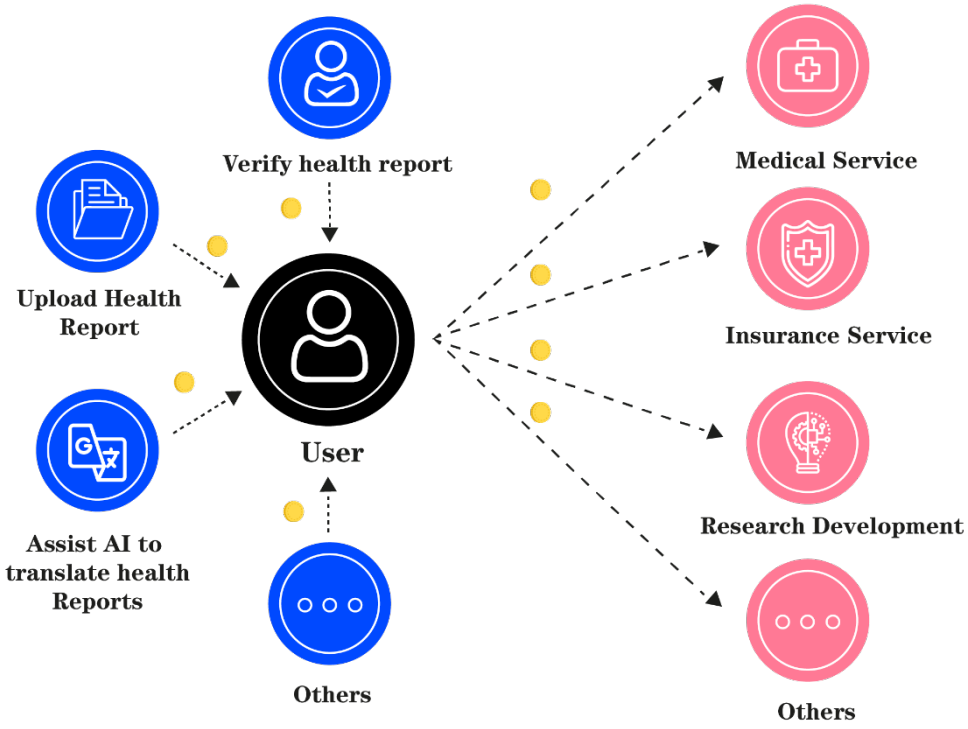


(ii) PMI's Token Circulation Mechanism

The PMI platform has a medical service provider qualification certification system. In order to ensure the value of the medical information recorded on the PMI platform, the data generator must be certified as a doctor. If it is a medical institution, it is also necessary to confirm whether it has passed the qualification certification. The medical records filled out by certified medical service providers are naturally of higher value.

PMI adopts a hybrid certification system, which combines a centralized certification method directly certified by a trusted authority and a P2P decentralized certification method certified by the PMI team. In order to improve the credibility of P2P certification, the certifier needs to pay a certain amount of PMI as a deposit and registration fee when participating in the certification. The user who completes the task will get a partial return, otherwise a part of the deposit will be frozen as a fine.

