Jarvis+

Decentralized Intelligence Platform for Community and Economy

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Chapter 1 Abstract

Today, with the rapid development of global technology (artificial intelligence, the internet of things, blockchain, etc.), two important trends have been widely agreed:

- **Community**: Due to the rapid spread of the Internet, a large proportion of the world's population, especially young people representing the future, are spending more and more time on digital world. At the same time, based on different hobbies or social backgrounds, many new social organizations have been formed, which we call online communities, with sizes from several people to millions. Bitcoin was born from the community and evolved to breed blockchain. And Internet giants such as Facebook and Tencent are also outcomes of this big trend, as well as a series of recent new public companies around the community economy, such as overstock, PDD, Laix, Yunji, etc.
- **Data:** Data has become a core productivity. Using the data, they controlled, Google and Facebook keep growing their quarterly advertising revenues at a rate of 20%, not only monopolizing Internet advertising, but also seriously eroding the market share of the traditional advertising industry. Moreover, if we prospect the future, the world's latest technologies like artificial intelligence are all relying heavily on data, and thus data will only become even more and more important.

In this context, some new conflicts are beginning to emerge:

- Who can build and manage the community in the future? Does the future belong to the small elite PR teams, teams with KOL resources? Or should we enable all good ideas and independent voices to work with the communities much more easily?
- Who will master, manage and leverage data in the future? Who should enjoy the value of data? How can we achieve a fair value exchange between data producers and data consumers?

These new emerging conflicts have seriously hindered the development, breakthrough and dissemination of our new science and technology. For example, artificial intelligence has been very hot in recent years, but the lack of data is becoming a bottleneck for many individual researchers, institutions, or university labs. Today our data is in a complete central monopoly: everyone in the world could produce a lot of data every day, but they are all in the hands of big organizations. The result of monopoly is that technology development is seriously hindered (like the slowdown of deep learning in recently years) and the well-being of knowledge to the world is limited.

The use of blockchain technology allows knowledge and data to be recorded, transmitted and used more transparently and fairly. But unfortunately, blockchain is limited to only a small number of people. According to the report of Huobi in 2018: the number of global Bitcoin wallet addresses is about 24 million, and the number of Ethereum wallet addresses is sbout 32 million. The actual number of blockchain adopters may be only around 20 million, who are almost all distributed among the communities in chat IMs and make less than 0.3% of the total population of the world.

Jarvis+ is focused on community services and going to build a decentralized platform for social economies, which will address these conflicts in the end. To ensure the implementation and adoption, Jarvis+ is designed to work in two continuous stages:

1. **A platform of tools and services for blockchain and community economy**

Simply introduction, at this stage Jarvis+ is:

- An AI assistant for the blockchain communities, greatly reducing the community's creation, dissemination, growth, and management workloads, enabling each project or individual to embrace the great future of the community economy;
- Artificial intelligence (AI) + natural language processing (NLP) + knowledge graph (Knowledge Graph / Vault), easy to use, no complicated configuration, with the continuous use of users, Jarvis+ will become more and more accurate, more and more understand everyone and organization;
- An important infrastructure of blockchain communities, as any community can leverage Jarvis+ to provide users with a variety of services in any IM or self-developed app in a natural language (e.g. voice, text);

At this stage, Jarvis+ will work extensively with the blockchain communities and other internet projects which leverage community economy. We will make Jarvis+ partner with as many projects as possible and become a standard configuration for social economy, as Jarvis+ could bring rich intelligent services and the best community ROI.

2. **A decentralized platform for community data and economy.**

Based on the community penetration and impact in the previous stage, Jarvis+ will begin to provide services to community members (individuals). At this stage, Jarvis+ will be:

- Personal assistants for community users cross-communities & cross-platforms. Redefine the way users and blockchain interact so that everyone can use natural language to use blockchain technology and an open economy on any mainstream community software/app. The wonderful thing is that at this stage, a user does not need to "download" or "install" Jarvis+, as Jarvis+ is already in his/her community and already knows his/her interests and preferences. A user can access and use Jarvis+ at any time when he/she has the need or is willing to have a try.
- A decentralized community data platform. As Jarvis+'s AI bot technology can be seamlessly embedded on all major social platforms, Jarvis+ can collect social data for users from their favorite software/apps (instead of reinventing a new social platform) and create a decentralized social data platform directly from the "old world", allowing users to own and manage the knowledge and data they have created;
- A decentralized economy platform. Data is productivity and data can bring huge economic value. This economy platform will help users create more value for their knowledge and data. We are not willing to use the words "data market" or "data mart" here, but rather "economy platform" because "sell data" may be one of the ways in which user personal data can be monetized but it will never be the healthiest. We believe that in the future the biggest gain that users receive from personal data will come from the "data economy", that is, on the basis of ensuring user privacy and

ownership, users can authorize data to 3rd party to obtain services targeted at his/her requirements without useless "bling-bling" features, get offers with affordable prices, and enjoy huge price cuts as the service providers can also reduce a lot of user acquisition cost by just examining the data and find out the suitable target users. We believe this will ultimately achieve a win-win situation for everyone in the economy.

The Jarvis+ team is formed mainly by the AI and big data technology experts from world-class companies, like Microsoft, the German Institute for Deep Learning, Alibaba, Tencent and Cisco, and has the interactive design experts from famous game companies. Jarvis+'s name derives in part from Iron Man's AI assistant J.A.R.V.I.S (Jarvis): In the film, the interaction between iron man and Jarvis based on natural language is exactly what the team has been working on for many years; the + sign represents the project's Value: "Upgrade" and "Connect."

In June 2018, CNBC reported that Mastercard will invest heavily in new projects: Let people pay in natural language via voice (https://www.cnbc.com/2018/06/04/mastercard-looks-to-partner-with- Google-amazon-voice-assistants-for-payments.html). Both the Mastercard and Jarvis+ have taken note of the important opportunities and future trends of natural language in life (payment), but unlike Mastercard's starting point of manufacturing industry barriers and serving only their own interests, Jarvis+ will serve the decentralized blockchain community. And hope to achieve the following visions:

- Intelligent, natural language processing (NLP) is infused, which based on artificial intelligence and deep learning, integrating intelligent translation and knowledge graph. Able to accurately understand user intent, respond in a timely and accurate manner, break through language barriers, and pursue the ultimate and natural user experience.
- Diverse, which means freedom, which enables users to freely choose social channels, languages and platforms to do the trading, minimizing restrictions and barriers to trade. Another meaning is equality, in the future, with more organizations and people joining the community, together with the rules development of a sustainable community, and the guidance of community operations based on the equality, so that communities can evolve and sustainable development
- Democratic, means the threshold is low. Everyone can freely choose their familiar social channels and create smart contract through natural language for doing fair, orderly and barrier-free trading.
- Perpetual, decentralization through both the technology and operation sides, pursuiting the continuous and endless platform operation. The ultimate goal totally completes the decentralization from the infrastructure, operation model, to the organization management. Through technology and rules to get rid of the platform dependency on these specific people and organizations, that empowers the community Autonomy (DAO) to run forever.

INTELLIGENT   DIVERSE   DEMOCRATIC   PERPETUAL
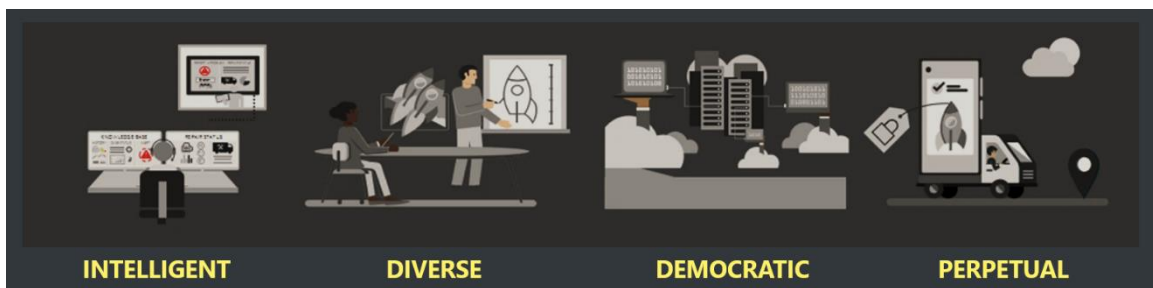
Chapter 2 Background and Mission

2.1 Background

Encouraging innovation to bring a more equitable society is the driving force for sustained development of human society. At present, human society began to enter the early stage of intelligent economy, also known as artificial intelligence and the Internet 2.0 era, whether a company, or even a country can be strong heavily relies on its scientific and technical intensity and intelligent ability. Yet the development and evolution of artificial intelligence is heavily dependent on data, and whoever owns the data has the power to form a monopoly.

On today's Internet platforms, Internet leading enterprises, such as the famous FLAG and BAT, is controlling most of the user traffic and have a large amount of user data. Which definitely has promoted the rapid development of Internet technology in past years and made the big data technology used widely. On the other hand, large Internet enterprises can use the large amount of user data and user traffic to carry out a detailed image analysis of user behavior, using artificial intelligence methods in a variety of application scenarios to design and develop the value-maximized products and services, therefore to attract and win more users and thereby defeat competitors. This has created a de facto Internet monopoly.

Thus, the data owners are not the creators of data, but are the world's giants, including: Apple, Google, Amazon, Facebook, Microsoft, Tencent, Alibaba, and a few others., whose combined market value of nearly 5 trillion U.S. dollars, is twice times the UK GDP.

Because the Internet breaks the geographical boundaries and allows information to circulate easily and quickly, everyone is a logical ID on the Internet. However, due to the serious delay of the Internet on the standardized management of information, these giants can become into the monopoly of user traffic, data and knowledge. Monopoly allow giants to maximize benefits over the long term and create the digital divides that allow the value of traffic and data to flow through their own controlled systems, killing the threatening innovation in the cradle.

Breaking the monopoly, so that everyone can free innovation, and human society enjoys the great well-being brought about by economic intelligence. Community and community economy, a consensus-driven form of organization, is breaking through the monopoly ecology to form a new ecology that breaks monopoly and rebuilds an ecosystem for innovation.

Community economy is based on people's same needs and interests, with the investment of a certain amount of time to form people-centric new economic. At the beginning of the community economy, the management capacity of the community formed by self-motions is low, so the size and impact of its economy is far from that of the existing Internet economy. But because the community economy essentially allows producers and consumers to work together, through a common experience and sense, which enable users to become the driving force for the best experience iteration of the whole process.

In the community, natural language is the most basic and natural way for people to interact with each other. The multidimensional information composed of human natural language is the cornerstone of social and human economic progress, data is the original carrier of information, individuals and organizations are the source of data creation, the community is an effective form of organization to disseminate and generalize knowledge in data, and more importantly, knowledge and data are the basic fuels needed in the future economic intelligence process.

2.2 Mission

The mission of the Project Jarvis+ is to empower everyone and organizations in the world, so that users can be masters of their own data and knowledge, and can be shared, exchanged and used fairly and equally in order to accelerate the development of science and technology and bring universal well-being to society, using the interaction of natural languages to embrace blockchain and the intelligent economy.

When knowledge and data are fully respected and circulated, everyone can freely exchange value, then the giant bondage and inequality will be eliminated eventually. Everyone and every organization are free to have more knowledge and data, which contribute to artificial intelligence more intelligent and make the Internet is more dynamic and more inclusive.

To achieve this mission, the Project Jarvis+ will combine artificial intelligence and blockchain technology organically, easily embedded into the community and adopted into any scenario, revolutionizing existing patterns and experiences of knowledge and data usage. There are two stages to achieve this mission.

At the first stage, Jarvis+ will be an intelligent tool and service platform to help everyone and every organization serve the user community and allow knowledge and data to be precipitated and accumulated; at the second stage, Jarvis+ will provide a decentralized economy platform

that directly connects with users and allows knowledge and data to have an aggregation effect, serving intelligent economy.

2.3 Scenario

The Operation and Growth of Blockchain Communities

Any blockchain technology is born in the community, is growing in the community, and ultimately returns to the community. The operation of the community has thus become the biggest pain point for many pure technology blockchain teams: on the one hand, it takes a lot of time and effort to get into community operations, which affects the development of projects; on the other hand, community management is not something that many teams are good at. Any negligence of the service may eventually affect the project's acceptance by the community.

Jarvis+'s AI conversation engine can support any social platform, any mainstream application, blockchain team just set some rules based on Jarvis+, early training personalized Jarvis+ AI, you can quickly let a lot of community service work to Jarvis+ to complete The team can spend more time focusing on the progress and landing of the project.

The Operation and Growth of STO Community

Similar to native blockchain projects, STO projects also need to win Community support to achieve the ultimate success. Most of STO project come from the traditional industry or the Internet, and does not have the blockchain background, so project starter or owner won't have enough investments into community operation. The Jarvis+ 's AI community assistants, and the toolchains for community growth and management, can definitely help these traditional projects embrace the blockchain economy more effectively.

Intelligent Perception to Community Engagement

Members of the community come from all over the world, so they are engaged together on some discussions, and initiated new topics across diversified interests, even there are several topics ongoing for discussion at the same time in the community. Thus, a large amount of data is being generated, and records the multi-dimensional information about the community, such as: Members' online length and activity, the hottest topics over a period of time, whether sensitive information appears in the discussion, and a variety of time-long dimensions (day, month, etc.) data analysis. Jarvis+, infused AI capabilities, combining big data analytics, and integrating business risk-control models, you can gain insight into the information of the data of the project community, which in turn enables community operations to be intelligent for deep perception of the community.

Gamification Experience Activating Community

Members of the community have the will to interact more with other members to understand the community, reach out to the community, and increase trust in the community; In addition, members need to gain the belonging in the community, with recognition among members. Through gamification, you can quickly remove the strangeness in the community, find like-minded groups, enrich the dissemination of project information. Jarvis+ provides gameplay capabilities that can customize game contents, support 2 ways for both single playing and group playing, and increase community activity.

