Primas

Next Generation Ecosystem for Valuable Content

White Paper

(version1.2.1)

Abstract

Primas is an open ecosystem for the publishing, recommendation and transaction of content. This white paper describes how Primas enables the production, selection and consumption of content, making use of the blockchain technology, social recommendation and token incentives.

The Primas team is committed to using blockchain and other technologies to restructure the content market, so as to solve the problem in which quality content are hardly recognized, disseminated and paid for. Decentralized content sourcing and recommendation mechanism brings quality content to users. A brand-new content evaluation system ensures direct benefits to the producers of quality content. Tamper-proof property of the blockchain provides copyright protection for original writers. And decentralized data management offers better protection for user's privacy.

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Preface

Over the past decade, the Internet has achieved rapid development thanks to the model of traffic economy. In this model, traffic is mainly cashed through advertisements, and the inflow of advertisement expenses has allowed the public to access information and services at very low or even no cost at all. Today, along with our rapid transition from an age of information scarcity to an age of information overload, problems brought by traffic economy also becoming apparent. Due to information overload, public attention has become a new kind of scare resource. In the competition for such resource, large amount of low quality content are created and shown all over our screen to catch our attention, and tampering and plagiarizing have been squeezing out producers of quality content. The content ecosystem of the Internet is being severely endangered.

How to bring quality content to the public? Who shall we trust on the Internet? Before the advent of blockchain technology, no centralized entity could offer a practical solution to these challenges.

By utilizing DTCP, or the Decentralized Trusted Content Protocol, giving every digital work a Primas DNA, a digital identity registered on the Blockchain network, Primas constructs an evaluation system for credible content, and bring high quality content to readers through content sourcing, content reviewing free from manipulated traffic and community incentives. At the same time, digital contents will be turned into tradeable digital assets to bring due benefits to their producers.

Primas Team

Primas is created by the core team of Yuanben (Chinese word for "original"), a leading copyright service platform based on blockchain. Committed to applying blockchain technology to digital copyright in the past year, Yuanben has gained profound industrial recognition for its accumulation of blockchain technology and relevant commercialization. It is also the first blockchain product in China that has been commercialized in the field of copyright. In 2016, Yuanben received investment from Wanxiang Blockchain and Fenbushi Capital.

Over the course of Yuanben's development, we realized that the power of a single team alone is not enough to drive changes across the whole industry. We hope to create a fully independent open-source platform to benefit the content industry as a whole.

Besides its in-depth research on blockchain technology, the core team has also accumulated years of experience in the development and operation of mobile browser, one of the most important functions of which is content aggregation and intelligent recommendation. Therefore, Primas team also has in-depth knowledge on media, big data and recommendation algorithms.

Product level application has long remained the biggest challenge in the blockchain industry. Years of industrial and product experience of Primas team will provide important guarantee for successful project operation.

Problems in Internet Content Ecosystem

We have listed problems with big impact on the Internet content sector, the kind of which will receive prior attention from Primas.

1. Credibility Problem Due to Information Overload

New media enabled by the Internet has improved the efficiency of information diffusion, to the extent that the once rare and expensive information has become available in large amount free of any charge. The ability to filter needed content out of the massive amount of information is now a new kind of scare resource.

Searching, recommendation and subscription are the most common tools for content acquisition. Whatever their forms, they all address the "searchability" problem of information, so that disordered information is arranged in order and become easier to retrieve and find. Though these tools make information easier to access, they fail to deal with the credibility problem. Most information on the Internet only consists of a URL and the information itself. The same information may be intentionally or unintentionally distorted after several transfers, and some distortions may even lead us to a judgment that is the opposite of what is intended by the original information.

In real life, faced with several pieces of information with similar content, we find it baffling to distinguish between original information that is credible and tampered information that is falsified.

Solution: DTCP and Primas DNA

Primas adds a new layer, protocol and infrastructure named Decentralized Trusted Content Protocol to the Internet to create immutable, traceable metadata to any content. For every content registered with DTCP, Primas generates a globally unique digital fingerprint (Primas DNA), which contains metadata[i] such as author name, publishing time and content fingerprint. When we read a piece of information, we will know for sure the author's credit, the accurate publication time of the original, and the modifications made after creation. This additional metadata will enhance the value of the information itself and may even influence our judgment on its quality.

2. Rampant Plagiarism and Piracy

Digital content is so easy to copy that it's difficult to protect the rights and interests of its owner. Driven by interests, plagiarism and piracy have been persistently haunting the digital content industry and greatly obstructing the healthy development of the industrial ecosystem. The first cause for such rampancy is the difficulty in tracing content origin. Once published online, digital content tends to be quickly spread, and it will be difficult for those reprinting the content to find its author and source. The second cause is the lack of a mechanism for automatic authorization. Even if the reprinting party manages to find the original author, without a standard authorization process, the cost of communication will be too high for large-scale authorization. The third cause is the difficulty in presenting evidence to prove an infringement. Many infringements are hard to detect, the cost of evidence collection is very high, infringements have thus grown more rampant.

Solution: Primas DNA, Smart Contract, and Blockchain-based Proof of Existence

Primas DNA ensures that the origin of content can be traced despite partial tampering. Smart contract can achieve automatic authorization without human intervention. Proof of existence based on blockchain can greatly reduce the cost of evidence collection.

3. Poor Content Quality Due to Attention Economy

The concept of "free" has long been a common sense on the Internet. After a huge number of users have been attracted using free products and services, advertisements will then be introduced to gain revenue. Advertisement represents the most lasting and mature business model on the Internet and cashing content through advertisement is now the dominant method for value realization. Advertisement is a typical result of attention economy which can generate revenue as long as traffic is attracted. Propelled by interests, many content producers have emerged on the Internet. Working in a pipeline, they try to catch attention with fake titles and indecent content, steal and use other people's articles to gain traffic and profits. In the year of 2016 alone, reported Wechat Media infringements totaled a shocking number of 3.5 million. These bad behaviors, which have been driving out good ones, have seriously squeezed the living space for producers of quality content and wreaked great havoc on the society.

Solution: Primas Content Evaluation System and Incentive Mechanism

Primas establishes a content evaluation system free of traffic manipulation to measure content quality, and improves content quality across the whole community by giving Primas Token reward to producers of quality content.

4. Manipulation of Content Display by Centralized Platform

As mentioned above, today there are two mainstream means for obtaining content: searching and recommendation.

Searching is the most direct way of obtaining information. Just input what you want and you can quickly get the results from the search engine. Yet problems also exist with search engines. Usually users only give attention to results shown first and other information sources are thus seriously marginalized. Also, out of commercial considerations, search engines are increasingly manipulating the search results. On June 27, the European Union imposed a 2.44 billion Euro antitrust fine on Google, which was accused of abusing its searching advantage to recommend its own services in search results while downplay its competitors.

