VOCAL CHAIN

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Content

Chapter I Industry Background and Market Analysis

1.1 Preface

In July 2017, as the State Council issued *The Notice on Development Planning for a New Generation of Artificial Intelligence*, artificial intelligence developed into a national strategic plan. Intelligent speech recognition technology is the most developed field of artificial intelligence technology today, and its broad application prospects are highly acclaimed. VOC (Vocal Chain) is dedicated to reconstructing the world of voice data from the perspective of artificial intelligence speech recognition, the most promising technology in the future. In recent years, research and investment in "Blockchain + Industry" have been continuously promoted, and developing artificial intelligence and big data, as national technology strategy of many countries such as China, is highly valued by many governments around the world meanwhile blockchain technology plays a role of "catalyst" for the development of big data and artificial intelligence. With the rapid development of AI and increasing need for intelligent voice business, VOC will gradually show its great potential value in business that cannot be underestimated.

1.2 Market prospects of AI speech recognition market prospects

At present, the global intelligent voice industry has entered the stage of rapid application under the development of big data, mobile internet and cloud computing, etc. The global market of intelligent speech recognition reached US$275 billion in 2014 and reached US$421 billion in 2016 with a year-on-year increase of 53.1%. By 2025, it will exceed one trillion USD.

1.3 Analysis on Voice Industry Market

Around 2010, with the strong intervention of Internet giants such as Google, Microsoft and Apple, the global intelligent speech recognition industry gradually evolved from an oligopoly to a monopolistic competition. In 2015, Nuance, a leading voice recognition company, had a market share of 31.1%. Although it still ranked first, its share has fallen sharply. The market share of Google, Microsoft, Apple and IFLYTEK has grown rapidly, reaching 20.7%, 13.4%, 12.9 and 6.7% respectively.

1.4 The current development bottleneck of AI speech recognition

Speech recognition is the most successfully developed field in the current industry of artificial intelligence technology. Its wide application prospects are highly acclaimed and full of imagination. However, the commercial application of AI voice has long faced difficulties in data acquisition, data storage and data security meanwhile lacked data of minority languages with limited data samples and high data processing costs. These problems are seriously constraining the large-scale commercial development of AI speech recognition.

First, as the era of decentralization is coming, companies that master voice big data face the challenge of fairness. From the perspective of social equity, a large amount of voice data has been taken by a few technology giants at extremely low prices. These dividends brought about by commercial applications and large scale because of the agglomeration of data are obtained by the centralized technology giants, having nothing to do with the individuals who contribute to the data. This is not conducive to the development of social productive forces, but also violates the fair ethics that information resources should be "taken from the people and used for the people."

Second, high labor costs and data acquisition costs. Usually, the industry giant needs to collect a large amount of voice data and make manual annotation to gradually improve the accuracy of AI

recognition and improve product performance by means of machine learning. At present, there is no good way to replace the work of "manual annotation". For example, after collecting various accent data from all over the country, it is necessary to manually parallel the voice and the text one by one in order to produce so-called "cooked data" which is essential to machine learning. This voice processing process usually takes tens of thousands of hours.

Third, existing speech recognition technology can only accurately identify clear, accent-free speech. However, as the main markets in the field of intelligent speech recognition, China and the United States have vast territory, large population and different accents. Some dialects and minority languages have few users thus corpus resources are insufficient. Some dialects from neighboring regions may disagree with each other, and may even completely conflict. Whether current speech recognition technology can effectively cope with these challenges is of great concerns.

Fourth, current machine translation and simultaneous interpretation software have certain limitations. Users need to select the language of the input and output to initiate the translation process, which will greatly challenge the user's knowledge reserve. If one doesn't know the specific language of the input language, the user can't even use the translation software.

Fifth, the security of existing data faces serious challenges. This year's well-known Silicon Valley company Facebook was suffering from the scandal of leaking and using user information data, and its market value and brand credibility suffered a serious blow. For the voice corpus, with a large amount of information obtained by a handful of technology giants, it is also a major threat to citizen information security. To this end, the government has to supervise these giants at a high administrative cost, otherwise users' data are at risk of leaking and being exploited. Even so, it is difficult to ensure that citizens' information is absolutely safe and will never leak.

Chapter II Introduction to VOC Project

2.1 VOC Project Overview

VOC Vocal Chain is an information storage tool of voice data and manual annotation based on blockchain technology. It is dedicated to solving the data bottleneck faced by AI voice development. It is also the most popular scenario application in the big data field of blockchain technology application. VOC Vocal Chain is committed to building a global corpus resource platform. Through the cooperation of community members, it provides the world's largest, most abundant and accurate training data source for the development of AI speech recognition in order to realize the world's largest decentralized human voice data ecological vision, realizing the principle that data should be "taken from the people and used for the people" meanwhile realizing the value of big data "from the people, return to the people."

Since 2017, as the most popular blockchain technology, the "Blockchain + Industry" model has been continually promoted while the blockchain is playing a role of "catalyst" for the development of big data and artificial intelligence technologies. With the rapid development of AI voice business application scenarios and the rapid growth of demand, VOC Vocal Chain will gradually show its great potential value in business.

2.2 Technology Association of VOC Vocal Chain, Big Data and Artificial Intelligence

As means of production, big data helps companies from all walks of life to dig out the needs of users from the vast amount of data, so that real value can be produced by the process of quantitative change to qualitative change. As productivity, the development of artificial intelligence needs to draw from a huge amount of knowledge and experience, that is, the need of the support of big data; in turn, artificial intelligence technology has also promoted the progress of big data technology, the two complement each other.