Figure 3.2: PMI's Token Circulation Mechanism



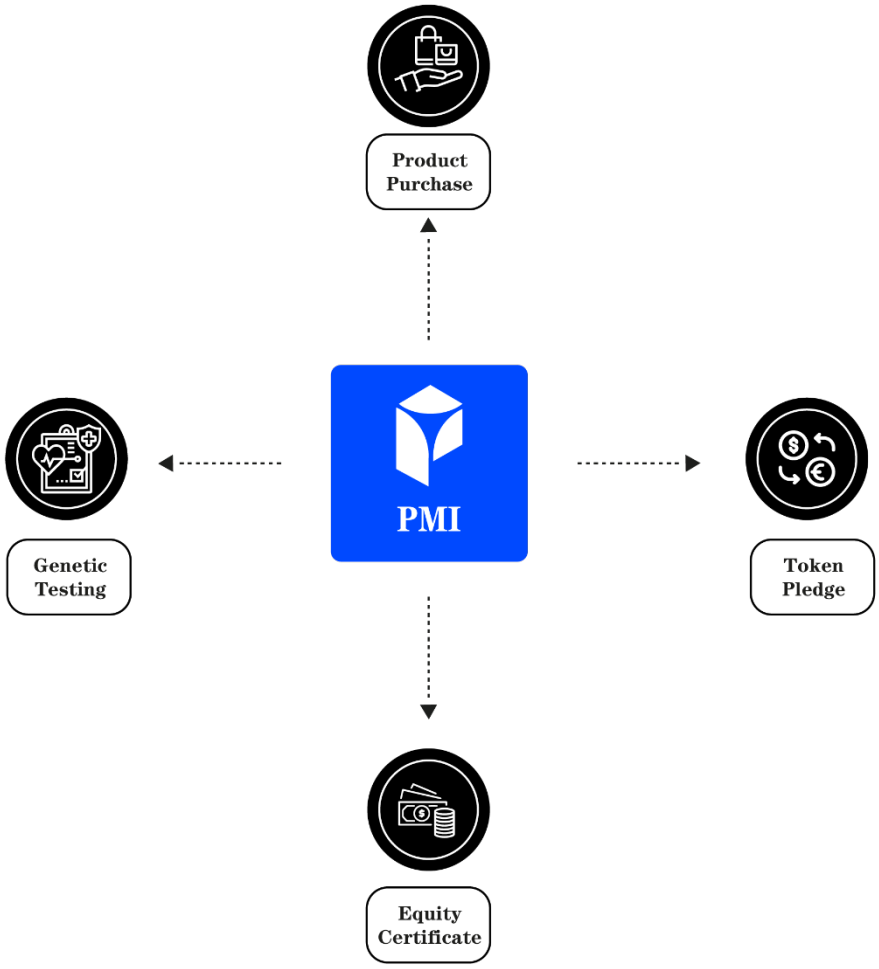
(ii) PMI's Circulation Channels

Genomic data is another area with huge data volume in the medical field. On the one hand, genomic data has a very good guiding role in the prevention of personal diseases, genetic diseases and health conditions, and is quite valuable; on the other hand, at present, whether it is scientific research or clinical, the ability to understand and interpret genes personally is slightly lacking. The medical meaning of genetic information is still waiting to be discovered.

In PMI, some genetic data producers can manage user genetic data through the blockchain, and have their genomic data access control rights, as well as the right to share or sell these data. Pharmaceutical companies, hospitals, and research institutions can obtain users' genome data from the blockchain when they have private keys, and users can obtain information guidance such as disease prevention, physical

PMI also provides value-added services. Users can participate in the promotion of precision medicine initiative blockchain by holding PMI, and enjoy the value created by the precision medicine initiative system with PMI. In the future, users can use PMI to exchange related medical products with medium value in the precision medicine initiative system.