Recommendation came into existence along with the progress of human society. The modern content recommendation engine can collect and analyze user's personal preferences, predict their preferred content, and proactively recommend it to them. This kind of engine, while greatly reducing the threshold for information access, also brings worse problems. Using algorithms, it recommends content that "we like" and screen away content "we dislike". This way the information we see tend to be narrowed to a smaller scope, trapping us in a small "information bubble".

Whether it is "searching" or "recommendation", centralized entities select and screen information using machine algorithm. On the one hand, intentional human intervention is hardly avoidable in centralized entities. On the other hand, large-scale application of machine algorithm will unavoidably aggravate the Matthew Effect by which "the rich get richer", leading content display to follow power law distribution at an even faster rate.
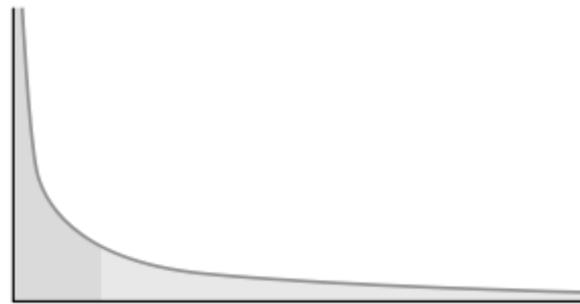

Figure 1. Power Law Distribution, by which 20% percent of the content are dominating

Solution: User Self-governance

On Primas platform, users can choose groups that interest them, which will all be under their own governance free of any control by centralized algorithm. All other algorithms related to content display are open-sourced and transparent, and users can also join the optimization of these algorithms.

5. Privacy Problem and Data Abuse

When we use search engines and content applications, large amount of our usage data are being collected by background programs. For example, user's characteristics can be recorded using account registration information and data on reading history. Mostly it is not the content producers that benefit from these data, but the centralized platforms. With these data, user's identity and

online habits can be easily checked, and may even be stolen by platform staff and sold on the black market.

Solution: Full Protection for Data Privacy Using Blockchain Technology

In Primas network, information that must be disclosed will be available in a public and transparent manner, and will be recorded on Blockchain, e.g. information on author's name and transaction, etc. Information on user's browsing history and privacy will not be recorded and uploaded.

System Design

Overall Architecture of the System
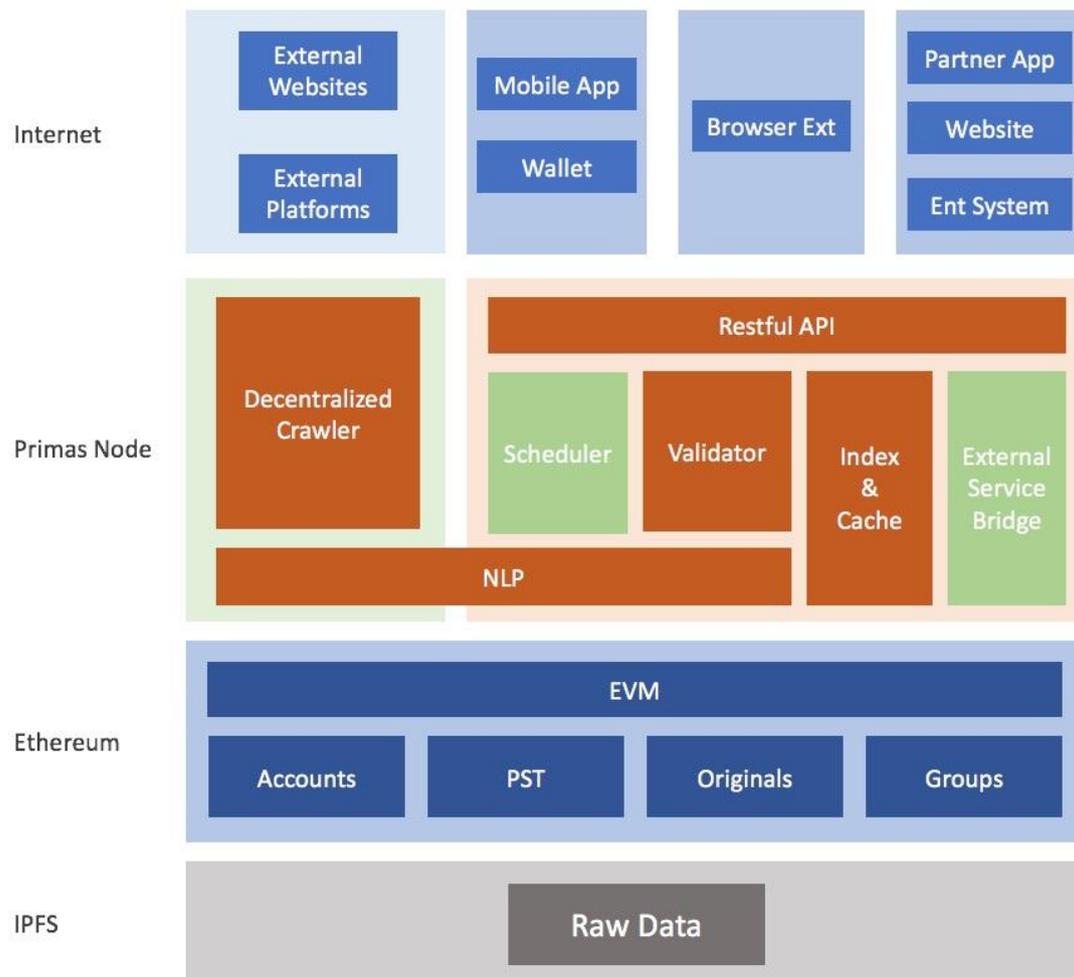
Figure 2. Primas System Overall Architecture

Primas is built on top of the Ethereum. The key logics are implemented using smart contract. Core data is written into blockchain, and the content data is stored on IPFS.

At the upper layer of Blockchain is Primas Node which operates the decentralized crawlers, calls external services and runs complex computation. Primas Node is directly connected to Blockchain and calls smart contract to complete key operations and to write and validate data. For example, it can

connect with Yuanben's services to achieve accurate proof of existence, collect electronic evidence and ensure its legal validity. Primas Node also offers Restful API for all clients and speeds up client access with functions like distributed data caching and indexing.

At the upper layer of Primas Node are clients directly used by users, including Primas mobile application for Android and iOS, browser extension, etc. In addition to using Primas clients, any entity or individual (third party applications, Wechat Public Accounts, websites, enterprise systems, etc.) can connect with Primas Node to join the Primas ecosystem.

DTCP and Primas DNA

Trust is a missing critical component to the existing content ecosystem. Primas tries to build a new layer on top of the Internet to solve this problem. This layer contains blockchain based infrastructure and a new protocol named Decentralized Trusted Content Protocol, or DTCP. The aim of DTCP is to become the standard of content metadata that utilized by the whole content industry. By adding immutable metadata to content using blockchain, DTCP provides another dimension of information to the content, helping us understand it in a whole new perspective.