However, with the development of the two technologies, "the security of data cannot be guaranteed, thence data may be manipulated. Trustworthiness and confirmation of data circulation are not guaranteed". Other security issues become more prominent. The blockchain technology of mechanism, anti-tampering, accounting transparency, co-regulation and traceability has become the last piece of the puzzle, which can be a good medicine to solve the data security short board.

2.2.1 Technical association between blockchain and big data

Google's GFS and Hadoop's HDFS lay the foundation for big data storage technology. The blockchain is essentially a distributed database system. As a type of chain access technology, blockchain technology is jointly maintained by nodes participating in the calculation of multiple nodes in the network. From the perspective of data storage, blockchain technology is also a specific database technology. Distributed storage of big data and blockchain can be regarded as HDGS and blocks.
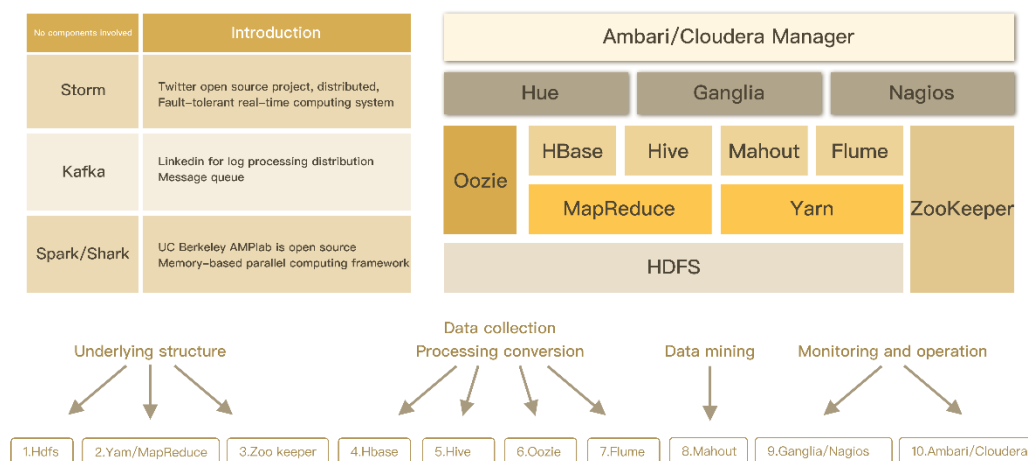
The blockchain network's tamper-proof nature allows data traceability to be endorsed with unprecedented credit. The data transaction circulation is desensitized by blockchain, combined with big data storage technology and efficient and flexible analysis technology, greatly enhancing the value and enlarging the space of blockchain data. Blockchain technology can be said to be a guarantee for big data security, desensitization, legality, and correctness.

With the development of the digital economy, by connecting blockchain technology with big data, big data will be further based on the "reaction-prediction" model, which can be automatically run through smart contracts and future DAOs and DAC, liberating human productivity, and making these productivities be replaced by a decentralized global distributed computing system. Thence, another technological explosion will be approaching.

2.2.2 Technical association between blockchain and artificial intelligence

Blockchain and artificial intelligence are technically distinct, but there is also a connection between the two. The distributed database technology in the blockchain can cooperate with the artificial intelligence on the data processing. The blockchain technology can solve the credibility problem in the artificial intelligence application, and provide the artificial intelligence to provide the trusted data in the data layer. With the help of blockchain technology, artificial intelligence can shift the focus to the algorithm, being responsible for intelligent decision-making and automated business processing, and the intelligent contract of the blockchain will be more intelligent.

2.2.3 Blockchain makes it possible to personalize data

Bill Schmarzo, CTO of Dell EMC Services, has said that blockchain technology may facilitate the sharing and monetization of data and analytics by eliminating middlemen to facilitate transactions. "In the business world, this gives consumers more powerful bargaining power. It allows consumers to control who has access to their data through the blockchain. Then they can ask for pricing discounts in exchange for consumer products for the enterprise."

Schmarzo explains how the blockchain could lead to new forms of data monetization as it has the following effects on big data:

● All participants participating in the transaction can access the same data, which speeds up data collection, sharing, data analysis and improving data quality.

● Detailed records of all transactions are stored in a "file" or blockchain. This provides a complete overview of the transactions from start to finish, eliminating the need for multiple systems.

● Individuals can manage and control their personal data without the need of third-party mediation or centralized repositories.

Ultimately, blockchains can become key enablers of data monetization by creating new markets that allow companies and individuals to directly share, sell, and deliver their data and analytical insights.

Driven by the large-scale adoption of Bitcoin, blockchain technology has achieved success in the commercial and financial sectors. The fast and secure transactions it promotes can revolutionize traditional data systems. According to a survey by KPMG and Forrester, one-third of policymakers trust their company's data. But blockchain technology can greatly enhance this trust, and its real-time application will become more popular.

2.3 VOC Vocal Chain breaks through data bottleneck in AI voice development

2.3.1 Build a decentralized voice data ecosystem and break the monopoly

VOC Vocal Chain utilizes the openness and tamper-proof modification of blockchain technology, starting with voice data resources, reducing the repeated collection of information, preventing resource waste; reducing the industry's competitive threshold, enhancing industry competition rather than capital internal consumption, promoting the benign development of the industry.

VOC Vocal Chain will build a global voice big data community based on blockchain technology using a hybrid consensus mechanism. The community will contribute and connect human natural language voice data from various countries and regions around the world, and rely on community

nodes to efficiently authenticate and store data quality and data content. At the same time, the community will share the value return generated by big data, and encourage the community to continuously complete the entire process cycle from the generation of voice data to the processing, to promote the flow of data and massive growth, and to build the world's largest and most diverse language. The richest, most accurate, high-quality multilingual voice data ecosystem thence will be built.

