AI HEALTH COIN WHITE PAPER

Preface

"Cherish life and protect health" is the eternal theme of human survival. From the emergence of human beings to the present, various diseases have seriously endangered human health, and many diseases even lead to human death, especially those that have broken out in the past ten years. Atypical pneumonia, avian flu, mad cow disease and other zoonotic diseases have once again sounded the alarm for mankind.

With the continuous exploration of science and technology by human beings, a major transformation that the medical industry is undergoing is the "digital decentralization" transformation of the medical service model. The digitization of drugs (therapies), equipment, services, and business models has promoted the democratization of the current medical system, releasing new value by replacing high-cost controllers, and opening up previously inaccessible areas. Digital transformation has become the strategic focus of all medical participants, and participants are also striving to find value in a data-driven and result-oriented reimbursement system. Today, at the government level, most countries have formulated policies or strategies aimed at digital healthcare, greatly

increasing the use of digital health records (EHR/EMR) and other health information technology (HIT) systems or infrastructure. However, regardless of these digital plans, there are still many restrictions on the security, integrity, and access control of personal health data, making the innovation plan of nursing services encounter a big bottleneck. This in turn leads to inefficiencies in the digital medical workflow, creating data islands among different providers, hospitals and payers, and even among various departments within the health system, which hinders the normal operation of medical coordination. When the medical industry struggles with the trade-off between risk and return, the potential application of blockchain technology provides a timely solution to alleviate these urgent needs. The combination of blockchain and medical care is in line with the technical need to support the trend of other complex application scenarios other than pure digital information technology. The processing of electronic medical data is one of the current hot research areas of blockchain. However, the main pain point of medical data sharing lies in the privacy protection of sensitive patient information and the secure sharing of data by multiple institutions. Blockchain, as a distributed accounting technology with multi-party maintenance, full backup, and information security, brings innovative ideas for medical data sharing will be a good breakthrough point. The characteristic of the blockchain without a central server prevents the system from having a

single point of failure Condition, very good maintenance system stability.

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1. Current status of the medical and health field

1. Basic concepts

Medical and health industry-according to the medical and health industry report released by China Industrial Information Network

According to the definition in the report, the medical and health industry is based on maintaining and promoting people's physical and mental health.

The objectives mainly include medical services, health management and promotion, health insurance and related services, involving medicines, medical equipment, health supplies, health foods, health products, etc., supporting industries, wide coverage, and a long industrial chain. The current understanding of the medical and health industry is not only centered on traditional disease and injury treatment methods, but also centered on the entire upstream and downstream industrial chain.

According to Deloitte’s "Life Science and Medicine Trends 2020" report, with the improvement of the socio-economic level, the global average life expectancy has increased. 55 years old, from 75 years old in 1990 to 805 years old in 2015, so people The demand for medical health is increasing. According to the "Investment Analysis Report in the Medical and Health Field" issued by the Vision Industry Research Institute, as of 2015, the market size of China's medical and health industry has reached 2 trillion yuan, and it is predicted that the market size of China's medical and health industry will reach 2 trillion yuan. . In 2020, the scale of the medical and health industry will reach 800 million yuan.

Although TCM has a history of thousands of years, TCM has always been another independent medical system outside the Western medical

system. The term "medicine" is also mainly derived from the Western medical system. With the progress of social civilization, people not only pay attention to the treatment of diseases and injuries, but also gradually extend to the entire health field. In addition to expanding medical ecology, medical methods across the industry are also undergoing tremendous changes. From the ancient Chinese "look, listen, listen" to various modern medical diagnostic equipment, the renewal and iteration of medical equipment has also led to the progress of the medical industry. With the development of the Internet and mobile Internet, the speed of telemedicine is also accelerating. By 2018, interactions using mobile devices will account for 65% of interactions in medical institutions, and 80% of doctors have used smartphones and medical applications to provide medical services.

In general, the development of the medical and health field is mainly due to the increase in the global population and the changes in the demographic structure (increasing aging), the improvement of the socio-economic level, the improvement of the level of urbanization and the increase of the population. The need for treatment of chronic diseases. The continuous development of social economy has increased people's demand for medical and health care, and people's increasing demand has continuously brought new pressures to the existing medical technology or medical system, thereby effectively promoting the

development of the industry. In addition, the sustainable development of the industry is also inseparable from the progress of science and technology and the support of the government and other relevant departments to jointly promote the development of the industry.