DTCP metadata contains properties such as the publishing time, author's details and original content hash that makes the content more authentic. There're also properties make it easier to spread such as the authorization license, similarity fingerprint. Usability properties such as the category of the content is also recorded in DTCP since they are important in content usage and easy to be lost during content spreading.

For every original article published with DTCP, a "Primas DNA" will be generated as its unique ID. Together with the content, Primas DNA will be

spread across the whole network as a guarantee for content credibility. Any readers can conveniently verify the consistency between the content and its DNA to make sure that what is being read is an original free of any tampering.
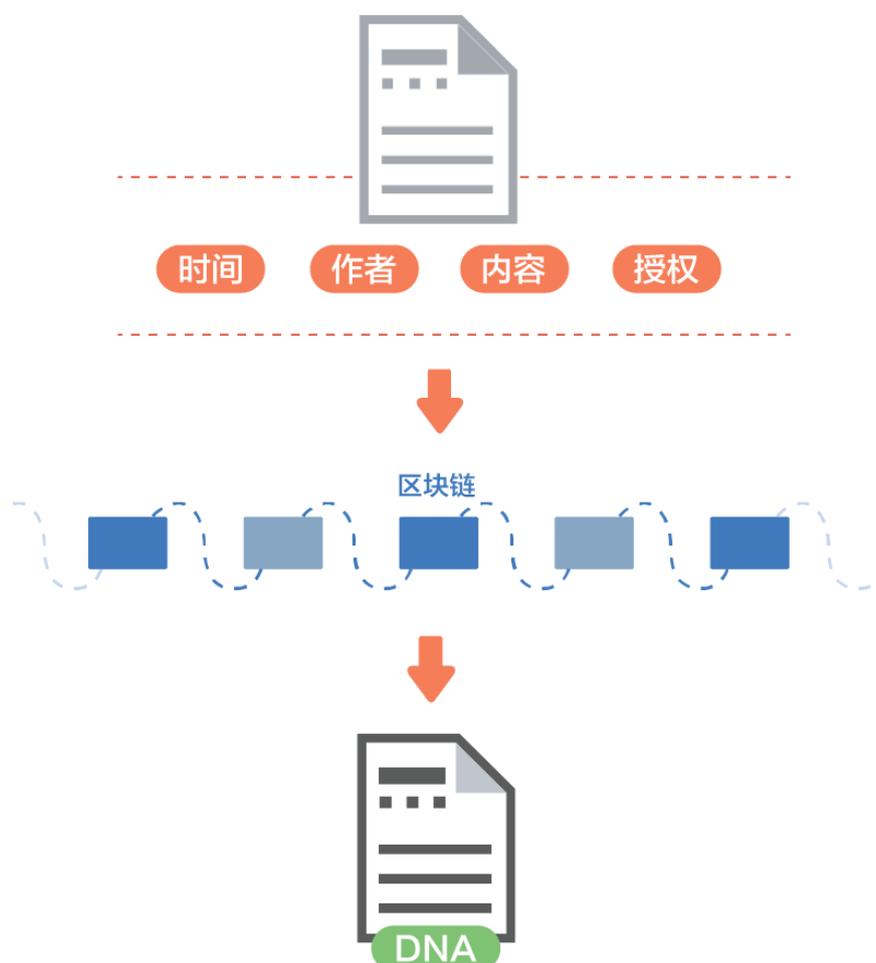
Figure 1. Primas DNA

Primas DNA is a proof for author's originality. It can work with an author's secret key to prove his/her content ownership, and can work with block data to prove that an article was published earlier than unauthorized reproduction. Together they can prove the originality of the content because of the immutability of these data.

Primas DNA is a decentralized interface for content sourcing. Despite numerous reproductions to any places, readers can still use this DNA to track the complete reproduction path, see authorization license of the original

content, and obtain new authorizations.

Even if DNA is lost in the process of spreading (e.g. intentionally deleted), the original content can still be found on the blockchain based on content fragment. Primas browser extensions and mobile clients can help users solve this problem quickly. When a browser with such extension is used to view content, or when Primas mobile clients are used to read shared content, all the origin-tracing information will be shown immediately as long as the content has been registered on Blockchain, regardless of the presence or absence of DNA.

Primas will also provide various SDKs and APIs so that any third-party websites, platforms and mobile clients in the ecosystem can quickly acquire the functions to generate DNA, protect content and trace its origin. Primas is committed to adding DTCP to all quality content on the Internet and solving the problem at its source, so as to address credibility challenges for Internet content due to the absence of ID information.
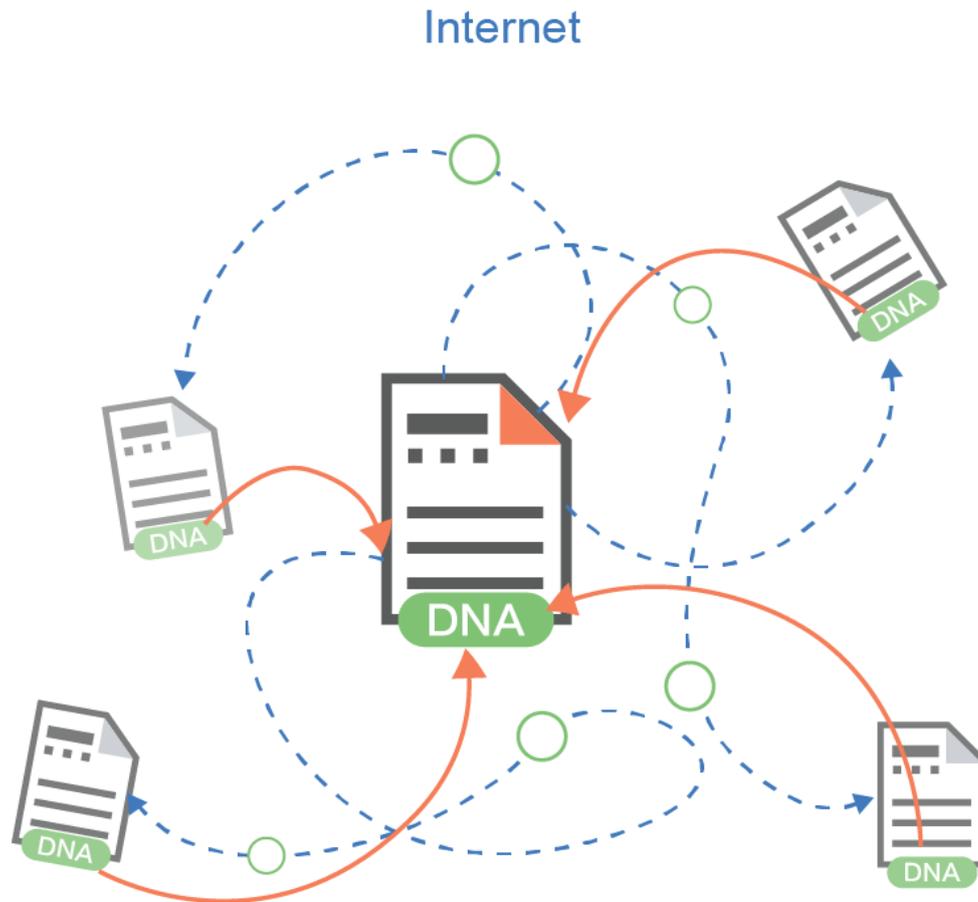
Figure 4. Origin Tracing in an Open Ecosystem Using DNA

User Identity and Credit Rating

Every user has a unique identity in Primas network. This unique identity ensures the construction of a credit system which is an indispensable step for protection of original content. It is also very helpful in building quality content community, reducing the spread of fake information and curbing irresponsible remarks.