2.3.2 Providing high quality, low cost data to enterprises

VOC will use the built-in voice big data community to continuously generate rich, high-quality, low-cost data, which will fundamentally solve the bottleneck of customized commercial development of AI speech recognition, such as low-quality data and lack of multi-lingual voice data. Data, high labor costs, etc., providing complete AI voice data customization solutions for enterprises and industries entering the era of artificial intelligence.

2.3.3 Establish a phonetic research community for dialects and endangered languages

According to *the World Map of Endangered Languages* published by UNESCO, by 2013, there are more than 6,000 languages in the world, but about 80% of the 6 billion people speak the 83 majority languages, while the rest of the more than 6,000 languages, 2,500 are classified as endangered languages, and most of them do not even have any written forms, and 228 languages have almost disappeared.

VOC Vocal Chain continuously processes the uploaded corpus information, and records the uploading time, uploading location, corpus type and accuracy of the corpus information in the chain. Once the record is confirmed, it cannot be falsified. The dialect and endangered language users can record the corpus information on VOC Vocal Chain through the intelligent terminal through

recording, labeling and uploading. Community members collaborate to proofread, confirm, store, and integrate, to form economies of scale and realize the inheritance of endangered languages, providing sufficient material foundation for future research.

2.3.4 Resolving problems of data security, privacy and authentic rights

As we all know, the collection of voice information resources depends on specific objects. Its nature, content and personal rights are highly interrelated. It involves the citizen's personality rights, so it should be strictly restricted when using and determine the final ownership of the data. But in fact, government regulation cannot go deep into the company. This approach costs a lot although it cannot eliminate the risk of information leakage and realize the authentic right.

VOC Vocal Chain is based on the tamper-proof, distributed storage and decentralization of blockchain technology, which fundamentally guarantees the security of big data. Data is stored in a decentralized blockchain, and data analysis can be performed without accessing the original data, thus the privacy of the data can be protected and more data value can be found.

At the same time, VOC Vocal Chain will enhance the role of community. By forming an arbitration dispute resolution body, community can use the tamper-proof nature of the public chain to record all the information in the arbitration process and achieve complete transparency under supervision.

2.4 VOC Vocal Chain product design

2.4.1 Design Reference

VOC Vocal Chain product design refers to many domestic and foreign data collection companies: domestic companies such as Ali Crowdsourcing, Baidu Crowdsourcing, Chinchilla Crowdsourcing,

Data Hall, SpeechOcean, Pactera, etc., foreign companies such as Amazon Mechanical Turk-Welcome, Mighty AI (Training Data as a Service (TDaaS) ᵀᴹ.), etc.

2.4.2 Product Mechanism

At present, data contributors (legal individuals and companies) will use VOC to mine from a variety of terminal voice interfaces such as mobile phones and Bluetooth headsets, and use the input voice to mine, and obtain token VOC Vocal Chain rewards according to their contributions; Legitimate companies and individuals can also obtain corresponding data usage rights by paying token VOC Vocal Chains;

The key nodes will be responsible for data review, data processing, data validation, data application and other related work around the data, and receive VOC Vocal Chain rewards;

The corpus information fully flows through VOC Vocal Chain. The corpus information and the token price increase alternately, achieving benign interaction, so that the corpus information on VOC Vocal Chain can fully meet the needs of real research.

2.5 Product Features and Benefits

2.5.1 Maximizing Data Contributor Benefits

VOC realizes the connection between human voice data production source and data demand that directly interconnected in the decentralized ecology. Different from the traditional data capture company, they collect data through the centralized crowdsourcing task system to obtain the voice data, and then sell it to satisfy different needs of customer companies.

VOC Vocal Chain directly eliminates the role of the intermediate centralization company, so that the ownership of personal data can be traced, guaranteed, the value of the long-term enjoyment of

data, and the security issues of the data can be fully guaranteed. At the same time, the value of personal data will be maximized in the freely traded, fair, just, and secure big data ecosystem, and the market will continue to receive returns, avoiding one-time monopoly acquisition by centralized companies.

2.5.2 Establish a bilateral data review mechanism

In addition to contributors who will continue to produce massive amounts of data, other participants or key nodes will also conduct quality test and audit, such as content matching, content integrity, and clarity of language and voice. Supervisory will be conducted from multi dimensions to ensure an effective mechanism for establishing high quality data. At the same time, the audit mechanism will trigger a more equitable and healthy voice data ecosystem. High-quality and high-level data contributors and reviewers will receive more than two times the token return, that is, value recognition and return.

2.5.3 Multiple data processing and service functions

In addition to building a large number of large decentralized voice databases, VOC is continuing to design a variety of voice data processing functions to fully meet the diverse needs of AI voice business applications: multi-language cross-domain voice data collection, voice data transfer, Application development and integrated customization solutions for voice data annotation, web text capture, text annotation, emotional annotation, image data collection, image data annotation, data resource management, data quality monitoring, etc.

Chapter III VOC blockchain-based technology solutions

3.1 Consensus layer

DPOP Consensus Mechanism:

VOC uses the DPOP consensus mechanism to make the voice chain truly global and decentralized.

In order to build a truly global-oriented, ecologically open and decentralized corpus resource platform, VOC adopted the most advanced and efficient consensus mechanism DPOP (Delegated Proof of Participation), which is the entrusted participation equity proof mechanism. DPOP determines the current rights of users based on their historical rights and user behavior (including online duration, content output, content review, etc.), so that each node in the blockchain can participate in the consensus and governance of VOC Vocal Chain.