The Transaction of Cryptocurrency and Digital Asset

The blockchain technology accelerates the development of crypto currency,

- In the process of encrypting digital currency transactions, the biggest challenge for new traders is the high barriers to entry, the need for considerable learning capabilities, professional knowledge, and the ability to operate tools, making a significant number of new digital currency investors. In a very long period of time, we are still placing orders through friends around us;
- Even for mature traders, due to the variety of crypto currencies and the differences in rules of each exchange, it is sometimes necessary to use multiple applications, multiple trading platforms, and multiple instruments to complete transactions between two cryptocurrency pairs;
- After the transaction is completed and successful, because the blockchain takes time to synchronize, the transaction results cannot be obtained in real time. Anxious traders can only check the latest transaction status for a certain period to confirm the transaction is successful.

The Jarvis+ platform provides the ability to use voice dialogs as a user interface, which can be easily and quickly integrated into the social platforms and mainstream applications that traders are most familiar with. Traders only need to use the human nature of their own familiar language communication, can not only query the price of an cryptocurrency, also issue cryptocurrency transactions, access to the transaction progress and results.

Blockchain Infusing Internet Communities

With the population of smart devices, the community has become the core of the Internet. For example, Facebook, Wechat, and Telegram have become the core applications for mobile Internet in all regions. Members of the community can participate in community exchanges and discussions through cell phones or computers anytime, anywhere. The community will also organize various offline communication activities from time to time, such as various sports events, life events, etc., and will also travel to various star teams and individuals. Therefore, the founders and operators of the community can use the consensus mechanism based on smart contracts to make the economy within the community more prosperous. This is already a clear future direction.

The Jarvis+ platform can do the integration within the Internet community and provide the most natural interaction and transaction experience. For example, members in the community can publish tasks at any time through speech or text, seek help, establish cooperation, and trade goods or services. Get some rewards. Each member can use the natural language approach to inquire about the types of tasks he currently cares about and wants to trade, or query the most motivating tasks, and then complete the task execution and transaction through natural language

Chapter 3 Overview of Jarvis+ Platform

3.1 Architecture

The infrastructure layer of the Jarvis+ platform is the below.
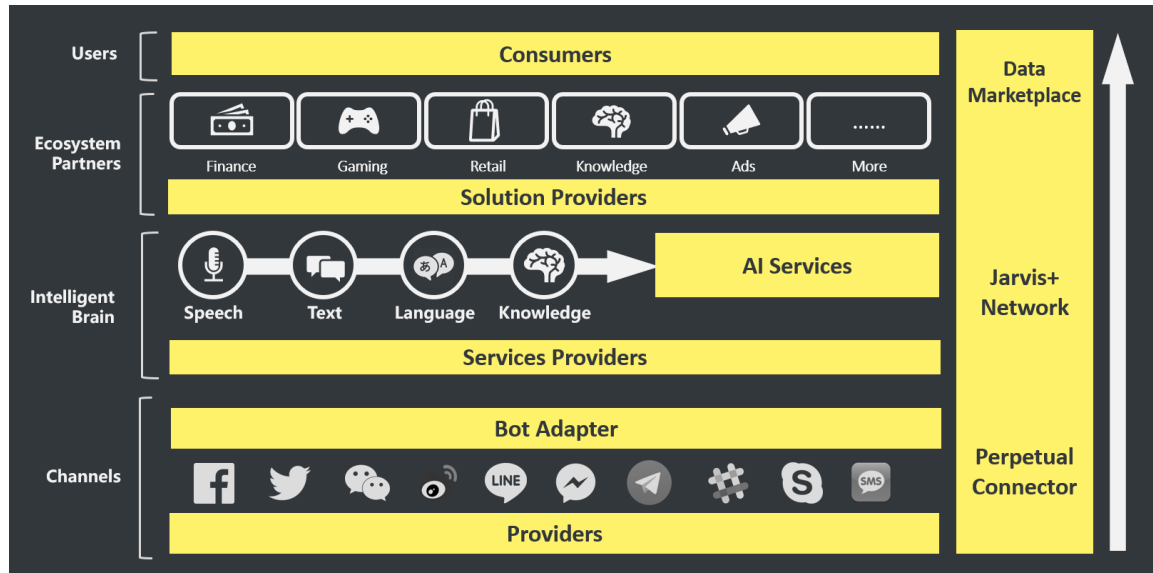
3.2 Infrastructure

"Jarvis+ Network" of the Jarvis+ architecture is the "Infrastructure" module, which will be based on the public cloud and public blockchain. The initial phase will be deployed on the Microsoft public cloud Azure and NEO public chain platforms. As our business expands and needs increase, we will adopt a 'multi-cloud + multi-chain' approach to support, maximize availability and stability, and pursue our vision of "perpetual" from the infrastructure layer.

The Perpetual Connector in the infrastructure layer is an innovation of Jarvis+. Through container technology, Jarvis+ business logic can be abstracted and run on various operating systems, keeping the Jarvis+ platform running forever. At the same time, we built the XC Container Service (JARS) that supports automatic packing, self-healing, horizontal expansion, service discovery and load balancing, automatic roll-out and rollback, confidentiality and configuration management, storage business processes, etc., enabling creation and configuration. It is easier to manage clusters that are preconfigured to run containerized environments. In turn, enterprise-class functions and security mechanisms on public cloud platforms can be fully utilized, and portability can still be ensured, and blockchain-based public cloud services such as storj can be further supported in the future.

After containerization, the underlying services of the X-Contract platform are all microservices and can choose the appropriate development language or database according to their own business characteristics; only need to install the runtime environment related to the service; little dependence on the deployment environment, a microservice deployment failure will not affect other runtime services; if the interface is not adjusted, the basic will not affect other

microservices, adding test, interface testing, low degree of automation, a small release of regression, a small scale of automation services (test).

Jarvis+ Container Service will be used to schedule smart contract running environment, computing resources and smart contract running instances for micro-service, containerization and distributed smart contract running nodes to ensure that the smart contract runs in an orderly, efficient and safe environment. As the orchestration engine and corresponding monitoring means exist, the smart contract running instances can be guaranteed to restart any fatal assets in time when the contract is running.

Designed for Multi-clouds Running

The X-Contract platform optimizes the architecture for the critical abstractions of the Region (region) and Available Zone (AZ, Availability Zone) at the infrastructure layer of the public cloud platform.

- Region: Region is the abstract ability of a public cloud platform to provide services to end users in a region. It was designed primarily to 1) reduce network latency for services on the cloud to reach end users; 2) comply with data and business service regulations in different regions.
- Available Zone (AZ, Availability Zone): An Availability Zone is an infrastructure area that is physically isolated from each other, with networks, power, and other supplies isolated from each other. It can simply be understood as the smallest unit of cloud infrastructure availability assurance. Availability zones are completely independent of each other and do not affect each other. It is important to note that an Availability Zone is also an abstraction, and it is not equivalent to the data center (or a physical room) being composed of multiple data centers as we describe.

In general, a single Region for a public cloud platform includes multiple Availability Zones to make it easier for users to deploy their business across the Availability Zones to achieve a high available architecture, thereby ensuring a constant flow of services and business. Cloud infrastructure providers guarantee that availability is completely independent of each other across multiple Availability Zones within each Region (but there is no guarantee that there will be no service outages in each Availability Zone).

Of course, for user services to run smoothly after deployment in multiple Availability Zones, public cloud platforms guarantee a very short network latency (typically less than 5ms) between multiple Availability Zones within a Region. This really limits the availability of Availability Zones by requiring that the physical distance between different Availability Zones within a Region not be too long. As can be seen, Availability Zones are the basis for public cloud platforms with high availability and are designed to serve as the core cloud services.

Running as Decentralized

Jarvis+'s infrastructure layer consumes a lot of energy to achieve "micro-services", "containerization", and support for a variety of cloud services architecture, in essence, to achieve "decentralized and sustainable operation."

Jarvis+ will be running as a dApp and focus on the application scenarios and business landing, to serve the ecosystem of public chains. In the future, once the dApp is proven and stable on both business model and technology architecture, then Jarvis+ will implement its own public chainbased on DPOS consensus, and grow our partners into the Token economy. Jarvis+ does not rely on any particular cloud service or operating environment. All computing or storage resources required are provided by super nodes. Super nodes are elected according to the DPOS protocol. About Jarvis+'s male/token design, please see Chapter 8 for details.

The smart contract of Jarvis+ also uses a blockchain as its storage. The stream of bytes after the smart contract is serialized will be stored in the blockchain for perpetual storage. For a single smart contract, each evolved version of a smart contract can be published on the blockchain.

In the decentralized smart contract running node, the smart contract data is backed up to each other and the execution results are mutually verified. This not only guarantees the validity and correctness of the data when the smart contract accesses the trusted data source, but also can realize the multi-instantiation of the smart contract and ensure the permanence of the smart contract.

3.3 AI Engine

From top-down, the second layer in Jarvis+ architecture is 'AI Engine' layer, which is responsible for converting the business and trading intents, expressed by natural language in the process of human-machine interaction, into the smart contract of the blockchains. At the same time, the combination of vision, speech recognition and other artificial intelligence technology supports the authentication, KYC, and other works to ensure the compliance and security, while maximizing the experience of user care.

Artificial intelligence and neural networks are not a new concept. Neural networks originated in the 1950s. In the 1980s and 1990s, neural network algorithms made many major breakthroughs. What was different from then was that today's computer scientists hold two super weapons in their hands: extremely powerful computing power and huge amounts of data, paving the way for neural networks, a Cambrian bioburden that can be called deep learning.

We are still in the early stages of an artificial intelligence-driven Conversation as a Platform, and objectively speaking, some of the issues that we find insurmountable today may be resolved in the coming years. We are quickly demonstrating to the world that users will be able to interact with artificial intelligence assistants for long-term and complex interactions. They can not only understand what the user wants to say, but also understand the user's preferences and tailor the corresponding experience activities for the user.

From a technical point of view, Jarvis+ uses the industry's most advanced deep learning technology to solve the application problems of artificial intelligence, including natural language understanding, machine translation, knowledge graph, face recognition, speech recognition, and so on. The overall structure is as follows:
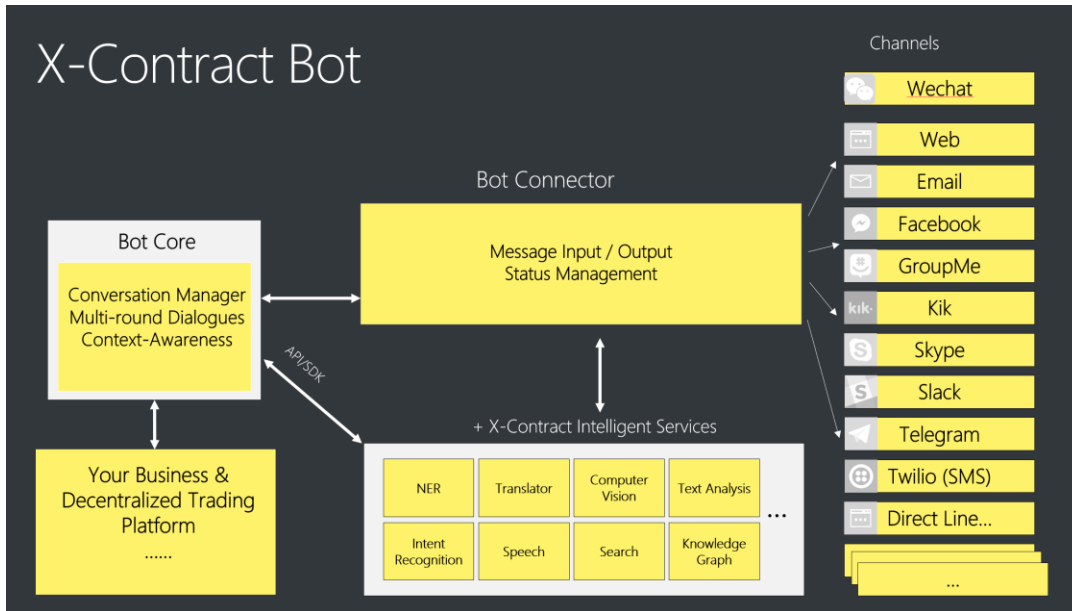
The Analysis of Context

Language is the essential characteristic that distinguishes human beings from other animals. Of all creatures, only human beings can speak natural language. All kinds of human intelligence are closely related to language. Human logical thinking is in the form of language, and the clear majority of human knowledge is recorded and passed down in the form of language and words.

Therefore, it is also an important, even core part of artificial intelligence.

Communicating with computers in natural language is a long-standing pursuit. Because it has obvious practical significance, it also has important theoretical significance: people can use the computer in their most accustomed language, without having to spend a lot of time and energy to learn all kinds of computer languages which are not very natural and habit, and people can learn more about human's language ability and intelligent mechanism.
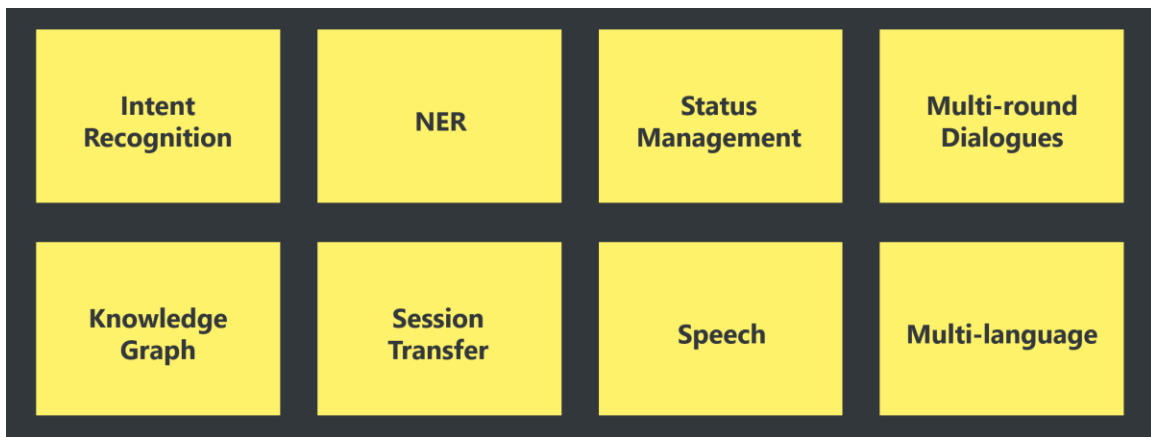
Semantic perception and analysis is also based on industry-leading neural network technology, which is divided into two parts: Intention Recognition and Named Entity Recognition(NER)

One of the basic mechanisms of chatbots is the use of text classifiers for intent recognition. Intent recognition is actual the classification of the user's sentences into the corresponding intent categories. To give a simple example, if a trader wants to change NEO to GAS, then this is the preparation of trading intentions. For example, if a trader wants to check the price of NEO, then this is an intention to query the currency price.