Primas aims to construct an open ecosystem for valuable content that covers not only end users such as original authors and readers, but also media entities, enterprises and other media platforms. Primas supports account namespace which properly addresses identity issue for authors from other media platforms.

For every account, Primas will calculate its credit rating, which will be decided by a combination of factors such as number and quality of published content, and number of PSTs in it. Credit rating will also be part of the indicators used for evaluating an author's published content.

One of the applications for credit rating is to handle content infringement. Primas arranges a mechanism for reporting infringement, and the reports will be processed by several verification nodes elected by the community. If infringement is confirmed by the verification nodes, certain number of locked PSTs will be deducted from the infringer's account as punishment. On top of this, adjustment will be made to the infringer's credit rating to affect content publishing and benefits acquisition in the future.

Group Economy

Due to complex dimensions involved, there are still many difficulties in quantifying the concept of content quality and defining the quality evaluation method. In practice, social recommendation is a method that is more efficient than recommendation based on algorithms. Aside from introducing multi-dimensional metadata to improve information quality, Primas will establish social groups to gather those with shared interests, shared values and shared expectations, to further evaluate information credibility inside the system.

On Primas mobile clients, social group is the main organizational structure for information. After content is published inside a group, whether it is original or introduced from external sources, it will be evaluated by group members in its further dissemination. The quality of a group is decided by content contributed by all its members, and the rating of a group will also influence quality evaluation of content in the group. To avoid quality deterioration, all users must have a small PST reservation before joining a group. The minimum requirement

for PST reservation will be decided upon establishment of the group, or will be decided by voting among group members.

Social group is also a self-governing organization, in which all members enjoy a share of the group interests. The group receives PST reward from the system for its development and improved quality, which will be distributed among its members based on their per capita contributions. Any destructive or disruptive behaviors may face unanimous resistance from all group members or even be subject to expulsion from the group.

Traditional social groups can be very weak, as they are often easily used by some individuals to spread fake information. The trust mechanism of Blockchain can remedy this defect to prevent malicious information attack on the group. Primas also applies the economic concept of incentives in social groups to enhance their potential for self-improvement.

Figure 5. Content group governed by its own members

Content Quality Evaluation

Primas designs a completely new open system for content evaluation. Under this system, evaluation of an article is not just the click-based computation, but one that comprehensively measures factors such as social recommendation, content dissemination and author's credit to make intensive and extensive value assessment.

Based on reader behavior intensity, interaction between readers and content can be ranked in ascending order as click, like, review, reposting and reproduction. The higher the intensity of reader behavior, the bigger its contribution to content evaluation. Reposting is a better demonstration of content value than several likes, and so is reproduction compared to reposting. To accurately assess content quality, all the factors must be comprehensively measured. Primas evaluation system adopts interactive indicators of like, review, reposting and reprinting:

$$V_c^t = \sum_{i=1}^{3} \sum_{j=1}^{c_i^t} \alpha_i HP_j \Gamma_j + \beta \sum_{j=1}^{d^t} HP_j \Gamma_j S_j$$

In this formula, V_c^t is the value of content c at the time of t; $\alpha_1, \alpha_2, \alpha_3$ and β respectively represent the weight of like, review, reposting and reprinting; c_i^t is the number of the i type interactive operation at a given time window of t; and Γ_j^t is the user's credit rating at the j th interactive operation. Similar to the Voting Power idea of Steem[iii], HP_j is the value of user's power during interactive operation.

$$HP_j = PST_j / \left\{ \frac{C_j}{1 + e^{\theta - C_j}} + \theta \right\}$$

In this formula, PST_j is the balance of unlocked PST in user's account at the j

th interactive operation; C_j is the total number of user's interactive operations within a given time window at the time of the j th interactive operation; and θ is a threshold. In case of frequent interactive operations within a certain period,

HP will keep decreasing and consequently the influence of this user's operation on content evaluation will also keep diminishing. After such frequent operation stops, HP will recover over time. For reproduction, additional consideration needs to be given to quality factor S_i of the reproduction activity:

$$S_i = \frac{s_i}{\sum_j s_j}$$

$$s_i = \sum_{i=1}^{C_a} \left[\frac{1}{C_i} \sum_{C_i} V_{C_i} \right] \cdot C_a C_p^2$$

S_i is got after normalizing quality value s_i of the reprinting activity, while s_i is got after calculation of content value, author number and total crawler number involved in all the reprinting activities. In this formula, C_a is the total number of authors while C_p is the total number of crawlers. At the same time, s_i is used to prevent cheating by an individual author or individual crawler which may dishonestly gain reward through automatic reprinting. Since the definition of s_i includes the content value of V_c^t, the calculation of s_i is a process of iteration. For a new reprinting activity, its value is initially set at a small fixed number. As more reprinting take place on its basis, the quality value will be updated continuously and will finally influence the evaluation of a new content.

Indicators of likes, reviews and shares are measured in Primas mobile application. Content reproduction have been difficult to measure as they all take place outside the system. Primas has innovatively designed the decentralized crawler system which is capable of measuring the extent of content diffusion across the whole network and the importance of media involved. By introducing the indicator of reproduction, Primas will make more comprehensive and more objective assessment of content quality.

Decentralized Crawler

Primas has implemented the first decentralized crawler system on Blockchain. Distinct from their traditional counterparts, the crawler system of Primas is used to track all the reproductions of an article across the whole network. Together with Primas DNA, it can provide unprecedented copyright protection for community original authors. At the same time, it offers content origin traceability, content reliability and certain content authentication to readers.

To help original authors track the spread of their articles on the Internet, Yuanben has designed the Hawkeye whole-network reproduction monitor system. Using crawler system and Natural Language Processing (NLP) technology, we can identify reproduction of content originally published on Blockchain across the whole network (including but not limited to Twitter, WeChat Public Account, personal blogs, etc). Regardless of any amendments, additions, deletions or paragraph rearrangements to the content, Hawkeye can still find the edited and reposted articles by comparing text similarities. Hawkeye is one of the best received core functions of Yuanben.

To bring benefits to more users, we will use Hawkeye as the basis for Primas decentralized crawler system. Combined with community incentives, Hawkeye will have a greatly boosted capacity, promoting content traceability and copyright protection to a new level unseen before.