2. Problems in the medical and health field

Although the medical and health field is constantly growing, there are still many challenges and obstacles to the development of the entire industry. According to a survey conducted by the Healthcare Executive Group, the three main challenges in the medical and health field in 2018 were clinical data analysis, the status of population health service institutions, and a payment system based on efficacy.

2.1 Low degree of data

With the development of the Internet, the degree of digitization in the medical and health field has been continuously improved. Whether it is from the perspective of medical equipment or medical services, the trend of electronicization has become more and more obvious. However, the overall level of digitization is still relatively low. The level of medical equipment and medical services in some tertiary hospitals is relatively high, but the lower-middle hospitals are still in the stage of upgrading and have poor digitization capabilities. And in clinical medicine, there is basically no data collection and utilization, the communication between

patients and doctors or pharmaceutical manufacturers is in a broken state, and clinical data cannot be analyzed and used, which greatly hinders the progress in the field of clinical medicine.

2.2 Medical institutions are isolated from each other

Due to the low degree of data, there are obvious information asymmetries among hospitals. For example, everyone will have this kind of medical experience. When you go to the hospital, the doctor will ask you to do any possible related examinations. However, each of these examinations has been processed in many hospitals. They are isolated from each other and patient information cannot be synchronized, which brings about a huge waste of manpower and material resources, reduces the efficiency of the industry, and hinders the rapid development of the industry.

2.3 Network security pressure

Although laws and regulations clearly guarantee data security and privacy in the medical and health field, the rapid development of the Internet has caused more and more devices to enter the network, bringing huge hidden dangers to network security. Research by BM Security and Ponemon Research Institute in 2017 showed that the cost of preventing medical data leakage has increased, with an average of US$380 per record, while data maintenance costs in other industries have dropped by 10%. Therefore, data and network security issues will

increasingly become the concern of the industry.

In addition, the medical and health field still faces many problems, such as high medical cost, mismatch of medical resources, poor medical experience of patients, etc., which will not be described here.

3. Development trends in the medical and health field

On the one hand, with the significant improvement of people's living standards, the demand for health and a better life is increasing.On the other hand, with the development of the Internet, the digital development of the medical and health field has become the primary development direction of the medical field in various countries.

3.1 Digitalization of healthcare

With the development of the Internet, all walks of life are undergoing data transformation, and the medical and health field is no exception. From the traditional handwritten medical record to the current electronic medical record system.

At present, the degree of digitalization in the medical and health field is still in the middle and lower reaches, but from the perspective of the digital policy support in the medical and health field of various countries, the digitalization process will continue to accelerate. From the perspective of market performance, the digital transformation of mainstream tertiary hospitals is relatively mature, and the degree of

digitalization of lower-medium hospitals is relatively low. In the future, it will gradually settle down and realize digitalization in the whole industry.

3.2 Medical and health data sharing

At present, hospitals are isolated from each other and the information is not connected to each other. There are two main reasons. On the one hand, medical and health data is not electronic and the information circulation is difficult. On the other hand, the problem of data security and privacy is difficult to solve. With the advancement of technology, digitalization has been continuously developing. As security and privacy issues are effectively resolved, data will be shared in the future. What data sharing brings is the transparency of industry information, which can effectively promote industry efficiency and maximize industry value.

3.3 Precise customized medical care As people's demand for medical health is getting higher and higher, specialized medical services will continue to be upgraded and iterated in the future. People can capture body data in real time through wearable devices and feed it back to professional medical teams. The medical teams conduct customized precision medicine according to the user's individual situation, including drugs, medical devices, and corresponding medical insurance services. Users will not only go for treatment when they are sick, but start corresponding medical services from prediction and prevention, and the entire medical service covers their entire life cycle.

2. Advantages of blockchain + medical field

1. A brief analysis of the feasibility of blockchain + medical field

The blockchain + medical and health field is both feasible and restrictive, which can be explained from the essential attributes of the blockchain and the development trend of medical and health as well as existing problems.

1.1 Distributed storage ensures information security

Blockchain adopts multi-node and distributed multiple access to data, getting rid of dependence on the Internet central server, and avoiding the possibility of single-point tampering and loss of data by the central server. And users can view the patient's historical data and user data at any time, thus avoiding the risk of data loss. This can also effectively improve the efficiency of the industry.When a patient seeks a doctor, the doctor does not need to perform related examinations to the patient, but can directly view the historical data, which greatly saves manpower and material resources.