Based on the DPOP mechanism, each node has different voting rights according to its own equity. Before the creation of VOC block, all nodes will select a certain number (N) of agents together. When more than 50% of the nodes agree on a number (N) as the number of agents, the number of agents is determined. Subsequently, the node with the total number of votes before N becomes the agent. At the same time, all nodes will also select representatives in the same way. The agent creates a block for VOC and confirms that the previous block is trusted. The agent will receive VOC as a reward. The representative is responsible for voting changes to the network parameters such as transaction costs, block size and representative salary. Representatives won't get extra VOC compensation because we don't want network parameters to change often.

Each time a maintenance interval is passed, the ballot will be re-stated and the list of delegates will be updated accordingly. Similarly, the node has a certain period of review period for the resolution of the representative. During this period, the node can vote for the representative and invalidate the offer. In other words, all power is still in the hands of the node is the VOC user.

At the same time, through DPOP, VOC can monitor the health of the network in real time, and detect whether each representative has produced blocks in order to avoid double flowers. With TPOS, each transaction of VOC can optionally contain the hash value of the most recent block, which solves the proof problem of the main chain and ensures the long-term integrity of the transaction history.

In general, DPOP enables VOC to address delays and under-throughputs on the basis of guaranteed decentralization, resolves the conflict between performance and security, and makes VOC tolerate Byzantine errors. Compared with PW, POS and other consensus mechanisms, DPOP is the most efficient and is the best tool to help VOC to achieve decentralization, so that the vocal chain can be truly global.

3.2 Data layer

RSA encryption and decryption mechanism:
In order to ensure the true protection of VOC user rights, we use RSA encryption and decryption scheme to achieve VOC content copyright confirmation.

The VOC platform implements the RSA public key encryption system through KeyGen (key generation algorithm), Encrypt (encryption algorithm) and Decrypt (decryption algorithm). Content encryption also has to undergo three major processes: key generation, content encryption, and content decryption.

The first stage is key generation. When new content is generated, the VOC platform will enter a certain security constant M into the KeyGen algorithm. Subsequently, after a series of processes such as randomly selecting the prime number, the Euler function calculation, and the model inverse element calculation, the VOC finally obtains the public key PK and the private key SK. Immediately, the private key will be converted by the SHA256 hash algorithm and Base58 to form a 50-character length readable and writable private key that is distributed to the content producer.

This is followed by content encryption. The VOC encrypts the content P by using the existing public keys PK and Encrypt. Encrypt outputs the ciphertext to CT after getting the public key and content. The CT is packaged as information into the voice chain for propagation and storage.

Finally, the content is decrypted. With the support of Derypt, the private key holder decrypts the ciphertext CT through the corresponding private key SK to obtain the plaintext P, which is provided to the content demander.

When the new content is produced through the VOC platform, the VOC platform then generates a public key to encrypt the content copyright. At the same time, the VOC distributes the private key for decryption to the content producer. Under the RSA system, only the private key holder can decrypt the copyright of the part of the content. In other words, holding a private key is equivalent to owning the copyright of that part of the content. At the same time, the VOC platform will manage the public and private keys reasonably to ensure that user rights are not infringed.

At the same time, VOC allows authors to work directly on the chain, concatenating a single timestamp into a period, and thus avoiding the monotony of metadata alone, effectively combating pirated content. And VOC will also use multi-private key encryption technology to meet more flexible and complex scenarios such as multi-signature.

In general, VOC implements the copyright confirmation through the RSA encryption and decryption mechanism. The benefits generated by the later VOC content will be mainly distributed according to the private key holding, which will break the unfair situation of the centralized company's plundering profits, and truly realize the principle that "data comes from users, and interests are attributed to users."

3.3 Network layer

Distributed File System IPFS:

In order to ensure the security of VOC voice chain data and ensure the user's rights and interests on the basis of meeting the needs of fast data transmission, we decided to adopt a storage method combining distributed storage important information with centralized storage redundant information.

In view of the complexity and bulk of VOC, the future nodes will be based on mobile terminals. In order to ensure the normal operation of the nodes and the network, the data transmission speed of the network is maintained fast, and the network delay is prevented from affecting VOC. We separate important information such as witness information and usage rights from a large amount of voice data. For voice-on-chain content such as important notarized information and usage rights, we choose to use the IPFS interstellar file transmission system for distributed storage, while for a large amount of voice data, VOC stores it on the centralized server.

For important information such as usage rights and notarized information, the IPFS interstellar file system first generates peer node identity information through the S/Kademlia method, so that each message is given a unique hash value as the only fingerprint of its authentication, which improves security. Coefficients; subsequently, IPFS implements ICE NET&NAT penetration through any transport layer protocol, enabling important information to be transmitted between networks at the time of invocation; at the same time, IPFS will use a Git-like control file system for each node to use for saving. All files of different versions achieve the permanent retention of important information in VOC. That is to say, IPFS allows important information of VOC to be stored on all nodes at the same time, and gives its unique identity authentication, and still allows quick calls of important information. Through this, VOC effectively puts power and interests into the hands of users, and the control of VOC is firmly in the hands of all users.

Due to the particularity of VOC, VOC must receive and distribute a large amount of data in the form of text, voice, etc. every day. This part of the content is cumbersome and bulky. It is unrealistic to have all nodes receive and store this part of the content. Blindly merging this part of the content will

also greatly drag down the speed of the VOC network. Therefore, when the unimportant data such as text and voice is transmitted, the VOC platform is used as a relay station, and the VOC platform is responsible for receiving and distributing. At the same time, this also helps the VOC platform to form a large open corpus that can greatly help VOC and other intelligent voice development companies. The VOC platform will also promise to build an efficient server to store this part of the information.