It needs to be pointed out that decentralized crawler is just an automatic tool for tracking reproduction. For Primas, the core lies in the verification and recording of reproduction. In addition to decentralized crawler, several other methods can also be used to report reproduction. For example, Primas has designed a browser extension, which, among its core functions, can help readers trace content origin in an open environment (e.g. when a user reads an article, the extension can give an alert using data recorded on Blockchain that the article has been tampered). This function is also capable of marking

reproduction. If a user reads a reproduced article which is not marked as so on blockchain, this article will be automatically submitted to blockchain for verification and marking. This way all the browsers with this extension are turned to nodes capable of tracking reproduction.

Also, a task scheduling system is embedded into the decentralized crawler to minimize waste of resources caused by crawlers competing for tasks. Though this task scheduling system can greatly reduce waste of resources, due to the nature of decentralized system, some of the wastes are unavoidable.
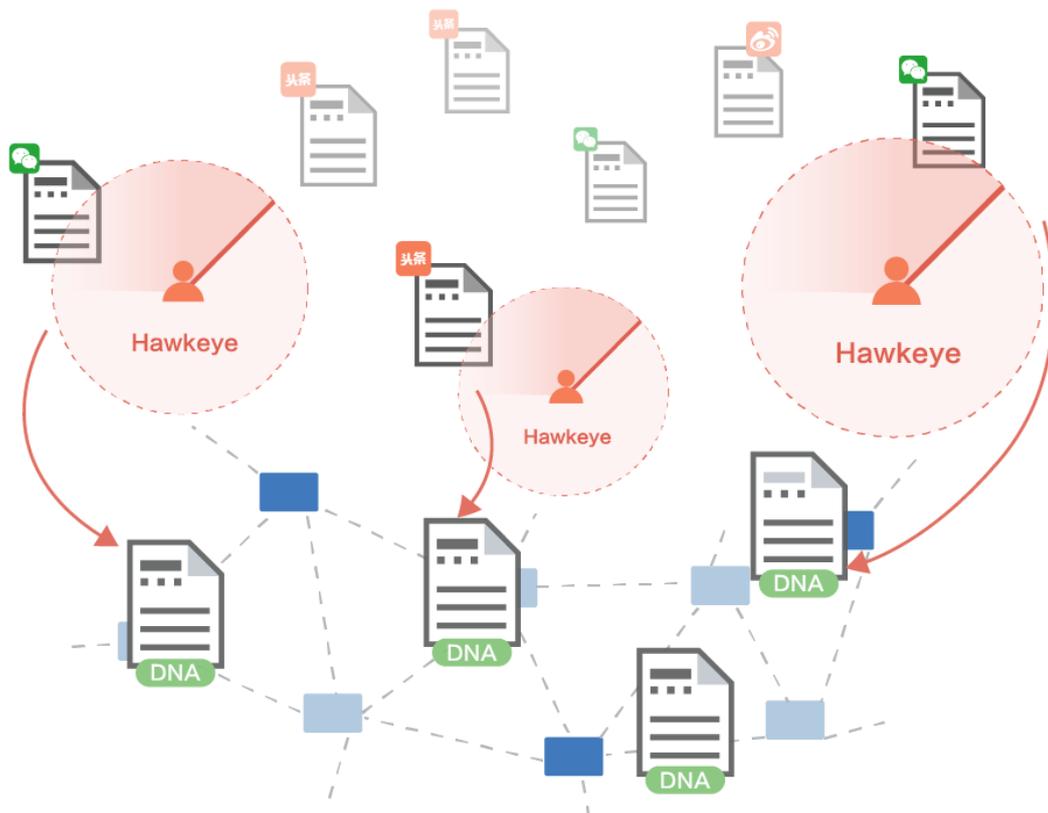

Figure 6. Decentralized Crawler System tracking the spread of content
across the whole network

Decentralized Storage

Primas uses IPFS to store content data, including texts and images, etc. This separation of content data from blockchain can effectively save blockchain resources and boost blockchain processing capacity.

Primas Token (PST)

One of the circles for value flow in Primas is community incentive. In our design, PST is an inflationary system, in which certain proportion of additional PSTs will be issued annually. The inflation rate will decrease every year until zero. All these additional PSTs will be included into an incentive pool to be used for rewarding quality content, quality groups, quality recommendations and marking of reproduction. Driven by such incentives, participants, quality content and community quality will increase and the unit price of PST will also rise to benefit its holders. This is a positive cycle that will in the long run enhance the healthy progress of the community and PST holders.

In Primas system, there is no direct depletion of Tokens. however, upon some operations (e.g. account registration, content production) that bring incentives, some Tokens will be locked to restrict the number of allowed operations within a period of time. Some of the locking will be permanent while most of them will be cancelled after some time. With the expansion of Primas community, the total number of Tokens locked within a given system time will keep rising. On the whole, as the community develops, the amount of circulating Tokens inside the system will keep diminishing.

Another circle for value flow in Primas is the payment required for transactions, such as paid reprinting, the like function or other payment requirements to be introduced in the future. For all the payment requirements, PST is need. Better content will create more payment requirements and consequently PSTs will be running short and gaining more value. Also, if more frequent operations are needed (e.g. large media planning to simultaneously publish more content, readers intending to join more groups), more PSTs need to be purchased.

Use of PST

Account Registration

To obtain the right to publish content, some number of PSTs in an author's account must be locked. Such locking is permanent and linked with the credit system of the account. If plagiarism is reported and confirmed, some PSTs will be deducted by the system as a punishment. Authors may unlock this portion of PSTs at any time, but upon the unlocking, the right to publish content and acquire benefits will be lost immediately.

Authors must also ensure that PST balance in their account is above the minimum requirement, so that payment can be made for IPFS storage and other charges.

Content Creation

For the creation of every article, some PSTs must be locked, which will be released 7 days later. This will to some extent reduce the amount of low-quality content in the community. Individual authors can only publish a limited number of articles within a certain period of time. If large media entities and enterprises need to publish more articles, they can deposit additional PSTs into their account to realize the operation.

Founding and Joining Content Groups

To found or join a group, some PSTs will be locked, which will be released only after the user disbands or leaves the group. If a user wants to create or join more groups, more PSTs need to be purchased and put into his/her account. The number of PSTs to be locked for joining a group will be decided by the founder during the founding process. To achieve self-governing of a group, its members can initiate a voting to expel a certain individual, whose PSTs locked for the group will be transferred into the incentive pool and distributed to users with

contribution to the whole community.

Like, Review and Reposting of Content

Primas will generate a HP value for every account based on their respective PST amount. Interaction with content will cost HP value, which will be recovered over time. There is no restriction on interaction between user and content. Even if HP is down to zero, users can still review or repost the content. However, HP value will influence the contribution of a user's operation to content value. The lower the HP value, the smaller the operation's contribution to content value, and the less the reward going to the user.