Figure 3.3: PMI's Token Circulation Channels



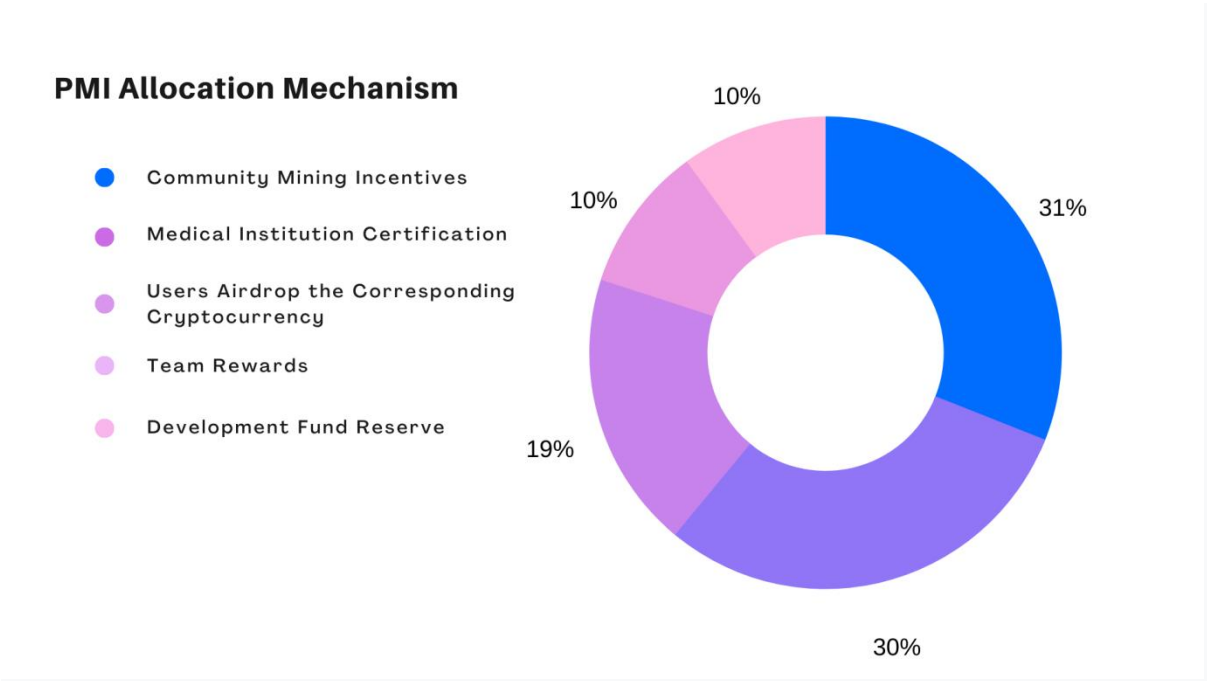
4.0 User Rights Redistribution Model

4.1 PMI Allocation Mechanism

The total limit of PMI's ecological rights is 200 million.

The PMI of the team and the ecological construction part will enter a closed period of 15 days. After the expiration of the period, it will be released in accordance with the contract, and the PMI obtained by mining can be freely traded. PMI adopts the model of never adding issuance and it is issued in 5 instalments.

Figure 4.1: PMI Allocation Mechanism



Project	Percentage	Quantity	Closed Mechanism	Unlock Instructions
Ecological Incentive	**31%**	**62 millions**	**Yes**	**PMI will take out 31% of the profits to be airdropped to community builders based on the contribution of community contributors. Incentive methods are gradually released to the community through investment mining and computing power mining models.**

Medical Institutions	**30%**	**60 millions**	**Yes**	**5% will be unlocked before going online, and will be unlocked for 6 months, 15% will be unlocked in the 7th month, and 10% will be unlocked monthly.**
Users Airdrop the Corresponding Cryptocurrency	**19%**	**38 millions**	**Yes**	**Snapshots of accounts holding governance cryptocurrencies and project cryptocurrencies are taken every month, airdrop objects are determined, and airdrops are regularly conducted according to the mining unlock ratio.**
Team Motivation	**10%**	**20 millions**	**Yes**	**PMI will reserve 10% for team motivation. In order to ensure the stable and good development of the precision medicine initiative system, the team needs to unlock the part of team motivation based on time and performance.**
Development Fund Reserve	**10%**	**20 millions**	**No**	**As a PMI development fund, this part will be used to invest in blockchain technology research and development in the field of precision medicine initiative.**

4.2 Consumption and Mining

PMI redistributes user rights through a multi-dimensional mining mechanism design. The essence of "mining" as we understand it is to gradually transfer the ownership of the system to the long-term feedback behavior of users.

According to the equity allocation method, once the user participates in a scenario and trades or exchanges with the access card, user can become one of the "shareholders" of the ecology. The behavior will be defined as a mining action, to provide the interests of the community as a whole, contribution to energy. At the same time, transactions and participation are essentially a combination of blockchain technology and blockchain economic system, and become a quantifiable energy conversion process.