It can be said that the storage method combined with distributed storage and centralized storage is the most suitable storage method for VOC. It can not only ensure the security of important information, but also realize the rapid transmission of ordinary information; it can protect the rights of users and help build a corpus. VOC will be paralleled by two lines for a long time, and we will strive to achieve our goal of building the largest decentralized voice database.

3.4 Incentive layer

Voice mining incentives: use VOC distributed applications for voice mining, each successful upload of voice and review, you can get the corresponding VOC token reward.

Task mining incentives: complete the specified tasks within the VOC, such as joining the community, paying attention to the public number, etc. to obtain VOC token rewards.

3.5 Late technical support - development of public chain

The public chain refers to the blockchain that anyone in the world can send to confirm the transaction, enter the system to read the data at any time, and participate in the process of consensus formation. The consensus process determines which block can be added to the blockchain and determines the current state. So, the public chain is usually considered to be "completely decentralized."

The characteristics of the public chain:

- Protected by the encryption economy: the public chain is protected by a combination of economic incentives and encrypted graphics verification, using mechanisms similar to equity verification or workload verification, following the extent to which people influence consensus formation and the number of economic resources they can control In line with the general principle.

- All data is transparent and open: Although the participants in the blockchain choose "non-real name" to hide their true identity, it is commonplace, but the account balance of other people can be queried in any node. And trading activities.

In the later stage of the voice chain, public chain technology will be developed and wallets will be developed to enable more people who are willing to contribute to the intelligent voice industry to participate in the VOC ecosystem. Based on this, a diversified voice data portal will be built to eliminate industry barriers and achieve voice.

Technology

Understanding	Data	Network	Reward	Technology support
DPOP mechanism	RSA encryption &decryption	Decentralized filing system	Voice mining reward Mission mining reward	Public chain
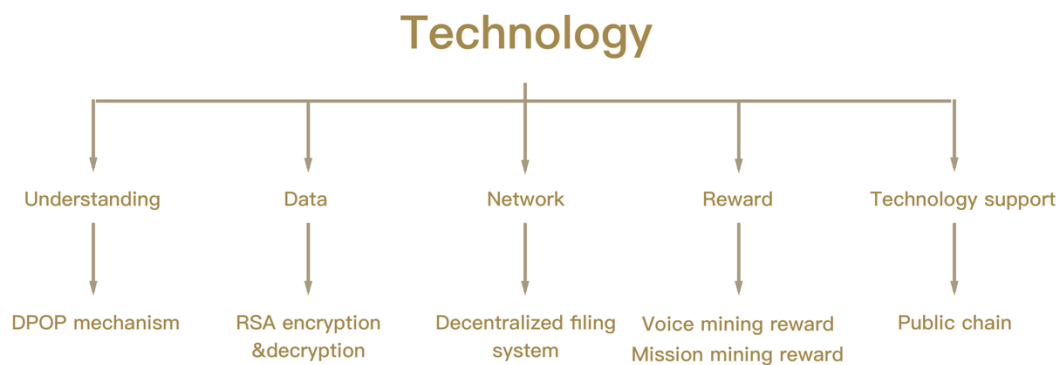
Chapter IV Application of VOC Voice Data Ecology

4.1 Landing Dapp - Online Voice Mining Platform

In order to truly implement the idea of VOC, the original value of the data cannot be changed, the data precipitation can be confirmed, the data transaction can be traced back, the data income belongs to the user, VOC is based on the intelligent mobile terminal, and based on the underlying technology of the blockchain, distributed, decentralized online voice mining app - VOC.

VOC is an online voice mining platform, and all users have the flexibility to choose both voice data and audit voice data. At the same time, VOC will provide a confirmation service for content creators who collect voice data. During the mining process, the VOC will update the task information for the user in real time, improving the efficiency of completing the task. After the mining is completed, VOC will also encrypt and protect the VOC tokens held by the users, and provide a series of services such as cash withdrawal.

- In terms of rights, VOC is based on blockchain technology and runs applications directly on distributed networks. It is completely open source and autonomous. The right is returned to the user, and no one can control 100% of the VOC's control.
- In terms of security, VOC encrypts important information such as copyright and stores it on the VOC voice link through IPFS to ensure the security of related information.
- In terms of transactions, VOC also has its own token, VOC token. Node maintainers, content producers, and content reviewers will all receive tokens as rewards. VOC tokens are protected by internationally advanced encryption algorithms. And VOC will also directly link all transaction information, open and transparent, and high security. In terms of flexibility, in order to improve the flexibility of VOC operation, we will also use Modifiers (function modifiers) to

manage, add, redeem, freeze, etc. the smart contracts involved in the application. At the same time, VOC can also upgrade the application according to user feedback and requirements after most users reach a consensus.

4.2 Building a dialect community to protect endangered languages

Language is the carrier of culture and a tool for communication. The diversity of language means that the diverse cultural and humanistic ecology of mankind can be passed down and maintained. The preservation and circulation of language is not only the precious inheritance of expression and writing, but also the continuation and reproduction of culture and human ecology. This is the charm of language and the value of language. The extinction of a language means that a once-popular culture has disappeared, the source of a message has dried up, and a historical legacy has been annihilated.

According to UNESCO, as of 2013, one language disappeared every two weeks, exceeding the extinction rate of many animals. Zhou Haizhong, a well-known Chinese scholar, also pointed out that some national languages are facing the impact of globalization, industrialization, the Internet, etc., and are in danger of gradual disappearance. Relevant departments, institutions and linguistics should take active and effective measures to protect the weak. The national language and the rescue of the endangered national language. This is conducive to the inheritance and development of human civilization, but also to national unity and social stability.