There are three ways of classifying text today: pattern matching, traditional algorithms, and neural networks. While the algorithm that uses traditional algorithms, known as Multinomial Naive Bayes, is surprisingly effective, it has three basic drawbacks:

- The output of Multinomial Naive Bayes algorithms is a score rather than a probability. We would prefer to get a probability to ignore predictions below a certain threshold.
- Multinomial Naive Bayes algorithms can only learn from the classified samples, but it is also important to learn from the negative sample samples.
- Non-balanced training data will result in a number of Multinomial Naive Bayes classifier value distortion, forcing the algorithm to different categories of data sets to adjust the size of the score.

We'll use 2 layers of neurons (1 hidden layer) and a "bag of words" approach to organizing our training data.

In English processing, the model uses NTLK for natural language processing. First you need to reliably cut the sentence into words (tokenize) and stem extraction (stem), where each word is converted to lowercase, and the stem is extracted. Stem extraction can help the machine understand that have and having are the same.

Our training data is transformed into "bag of words" for each sentence.
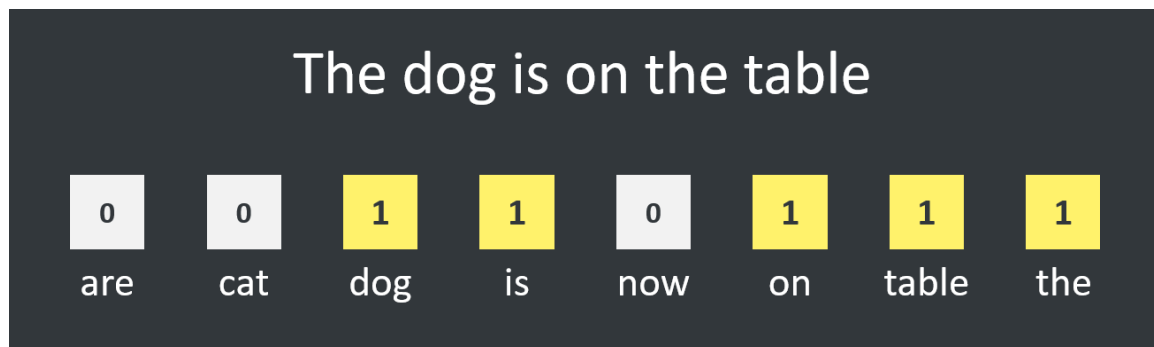
Each training statement is transformed into an array of only 0 and 1, and the member's ordinal corresponds to the position of the word in the corpus.

Neural networks are also learning from 0, the words that do not match the thesaurus. The resulting text classifier can handle a large amount of intent and is suitable for classifying limited or large amounts of training data. It is also easy to add one or more new intents to the model.

Named Entity Recognition (NER) is a classic problem in natural language processing and is used in a wide variety of applications, such as identifying names in a sentence, place names, product

names from e-commerce searches, drug names, etc. Named Entity Recognition is now used to extract parameters from user input, such as entering "I want to trade 5 NEOs for 15 GAS", which currency to buy, and which currency to sell.

The traditionally accepted better processing algorithm is conditional random field (CRF). It is a discriminating probability model. It is a random field. It is often used to label or analyze sequence data, such as natural language text or biological sequences. Simply put, it is used in NER to predict the label of each word given a series of characteristics.

The following figure:
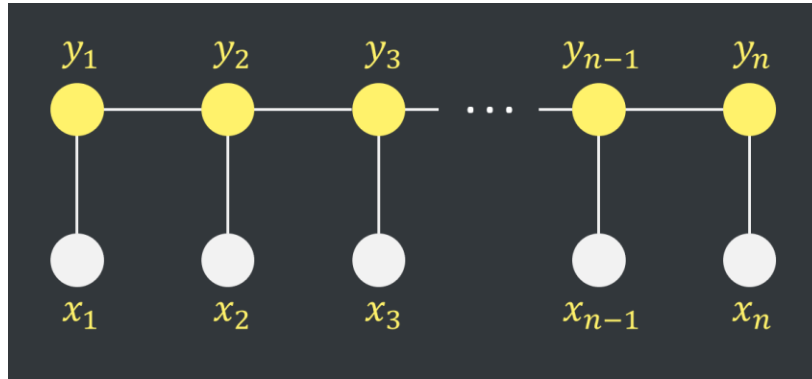
X can be regarded as the corresponding characteristic of each word in a sentence, and y can be regarded as the label of the corresponding word. The labels here are the currency type, the number of coins and so on. Usually we will take the characteristics of the lexical, there are other tags and so on, these characteristics need to be based on different scenes to artificial extraction, such as the extraction of human name feature is often possible to see the first word CRF, etc.
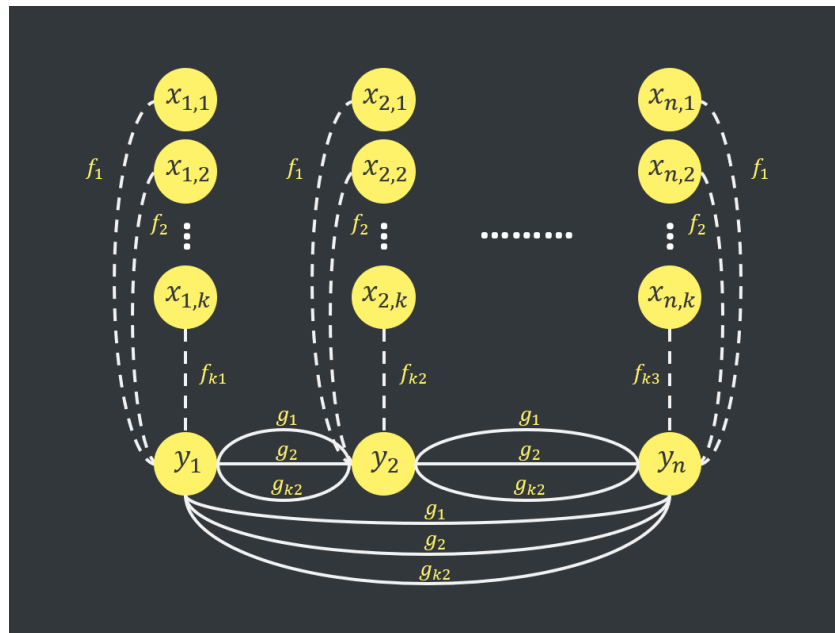
Because traditional CRFs rely heavily on human-extracted features, the model depends largely on feature extraction. Currently X-Contract uses the latest neural network technology to help extract features, and bidirectional cyclic neural network (Bi-RNN) + condition random field (CRF) is currently used. BI-RNN can learn the corresponding characteristic function according to the input training data, and CRF uses these characteristic functions to obtain the corresponding structure.

The architecture is below:
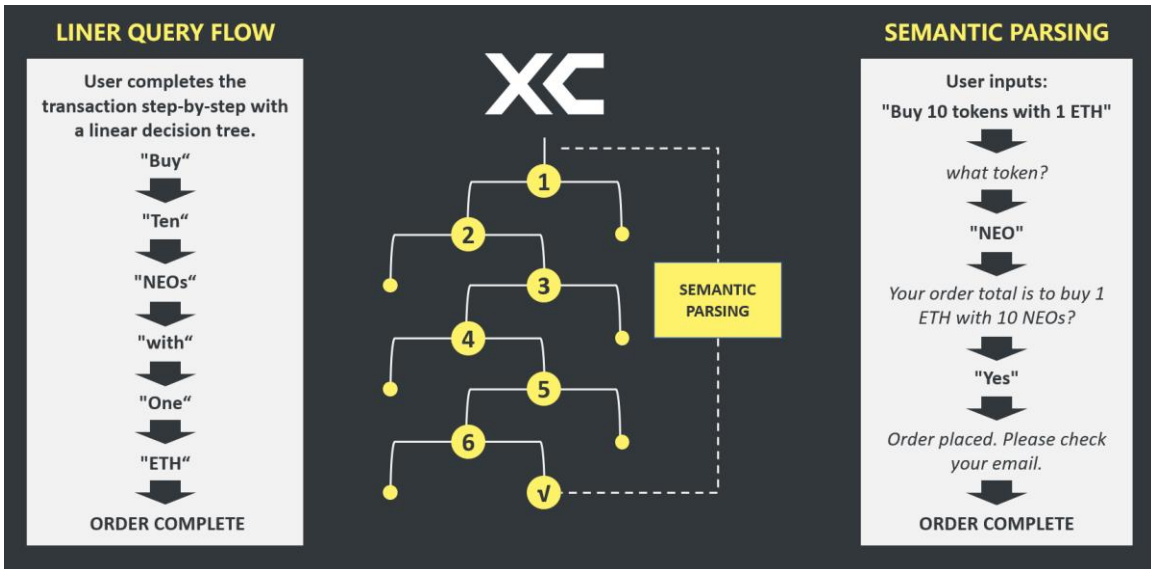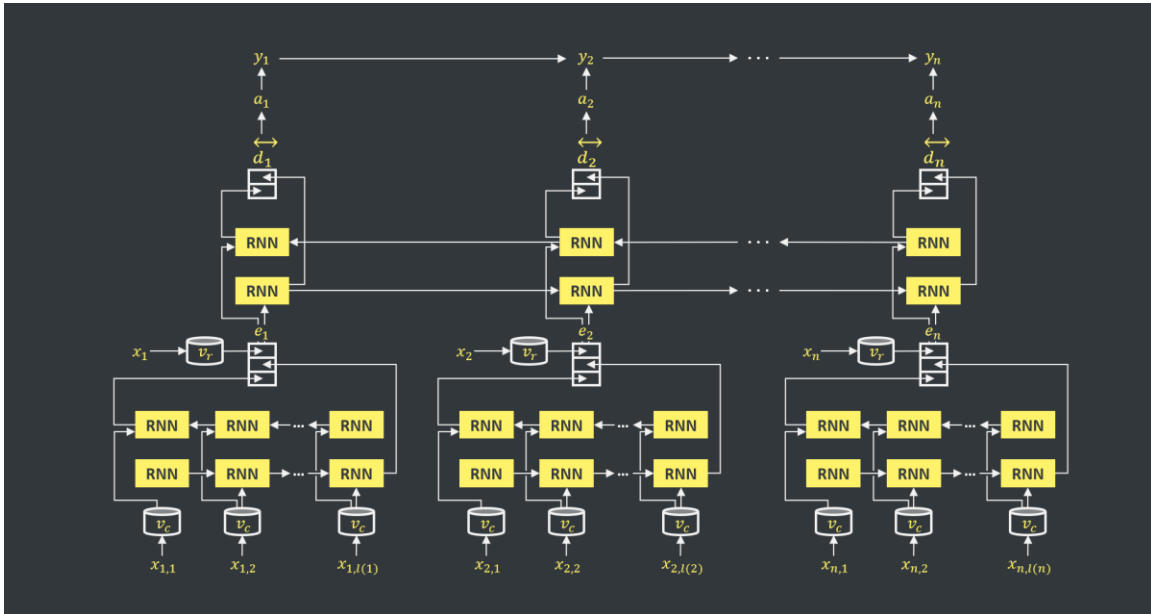
The implementation of the AI engine layer will be an iterative process. At the same time, we will start with specific transactional business scenarios, such as cryptocurrency exchange in the financial sector and Internet community incentives. In this way, the context can be focused, and the uncontrollability of context understanding brought by the open chat can be avoided,

thereby enhancing the actual experience of the user in a specific scenario. To maintain fairness and openness, the Jarvis+ platform will open its interface, allowing relevant third-party engines to access back-end services, such as exchange engines, game engines, and ad engines, while continuing to evolve to support more various business capabilities.

Knowledge Graph

In the Jarvis+ AI engine module, there is also a very important sub-module is the knowledge graph (the "Knowledge" module in the architecture). The knowledge graph is essentially a semantic network, a graph-based data structure consisting of nodes and edges. In the knowledge graph, each node represents an "entity" that exists in the real world, and each edge is a "relationship" between the entity and the entity. The knowledge graph is the most efficient representation of the relationship. In layman's terms, the knowledge graph is the ability to link together all different kinds of information in a network.

The knowledge graph was first proposed by Google and is divided into a schema layer (concept) + data layer (example). It is composed of RDF triples < Entity 1, Relationship, Entity 2>. The schema layer can also be called ontology. The most basic ontology includes concept, concept level, attribute, attribute value type, relationship, relational domain concept set, and relational domain concept set.