4.3 Pull New Mining

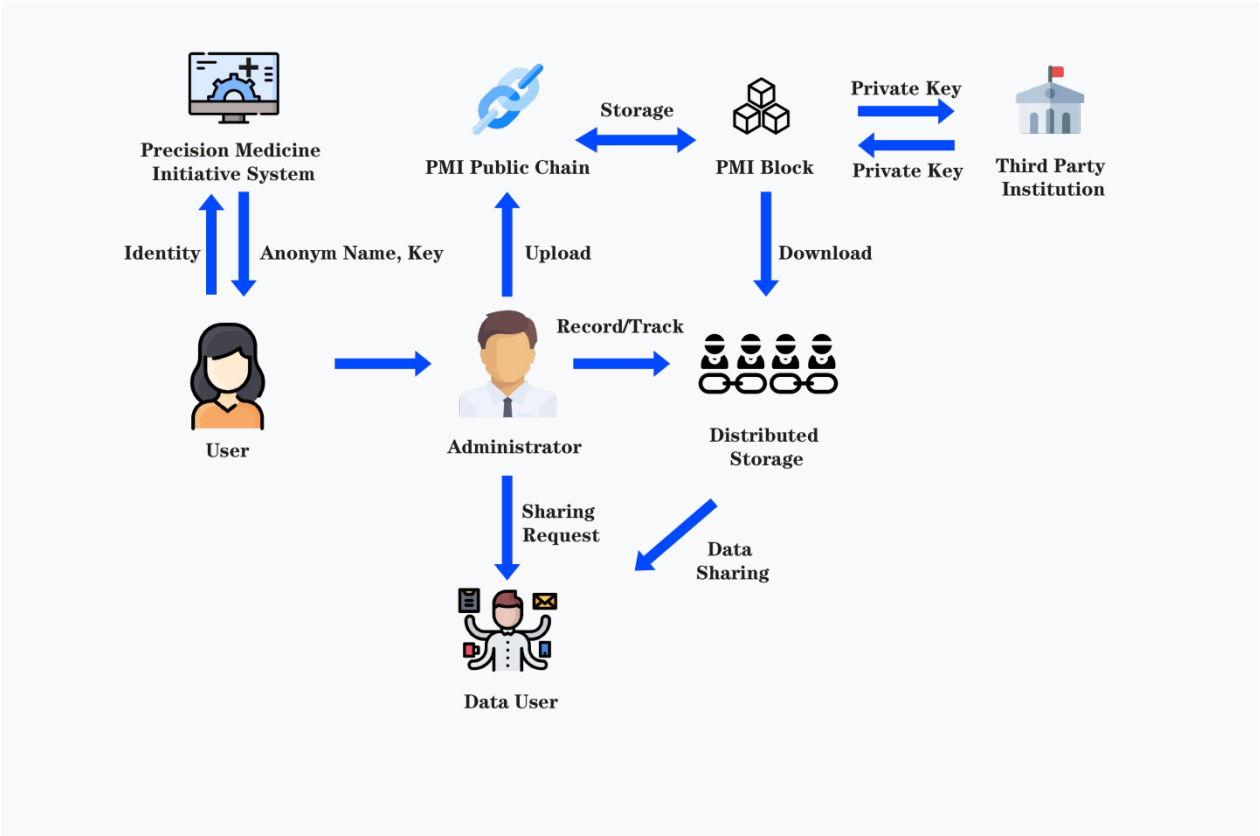
In the community of the PMI system, as long as one user can effectively promote the community evaluation, help other users to form an independent mind and participate in the decision-making system, help other users understand the economic system of the PMI system, and recommend new users to join the community, it is pull new Mining.

5.0 Technical Solutions

5.1 Infrastructure Design

PMI intends to incorporate all business systems in the medical field into the precision medicine initiative chain for overall construction management based on IPFS. Set up a private chain to connect with primary health institutions, all levels of hospital, public health institutions, family planning institutions, scientific research institutions, and third-party institutions, etc., to provide precision medicine initiative services with IaaS, PaaS and SaaS. The overall architecture of the precision medicine initiative system is shown in the figure.

Figure 5.1: Architecture Diagram of Precision Medicine Initiative Blockchain System

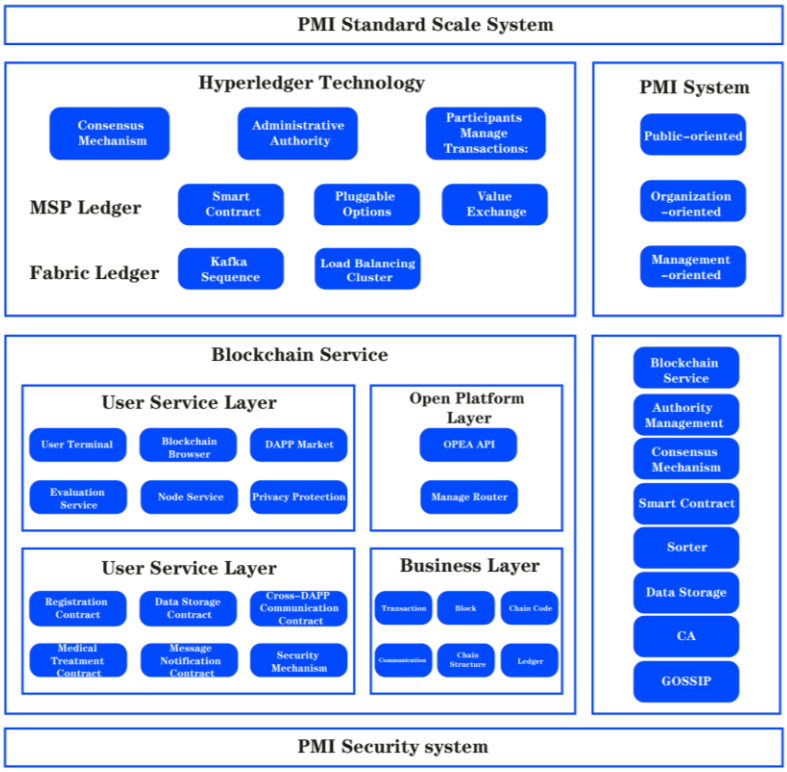


5.1.1 Technical Architecture Design

The PMI system is developed based on Hyperledger blockchain digital technology and transaction verification open source, supports consensus mechanism and authority management, supports participants to manage transactions, has a ledger that supports different MSPs, smart contracts, and contains a variety of pluggable options. Exchange of value in virtual and digital form by creating an open and standard distributed ledger. Kafka distributed messaging system cluster in the Fabric ledger platform to sort the transactions of the whole network can support high message concurrency and improve the throughput of the system.