The birth of VOC will provide an excellent way to protect endangered languages. VOC based on blockchain and big data technology has the characteristics of unchangeable and permanent retention of data. Users of endangered dialects use VOC to enter the dialect community. Through IPFS storage and RSA asymmetric encryption technology, all their voice data will be permanently retained without any errors. In this way, even if the users in real life disappear, we can also use this part of

the voice data to teach and pass on the dialects, so that these dialects can be permanently preserved, so that the precious pearl of human culture will not be covered with dust.

Another important reason why some dialects are endangered is that users often live in remote areas, economic conditions are backward, and dialects must be abandoned when they need to communicate with the outside world. This also leads young people to reluctant to use dialects, but to learn other languages that use more people and more widely. As a result, raising the economic level of the areas in which endangered dialects are used will also benefit the protection of dialects.

VOC also helps the dialect user to retain the voice data while also giving the dialect user token. Therefore, for dialect users in remote areas, the use of VOC voice chain for mining will also be an effective way to obtain economic income, especially for dialect users who have lost their labor. Old people like the elderly who have spent a lot of time have a wealth of dialect knowledge and can no longer earn income through labor. After learning to use VOC for mining, they not only can achieve stable income, but also contribute to the establishment of the dialect community. VOC will also promote people in remote areas to get rid of poverty and embrace a well-off life.

At the same time, VOC can also help local governments to apply for "dialects" intangible protection heritage. Local governments only need to use VOC tokens to apply for custom dialect voice collection to the platform. The platform publishes voice dug through special missions. Mine missions allow for the collection of complete and targeted dialect voice data. This will not only make the place save a lot of manpower and material resources needed for collection, but also make VOC participate in the major mission of dialect protection and dialect survival, and strengthen the self-identity of dialect voice recorders.

4.3 Creating a "decentralized" voice social ecosystem

With the rise of voice socialization, "decentralization" and "popularization" have become the most prominent features of voice social products. VOC plan will access the valuable voice data portals

in the Internet business form, such as voice chat social class, voice radio class, voice live broadcast, sing KTV class, audio books, online language teaching and so on. The open product features of VOC will make UGC (user-generated content) the most important source of content for the platform, thus avoiding the phenomenon of PGC (head production content) and building a "decentralized" voice social ecology. At the same time, this feature will open up more dimensional voice data, and at the same time form a multi-dimensional and large-scale voice data value effect, allowing individuals and various types of voice applications in the VOC ecosystem to obtain various forms of voice data value realization channels and methods. To achieve more value returns and benefits for individuals.

Users can also make VOC tokens for content of interest, making VOC tokens the main currency of circulation, helping the development of VOC voice social ecology.

4.4 Important information on the chain

In many real-life situations, the retention of voice data can play a certain role in protecting the rights and interests of users, such as important verbal information in commercial transactions, and dialogue records in crime scenarios. If it can survive, it can be safe for the user's economy and life. Other rights play a certain role in protection.

VOC platform based on blockchain technology can provide users with this part of important information permanent retention and source confirmation services. When the user needs the corresponding service, VOC platform is used to collect the relevant voice data and pay a certain VOC token as the service fee. The VOC platform uses the RSA encryption and decryption mechanism to let the user hold the corresponding decryption private key to confirm the voice. The purpose of the data source, and the VOC platform will also send this part to each node through the IPFS interstellar file system, that is, the important information is on the chain to achieve permanent retention and non-tampering of important information. By providing such important information uplink services to users, the VOC platform not only effectively utilizes the blockchain characteristics of VOC, but also creates social value and effectively protects the rights and interests

of users.

4.5 Undifferentiated Translation System

VOC will use a built-in voice database combined with artificial intelligence technology to create a global, undifferentiated translation system. When the user enters the voice, there is no need to select the input language. The undifferentiated translation system can retrieve the desired output language through big data retrieval and AI automatic recognition language. This avoids the user's inability to use the traditional translation system due to insufficient knowledge reserves.

4.6 Building a voice communication workstation

When working on weekdays, we often encounter multiple 60-second voice work schedules sent by the leaders. Not only do we have to waste a long time listening to the records, but we cannot selectively listen to the unheard of the parts. Even if we choose text translation, it can only translate of the front part of the voice, many users widely frown upon it.

The VOC voice communication workstation uses the AI to identify the byte during the transmission process, and performs accurate voice translation. The recipient will receive the voice and text at the same time, and the time can be selected for the voice. This will increase work communication efficiency and will make users become accustomed to this feature.

4.7 Intelligent Voice Interaction Platform

With the "phenometic" product Amazon Echo audio quickly seize market share, major giants such as Apple, Google, Microsoft and other have laid out intelligent voice platforms, began to develop their own intelligent voice technology, to seize the latest human-computer interaction portal.

With a powerful and rich voice database and a combination of artificial intelligence and voice book technology, VOC can create an intelligent voice interaction platform. With a voice dialogue mode that is more in line with human natural interaction, it can quickly cut into the core business of various industries, improve the efficiency of traditional industries, and integrate traditional The various components of the industry. In the future, we will choose to cooperate with the smart home industry to create our own intelligent voice speakers that belong to VOC.

Chapter V Economic Model of VOC

The VOC platform collects voice data for a certain language scenario, and the process is as follows: First, the VOC platform issues task text information to users who can collect voice data. After the user completes the task, the voice data is uploaded. The VOC platform will use the background audit mechanism to conduct a preliminary audit of the voice, and randomly sample the data that has passed the audit, and obtain the sampled data. It is reviewed by a number of professionals at the same time, and each auditor needs feedback. Upon completion of the data entry, the VOC platform will then distribute the VOC tokens to the content producer and content reviewer. At the same time, the VOC platform distributes the important information such as permission and copyright confirmation to the distributed storage, and uploads the voice data to the central server. Once someone else wants to use the partial voice data, a certain number of VOC tokens must be exchanged and assigned to the copyright owner by the VOC platform.