At present, the establishment of the knowledge graph usually adopts the combination of top-down and bottom-up. The top-down approach is to pre-build the ontology through the ontology editor. The map pattern defines the domain, category (type), and topic (topic, entity). Each field has a number of categories, each category contains multiple themes and associated with multiple attributes or relations (properties), these attributes or relations belong to the category of the subject need to include properties and relationships. Bottom-up way through all sorts of extracting technology, especially through search and Web log Table to extract found in categories, attributes, and relationships, and the high degree of confidence of model merge into the knowledge graph. That is to extract relationships. The top-down approach is helpful for extracting new instances and ensuring the quality of extraction. The bottom-up approach can find new patterns. Knowledge merging is essential when knowledge is acquired from multiple sources. Consider issues such as entity disambiguation (qiaodan), co-meaning digestion, etc.

Based on a large number of user dialogue inputs and massive amounts of Internet data, the running process of Jarvis+ is a development process for building an intelligent knowledge graph of the blockchain investment domain. Through opening up data sources related to users and then extracting the user's tags allows Jarvis+ to integrate the relevant information into a structured knowledge graph, and the user service for the feature tagging will become more and more accurate.

The Conversation as a Platform that Jarvis+ wants to build is not limited to natural language. The Jarvis+ robot will have a knowledge graph with a blockchain world that can identify and advise users on Jarvis+ dialogues and transactions, which can be enabled in the broader scenarios such as anti-fraud, smart search, intelligent question and answer, smart marketing, etc.

3.4 Channel & App

At the channel and application level, the X-Contract platform can be integrated into any user channel, including Facebook, Skype, Slack, Mail, WeChat, Weibo, website pages, cryptocurrency wallet, etc., and even the enterprise applications. Based on these channels, buyers, sellers and service providers can conduct business across channels in finance, games, retail, etc. As well as they can develop and grow their own ecosystem, which enabling them to unleash business momentum.

In fact, WeChat and Facebook Messenger have become absolute monopolies as the IM applications in different regions. The huge user base and social requirements all make the future of messaging applications full of imagination, and Bot (a type of robot) will become a catalyst for the expansion of messaging applications. Whether it is a IM platform in China, a government service in Singapore, or a British voice-based personal assistant, chat bots are taking over everything.

Number of mobile phone messaging app users worldwide from 2016 to 2021 (in billions)

Year	Number of users billions
2016	1.58
2017	1.82
2018 *	2.01
2019 *	2.18
2020 *	2.34
2021 *	2.48
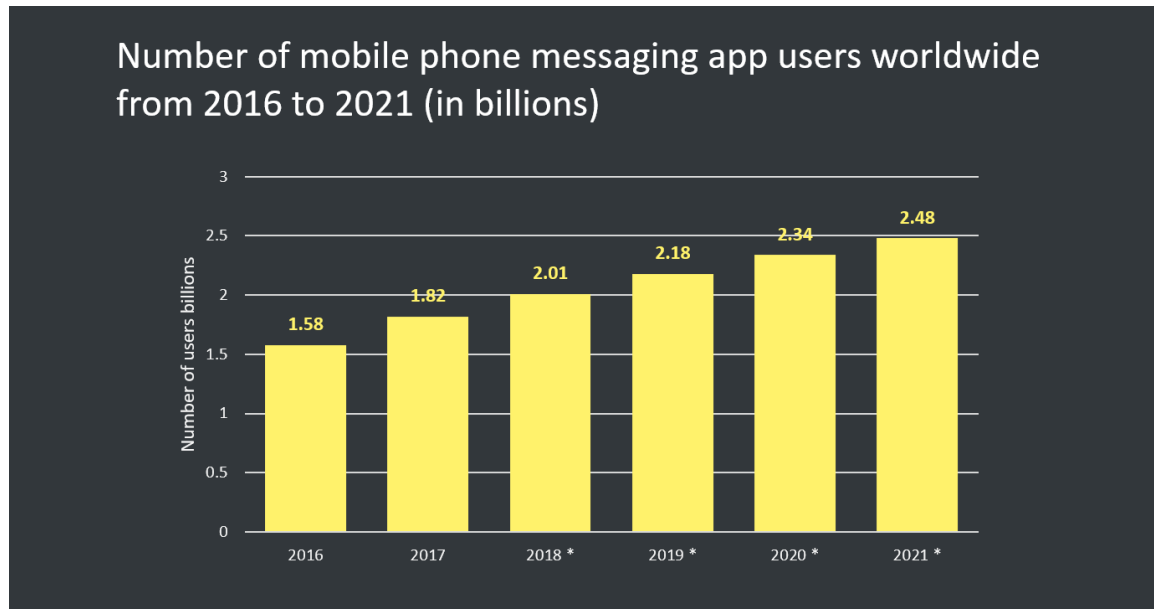
The next generation of user interfaces will not be built on quasi-physical designs or confusing menus but will be based on the simplest of conversations. From Slack to WeChat, from Kik to Facebook Messenger, from Telegram to Amazon Alexa, chat bots are becoming the main interactive interface between humans and machines.
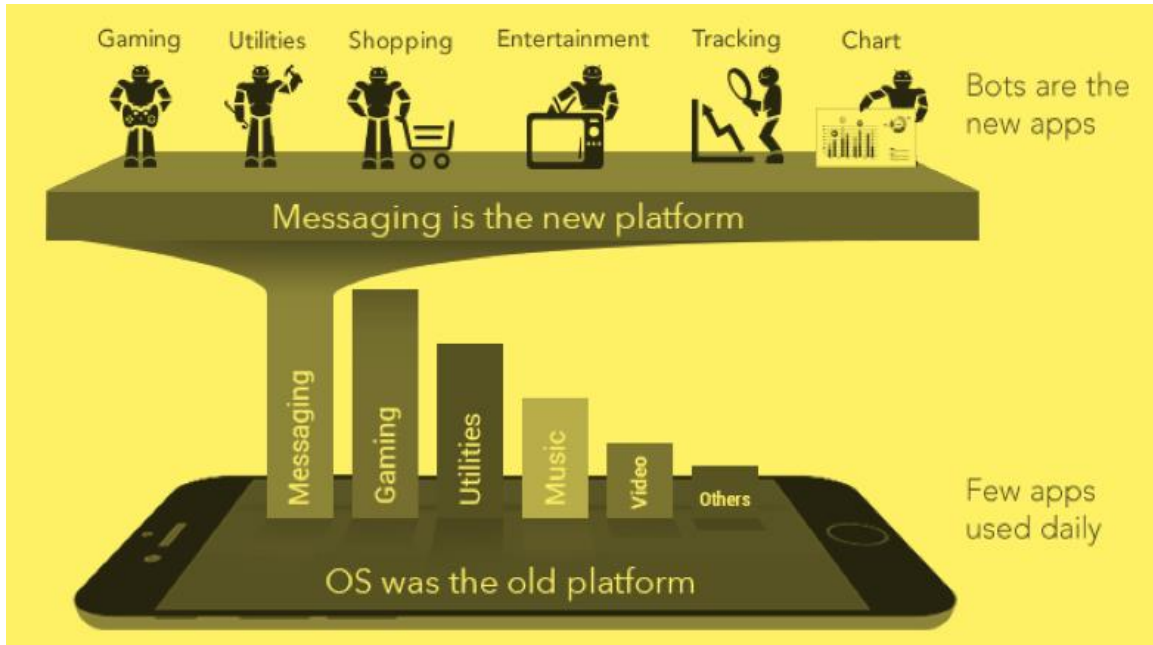
Jarvis+ uses the Bot service to connect various IM platforms, enabling users of different IM platforms to communicate and exchange with each other. Whether on Skype or WeChat, you can use Jarvis+'s services to communicate and trade in natural language. A new smart contract created in Telegram can be found and consumed in Facebook Messenger. Jarvis+ builds a Bot Adapter to connect various mainstream IM platforms, realize a completely decentralized world, and achieve explosive development through a massive user base. The decentralized smart economy established on this will break the giant's monopoly advantage, and any giant will not be able to block the existence of Jarvis+ and ensure the continuous operation of the service.

No Language Boundary

Genesis mentions the origins of human multilingualism, and the complexity of human languages is becoming a constraint on the development of the Internet and the global economy. According to Ethnologue, there are now 7,100 languages spoken around the world, but only about 5% of them are on Internet pages. Even the official languages of some countries, such as Hindi and Swahili, are rarely included in the Internet.

Translation is particularly important in order to facilitate communication between regions and to enable people from all regions of the world to participate in the smart digital economy built by X-Contract, which currently supports more than 60 languages, covers 95% of global GDP, and enables cross-border, language-free dialogue and transactions.

Traditional translation algorithms are based on SMT technology, which has stagnated since performance improvements in the mid-2010s and is not particularly effective for Chinese-English translation. X-Contract now uses industry-leading neural network (LSTM) -based translation, which has led to a decade of improved translation quality.

Neural network translation is fundamentally performed differently from traditional SMT translation. Using a neural network model, translation takes into account complete sentences,

while SMT technology considers only a few words of context. Therefore, neural network translation will produce results that are more fluent and close to human translation.

Based on neural network-based training, each word is encoded along a 500-dimensional vector (a) to indicate its unique characteristics, targeting specific language pairs (e.g. English and Chinese). Using language pairs for training, neural networks will customize what these dimensions should be. They can train simple concepts such as gender (female, male, neutral), politeness level (slang, casual, written formal, etc.), type of words as well as any derivative data of nouns.

The steps of the neural network translation run as follows:

1. Each word or more specifically 500-dimensional vector represents it, passes through the first layer of "neurons" and encodes it in a 1000-dimensional vector (b) representing the range of other words in the context sentence.
2. Once all words have been encoded by these 1000-dimensional vectors, the process is repeated several times, each layer finely tunes the expression of the word within the 10000-dimensional window to only 3.
3. The translation attention layer (the software algorithm) will use this final output matrix and previously translated words to determine which words from the source sentence should be followed to the final output matrix. It will also use these calculations to remove unnecessary words from the target language.
4. The decoder (translation) layer converts the selected word (or more specifically the 1000-dimensional vector representing the complete sentence of the word) in its most appropriate target language equivalent. This output layer (C) then feeds back to the attention layer to calculate the next word that the source sentence should translate.
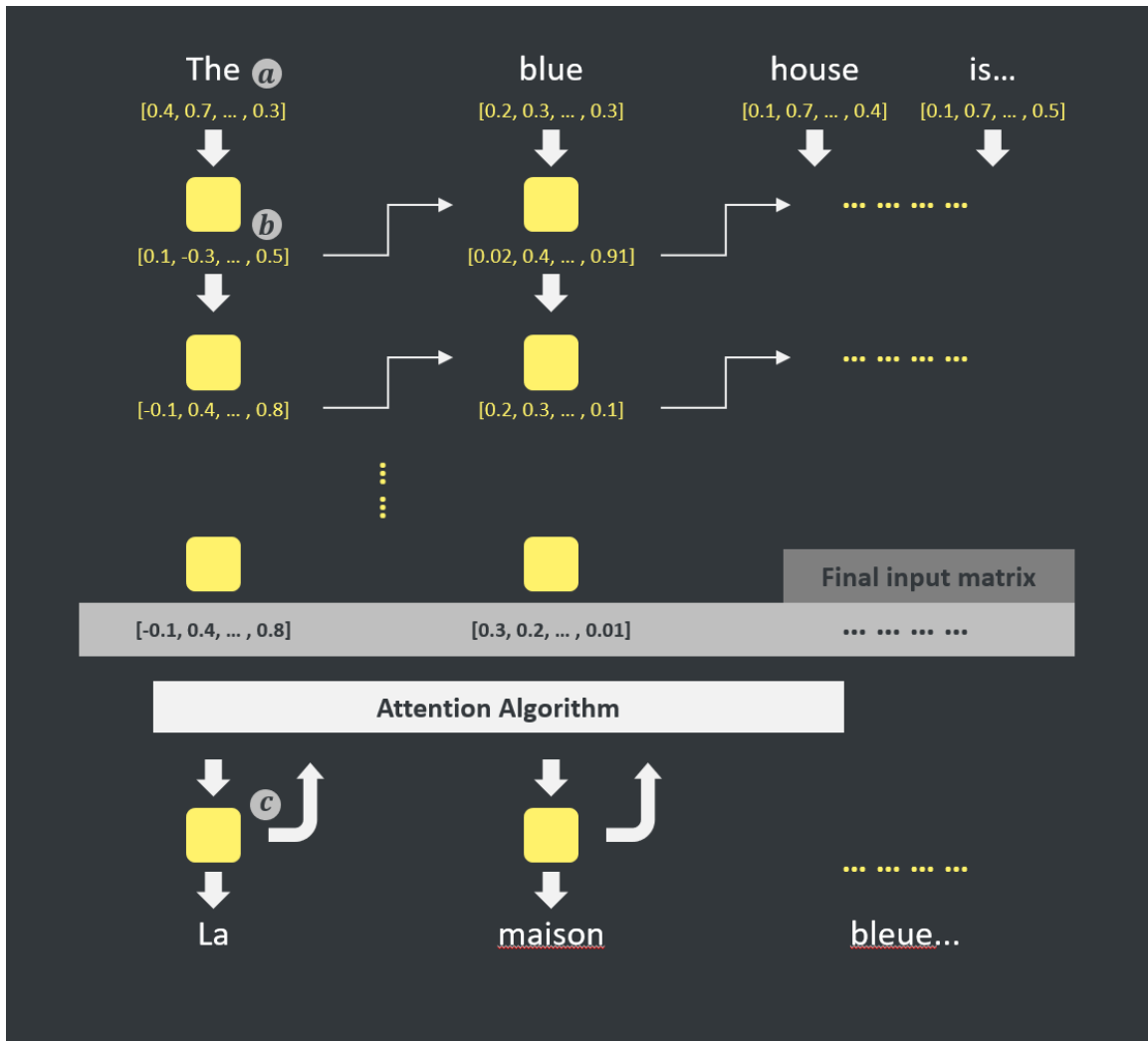
As shown above, the context-aware 1000-dimensional model of "the" encodesthenoun (house) as a French feminine word (la maison). This translates "the" appropriately to "la" rather than "le" (singular, male) or "les" (plural) when it reaches the decoder (translation) level.