The load balancing function of the cluster ensures the stability and reliability of the precision medicine initiative blockchain. It can well protect privacy and respond to high-performance business process changes. Each level of the precision medicine initiative system technical architecture is composed of various technical functional elements, which provide strong technical support for functions such as information on the chain, block storage, data utilization, and business process integration. The technical architecture of PMI is shown in figure 5.2.

Figure 5.2: PMI's Technical Architecture Design



5.1.2 Overall Network Architecture Design

The PMI system development layer includes registration contracts, data storage contracts, and data access contracts. The business layer includes ledger, chain code and channel. The service layer includes authority management and CA server. The authority layer uses OPEN API (open platform layer), and the The Restful architecture-style interface enables third-party institutions such as healthcare administrators, insurance institutions, and reservation registration APP developers to view and count data on the precision medicine initiative healthcare blockchain in real time.

The use of decentralized application market DAPPs (Decentralized Applications) allows third-party organizations to have their own contract suites on the PMI blockchain to encode business logic, allow persistent storage of states that require strict consensus, and help third-party organizations in The development in the ecosystem also enables more beneficial applications for data providers and data consumers.

The PMI blockchain browser can help administrators view the channels, blocks, transactions, chain codes and other information of the precision medicine initiative health blockchain, and perform related management operations.

Use Sprint Cloud to implement intelligent routing and complete decentralized routing status evaluation. Based on trusted routing status information, the distributed routing algorithm provides smarter routing options for each blockchain node, improves the efficiency of business processing, and reduces the risk of routing attacks.

The webcast uses the Gossip algorithm to ensure the final consistency of the transaction list on each participating node.

5.2 Big Data Architecture Design

- **Data Classification**

PMI classifies the data to be chained. It is mainly divided into two categories: medical and physical examination data and personal health management data. Generally speaking, medical treatment data is more critical and highly reliable. Personal health management data can provide auxiliary judgments for health management based on classified information.

- **Data collection**

For medical records and physical examination reports, users can independently query their own records scattered in various institutions under the authorization of the medical institution, and upload this historical information to the precision medicine initiative health blockchain to become part of the user's personal records.

For health management data, it can be uploaded to the precision medicine initiative health blockchain through user input, collection of health monitoring equipment, and upload by a third-party health management agency authorized by the user, and become part of the user's personal record.

- **Data storage**

The PMI system stores the medical and health data of individual users on the chain. Non-image data will be directly stored in the chain; the image data will be stored in the data center, and only the file information and HASH value will be on the chain. In general, the data volume of a single user is as follows:

*20M user identity information (ID card, face recognition, iris, passport, license, etc.)

*50M main medical and health related records

*1G image data

- **Data Security**

***Node Classification, Audit, Access Control**

The PMI system operates in the form of a consortium chain. Each large participant runs one or more nodes, and the data in it only allows organizations with private keys to read, write and send transactions, and jointly record transaction data. Each participant of the precision medicine initiative health blockchain does not have to worry about where the data exists. The data can only be seen by the one who generated, and the data of other participants can be seen only through the authorized key of the other party. In this way, the problems of data privacy and security can be solved, and the data can be decentralized at the same time.

*** Tamper-Proof**

Since the PMI system puts all health data on the chain, data tampering will leave a record on the chain. The image data is encrypted and stored in the data center. When the image data is tampered with, it can also be found by comparing the file HASH value.