1.2 Asymmetric encryption guarantees user privacy

With the development of society, on the one hand, people are paying more and more attention to personal respect and privacy. On the other hand, the characteristics of the medical and health field require users to disclose their information, at least in the stage of medical treatment, so

that it can be effectively solved. Medical problems. The encryption and decentralization of the blockchain cater to the demands of user privacy information protection. On the one hand, relevant information can be disclosed to the hospital, so that patients can receive the best medical services, and on the other hand, it can be effectively anonymous. Processing, even if the information is disclosed, the protection of users themselves can be maximized.

1.3 Consortium chain community autonomy promotes information sharing

Most of the medical data are stored in various hospitals and various medical equipment manufacturers. Different providers often use different database systems to store medical data, and there is no good coordination between each system. On the one hand, blockchain can technically guarantee the realization of data sharing functions; on the other hand, from the perspective of community autonomy, it can promote data sharing for everyone, similar to the R3 alliance, in which all participants in the alliance are related according to the rules of the alliance. Data sharing, and will also be subject to corresponding incentives or punishment mechanisms.

1.4 Smart contracts improve industry efficiency

The biggest function of smart contracts is to automate the execution of related procedures, reduce the links of personnel participation, and

improve efficiency. The blockchain system can automate most billing and payment procedures, thereby skipping the middleman, reducing administrative costs, and saving time for both patients and medical institutions. And this series of funds and process data can provide an effective basis for later insurance claims and bill management. On the one hand, it can reduce the gray cost of fraudulent insurance and false accounting in the medical and health field, and on the other hand, it can also improve verification. effectiveness.

At present, the application of blockchain in the medical and health field still provides a feasible solution, mainly in terms of data protection and data sharing. In addition, blockchain records cannot be tampered with and can be traced, and can have certain applications in drug traceability, etc.This is mainly the application of supply chain, and there is not much description in this section.

2. The advantages of blockchain + medical field

Combining the most prominent features of blockchain-decentralization, peer-to-peer network, distributed ledger, time stamp, information transparency and non-tamperability, etc., applying blockchain technology to the medical and health field will have the following advantages:

2.1 Improve data security and reduce network risks

Blockchain uses encryption and distributed storage to ensure the security of the data exchange system and prevent data from being modified. With the increase of various types of medical equipment for personal use, and most of them are Internet of Things devices, people's health life data will increase in the future, and people's requirements for data leakage and privacy protection are getting higher and higher. Blockchain can provide data interoperability between devices while ensuring security, privacy and reliability, effectively reducing the risk of data storage and transmission. At present, the encryption technology related to the blockchain has made great development, and even many blockchain projects are focusing on the field of data encryption technology. For example, multi-party computing technology (SMPC) encrypts the data that needs to be calculated into multiple pieces, and distributes it to multiple nodes for calculation.

Calculate, ensure that each node cannot decrypt the original data based on individual fragments. The blockchain can encrypt user privacy information that needs to be kept secret to ensure that the information is only spread or shared in specific scenarios, and other parties cannot decrypt the original information even if it is intercepted.

2.2 Data encryption and sharing

The blockchain medical and health platform uses a distributed accounting method. It is no longer like a traditional medical and health

data platform. The platform holds all the user's information, but every user has a ledger. The account book can record all user information, and there may be some encryption processing depending on the importance of the information. Each user's information is in his own hands, not owned by any platform. Users can share or sell information based on the value of their own different information, based on different prices, so that the power of user information is still in the user's blockchain. While ensuring security, privacy and reliability, it is also open and transparent. , From the hospital to the patient, the whole process can be guaranteed. Taking electronic medical records as an example, a blockchain electronic medical record system can be built in the future. All patients' medical treatment and physical health data are stored on the chain, so that doctors can have a comprehensive understanding of patients, and it can avoid hospitals. The problem of information asymmetry caused by hospital transfer requires patients to make the same diagnosis repeatedly.

2.3 Improve industry transparency and reduce gray areas

From the perspective of the service organization, after applying blockchain technology, the medical records, expenditure records and the patient's own physical condition during the patient's medical treatment can be recorded on the chain in real time, and the service organization

can quickly and accurately inquire relevant data, and On this basis, patients reduce disputes between services and institutions. From the perspective of the patient, the drug flows from the pharmaceutical manufacturer to the individual consumer, and the whole process can be guaranteed. The problem of counterfeit drugs can be solved very well, and there is no need for patients to worry about it.