5.1 Approaches to VOC

- Trading through third-party exchanges

Users can trade VOCs through the exchange at real-time published prices and trade their own VOC holdings.

- Voice mining in Dapp

In the absence of specific tasks, users can mine VOC tokens through VOC platform. The user only needs to perform voice data collection for random text information or audit the randomly assigned voice data.

- Platform incentives

Platform incentives include candy incentives, content production incentives, content review incentives, and platform building incentives.

1 Candy Incentive: Register to send VOC, invite friends to send VOC and other activities and other related event prizes to promote the rapid development of VOC platform and ultimately achieve the purpose of VOC platform.

2 Content creation incentives: After the user completes the voice data collection task and uploads it, the VOC will be obtained as an incentive. This is one of the most important incentives, which can effectively motivate users to collect voice data to complete tasks.

3 Content review incentives: After reviewing and forming opinions on unaudited voice data, users will receive VOC as incentives. This is also one of the most important incentives for users to participate in the completion of VOC platform tasks without being able to collect relevant voice data.

4 Platform construction incentives: Through elections, users who are qualified to maintain the normal operation of the platform network, who package the block and actually fulfill the responsibility will receive VOC as incentive. This will ensure that the VOC platform will develop at a high speed in a healthy environment.

- Copyright confirms circulation income

Copyright Confirmation of Circulation Revenue means that after the content producer confirms the copyright owner of the part through copyright, when the other party pays a certain amount of VOC for using the part of the content, the content producer will receive most of the VOC as compensation,

and the VOC platform will extract A small part is used as a circulation fee. This can effectively protect the user's copyright and fundamentally effectively motivate the creation of content.

5.2 Ways to consume VOCs include but are not limited to

● Data call in the platform

Data call consumption in the platform means that non-copyrights pay a certain amount of VOC to the platform when using certain content. This will provide a basis for copyright recognition of tradable income and promote the good development of the platform.

● Excellent content from the media platform

Users can use their VOC tokens to reward their favorite self-media content, in order to encourage media content producers to create more and better content and promote healthy and healthy development of the community. At the same time, in the circulation process of VOC tokens, users can better discover the use value of VOC tokens.

● Customized voice data service

When the user needs relevant voice data, but can't find it in VOC database, the user can use VOC platform to publish relevant text information, and call the content producer and content reviewer to upload and review the voice. Data to meet demand.

● Important information on the chain service

Users can pay VOC tokens to obtain important voice-winding services provided by the VOC platform. When the user has important verbal information in a commercial transaction, important voice information such as conversation records in a crime scene needs to be entered and stored permanently, the user can use the relevant service after paying a certain VOC token to the platform as a fee, and the VOC voice is used. Chains are an effective tool to protect your rights.

● Use of equity functions (reporting, gas charges, etc.)

When the user exercises a special right to report, raise gas, etc., it is necessary to pay a certain VOC token as a fee to avoid malicious harm to VOC platform.

When the VOC is in the process of circulation within the platform, the platform will charge an appropriate amount of service fees into the revenue pool in due course. This part of the VOC will be periodically returned to the platform incentive pool. The setting of this extraction compensation mechanism will promote the positive circulation of the VOC platform economy more positively.

Chapter VI VOC Token Issue Rules

6.1 VOC tokens

The voice chain issuing token is VocalCoin (hereinafter referred to as VOC), as a reward for proof of work, a value scale for voice data, and a transaction currency in any scenario on the voice chain. The total number of VOC s issued is 200 billion, and will never be issued.

6.2 VOC Issuing Plan

The specific VOC issuing plan is:

- VOC mine pool: 51.11%, a total of 102.35 billion. Used for community members to mine rewards and promote rewards. The pools are open in sequence and have different mining efficiencies.

- VOC Foundation: 25%, a total of 50 billion. Used for financing and community contribution awards. Guarantee the future development of technology and the normal operation and development of the project.

- VOC team: 23.89%, a total of 47.65 billion. This includes the founding team and members who join the team in the future.