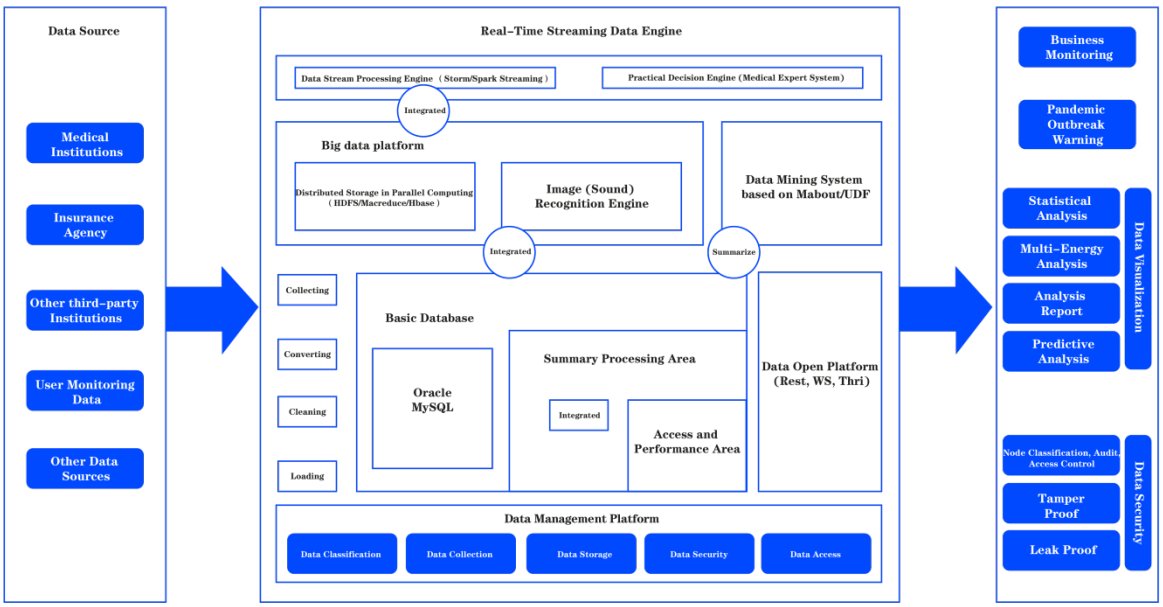
***Leakproof**

In order to minimize the possibility of personal information leakage, the PMI system delegates access to personal private data to individuals. Only the patient or an entity authorized by the patient can access patient data. Furthermore, since the data on the chain will be encrypted by AES256, it is difficult to crack externally.

- **Data Access**

The PMI system provides access to data through multi-factor authentication and multi-levels access control mechanisms. Access to the user's personal private data requires user authorization, and the user can selectively open part of the private data to designated doctors or medical institutions for access.

Figure 5.3：PMI‘s Big Data Architecture Design



6.0 Team Introduction

The core team of precision medicine initiative has many years of experience in the medical field, and the core members have more than five years of entrepreneurial and investment history.

Have more than 8 years of experience in the IT industry. He has rich practical and consulting experience from system architecture, front-end, back-end to IOS App development.

David Ben
CEO

Master of British Financial Risk Management, early cryptocurrency investor, has extensive financial management and investment management experience. She has a unique review profile and successful investment experience in the field of private equity investment and domestic and overseas capital markets.

Rebecca
COO

Planner of mathematical algorithms and data structure. In-depth control of TCP, UDP, ARP, TFTP protocols. Senior engineer of socket programming.

Veri Dany
CTO

Well-known computer engineer, mortgage consultant.
For more than 10 years, he has provided vision and leadership to technical staff. He has rich leadership experience, unlimited passion and professional ethics as a CDH certified administrator.

Florin
CMO

7.0 Legal Compliance and Disclaimer

Announcement on Preventing the Financing Risks of Cryptocurrency Issuance

The public should be highly alert to the hidden risks of cryptocurrency issuance financing and trading. There are multiple risks in cryptocurrency issuance financing and trading, including false asset risks, business failure risks, and investment speculation risks. Investors must bear the investment risks themselves.

Solemn Reminder

Please read this section carefully as well as the "Liability Disclaimer", "Representations and Warranties", "Your Statements and Warranties", "Reminder Statement on Forward-Looking Statements", "Market and Industry Information Not Approved by Others", "No "Provide advisory statement", "not provide other information or update statement", "issuance and dissemination restriction", "not constitute a securities or registration offer statement" and "risk and uncertainty".

If you have any questions about the measures taken, please consult your legal, financial, tax or other professional advisers. Precision Medicine Initiative Token (PMI) is not intended to constitute a securities sale in any jurisdiction. This white paper does not constitute any form of prospectus or offer document, nor is it intended to constitute a securities offer or securities investment invitation in any jurisdiction.

This white paper does not constitute or form any opinions or suggestions of any PMI cryptocurrency distributor/supplier ("distributor") to sell any PMI cryptocurrency, or any invitation to purchase any PMI cryptocurrency; at the same time, this white paper or any of them Part and the facts stated therein shall not constitute the basis of any contract or investment decision, nor shall it be used as a basis for any contract or investment decision to make any connection.