Content Reproduction

If an author requires payment for reprinting his/her original content, in addition to the cost of HP, an amount of PSTs equivalent to the required price shall also be paid to obtain reprinting authorization. Such payment will be given to content producer and others who have made contribution to the content, such as reviewers and crawler operators. Also, if other users trace the content to Primas through reproduction and also pay for reproduction, a reproduction chain will be formed. Users on the upper end of this chain will receive a certain proportion of PSTs paid by lower end users as channel fee.

PST Issuance

Initially the system will generate 100 million PSTs, of which 51 million will go to the community during ICO stage. The specific distribution and use of other Token are shown in detail in the ICO Plan part of this paper.

To expand the community, reward the production of quality content, and drive the long-term healthy development of the community, PST will experience a 10

percent additional Token issuance at the first year. Starting from the second year, additional issuance will decrease by 0.5 percent annually. All the added PSTs will be used as reward for content quality, crawler contribution and content recommendation, etc.

Distribution of Additional PSTs

Of the additional PSTs, 40 percent will go to content producers at an amount proportional to the value contribution of their single article, so as to encourage the publishing of quality content.

The benefits a content producer receives for an article consist of not only system reward, but also payment for the content (e.g. paid reprinting). Out of all the benefits (including content payment and system reward) the producer receives for an article, 10 percent will be given to those with contributions to this article, such as those who reprinted, reposted, recommended or reviewed it as well as the contributing crawler operators. Such distribution will bring benefits to every link of the content value chain.

Another 40 percent of the additional PSTs will be used to reward groups with quality content. The groups will be ranked by their per capita value contribution in a time unit, and these PSTs will be distributed to the groups accordingly. Inside the group, the PSTs will be given to members based on their respective contributions.

The remaining 20 percent of additional PSTs will be used as reward for Primas Node operators. The assessment of Primas Node contribution covers two aspects. The first aspect measures the contribution of crawler operation. The PSTs will be distributed to crawler operators proportionally to the ranking of their contribution in a time unit. This contribution assessment fully considers two factors: reprinting number and reprinting quality, so as to prevent crawlers

from cheating with massive auto-reprinting. The other aspect measures the foundational support services of Primas Node for the system, including the provision of client connection and verification of reprinting, etc. Primas is operating on Ethereum and the execution of Ethereum contract costs Gas. All the costs of Gas in Primas are paid by Primas Node to ensure convenient operation by client users.

Primas makes separate arrangement on reward for crawler operation to ensure the availability of the whole community to original producers with medium or small influence. If the reprinting rewards come solely from the returns of an article itself, crawler operators will tend to focus on seeking reprinting for content by famous producers, which has a bigger possibility of generating high returns. This way the content of long tail producers will be ignored, in spite of the high value of a single article written by them.

Primas Community Governance

Establishment of Primas Management Body

Primas community will be managed by Primas Technology Pte. Ltd. established in Singapore, which as its legal entity will have full authority over the development, promotion and operation of Primas and take all related responsibilities. To ensure openness and transparency of Primas project, Primas sets up a top decision-making body - the Decision-making Committee - to conduct management. Under this committee are Product Committee, Technology Committee, Financial and HR Management Committee, and Marketing and Public Relations Committee. The management body will consist of developers and functional committees. Term for members of the Decision-making Committee is two years and the first committee members will include members of Primas core team, well-known personnel of the Blockchain industry and early-stage investors. Future members of this committee will be chosen by community election.

Governance Structure of Primas Community

The governance structure of Primas community provides operation procedures and rules for both routine work and emergency situation.

Details of organizational structure are shown in this chart:

决策委员会

执行负责人

执行职能　技术职能　运营职能　社区服务

产品委员会　技术委员会　财务人事管理委员会　市场和公关委员会
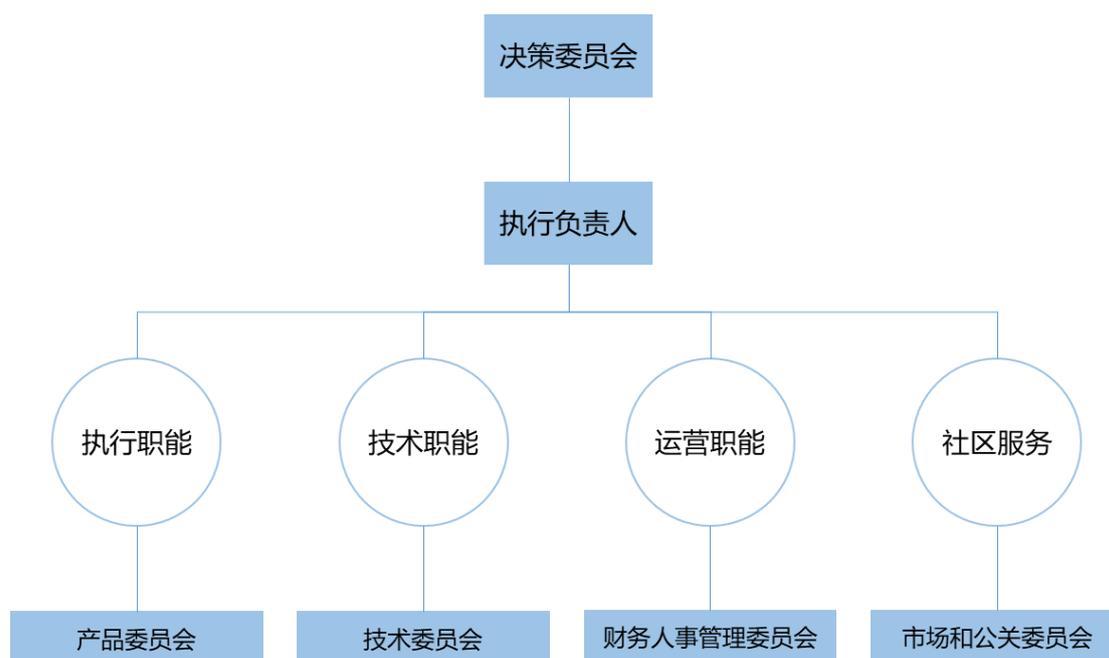
Figure 7. Governance Structure of Primas Community

Decision-making Committee:

Functions of the Decision-making Committee include employing and dismissing executive chief and chiefs of the functional committees, making important decisions, and convening emergency meetings. Members of this committee serve a term of two years.

The first members of the decision-making committee have profound industrial experience in both Blockchain sector and business sector. Below are some brief introductions:

Name	Introduction
Shen Bo	Founder of Fenbushi Capital, committed to investing in Blockchain startups.