Issue Plan

24% 51% 25%
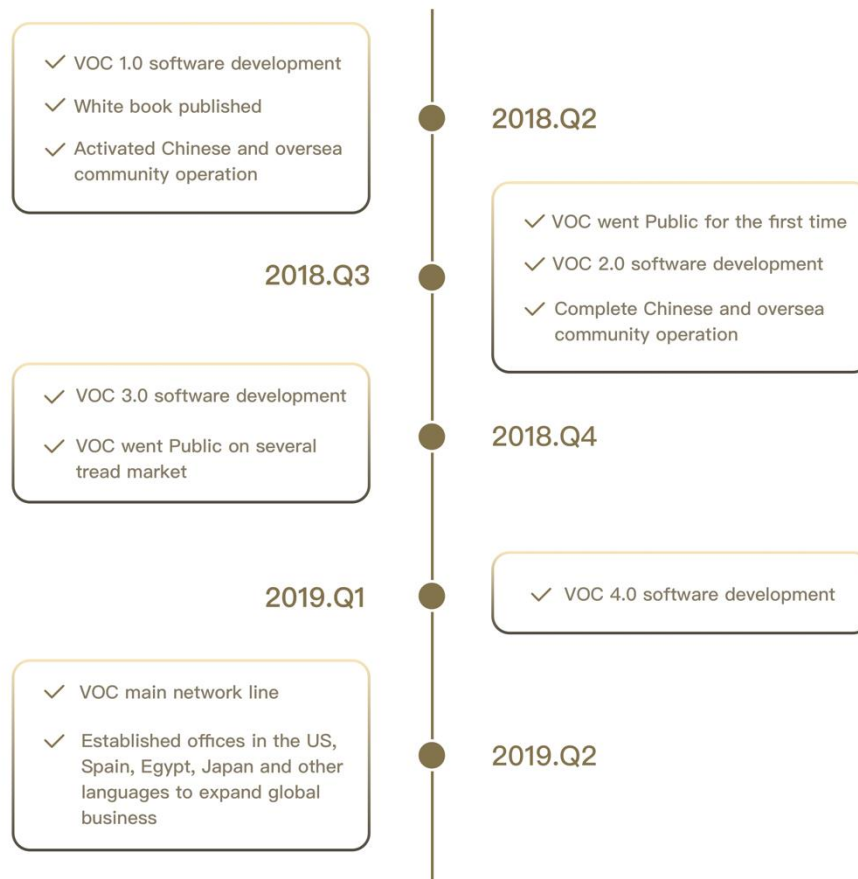
VOC Pool   VOC Fund   VOC Team
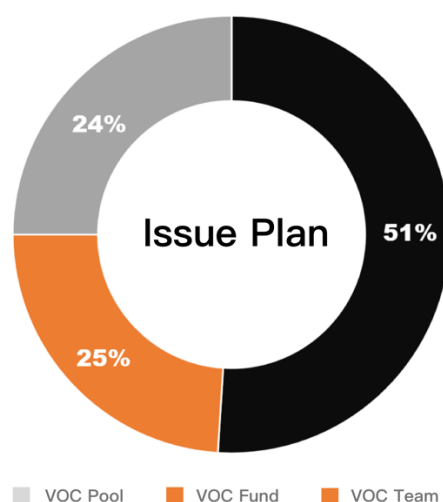
6.3 VOC pool

There are 11 mine pools in the VOC. The size of the latter pool is twice that of the previous pool. The size of the first tank is 50 million VOCs. After the current mining of a mine is completed, the next mine will be opened immediately, and the mining efficiency will be reduced by one-third. 50% of all fees and voice data sales will be stored separately for mining awards after the first 11 mines have been mined.

6.4 Locking mechanism

The VOCs assigned to the Foundation and the team will be subject to the lockout mechanism. The VOCs in the locked state cannot make any transfers and transactions. The specific rules are as follows:

- In the first six months after the token is distributed, unlock 20% of the current total mining volume.
- Six to twelve months after the token is distributed, unlock 30% of the current total mining volume.
- One to two years after the token is distributed, unlock 40% of the current total mining volume.
- Two to three years after the token is distributed, unlock 50% of the current total mining volume.
- After the token is distributed for three years, all tokens are unlocked.

Chapter VII Project Implementation and Path Planning

2018.Q2
- ✓ VOC 1.0 software development
- ✓ White book published
- ✓ Activated Chinese and oversea community operation

2018.Q3
- ✓ VOC went Public for the first time
- ✓ VOC 2.0 software development
- ✓ Complete Chinese and oversea community operation

2018.Q4
- ✓ VOC 3.0 software development
- ✓ VOC went Public on several tread market

2019.Q1
- ✓ VOC 4.0 software development

2019.Q2
- ✓ VOC main network line
- ✓ Established offices in the US, Spain, Egypt, Japan and other languages to expand global business

Chapter VIII Disclaimer and Risk Warning

This document is the main official source of information about VOC. The VOC Foundation reserves the right to make changes and edits to this document if necessary. Before making decisions, you should ensure that you have read through and understood the latest version of the white paper.

This document is for communication purposes only. It is intended to introduce Vocal Chain to potential future users and its related product solutions so that they can decide whether to conduct in-depth analysis and participation and even use the service. The information listed above may not be exhaustive and does not represent any contractual relationship. This document does not constitute any advice on the acquisition of "VOC" and does not constitute an offer or request to sell shares or securities of VOC tokens or any related company. Any similar offer or levy will be made under a trusted clause and with the applicable securities laws and other relevant laws. The above information or analysis does not constitute investment decisions or specific recommendations. This document does not constitute any investment advice or instructive investment in the form of securities. This document is not sufficient and should not be construed as providing any sale or purchase, or inviting the sale or purchase of any form of securities, nor any form of contract or commitment. "VOC" only accepts compliant institutional investment. The team clearly stated that the relevant investment institutions have a clear understanding of the risks involved in participating in "VOC". Once they participate in the project, they understand and accept the risks of the project and are willing to bear all corresponding results or consequences.

"VOC" is the Token used by the blockchain application system of the "VOC Vocal Chain" for value transmission, and is not an investment. VOC tokens are functional tokens, not digital currency, securities, commodities or any other type of financial instrument. VOC tokens may not be used for any purpose other than those covered by this white paper, including but not limited to any form of investment, speculation or other financial purposes. VOCs should not be traded for their beliefs, other value items that are assumed or may add value. We cannot guarantee that the "VOC" will increase in value, and the VOC Foundation will not be liable for any loss caused by the VOC token

transaction for the purpose of profit. Users who do not use "VOC" correctly may lose the right to use "VOC".

"VOC" expressly disclaims any direct or indirect damages resulting from participation in the project, including but not limited to:

- Any financial risks that users may bring to participate in the projects recommended by the "VOC" platform;
- Any errors or omissions caused by the user misinterpreting the information;
- The loss caused by the user's trading of various blockchain assets and any consequences resulting therefrom;
- Direct or indirect economic losses caused by economic fluctuations in the blockchain market.