Note that the algorithm will also compute based on previously translated (such as "the" in the image above), the next step in the translation of the word should be the subject ("house") rather than an adjective ("blue"). This can be done because the system has learned the order of words in these sentences when converting English and French.

If the adjective is "big" rather than an adjective of color, it should not be reversed ("The Great House" => "La Grande maison").

The final translation result based on neural network algorithm is in most cases more fluent and closer to human translation than that based on SMT.

We believe that cross-border, language-free communication will contribute to the prosperity of Jarvis+'s smart economy. With the increase of platform ecosystem partners and continuous precipitation of data, there will be more business opportunities on the platform, such as search-based or recommendation-based advertising systems, credit collection systems, and investment

and financial management. So, Jarvis+ is a business platform based on a completely new experience, a fully distributed, and diversified business philosophy. Compared with the traditional platform, it is more revolutionary and open.

3.5 Open Platform

Jarvis+ provides an open, complete and secure open platform to help ecosystem blockchain solution developers, exchanges and platforms, industry solution providers, channel and application developers, community partners, and more quickly integrate the ability to transact conversations on smart contracts across public blockchains.

Jarvis+ provides tools, documentation, and code samples, and all of the code runs in the cloud, ensuring services run on demand, anytime, anywhere, and forever.

The capabilities of the Jarvis+ open platform include:

- Multi-Factor Login, Authentication, KYC and Authorization
- NLP-based Smart Contract Query, Establishment and Transaction
- Smart Contract Triggering, Conversion and Execution cross Blockchains
- Cooperative Channels and Applications Self-Service Access
- Third-Party Engine Tools and Community Access
  Rich Business Scenarios and Voting Mechanism Templates

Auth. or KYC	Transactions	Voting	Natural Languages
Channels & Applications	Smart Contracts	3rd Party Engines	Scenario Template
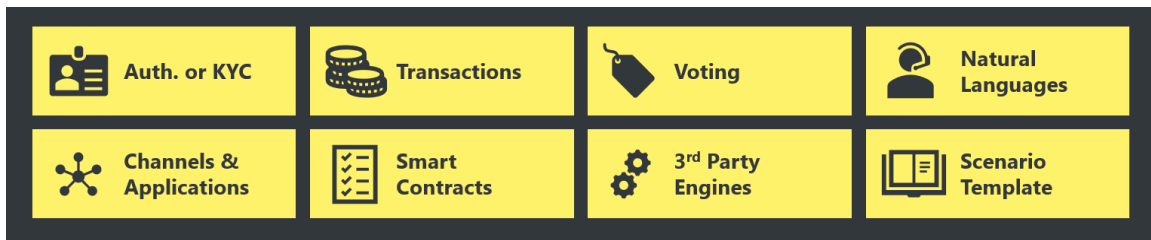
3.6 Decentralized Marketplace

The top layer of the architecture is the data consumer of the Jarvis+ economic system, and the data consumer pays the JAR to get the AI capabilities and solutions of the Jarvis+ network.

Jarvis+ will build a decentralized marketplace to break the monopoly and build a more equitable world. Everyone (both individuals and organizations) is financially motivated to provide personal and professional data. We know more about sharing sensitive data (expenditure, health information) when we know that this data can be secure and secure (through decentralization and secure computing). Compared with those mastered by GAFA, as time goes by, the market will accumulate more and more data, and the quality of the data will be higher and higher. Based on this data, machine learning experts are motivated to compete, and the best performing models will receive disproportionate returns. The data provider (ordinary user) and the data processing party will receive the JAR as a reward.

Decentralized Data

In the AI-centric world, users always provide their own private data, behavioral data, etc. to large companies for free. We want to enable users to control all of their data, in their own

hands, to ensure that any data provided by individuals and companies is stored and processed in a completely private manner, and when large companies use the data, they need to The data provider provides the JAR to pay. Jarvis+ uses the encryption economy to motivate users to participate in the provision and generation of integrated data. In the Jarvis+ network, the security and motivation of all data provider data is guaranteed.

Decentralized Model

The user's metadata is invaluable or low value in most cases. Only the marking becomes training data or input into the model. Training a model is a high-value product. The previous model was mainly provided by Jarvis+, the main service provider that helps users (sellers) process data, become community solutions, and sell to companies (buyers). Later, Jarvis+ inspires more third parties through JARs to become service providers competing in this market to provide the best machine learning model, while the entire system operates as a self-reinforcing network, attracting more and more participants and creating Getting better and better AI. Many third parties can process data into a variety of labeled data, or a variety of models, and even solutions in a variety of industries.

Decentralized Computing

Many recent great advancements in AI have been driven by the massive increase in computing power, which is both a result of better utilization of existing hardware and the development of new high-performance hardware specifically for AI. The main computing power in the early stage was mainly provided by Jarvis+. Later, JAR was used to inspire more third parties to become service providers, providing computing power to help train the data on the Jarvis+ network into a model.

By creating a decentralized AI economy, Jarvis+ achieves the tokenization of the artificial intelligence economy, so that everyone can enjoy the value of the artificial intelligence economy.

Chapter 4 Building Apps on Jarvis+ Platform

Based on the infrastructure of Jarvis+ platform, a series of exciting blockchain innovations can be built. These applications may be developed by ecosystem partners or the Jarvis+ team itself. Due to space limitations, the following list only some innovative applications as examples.

4.1 The Conversion of Various Smart Contracts

A smart contract is an agreement that can automate tasks that would otherwise require manual effort. The benefits of a smart contract are: reduced manual intervention in the execution of the agreement, automatic execution of the trader's undertaking, exemption from third-party intervention, precise execution conditions, and predictable execution results. A contract conversion is a set of commitments made by the trader, that is, the rights and obligations agreed by the contract participant are translated into a numerical process that the computer can recognize and execute.

Smart Contract Conversation

Jarvis+ conversion refers to the use of the natural language of the trader to understand the trader's claims through semantic recognition, to translate the trader's claims into intelligent contract execution scripts, and ultimately to convert the smart contract execution scripts into byte streams that the computer can recognize and execute and store in a blockchain.

There are three key components of a smart contract: the transactional input, the performance condition, and the transactional output. Trader input refers to the transactional demand, the assets of the transacting party, and the performance condition expected by the transacting party.

Trader's assets are those that can be manipulated by the smart contract. These assets will be temporarily kept by the smart contract in the account. The expected performance conditions of the trader will be translated into the execution script of the smart contract. Jarvis+ understands the trader's desired trading conditions through semantic recognition and converts the trader's expected trading conditions into computer-recognized scripting language for the execution of the smart contract through the smart contract generation engine.

The performance conditions, which are converted from the desired trading conditions entered by the trading party, are precise and precise. The performance conditions will be described by Jarvis+ as a scripting language that can be understood by both the trading party and the computer. The traders can understand the scripting language in which the smart contract can be executed. It is important for the traders to eliminate misunderstandings among themselves and to ensure that the integrity of the intelligent contract.

Transaction output, that is, the result of the execution of the smart contract according to the performance conditions, that is, the transfer of the smart contract to the asset. The execution result of the smart contract will be recorded in the blockchain, to complete the execution of the entire smart contract.

Efficiency of the Conversion

At present, the writing of smart contracts mainly relies on popular professional programming languages. For example, NEO's smart contracts rely on C #, a popular computer programming language in the industry. Ethereum invented the private smart contract programming language solidity, etc. For traders, these languages are difficult to understand, which is difficult for them to understand that the terms of performance of smart contracts are not conducive to the principle of transparency of smart contracts at the time.

In the future, Jarvis+ will use the scripting languages such like Python or JavaScript to build smart contract. These scripting languages are popular, simple syntax, and have a large audience. In the authoritative survey of the TIOBE website, Python language ranked fifth in 2018, and JavaScript ranked eighth, which greatly facilitates the development and promotion of smart contracts in the future.

Security

At present, smart contract execution is mainly done on the consensus node of blockchain. However, there is no effective mechanism to constrain the code of smart contract. Although the development of blockchain technology is still in its infancy, from the perspective of the future, it is very likely that a virus program based on smart contract will execute on the consensus node of blockchain in the form of smart contract, thus achieving the purpose of destroying the whole blockchain.

Jarvis+'s smart contract execution engine will use sandbox technology to isolate each instance of a smart contract and impose limited resource usage conditions. This has the advantage that the smart contract code running in the sandbox is isolated from each other. Once an issue occurs in the execution of a smart contract code, it will not affect the execution and performance of another smart contract code running in the sandbox.

Jarvis+ will fully implement the signature system of the smart contract script code, sign the smart contract with the private key associated with the smart contract developer's address, prevent the script code executed by the smart contract from being tampered with in the future, and guarantee the fairness of the smart contract performance.

Multi Public Blockchains Supported

Unlike the current smart contracts, which can only be executed on their respective blockchain infrastructure, Jarvis+ is committed to the performance and enforcement of smart contracts across multiple public chains in the future. Jarvis+ will serve as a standalone SaaS / PaaS platform for developers and traders in the future. Therefore, Jarvis+ will interface with the industry's mainstream shared chains to support the flow of assets across different public chains.

4.2 The KYC on Multi-factors Authentication

KYC (Know Your Customer) as an important part of the transaction, the current KYC process is cumbersome and lengthy, and requires a lot of manpower to identify the user submitted materials. X-Contract will use the power of artificial intelligence to provide efficient and safe KYC programs, the full use of human face recognition, voice fingerprinting, equipment fingerprinting and other artificial intelligence technology to enhance the accuracy of customer information to

better optimize the overall level of artificial intelligence and artificial intelligence to identify the risk.

- **Face Recognition & Vivo Detection**

The current X-Contract face recognition algorithm is based on the latest convolutional neural network technology (CNN), the model is based on the ResNet (Real Neural Network), and some adjustments have been made. The addition of residuals in the ResNet solves the problem that neural network layers cannot be trained at a deeper level. The network, which borrows the Higway Network's input and output, is optimized by a layer of the original Hi-X output.
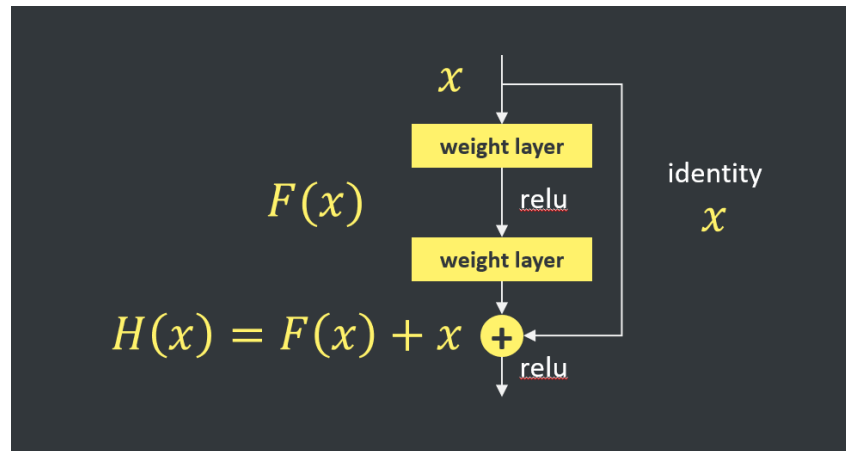
In order to prevent malicious forgery and steal other people's biological characteristics used for identity authentication, biometric systems must have live detection function, namely judge whether the biological characteristics of the submitted from a life of individuals.

General biological characteristics in vivo detection technology is use of people's physical characteristics, such as living fingerprint detection can be based on the fingers of the information such as temperature, perspiration, conductivity, live face detection can be based on the movement of the head, breathing, information such as the red eye effect, live iris detection can be based on the iris vibration characteristics, eyelash and eyelid motion information, the pupil contraction expansion reaction characteristics of visible light source intensity, etc.

With mature facial recognition technology, commercial application more widely, however, face to replicate with photos, video, etc, thus to legitimate users face counterfeit is one of the most important threat to face recognition and security authentication system. At present, we have made some progress in living detection methods based on dynamic video face detection, face blinking, thermal infrared and visible face association.

At present, the method of instruction action is used, such as the face left, right turn, gaping mouth, wink, etc., and the instruction matching error is considered to be a fake cheat. Face recognition extracts the location of the relevant feature points and detects the changes of feature points through the command action to realize the detection of living bodies.

- **Voiceprint Recognition**

Everyone has a unique voice, sounds look very simply, but it contains a wealth of information, such as language type, accent, content, gender, age, emotion and other information. X-Contract

combines voiceprint recognition and speech recognition applications to identify not only the identity, but also to identify the content. The current industry commonly used methods include template matching method, recent methods, neural network method to enhance the depth of user identification, the use of neural network authentication, X to greatly reduce the risk factor, the risk of intelligent user identification.
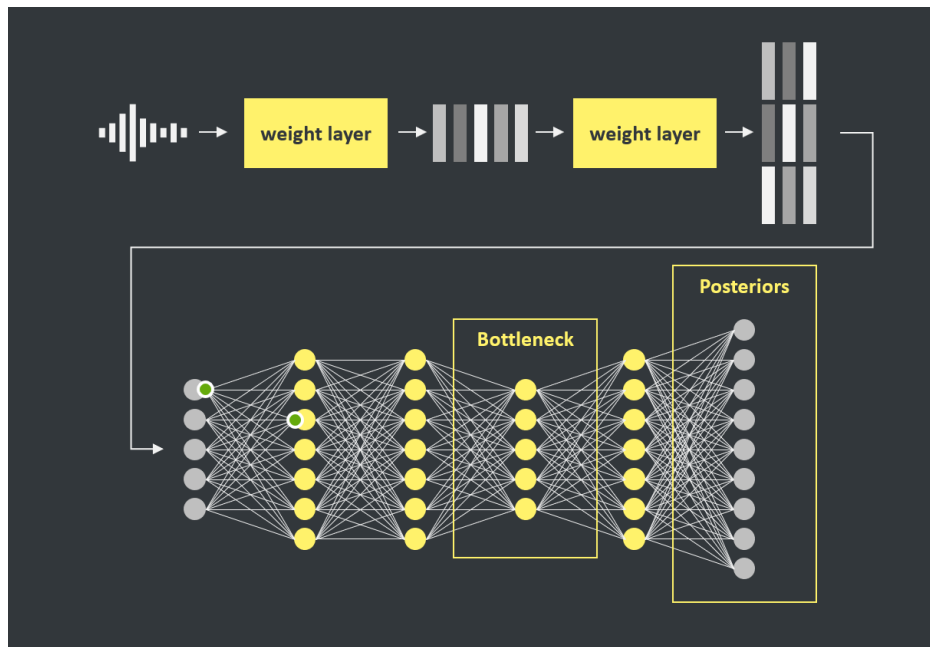
- **Knowledge Graph based Risk Management**

The knowledge graph established by X-Contract will be able to identify the fraud risks related to the account, such as account embezzlement and garbage registration. Including registration, login, transaction, transfer and other business links. Depending on the scenario, the risk score threshold that triggers the secondary validation will also be different.