Gong Ming	Nicknamed online as Bao zou gong qin wang (暴走恭亲王), foundaer of CHAINB and ICOAGE, early promoter of Blockchain community, producer of large amount of articles and information on Blockchain, committed to promoting the advancement of Blockchain technology and distributed ledger technology.
Yu Wenbo	Doctor Yu Wenbo is the executive director of Fenbushi Capital, and used to serve as chief scientist of Wanxiang Blockchain Labs.
Chen Yanfeng	CEO of Xingyun Digital Asset Trust Co.Ltd., with working experience in the artificial intelligence enterprise CloudMinds, whose lead investors include America's National Instruments and SoftBank.
Wu Peng	Expert on Internet and Blockchain product, with profound experience in product management & operation and in-depth research on Internet media and traffic.
Gan Lu	Expert on Blockchain technology and serial entrepreneur, with in-depth research on cryptography, big data and artificial intelligence.

At the end of their term, community voting will be held to choose 50 community representatives based on calculated weighting of PST amount and coinage, and another voting will follow to produce 7 core members of the Decision-making Committee. These elected core members will make important or emergency decisions on behalf of Primas community. During their term, they will need to accept credit investigation and publicize their salary status.

Executive Chief:

Executive chief is chosen by the Decision-making Committee through election and is responsible for daily operation and management of Primas community, mission coordination for subordinate committees, and chairing meetings of the Decision-making Committee. The executive chief makes work progress report to the Decision-making Committee on a regular basis.

Product Committee:

The Product Committee is responsible for the overall design and planning of the community as well as the attraction of relevant cooperation partners.

Technology Committee:

The Technology Committee, consisting of core developers, is responsible for the development and review of bottom layer technology as well as the development and review of product. Also the committee holds project status meeting every week to discuss requirements and project progress. Members of this committee need to know community dynamics and hot topics, have communications with Token holders inside the community, and hold occasional technical seminars

Financial and HR Management Committee:

Financial and HR Management Committee is responsible for the use and review of raised project fund, management of salary for developers, and expenditure and review on daily operation costs.

Marketing and Public Relations Committee:

Marketing and Public Relations Committee, aiming to serve the community, is responsible for the marketing of Primas products and services as well as the promotion and publicity of open source project. It is also responsible for the release of all community announcements and cooperation with the media.

Primas Financial Management

Primas Decision-making Committee promises that all raised digital assets will be used for development and building of the community.

Primas Auditing

Due to the unique features of Token, it's difficult for any of the current forms of enterprises and entities to execute supervision under the existing system. To ensure the governance of Primas and the openness and transparency of Token usage, Primas Decision-making Committee will employ professional auditing agency to implement auditing work.

Development Roadmap

Dec. 2016

Primas project started.

Aug. 2017

Primas ICO

Solar Systems Stage - Feb. 2018

Test network launched. Community members will be invited to form an internal test group to test and optimize the system.

2017.8 - 2017.10

Protocol layer development: account creation, content publishing and storage, PST, content incentive, Primas Node incentive.

Application layer development: IOS & Android clients, account creation, PST transfer, content display, content creation.

Primas Node: contract call, client connection, indexing and caching, IPFS storage.

2017.11 - 2018.1

Protocol layer development: group creation, group incentive, incentive for crawling and reprinting.

Application layer development: group display, content recommendation, content interaction.

Primas Node: verification of reprinting, task scheduling, crawling and reprinting.

Galaxy Stage - June, 2018

Official network launched and fully opened for use. Operation plan begins.

2018.3 - 2018.5

Protocol layer development: reporting of infringement, voting, credit rating.

Application layer development: browser plug-in, voting.

Primas Node development: connection to external services.

Universe Stage - Dec. 2018

Connection with cooperation partners, expansion of cooperation partnership, and formation of ecosystem.

2018.6 - 2018.8

Personal page named after account, account bonding, third-party SDK connection, public API, identity authentication.

2018.9 -

Introduction of cooperation partners into community and continuous expansion of ecosystem.

ICO Plan

Token Distribution

51 percent will go to the community at ICO stage, to be used for Primas development, operation, marketing and fund management.

20 percent will go to the founding team, early-stage investors and development team as compensation for their endeavors, resources and technology support.

20 percent will be set aside as reserve, which will be used by the Decision-making Committee as incentive for ecosystem building.

9 percent will be used for academic research, education, promotion and legal issues, so as to finance academic research on Primas and educational materials for developers.

Primas Token分配计划

- 社区
- 创始团队、早期投资者和开发团队
- 项目生态系统的建设
- 学术研究、教育等
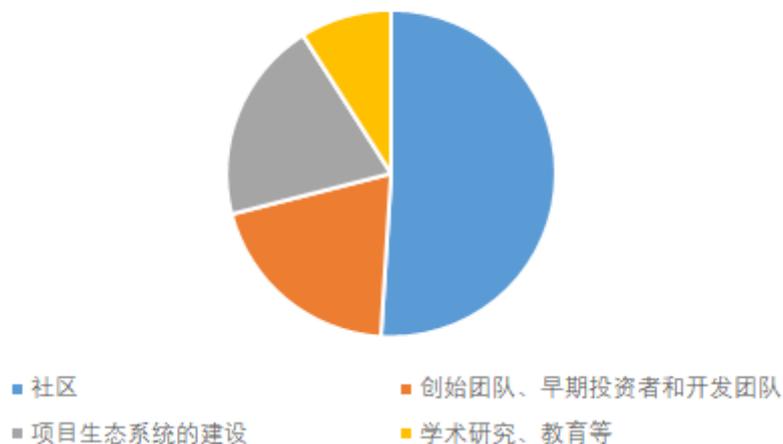
Primas plans to distribute 29 percent (20 percent for reserve plus 9 percent for academic research & education) of the Token to the community in several phases. Within 4 years, all these PSTs will be put into the community to truly realize an open source community ecosystem. Auditing report on the use of

these PSTs will be publicized every year within the community.

ICO Schedule

Primas will initially issue 100 million PSTs (Primas Token). IOC will take place on ICOAGE, beginning at 20:00 of August 7, 2017 (Chinese Standard Time) and ending at 20:00 of August 26, 2017 (Chinese Standard Time).

This ICO will release 51 percent of the total amount of Token (51 million PSTs).

August 7 | 20:00 to August 8 | 19:59, one ETH for 1350 PSTs

August 8 | 20:00 to August 12 | 19:59, one ETH for 1200 PSTs

August 12 | 20:00 to August 19 | 19:59, one ETH for 1050 PSTs

August 19 | 20:00 to August 26 | 20:00, one ETH for 900 PSTs

Beyond the above 51 percent of Token, Token distributed to founding team and development team will be locked for 1 year during which they cannot be put into circulation. In a period of 2 years after the locking ends, these Token will be released linearly. Token distributed to early-stage investors will be locked for 6 months, during which they cannot be put into circulation.

(Note: In the design of the governance part of this White Paper, Qtum's governance design and planning have been used as reference at the approval of Qtum team, to whom we hereby express our sincere thanks.)

Disclaimer

This document is only for conveying information and does not constitute an opinion on transaction of project shares or securities. Any proposal or request for offer to such effect will be made under credible terms in accordance with the permission of applicable security laws and other related laws. The above information or analysis does not constitute any investment decision or concrete advice.