3. The application of blockchain in the medical field

The application scenarios of blockchain in the medical field can have the following four aspects, which can realize the sharing of data by multiple parties on the blockchain platform, satisfying the acquisition of patient historical data, using shared data for modeling and image retrieval, and assisting doctors in treatment And health consultation.

2.1 Privacy protection level: The transmitted medical data is encrypted and processed safely

Stored in the block, it is difficult to tamper with.

All real user information comes from anonymously, it is difficult to trace the source of the data, and the form and content of the stored data can be changed according to the needs of the type of data sharing.

For example, for image type data, the characteristics of the image can be stored as encrypted data.

2.2. Access control level: the point-to-point transmission of decentralization needs to solve the problem of trust mechanism

The medical insurance process is complicated, the settlement is difficult, there are access barriers between various medical institutions, and the problem of non-information circulation can be solved through the personal library of the blockchain platform. The historical medical records of patients between different medical institutions can be uploaded and shared Different data providers on the platform can authorize users on the platform's personal library to (announce) access to data through channels permitted by their online requests. Third-party medical institutions, such as medical institutions, can use the patient data shared by hospitals to treat specific types of diseases. Carry out modeling analysis to achieve better auxiliary decision-making adverbial clauses: the purpose of treatment, or use a large amount of patient data to develop new drugs. The access control mechanism on the existing blockchain can be implemented using smart contracts or some asymmetric encryption algorithms. The use of smart contract process automation not only reduces costs but also solves the trust problem. However, the continuous expansion and development of blockchain technology will bring greater growth to the medical field. Medical institutions, pharmaceutical factories, insurance companies, communities, equipment manufacturers, governments, etc. can all benefit from the innovation of the industry. Health care data can be shared across the network in a safer and faster way, and better help

smart medical care. development of.

3. What is AHC?

AI Health Coin (AI Health Coin) abbreviation: AHC, is a virtual encrypted currency issued for future smart healthcare. It uses the concept and advantages of blockchain to combine 5G networks with the Internet of Things and telemedicine to achieve A new model of smart medical care in the future.

1. Basic concepts of AHC

In December 2019, the outbreak of the new crown pneumonia in China has sounded the alarm for the global medical system and global medical workers. If the next outbreak of the epidemic occurs, how will we face it? China's strategy, one province covers one city, and the whole people Isolation has blocked the transmission of the virus, but it has also suffered huge losses.The infection rate and death rate of frontline medical workers in China have increased, and the foreign medical system is overwhelmed and facing collapse. A sudden outbreak of epidemic has tested the world. There are major problems in the medical systems of various countries. In this epidemic of no tobacco sales, we have experienced the hardships of medical workers, and we have also seen their great contributions to all mankind. They risk being infected. On the medical frontline, they are racing against illness and death day and night.

Many medical workers are unfortunately infected at work and even sacrificed their lives. This painful price makes each of us have to reflect. This is not a person or a few. Individual matters are issues that all mankind must face together. The human community is not for a certain country or a certain human group. How to get rid of the various disasters brought by nature is a topic of joint research by all mankind. Especially for diseases, the medical systems of various countries around the world are different, and the ways to deal with the outbreak of the epidemic are also different. Then, when the epidemic breaks out next time, will we still be like now, helpless, the answer is no, after continuous Through analysis and research, a revolutionary medical system (AI Health Internet abbreviation: AHI) has emerged.

2. 5G + IoT() + telemedicine

With the popularization of 5G technology and the continuous development of the Internet of Things, the advantages of the combination of the two are becoming more and more obvious. For this reason, the medical system of the future model is gradually showing up in the public eye. 5G + Internet of Things + telemedicine has become the future medical treatment A brand-new model, the most common ones are: telemedicine consultation, online registration, online diagnosis, remote operation of medical equipment for surgery. Just imagine, if 5G + Internet of Things + telemedicine are used to face the next outbreak,

what kind of results will we get? Virus detection no longer requires human contact, but the CDC operates a telemedicine rescue vehicle. Virus testing and screening have reduced the infection rate of many medical staff, so that limited medical resources can be used where they are more needed, reduce the pressure on the medical system, and make more sense.

Infected people are treated more effectively. Shopping during the epidemic no longer needs to go to the supermarket to rush to buy, but through online orders, the supermarket will deliver the items to the door through the remote delivery truck, thereby further reducing human contact and blocking during the epidemic. The route of virus transmission is also the reason for the birth of AHI.