The distributor of PMI cryptocurrency is the precision medicine initiative system, and all the proceeds from the sale of PMI cryptocurrency will be used to fund medical projects, mining business and system operations. No one is allowed to enter into any contract or make any legally binding commitment for the sale and purchase of PMI cryptocurrency, and also must not accept cryptocurrency or any other form of payment on the basis of this white paper.

Any agreement between you as the buyer and the dealer on any purchase and sale of PMI cryptocurrency (see white paper) is only applicable to the independent document that stipulates the terms and conditions of the agreement ("T&C"). If there is any inconsistency between the terms and conditions and the white paper, the former shall prevail.

Precision medicine initiative and its various businesses and operations, PMI cryptocurrency, the first sale of PMI cryptocurrency, and PMI wallet (see the white paper for all) have related risks and uncertainties. This white paper and any part and copy of this white paper shall not be brought or disseminated to any country that prohibits or restricts the distribution or dissemination of this white paper.

The following includes "Liability Disclaimer", "Representations and Warranties", "Your Statements and Warranties", "Reminder Statement on Forward-Looking Statements", "Market and Industry Information Not Approved by Others", "Not Providing Advice Statement" , "Not to provide other information or update statement", "Issuance and dissemination restriction", "Not constituting securities or registration offer statement" and "Risk and uncertainty" statement, no part of this white paper may be copied, issued or disseminated .

Force Majeure

Due to force majeure conditions, activities related to PMI may be interrupted, suspended or delayed. In this white paper, force majeure refers to special events and circumstances that cannot be prevented, including natural actions, wars, armed conflicts, large-scale civil disturbances, industrial actions, epidemics, work stoppages, sabotages, long-term shortages of energy supplies or communication services or other failures, The behavior of municipal, state or federal government agencies and other circumstances beyond the control of the PMI team did not exist at the time this white paper was published.

Liability Disclaimer

To the maximum extent permitted by applicable laws, regulations and rules, Precision Medicine Initiative Token is not responsible for any indirect, special, incidental or consequential losses caused by or related to your acceptance or reliance on this white paper or any part thereof , Or any other loss, or loss caused by tort, contract or other forms (including but not limited to profit, loss of income or profit, and loss of use or data).

Representations and warranties

Precision Medicine Initiative will not make or claim to make any statement, guarantee or promise to any entity or individual in any form, including any statement, guarantee or promise related to the authenticity, accuracy and completeness of any information in this white paper. And hereby declare that it does not bear any responsibility.

Your representation and guarantee

After obtaining and/or reading any information in this white paper or its parts (as the case may be), you make the following statements and guarantees to Precision Medicine Initiative:

(A) Agree and confirm that it will not sell encrypted currencies as securities in any form in any jurisdiction.

(B) Agree and confirm that this white paper will not constitute any form of prospectus or offer document, nor will it constitute a security offer or securities investment invitation in any jurisdiction; and agree and confirm that it will not enter into any contract or make any A legally binding commitment, and will not accept cryptocurrency or any other form of payment on the basis of this white paper.

(C) Agree and confirm that any information described in this white paper has not been reviewed or approved by regulatory authorities; such measures have not been or will not be taken in accordance with the laws, regulatory requirements or rules of any jurisdiction; and the publication of this white paper, Issuance or dissemination does not imply that relevant laws, regulatory requirements or rules apply.

(D) Agree and confirm that this white paper, the commitment and/or completion of the first sale of PMI cryptocurrency, or future PMI cryptocurrency transactions on any cryptocurrency exchange will not be understood, interpreted or regarded as precision medicine initiative and/or Distributors, PMI cryptocurrency, PMI cryptocurrency first sale, and PMI wallet (see the white paper for all) is a sign of the pros and cons.

(E) The issuance or dissemination of this white paper or any part or any copy thereof, or acceptance of this white paper or any part or any copy thereof is not prohibited or restricted by applicable laws, regulations or rules in any jurisdiction where you are located; if There are any relevant restrictions, you need to abide by and meet all relevant restrictions (the cost is borne by you), and Precision Medicine Initiative is not responsible for this.