Intelligent multi-factor authentication can balance system security and user experience. On the one hand, it improves system security by introducing the latest intelligent authentication technology. On the other hand, through risk assessment, these authentication links can only be triggered when necessary, which greatly avoids the intrusion of authentication methods to users.

4.3 Anti-Fraud

Anti-fraud is a very important link in the risk control of blockchain finance. The core of anti-fraud is the people. Jarvis+ integrates related information into a structured knowledge map by opening the user-related data source and then extracting the user's feature tag. Among them, not only the basic information of the user can be recorded, but also the consumer's daily life consumption records, behavior records, relationship information, and online browsing records can be integrated into the knowledge map. On this basis, the user's risk is analyzed and evaluated to resist the risks in the transaction.

Jarvis+ builds a comprehensive understanding of the statistical analysis of user risk data by building a map of known major fraud factors (such as message platform IDs, mobile phones, devices, accounts, and geographies, etc.), and responds to potential fraudulent actions in a timely manner. Of course, this requires that all kinds of information of the user can be obtained in all directions, and machine learning and natural language processing techniques can be used to extract data conforming to the map specifications from the data.

Compared with the identification of false identities, the discovery of group fraud is more difficult. In general, group fraud is often hidden in a very complex network of relationships and is difficult to identify. Only by sorting out the network of hidden relationships, it is possible to analyze the potential risks. Using the vast amount of data accumulated by Jarvis+ knowledge maps, developers can implement risk-control anti-fraud applications that facilitate analysis and prevent group fraud.

4.4 Smart Investment Advisor

Jarvis+ currently collects data from about a few hundred companies in the blockchain field on the platform. The data is divided into three types. The first is the basic data of the company, including the data of the supplier, the founder, the descriptive data of the company, and the label of the company. The second piece is Jarvis+'s efforts to collate and analyze some of the company's data on the Internet by collaborating with partners. There is also a piece of information on pan-sex sentiment, such as recruitment, search popularity, salary levels, and staff turnover. Developers can integrate this information into the knowledge map, provide users with relevant investment advice, and implement smart investment advice applications, such as whether to buy a currency.

4.5 Precision Marketing

Jarvis+ combines multiple data sources to analyze relationships between entities to better understand user behavior. For example, you can discover the common preferences of an organization, so that you can have a targeted marketing strategy for a certain group of people. Jarvis+ can help companies better and deeper understand the needs of users, help companies to better do marketing, develop marketing tools for the crowd.

4.6 Smart Q&A

Jarvis+ implements an intelligent automatic question answering system through knowledge graph. Jarvis+'s knowledge graph engine can understand entities and their attributes involved in user statements and the semantic information corresponding to the query. Through an efficient graph search, subgraphs connecting these entities and attributes are searched in the knowledge graph and converted into corresponding graph queries. These translated graph queries are further submitted to the graph database for answers and the corresponding answers are returned.
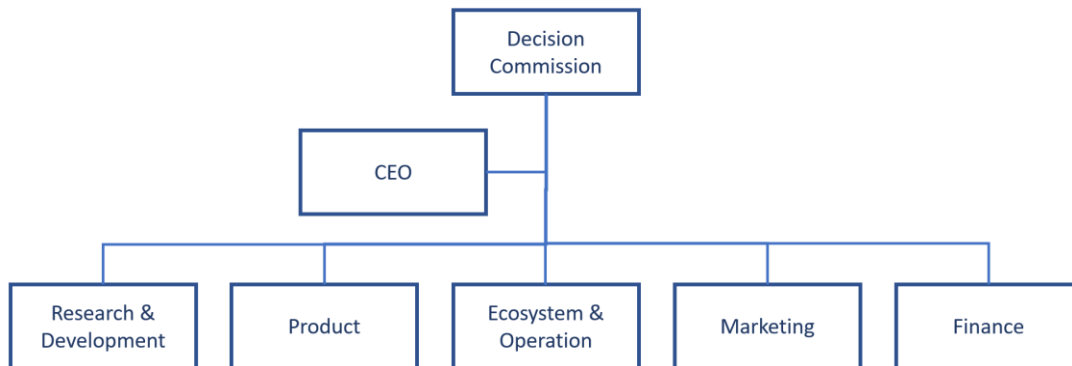
Chapter 5 X-Contract Foundation

5.1 Establishment of the X-Contract Foundation

X-Contract Foundation was established in Singapore. The main mission of the Foundation is to develop and operate the Jarvis+ Platform in an open, impartial and transparent manner, not for profit, and to support the development team of Jarvis+. The X-Contract Foundation is approved by the ACRA, is regulated by the Singapore Companies Authority and is comprised of an independent board of trustees.

Known for its stable and sound legal and financial environment, the X-Contract Foundation is a non-profit organization incorporated in Singapore. Under Singapore law, the Foundation is a legally constituted organization established to support or participate in activities of public or private interest without any commercial interest. The profits obtained by the Foundation are referred to as surplus and will continue to be retained as other activities and not distributed among its members.

5.2 Organization

To enable the X-Contract Foundation to make rational use of the Foundation's funds and resources in an open, fair and transparent manner, to continuously promote the rapid development of the ecosystem and the application scenarios, and to attract more institutions, companies and organizations into the open Jarvis+ ecosystem, the Foundation has established a three-tier organizational structure as follows:

5.3 Board

Decision Commission

The Decision Commission is the highest decision-making body of the X-Contract Foundation. It has the ultimate decision-making function. The members of the Decision Commission are not divided into various positions. They are responsible for deliberating and approving key issues such as strategic planning, annual plan and budget of the Foundation, and voting on behalf of the Foundation on major ecological issues of the Jarvis+. As the ecosystem continues to expand, the size of the Decision Commission will be expanded.

CEO

The Chief Executive Officer shall be elected by the Decision Commission and be responsible to the Decision Commission. The Chief Executive Officer shall fully organize the implementation of the relevant resolutions and regulations of the Decision Commission, shall be responsible for the daily operation of Jarvis+, shall fulfill all the goals issued by the Chief Executive Officer, and shall report to the Chief Executive on the implementation on a regular basis.

Research & Development Dept.

The R&D department is responsible for the development of the infrastructure technology. To ensure the product development of Jarvis+ platform, the R&D department will work with other teams closely, adjust and communicate project details in timely, and determine the roadmap of research and development in the next stage.

Product Dept.

The Product department is responsible for developing and refining the product framework provided by the R&D department, establishing concrete strategies for sustainable development, including conducting market research, coordinating product functions, and undertaking Jarvis+ UI design, image design, etc. Members need to be constantly aware of community dynamics, hotspots and feedback, actively communicate with Token holders, and hold technical seminars and other activities from time to time.

Ecosystem & Operation Dept.

Eco-Operation department is responsible for both internal and external engagement. First, it extends its work to the depths, actively develops partnerships, and closely links Jarvis+, end users, service providers, and partners to create an open, distributed, privacy-preserving platform. Second, it builds an ecosystem within the community that is conducive to interaction, the free flow of information, and fully symmetrical users.

Marketing Dept.

The Marketing Department is responsible for promoting core or derivative products and services of Jarvis+. Its responsibilities include, but are not limited to, media liaison, advertising and user interaction design. The Department will work closely with Eco Operator 41 to develop the most appropriate communications plan based on the requirements of partners and end users.

Finance Dept.

The Financial department is responsible for managing the financial matters, including capital management, accounting, cost control, etc. It is also responsible for risk management operations and will work with other departments to analyse and assess the operational and financial risks of digital assets. In terms of auditing, given the special nature of digital assets and Token itself, the existing system makes it difficult to employ a professional audit committee with transparent experience in making decisions.

Chapter 6 Teams

6.1 Founders

Matthew Connor

As the GM of Firelight Technologies, he leads the FMOD business, a famous game engine provider. As a new technology enthusiast, Matthew has been focusing on and entering the blockchain industry since 2015. He is an influential early evangelist and stakeholder of 'blockchain + AI'.

Alex Lee

The lead of blockchain business and partner cooperation in Microsoft, successfully help many well-known projects and companies to grow rapidly, such as Neo, Onchain, BuBi, Hyperchain, 33.CN, etc, and having very strong connections to these domestic BlockChain companies. Prior to joining Microsoft, he worked in Alibaba, Cloudera, Intel and Oracle.

Stephen Wu

The CEO of Muhe Network controlled by a public company. Continuing entrepreneurs and leading the lifecycle of project start-ups, financing and acquisition, and having strong business operation background. Started the blockchain related business since 2015.

Dean Gao

The CEO of Artificial Intelligence Technology Center (Repesentetive Entity of DFKI in China), which is a Sino-German joint venture that concentrates on applied AI research and technology commercialization. Before AITC, Dean was the General Manager of Voicebox China. Voicebox is a US AI company headquartered in Seattle, and building Voice AI technologies for automotive, smart phone and IoT devices. Dean also worked for Microsoft China as the Lead of Microsoft BizSpark startup acceleration program.

Ben Robertson

The business GM of Zen Ecosystem. Ben has been focusing on and working on the innovative business created by the edge technologies, like AI. He is also helping on the growth of the startups on blockchain projects.

Roc Sheh

The AI technical evangelist in Microsoft. He has promoted the implementation of Microsoft AI technology in many milestone projects such as Youdao, WeChat, CITIC and Auto Home and so on. He has rich experience in AI projects. Winner of Excellent Lecturer in several Microsoft Technology Conferences.

Terender Zhang

Principal technical leader in ICT industry. As a technical veteran, he has more than 10 years' experience in the ICT industry, and focusing on graphics technology, game engine and design across platforms, and blockchain technology and its applications.

6.2 Business Consultants

Bo Shen

General Partner of Fenbushi Capital that exclusively invests in distributed ledger-enabled companies. Bo is a veteran of the traditional financial industry, accumulating years of senior management experience in brokerages, hedge funds, and investment banks. He also previously co-founded Invictus Innovation Inc., the team behind BitShares.

James Gong

Co-founder of Longhash, the CEO of ChainB and the founder of ICOAGE, once the biggest ICO platform in China. James has been involved in the cryptocurrency and blockchain industry since 2012 and is extremely well-known in Chinese blockchain circles.

Tony Tao

Tony is the chairman of NEO council, and investor of cryptocurrency.

Dr. Sven Schmeier

The Chief Engineer and Associate Head of Language Technology Lab Berlin of DFKI. Sven has extensive experience in data mining and machine learning, human-computer dialog systems, information extraction, semantic search, big data analytics, question answering and mobile applications of NLP technologies. He has successfully led more than 15 national and international projects in research and industry.

Tom Gotuzzo

Senior VP of RiskPro, a US financial risk control technology company, and the form VP of Global Sales and Business of Voicebox, a intelligent voice company. Tom has strong experience in the AI and big data technology and is a recognized industry pioneer and opinion leader.

Hai Shi

A game industry veteran with over 20 years of experience, currently serving as the senior producer of the world's largest sandbox game, Minecraft. Before that, he was running Microsoft's gaming platforms in APAC from Singapore. Before joining Microsoft, he worked as department lead in both Ubisoft and Sony.

Joe Zhou

Joe is the co-founder of Muhe Network, and the co-founder & advisor of CarBlock, a leading blockchain project in automobile industry founded in 2017. At Muhe, he led the company to become a leading provider of the mobile apps and HTML5 games in China and to be acquired for $100 million.

Tory Xu

The principal technical evangelist in Microsoft and focusing enabling partner ecosystem to use the next generation of Microsoft platforms, covering edge and cloud technologies, as well as development and cross-platform tools.

Pengtao Lin

Pengtao is the core developer and chief evangelist of NEO project.

Michael Xiong

As a partner of Accountants, Michael has nearly 20 years of financial company and listed company (IPO) audit experience and financial management experience.