This document does not constitute any investment proposal, investment intent or investment solicitation on securities. This document does not constitute and shall not be construed as a transaction offer or an invitation to transact any form of securities, neither is it a contract or promise in any form.

All the examples of returns and profits in this document are for demonstration purpose only or represent the industrial average, and do not constitute a guarantee for the result of user's participation.

Primas clearly states that users with relevant intent shall have clear knowledge of risks on Primas platform. By making investment, investors confirm their knowledge and acceptance of the project risks, and are willing to personally take responsibility for all corresponding results or consequences.

Primas clearly states that it will not take responsibility for any direct or indirect losses arising from the participation in Primas project, including: (i) reliability of all information provided in this document; (ii) any resulting mistake, negligence, or information inaccuracy; (iii) or any subsequent behavior.

PST is a digital Token used, besides other scenarios, on Primas platform. PST is not an investment target and we cannot guarantee the value addition of PST, whose value may decrease under certain conditions. Due to unpredictable factors, targets listed in this White Paper may change. While our team will make its best efforts to realize all targets stated in this White Paper, all individuals

and groups purchasing PST shall shoulder the risks on their own.

PST does not represent a right of ownership or control. Controlling PST does not mean ownership of Primas or Primas applications. PST does not confer any right on any individual to exercise participation in, control over or decision-making on Primas and Primas applications.

Risk Warning

As a new model of investment, investment in digital asset involves various risks. Potential investors shall discreetly assess the investment risks and their own risk tolerance.

- Risks on Token Sales Market

The environment of Token sales market is closely associated with the situation of the whole digital currency market. In case of sluggish overall market situation or existence of other uncontrollable factors, the price of Token may be underestimated over a long period of time, in spite of their own good prospect.

- Supervision Risks

Since Blockchain is still in the early stage of development, there are still no laws and regulation across the world, including in China, that stipulate requirements for precondition, transaction, information disclosure, and locking, etc. in the process of ICO. Also it's still unclear as to how the current policies will be implemented. All these factors may bring uncertainty to project investment and liquidity. Blockchain technology has become the main target of supervision in major countries of the world. If there is any intervention or exertion of influence by supervising authorities, Primas application or PST may be affected. For example, if there is legal limitation on the use and sale of Token, PST may suffer restriction and obstruction, or the development of Primas application and PST may be directly terminated.

- Competition Risks

With advancement of information technology and mobile Internet, digital assets with "Bitcoin" as a representative are gradually prospering and various

decentralized applications are continuously emerging, heating up industrial competition. With the steady appearance and expansion of other application platforms, the community will face constant operation pressure and certain risks from market competition.

- Risk of Talent Loss

Primas has gathered a technical team and expert consultants with leading advantage and profound experiences in their respective professional sectors, including professionals with lasting engagement in the Blockchain industry and core team with rich experience in development and operation of Internet product. The core competitiveness of Primas in the industry lies in its stable core team and consultant resources, the loss of which may affect stable platform operation or its future development.

- Risk of Development Failure Due to Fund Shortage

In case of dropping price of Token raised by the founding team or prolonged development time, the team may face a shortage of development fund and possibly even suffer subsequent serious shortage of fund for all activities. In such case, there will be a risk that the intended targets will not be realized.

- Risk of Private Key Loss

After the digital wallet address of PST is extracted by the buyer, the only means to operate content contained in the address is by his/her associated secret key (private key or wallet passcode). Users are personally responsible for protecting the associated secret keys which will be used to sign transactions and prove their asset ownership. Users understand and accept that if his/her private key document or passcode are respectively lost or stolen, his/her PST associated with his/her user account (address) or passcode will be unrecoverable and permanently lost. The best method for secure storage of log-in document is to store the secret key separately at one or several places and avoid using a shared computer for this purpose.

- Risk of Hacking or Theft

There is a possibility that hackers, other entities or nations may attempt to interrupt Primas application or PST function with any methods, including but not limited to DoS attack, Sybil attack, guerrilla-style attack, malware attack and homogeneity attack, etc.

- Risk of Absence of Loss Insurance

Unlike bank account or accounts with other financial institutions, Primas account or related Blockchain network are generally without any insurance guarantee. For losses under any conditions, no public individual or public entity will provide insurance.

- Risks of Core Protocols

Currently Primas platform is developed on the basis of Ethereum. In case of any defect, unexpected malfunction or attack to Ethereum, PST or Primas platform may suffer a stop or loss of function in a manner hard to expect.

- System Risk

There are risks related to neglected critical defects in open source software or large-scale failure of global network infrastructure. Though some of the risks may drop over time due to bug fixes and breakthroughs in computation bottleneck, other risks are still unpredictable, such as political factors or natural disasters that may interrupt part of the Internet or the global Internet as a whole.

- Risks Due to Bugs or Cryptography Development

Rapid cryptography development and advancement of science and technology such as quantum computer may bring the risk of cracking to Primas platform, leading to possible PST loss.

- Risks of Insufficient Attention

There is a possibility that Primas application may fail to be used by a large number of individuals or entities. This means that the public do not have enough interest in developing and improving the relevant distributed applications. Such lack of interest may bring negative impact to PST and Primas application.

● Risk of Poor Acceptance or User Shortage

First of all PST shall not be deemed as an investment target. Even if PST may have some value after some time, such value can be very small if Primas is not accepted by the market and is therefore short of users. There is a possibility that due to any possible reasons, including but not limited to failure in business relations or marketing strategy, Primas platform and all the future marketing efforts supported with the raised fund may fail to achieve success. In such case, there will be few or no follow-up supporters for the platform. Of course, this will be very unfavorable to this project.

● Risk of Application Defect

Primas platform may fail to provide normal service due to defects caused by known or unknown reasons (e.g. large-scale Node crash), and may even suffer loss of user PST in a serious situation.

● Risk of Application or Product Failing to Reach Their Expectation or Buyer's Expectation

Primas application is still under development stage, and major changes may be made before the launch of official version. The expectation or imagination by PST itself or by buyers for the function or manner (including behaviors of participants) of Primas application or PST may not be satisfied. Such situation may be caused by any analysis mistake or change of a single design, etc.

● Other Unpredictable Risks

Token which is based on cryptography is a fully new technology that has not be

tested. In addition to risks already described in this White Paper, there are other risks that are not yet mentioned or not anticipated by the founding team. Also, other risks may come suddenly, or several risks mentioned above may occur in combination.

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Evolution Record of This Paper

Version	Date	Reviser	Update
1.0	2017/7/10	Primas Executive Committee	First release
1.0.1	2017/7/11	Primas Executive Committee	Value assessment formula
1.1.0	2017 / 7/19	Primas Executive Committee	Disclaimer and risk warning
1.2.0	2017/7/21	Primas Executive Committee	Detailed ICO plan
1.2.1	2017/7/31	Primas Executive Committee	ICO time adjustment

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[i] http://dublincore.org/