(F) Agree and confirm that when you want to purchase any PMI cryptocurrency, the cryptocurrency will not be interpreted, understood, classified or regarded as:

(I) Any kind of currency other than cryptocurrency

(Ii) Bonds, stocks or shares offered by any person or entity (precision medicine initiative)

(Iii) Rights, options or derivatives related to the bond, stock or share

(Iv) Rights under a contract for difference or any other contract aimed at seeking profit or avoiding losses

(V) Units of collective investment schemes

(Vi) Business trust units

(Vii) Derivatives of business trust units

(Viii) Any other securities or types of securities

(G) You are important to the operation, function, use, storage, transmission mechanism and other aspects of cryptocurrency, blockchain-based software systems, cryptocurrency wallets or other related cryptocurrency storage mechanisms, blockchain technology and smart contract technology Basic understanding of characteristics.

(H) Fully know and understand that when you want to purchase any PMI cryptocurrency, you need to face risks related to precision medicine initiative and its various businesses and operations, PMI cryptocurrency, the first sale of PMI cryptocurrency, and PMI wallet (see the white paper for all) .

(I) Agree and confirm that Precision Medicine Initiative will not be responsible for any indirect, special, incidental or consequential losses, or any other loss of any kind, caused by or related to your acceptance or reliance on this white paper or any part thereof, Or loss caused by tort, contract or other forms (including but not limited to profit, loss of income or profit, and loss of use or data); and

(J) All the above statements and warranties shall be deemed true, complete, accurate and correct from the date you obtain and/or accept this white paper or parts thereof (as the case may be).

No Recommendation Statement

Any information provided in this white paper about precision medicine initiative, PMI cryptocurrency, the first sale of PMI cryptocurrency, and PMI wallet (see the white paper for all) should not be regarded as commercial, legal, financial or tax advice.

For advice on precision medicine initiative and its business and operations, PMI cryptocurrency, PMI cryptocurrency first sale, and PMI wallet (see the white paper for all), please consult your legal, financial, tax or other professional advisor. You should be aware that you may need to bear any financial risk of purchasing PMI cryptocurrency for an unknown period of time.

A Statement that Does Not Constitute an Offer of Securities or Registration

This white paper does not constitute any form of prospectus or offer document, nor is it intended to constitute a securities offer or securities investment invitation in any jurisdiction. No one may enter into any contract or make any legally binding commitment, and shall not accept cryptocurrency or any other form of payment on the basis of this white paper.

Any agreement (refer to the white paper) reached on the purchase and sale of PMI cryptocurrency is only subject to the terms and conditions of the agreement and not to other documents. If there is any inconsistency between the terms and conditions and the white paper, the former shall prevail.

Any information described in this white paper has not been reviewed or approved by regulatory authorities. Such measures have not been or will not be taken in accordance with the laws, regulatory requirements or rules of any jurisdiction. The publication, distribution or dissemination of this white paper does not imply that it is applicable to relevant laws, regulatory requirements or rules.

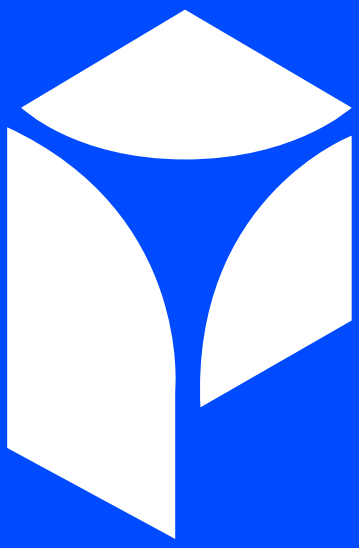
Risk and Uncertainty

Potential purchasers of PMI cryptocurrency (see white paper) should carefully consider and evaluate related to precision medicine initiative and its various businesses and operations, PMI cryptocurrency, PMI cryptocurrency first sale and PMI wallet (see the white paper for all) before purchasing PMI cryptocurrency All risks and uncertainties, as well as all information and agreement terms and conditions in this white paper.

If any such risks and uncertainties develop into actual events, the business, financial condition, operational performance and prospects of Precision Medicine Initiative may be materially and adversely affected. In this case, you may lose part or all of the value of the PMI cryptocurrency.

Authorized language of this white paper: This white paper and related materials are only published in Chinese. Any translated documents in this white paper are not certified by Precision Medicine Initiative, so they are for reference only. Precision Medicine Initiative cannot guarantee the accuracy and completeness of any translation. If there is any inconsistency between the translation and the Chinese version of this white paper, the English version shall prevail.

No third-party affiliation or endorsement: The specific companies and platforms mentioned in this white paper are for illustrative purposes only. Any company, and/or platform names, and trademarks used in this white paper do not imply that Precision Medicine Initiative has any association with or endorsement by any party.



Precision Medicine Initiative

Whitepaper