Chapter 7 Development Roadmap

Time	Milestone
2017 Q4	Project started and Architecture 1.0
2018 Q1	Prototype and Whitepaper 1.0
2018 Q2	Developed Bot Adapter for English and Chinese Design of Contract Converter and Perpetual Connector
2018 Q3	Beta of Contract Converter for NEO/GAS 2 channels added Bot Adapter Token system development JAR generated on ERC20 for inspiring community
2018 Q4	2 channels supported Bot Adapter Beta of Contract Converter for ETH dApp and AI Bot service going live
2019 Q1	New channels supported Bot Adapter, including WeChat Multi-languages supported Bot Adapter Specification of Contract Converter
2019 Q2	Whitepaper 2.0 released, and Architecture 2.0 started Ecosystem partner started Trial invitation opened to community and partners The first stage of Perpetual Connector completed Specification of Bot Adapter
2019 Q3	Second-stage business scenario platform started Second-stage AI platform started Business scenario platform started Bot data protocol specification announced Operation platform going live
2019 Q4	The second stage of Perpetual Connector Specification of AI platform

	Insider program for community First batch of business scenarios going live Data insights platform development
2020 Q1	Bot data uploading into decentralized marketplace started More channels supported Bot Adapter Second batch of business scenarios going live Insider program of AI platform for community The design of decentralized marketplace started
2020 Q2	AI platform going live The partner for AI platform started
2020 Q3	NLP data market based on bot data going live The third stage of Perpetual Connector completed
2020 Q4	AI feature and data insight platforms integrated going live Unified community AI service principle NLP data marketplace Eco Partner Program
2021	Continuously development

Chapter 8 The Smart Economy based on Jarvis+ Coin

8.1 Introduction of Jarvis+ Token Economy

There are two stages designed for the Jarvis+ token economy:

1. Business landing, the development of intelligent community platform including dApp + AI Service + Smart Assistant. This stage focuses on implementing the AI capabilities, tool chains for community, scenario business solutions, and others. With more and more blockchain community to use the intelligent community platform and realize their business goals, then more and more knowledge and data will be accumulated in the community, and the demands of community will be met with democratized way. Then Jarvis+ will be infused into token economy.

2. Economy platform, the implementation of decentralized economy platform and dual native tokens. Once the goals of the first stage is achieved, Jarvis+ will provide a decentralized economy platform, through involving partners, channels, consumers and providers, and then everyone in the community can become the real owner of their knowledge and data, the value of which can be exchanged in a decentralized marketplace cross multi popular channels. At the same time, Jarvis+ will to use duel tokens model to grow the value and circulation, and to build the mutual benefit with partners through voting mechanism of token economy.

This chapter will feature the ultimate Jarvis+ token economy, two kinds of native tokens in the Jarvis+ economy: and.

In the first stage, Jarvis+ Coins (abbreviated as JAR) is the only token for both governing (e.g. adjusting Jarvis+ parameters) and consuming (JAR will be consumed when Jarvis+ services are being used). The smallest unit of JAR is 0.000000001, with a total amount of 600 million tokens (600,000,000).

In the second stage, JAR will be focused on governing. JAR is used to manage the authority of the Jarvis+ economy system. The management authority includes voting for accountants and adjusting Jarvis+ parameters. At that time the new Jarvis+ main net will use Delegated Proof of Stake (DPOS), giving it an advantage over Bitcoin, which uses Proof of Work (POW), which suffers from high cost and low efficiency.

Moreover, we are planning to introduce Jarvis+ Gas (abbreviated as JPG) as the fuel token in the second stage, with a total amount of 600 million (600,000,000). JPG is used to control the resources when that are used by ecosystem. JPG powers the service fee during the token transferring, and the operation and storage of the smart contract, in order to incentivize economic activity and prevent the abuse of resources. The smallest unit of JPG is 0.000000001.

The purpose of introducing JPG is to avoid potential conflicts between the overall ecosystem value (JAR) and the cost of use (JPG) of Jarvis+. In addition, JPG also brings benefits to JAR holders, which thus further encourages users to hold JAR.

As the first stage of Jarvis+ is quite simple, we will only introduce the future ecosystem designed for the second stage in the following paragraphs, which is the ultimate Jarvis+ economy.

Witness Mechanism

JAR's Witness node collects transactions and bundles them into a block, and then broadcasts them to the network. The witness's role is similar to the role of miners in the Bitcoin ecosystem. Every user in the Jarvis+ ecosystem can vote for any number of nodes, and when any node obtains more than 1% of all votes (the JAR proportion of the total ecosystem), it is eligible to be a witness node to generate the blocks and be compensated accordingly. The witness node list will be updated after the tally is counted at the end of each maintenance cycle (1 day). Each witness node takes turns to generate blocks. Multiple witness nodes can be run in different countries, using several types of servers or devices, which can mitigate DDoS attacks and improve block efficiency.
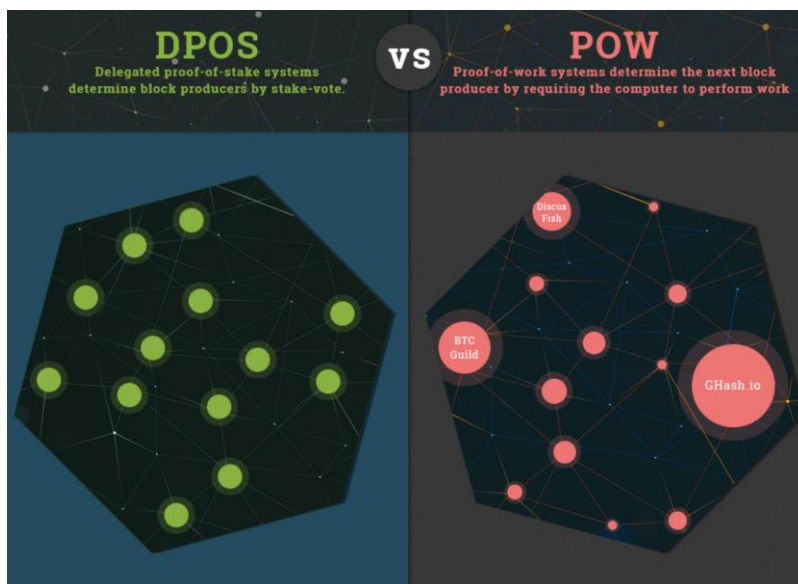
Voting mechanism

Users can vote on every aspect of the Jarvis+ ecosystem, not just the selection of witness nodes. Most of the network parameters can be adjusted by voting, from cost formulation to new business scenario templates. Users can even vote for their representatives to vote for them, by proxy vote. This ensures that everyone in the ecosystem has the right to elect someone to represent them and their interests. The right to participate in the ballot is JAR.
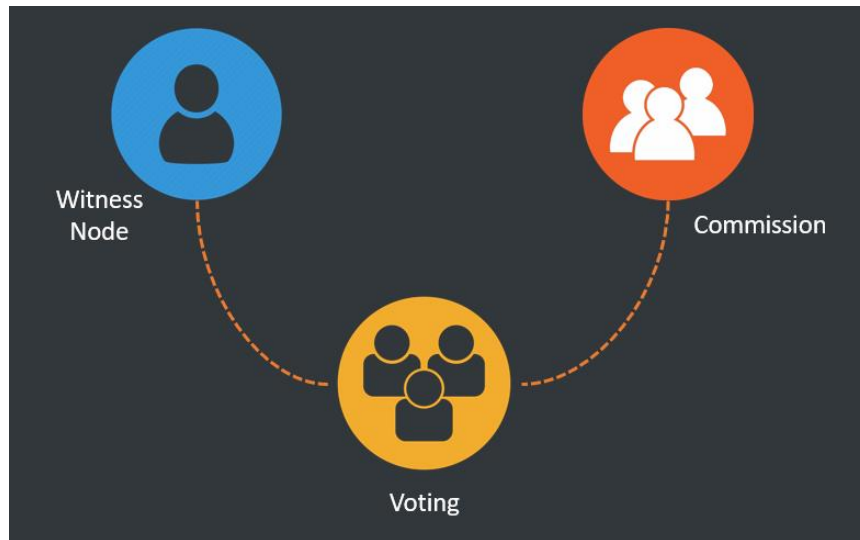
JAR Distribution Ratio

JAR will be distributed four ways:

1. Community sponsors: A maximum of 45% of JAR will be incentive to the sponsors who do the financial contribution at the various stages.
2. Community operation: Jarvis+ communities and operations are used for marketing, business development, legal compliance, etc., to encourage the sustainable growth of the community and ecosystem. This part of JAR will be calculated on the first on-line exchange date, after 3 months, 3 years in three phases to unlock one issue per year, a total of not more than 35% of JAR.
3. Partner: Expert consultants in artificial intelligence and industry partners will be allocated 10% of JAR.
4. Team: The core Jarvis+ team will unlock a maximum of 10% of the JAR. It will be unlocked quarterly over the course of three years.

JPG Distribution

JPG be generated with each new block created only after JAR is converted to global assets. The initial total of JPG is zero, and gradually increases with the formation of each new block. Each block in Jarvis+ is created in intervals of 15-20 seconds, or roughly 2 million blocks in 1 year.

After about 22 years, the total number of JPG will reach an amount of 600 million. In the first year (0-2 million blocks), each block will generate approximately 34 JPG; in the second year (200-400 million blocks), each block will generate 30 JPG. The number of JPG generated by each block will decrease by 4 JPG annually until the 8th year, when only 2 JPG will be generated by each block. At this point, each block will generate 2 JPG until the 44th million block is generated in the 22nd year. When the total number of JPG reaches 600 million, new blocks and new JPG will no longer be generated.

According to this distribution curve, 16% of JPG will be generated in the first year, 52% of JPG will be generated in the first four years, and 80% of JPG will be generated in 12 years. According

to JAR's holding ratio, JPG will be recorded with a corresponding address. JAR holders can initiate a claim transaction at any time and claim the JPG to JAR's address.

## 8.2 The Roles in Token Ecosystem

The following roles will apply in the Jarvis+ token system:

- The X-Contract Foundation will work to grow the ecosystem as a token administrator.
- Customers, the end users, are producing and consuming the knowledge and data.
- Providers, service vendors, are consuming the knowledge and data.
- Ecosystem partners will include ecosystem-services companies, business advisory teams, the developer community, social app partners, etc.
- Currency exchanges will include cryptocurrency exchanges, OTC platforms and other exchange providers.
- Investors will include cornerstone investors, private equity, and other investors holding tokens.

8.3 The Use of Token

In the current first stage, Jarvis+ primarily serves blockchain (and SMEs) communities and receives service fee (including BTC, ETH, cash, or other tradable Tokens) which will be used to repurchase JARs from the open market. The JAR from the repurchase will be locked for 6 months, and then the community will vote whether to destroy, or to redistribute these JARs as a kind of rewards to Jarvis+ ecosystem contributors and supporters.

After entering the second stage, beside as the "service fee" at the first stage, JAR will also become the default currency for the community data marketplace. When the data consumer requests the data, or when the data consumer issues an offer to the data provider, the payment flow and consumption process will use and consume the JAR. Like the first stage, data consumers are free to use BTC, ETH, cash, or other tradable Tokens to pay, and then the payment gateway will repurchase the JAR from the open market. Most JARs will reward data provider(s), and the rest will be locked for 6 months for the usage of community consumption. The community will vote whether to destroy, or to redistribute these JARs to Jarvis+ ecosystem contributors and supporters.

Token Circulation
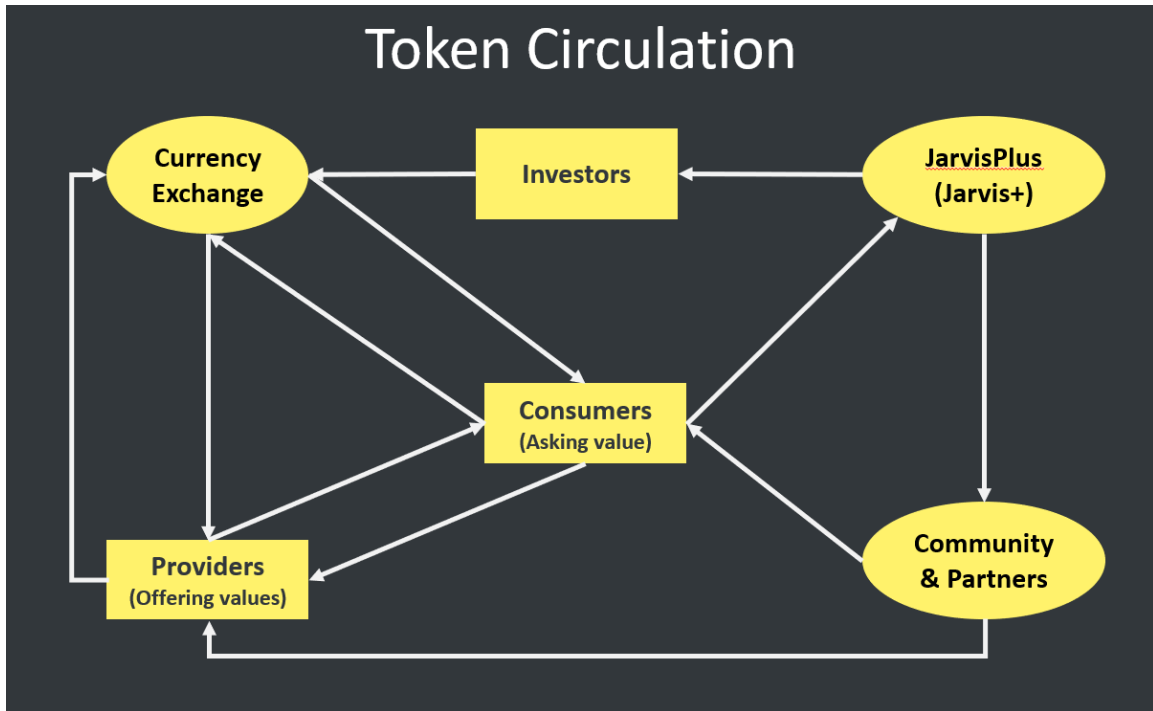
In the future, when Jarvis+ implements DDPOS and JPG (Jarvis+ Gas), JAR will also be used to participate in the voting and management of the Jarvis+ ecosystem, including the creation of scenario template, the generation of witness nodes, and parameter voting, etc. JAR will be distributed to investors, advisers, community volunteers, partners, witness node founders, and other people who benefit from contracts created by using Jarvis+. Since this point, JPG will be sued for most of the service consumption functions, which ensures that JAR has investment value and JPG has the use of circulation value.