5G technology has been fully put into use in China, and the Internet of Things has gradually matured. With the blessing of 5G technology, the Internet of Things will enter a new era. Applying 5G and the Internet of Things to medical care will promote the upgrade of the medical system again. Diagnosis, home treatment, and striving for golden rescue time will become a reality, reducing the incidence of disability and death due to major diseases.

3. Smart elderly care Smart elderly care smart terminals refer to smart devices embedded with modern advanced technologies. The main technology is 5G+ Internet of Things, in different forms such as wearable,

mobile, portable, fixed, non-contact, and unconscious touch. Provide the elderly with comprehensive, multi-level and diversified elderly care services in a timely and efficient manner.

Wearable smart terminal for elderly care. Wearable devices have the characteristics of being portable, high sensitivity, and good interaction. According to the wearing position, they are summarized into four categories: head, upper limbs, hands, and feet. Head category includes smart glasses, smart headband; upper limb category includes smart chest strap, smart armband, smart brooch; hand category includes smart bracelet, smart watch, smart ring, etc.; foot category includes smart shoes, smart foot ring Wait. Wearable smart elderly care smart terminals can provide elderly care services such as positioning, navigation and emergency calls.

Mobile smart terminal for elderly care. Installed on mobile tools to provide elderly services such as intelligent positioning, emergency calls, navigation, lighting, etc., such as smart crutches. In addition to assisting the elderly to travel, the handle of the crutches can be equipped with a flashlight and a radio for lighting And listening to the radio, etc.

The smart terminal for the elderly can detect the basic physical conditions and perform medical measurements on the physical status of the elderly on a regular basis. For example: blood pressure, heartbeat, etc., the physical condition of the elderly is regularly transmitted to the

big data center and the body function is monitored.In the event of a major emergency, the recent body function information can be used as a diagnostic aid to fight for the golden rescue time and reduce the elderly Sudden mortality of major diseases. Emergency call: an indispensable function in one-key SOS-style smart home care products. Yishenban technology elderly care package contains two one-key help methods, the emergency button and the emergency call on the smart phone Press the button, when the elderly are unwell at home or encounter emergency situations, they can send distress signals through these two methods, which are characterized by fast transmission speed (within 3 seconds), multiple early warning methods (automatic voice dialing, automatic pop-up of management software) Window, etc.), high reliability and good stability.

Intelligent smoke alarm: Before it can be controlled, it can sense the smoke in the living environment of the elderly to reduce the risk of fire. It has wireless networking and has functions such as dustproof, insectproof and anti-light interference.

Gas leak alarm: multiple methods when the concentration of combustible gas and carbon monoxide exceeds the standard

The alarm has the characteristics of high stability and low sensitivity drift. Mainly used to detect the elderly

Whether the flammable gas in the living environment leaks, to ensure

the safety of the elderly.

Human body perception: a pair of human body sensors monitor the activity frequency of the elderly at home

Test, alarm when there is frequent activity or long time inactivity. At the same time as an elderly person

When it is activated, you only need to arm the system with one key. At this time, the system enters the armed state.

An automatic alarm will be issued when a thief or illegal intrusion occurs.

Family care reminder: If the child or the elderly care service center has not contacted the elderly for a long time

Relationship or care, then it will remind you to communicate with the elderly at home in time; the length of time can be

Customize according to user needs.

One-key dialing: One-key dialing means that the elderly users only need one key to obtain the corresponding

For services or calls, if there is help in life and family-friendly calls, the dialing will be omitted, making it easier for the elderly and smart elderly care services more efficient and faster.

4. Big data on national healthcare

1. Through the establishment of national medical big data, the basic physical information of the whole people will be passed through big numbers

According to the center for unified management, (for example: blood type, disease history, drug allergy information, etc.),

Example: Some serious illnesses lead to death because the rescue is not timely. If there is big data,

By directly inquiring the basic health information of the patient, we can buy precious time for rescue.

2. Carry out physical health inspections and monitors for the elderly over 60 years old, and pass

The detection terminal transmits daily health information to the big data center to reduce the incidence of serious diseases in the elderly

Probability of birth.

3. Open up a green channel for certain serious diseases that require transplantation matching, and organ transplantation is the most difficult

It is matching, even if there is a certain probability of matching between relatives, there are often some needs

Patients who want organ transplants lost their lives because they could not find a suitable type.

Finding suitable matching models in big data will solve many serious problems, thereby prolonging

The life of the patient.

4. Big data will show recent physical conditions and diagnoses of many diseases during medical treatment

Play a good auxiliary role, such as: whether the blood pressure is normal in the near future, whether there are other diseases

disease.