8.4 Token Empowering Smart Economy

In the global economy, small and medium-sized enterprises have disadvantages compared to large enterprises with vast resources. Large enterprises can use their own brand advantages, financial strength and operating scale in order to act monopolistically. They can squeeze out their smaller competitors by providing high salaries to poach the core teams of SMEs, buy out competitors, or copy their rivals' products. However, SMEs employ vast numbers of workers and are the source of key innovations in business and technology.

The Internet has come to an important crossroads: is it leading towards centralization? Or towards equal interconnection, the original goal of the Internet? We believe that most people desire the latter but have been struggling to find a way. The JAR and JPG blockchain is based on decentralization concepts that use pass proof to build a sustainable token economy. Tokens, a virtual good with cryptographic assurances, traceability, and auditing features means it cannot be forged, altered, or double spent.

Jarvis+ allows SMEs to adopt artificial intelligence techniques to place transactions by using dialogue such as voice, language, and text. Jarvis+ gives SMEs the power to sell products and

services to customers using tokens conveniently without the need for program developers. This lowers barriers to participate in the Token Economy and increases the potential of ecosystem.

SMEs have immense potential to participate in the Token Economy. Free from the influences of giant monopolies, they can use it to transform their business and create new business models, or reconstruct their original business model. Since tokens can be transferred, circulated, and used to store value, its value is derived from the value of an enterprise's products and service. With low-cost artificial intelligence interaction (UI), tokens can expand the power of the end-user and lower the cost of participating in the Token Economy, circumventing monopolies and their hold on traditional economies. At the same time, the role of Jarvis+ in the smart economy is different from a traditional equity business entity. Block chain and tokens work as a bridge and use mathematical means to allow parties in a transaction to cooperate beyond a one-time deal. With mutual benefit and a trust mechanism, parties can reach a consensus among each other in order to achieve optimal economic models that increase efficiency over time.

The Growth of Ecosystem

- **Stage One**

In the first stage of building the Jarvis+ platform ecosystem, we reduce barriers for using intelligent economy by introducing artificial intelligence technology in certain use cases. SMEs joining the ecosystem in the initial stages can expand their businesses to new consumers and gain an advantage over their peers operating in traditional channels. Also the more continuous accumulation of knowledge and data, the more innovation of new business.

- **Stage Two**

In Stage Two, we will disrupt traditional business models by building a decentralized economy and marketplace to penetrate traditional industries at low cost. With an initial user base developed and the knowledge and data accumulated in Stage One, we will use a basic system of mutual trust (block chains and tokens) to increase efficiency, help SMEs develop closer relationships with end users and exchange the values, and to share the benefits built by the Jarvis+ token economy.

Chapter 9 Jarvis+ Coin Offering

9.1 The Plan of Initial Coin Offering

With a maximum distribution of no more than 45% of JAR.

1. The anchor round opens to investors who have been invited, and will offer no more than 60 million JAR, about 10% of the total amount. In this round, the investors can join the Jarvis+ Foundation for deeper involvement with the operation of the Jarvis+ ecosystem. 50% of the JAR of the anchor round will need to be locked and unlocked in 3-year installments.
2. Private placement offers no more than 210 million JAR in the form of limited minimum investment thresholds, about 35% of the total amount.

9.2 Risk Disclosure

9.2.1 Investor Information

USA Residents

The provision and sale of this guarantee deed is not registered under the revised version of the United States Securities Act 1933 (hereinafter referred to as the Securities Act) or under the securities of certain States. This product shall not be provided, sold or otherwise transferred, mortgaged or applied without the act and the applicable national securities law and without a valid registration statement or exemption.

Chinese Residents

Residents in the territory of the People's Republic of China directly or indirectly participating in the sale plan are not in line with the "Prevention of Token Issue Financing Risk Announcement", which was jointly issued by all six of the People's Bank of China's departments and will not be protected by the PRC securities law.

Canadian Residents

Unless allowed by securities law, the holder of this securities product shall not trade in any securities in any province or region before the issuer submits a report.

UK residents

In the UK, this document is distributed only for (in relation to other related investment activities only): (1) Investment professionals (refer to the revised "Financial Services and Markets Act 2000" (2005 financial extension Provisions), definition of 19th (5) (hereinafter referred to as FPO); (2) A category of individuals or entities described in article 49th of FPO, (3) verified and experienced investors (refer to the meaning of article 50th (1)) and (4) Other legally communicated persons (all such persons are considered "relevant personnel"). This document has not been approved by any authority, and any investment (and related investment activities) in this document is applicable only to relevant personnel. This document is only for relevant personnel; non-related personnel should not take any action on the basis of this document and should not rely on this document. The condition that you receive and retain this document is to assure the company, its directors, and staff that you are the relevant person.

9.2.2 Compliance and Operation Risk

Compliance and operational risk refers to the risk that Jarvis+ violates local laws and regulations in the process of financing and business, resulting in the risk that Jarvis+ cannot operate sustainably.

The operations team takes the following risk-averse approach:

- Operation teams and decision committees operate in a distributed mode to eliminate single points of risk.
- Hiring professional lawyers in local municipalities to ensure that the design of the platform, digital asset distribution, digital asset transactions, block chain finance, block chain applications, and other aspects of business are under legal framework.
- To meet and comply with local laws and regulations, Jarvis+ platforms may not be able to provide normal services in some international and regional areas.

9.2.3 Market Risk

Market risk refers to the risk that the Jarvis+ platform is not accepted by the market, does not have a large enough user base, suffers from business development stagnation, or does not produce enough profits to sustain operations.

The operations team takes the following risk-averse approach:

- After six months of experience researching and developing block chain technology, we have confirmed pain points in the market and are working to solve them.
- We are using the founding team's experience in international markets, block chain, Internet and financial market services to quickly incubate the Jarvis+ platform ecosystem and generate profit.

9.2.4 Technical Risk

Technical risk refers to the risk that the Jarvis+ project cannot achieve its stated goals, caused by the risk of implementing AI technology, block chain technology, the platform technology and other major problems, as well as the risk of lost or tampered data.

The operations team takes the following risk-averse approach:

- We are using world-class providers of artificial intelligence technology platforms and solutions.
- Our platform's block chain technology architecture is based on technology that is widely recognized, mainstream, mature, open source, and secure and validated by commercial customers and community groups.
- After raising sufficient funds, we will hire high-end talent in relevant industries to join our development team and lay the foundation for an enduring project that will last decades.

9.2.5 Financial Risk

Financial risk refers to the significant loss of project funds, such as: stolen funds, capital loss, and large depreciation of reserve resources, etc.

The operations team takes the following risk-averse approach:

- The reserve fund adopts a multiple signature wallet and cold storage mode, which is jointly administered by the Decision Committee. (Cold storage refers to the practice of keeping a large reserve of various digital tokens offline on a USB drive or other data storage medium in a secure location, such as a safe deposit box or safe.) Under the 5-7 multiple-signature approach, reserve funds are at risk when 3 directors fail to perform their duties at the same time.
- The Operations team has many years of experience in the financial industry with a wealth of experience in risk control. Losses are likely to occur only if there is a greater than 50% decline in the market.

Chapter 10 Disclaimer

A foundation will be set up overseas for the Jarvis+ project. The foundation, as an independent legal body, is solely responsible for organizing the team to develop, promote and operate Jarvis+ projects and to assume all relevant responsibilities. Jarvis+ Coin, as a virtual product of practical use, is not a security, nor speculative investment instrument. Jarvis+ Coin as the official digital Token on Jarvis+ platform, does not represent any real-world assets or rights (such as the foundation's shares, the right to vote, etc.).

Except as expressly stated in this white paper, the Jarvis+ Foundation does not make any representations or warranties to Jarvis+ projects or Jarvis+ Coin. This document is used only for the purpose of conveying information and does not constitute a relevant opinion on the sale of Jarvis+ Coin. The above information or analysis does not constitute an investment decision. This document does not constitute any investment advice, investment intent or solicitation of investment. This document does not constitute and is not understood to provide any act of sale or any invitation to trade in any form of securities, nor any form of contract or commitment.

Interested users have a clear understanding of the Jarvis+ platform and the risk of Jarvis+ Coin. Once users subscribe to participate in the subscription, they fully understand and accept the risk of the project.

The Jarvis+ Foundation hereby expressly rejects and refuses to accept the following responsibilities:

1. Any person who buys Jarvis+ Coin who violates any country's anti-money laundering, counter-terrorism financing or other regulatory requirements;
2. Any person who buys Jarvis+ Coin who violates any representations, warranties, obligations, commitments or other requirements set forth in this white paper, as well as the result of inability to use or extract digital Jarvis+ Coin because of the violation;
3. The abandonment of Jarvis+ Coin's sale plan for any reason;
4. The failure or abandonment of the Jarvis+ platform, and the resulting inability to deliver or to use Jarvis+ Coin;
5. Postponement of Jarvis+ platform development and the resulting inability to reach a prior disclosure schedule;
6. Source code errors, flaws, defects or other problems of Jarvis+ platform and Jarvis+ Coin;
7. Fault, collapse, paralysis, rollback or hard bifurcation of Jarvis+ platform and Jarvis+ Coin;
8. The failure to implement specific functionality on the Jarvis+ platform, or failure of Jarvis+ Coin to be suitable for any particular purpose;
9. The use of the income from the Jarvis+ Coin sale plan;
10. Failure to disclose timely and complete information about Jarvis+ platform development;
11. Any leaks, loss, or destruction of a participant's Jarvis+ Coin's wallet private key;
12. Any transaction or speculation by any person against Jarvis+ Coin;
13. The listing, suspension or withdrawal of Jarvis+ Coin in any trading platform;
14. Jarvis+ Coin is classified or regarded as a currency, securities, commercial paper, negotiable instrument, investment goods or other thing by any government, associate

government agency, competent authority or public body, so that it is prohibited, regulated or legally restricted;

15. Any risk factors disclosed in this white paper and related to such risk factors, resulting in or accompanying damages, losses, claims, liabilities, penalties, costs or other negative effects.

Chapter 11 Privacy Policy

X-Contract Foundation Ltd. (the "**Company**" or "**we**") are committed to protecting and respecting your privacy.

This policy sets out the basis on which any personal data we collect from you, or that you provide to us, will be processed by us. Please read the following carefully to understand our views and practices regarding your personal data and how we will treat it. By visiting www.x-contract.org/privacypolicy.html, you are accepting and consenting to the practices described in this policy.

The data controller is X-Contract Foundation Ltd., a company incorporated in Singapore, located at 9 Temasek Boulevard #4-02 Suntec Tower 2, Singapore.

Information we collect from you

We will collect and process the following data about you:

- Information about you that you give us by filling in forms on our site www.x-contract.org ("**our site"**) or by corresponding with us by phone, e-mail or otherwise. The information you give us may include your name, address, e-mail address, phone number, wallet public address, and a copy of your passport or identity ID.
- Information relating to of each of your visits to our site including the Internet protocol (IP) address used to connect your computer to the Internet, browser type and version, time zone setting, browser plug-in types and versions, operating system and platform), the full Uniform Resource Locators (URL), page response times, download errors, length of visits to certain pages and methods used to browse away from the page.

Uses of your information

We use information held about you in the following ways:

- to carry out our obligations arising from any contracts entered into between you and us and to provide you with the information that you request from us including enrolling you into the X-Contract Ecosystem and updating you on the status of the X-Contract Private Sale and subsequent offers of X-Contracts;
- to conduct the relevant KYC/AML/CFT checks;
- to ensure that content from our site is presented in the most effective manner for you and for your computer;
- to administer our site and for internal operations, including troubleshooting, data analysis, testing, research, statistical and survey purposes;
- as part of our efforts to keep our site safe and secure.

Disclosure of your information

You agree that we have the right to share your personal information with:

- Any member of our group, which means our affiliated companies.
- Selected third parties including business partners, suppliers and sub-contractors for the performance of any contract we enter into with them or you and analytics and search engine providers that assist us in the improvement and optimization of our site.
- To third parties in the event that (i) we sell or buy any business or assets, in which case we will disclose your personal data to the prospective seller or buyer of such business or assets and/or (ii) if the Company or substantially all of its assets are acquired by a third party, in which case personal data held by it about its customers will be one of the transferred assets.
- If we are under a duty to disclose or share your personal data in order to comply with any legal obligation, or in order to enforce or apply our terms of use (www.x-contract.org/termofuse.html) and other agreements; or to protect the rights, property, or safety of the Company, our customers, or others. This includes exchanging information with other companies and organizations for the purposes of fraud protection and credit risk reduction.

Where we store your personal data

We engage commercial cloud storage providers to store the data that we collect from you. Therefore, your data may be stored in different jurisdictions and may also be processed by staff operating within the various countries who work for us or for one of our contractors. By submitting your personal data, you agree to this transfer, storing or processing. We will take commercially reasonable steps to ensure that your data is treated securely and in accordance with this privacy policy and the relevant privacy laws.

Where we have given you (or where you have chosen) a password which enables you to access certain parts of our site, you are responsible for keeping this password confidential. We ask you not to share a password with anyone. Unfortunately, the transmission of information via the Internet is not completely secure. Although we will do our best to protect your personal data, we cannot guarantee the security of your data transmitted to our site; any transmission is at your own risk. Once we have received your information, we will take all commercially reasonable efforts to prevent unauthorised access.

Other websites

Our site may, from time to time, contain links to and from the websites of our partner networks, advertisers and affiliates. If you follow a link to any of these websites, please note that these websites have their own privacy policies and that we do not accept any responsibility or liability for these policies. Please check these policies before you submit any personal data to these websites.

Changes to our privacy policy

Any changes we make to our privacy policy in the future will be posted on this page and, where appropriate, notified to you by e-mail. Please check back frequently to see any updates or changes to our privacy policy.

Contact Information

Questions, comments and requests regarding this privacy policy are welcomed and should be addressed to xcprivacy@outlook.com.