WHITEPAPER

12SHIPS

A healthy life
through the trustworthy Blockchain infrastructure

AGENDA

12SHIPS

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1 ABSTRACT

To make a transaction with someone unknown, you need an authorized agency or a broker in the middle. However, if you go through an agency or a broker, it is inevitable that you spend more time and money. It gets even worse if you do business with someone living in a foreign country.
The blockchain technology reduces such cost and time with innovative IT technology that goes beyond common sense. To make it possible, voluntary participation in mining is essential; also, in order to prevent the risk of counterfeiting or hacking, a high-performance, cryptography operating mining machine is required, which consumes a large amount of electricity.

The 12Ships has a goal of securing stable profitability and contributing to the blockchain revitalization by providing smart mining solutions, based on eco-friendly mining Infrastructure with our own high-performance mining machine.

First of all, we want to solve problems of the current air-cooling mining machines that consume a lot of electricity and make a lot of noise and dust. In order to cool the hash board equipped with the low-power, high-performance ASIC chip manufactured by Samsung's 11nm semiconductor process, we adopted immersion cooling method, which is immersed in the non-conducting liquid. This is a cooling method that effectively lowers the temperature of the Asic Chip while maximizing the performance, compared to air-cooling method. In addition, we plan to provide eco-friendly mining infrastructure that can use heat energy from immersion cooling system for agriculture/fisheries, commercial/domestic use to recycle discarded thermal energy.
Using this thermal energy as the heat source of the vacuum dryer, lava sea water of Jeju Island creates healthy and clean lava sea salt and mineral water.
This Mining Infrastructure is built in a 20ft container type, easy to move and easy to maintain.

1 ABSTRACT

Second, for transparent and democratic operation of the mining infrastructure, we established 3S Operation as our core policy. First, you can check the mining status in real time and check the CCTV footages in the mine by using a convenient dashboard called Smart Monitoring. We also want to keep our monthly earnings / expenditures public and transparent. Moreover, Smart Contract guarantees distribution of mined cryptocurrency using Ethereum based contract account.
Lastly, we will democratically operate the mining pool by allowing token holders to set major agendas of mining pool operation such as mining targets, re-investment ratio, distribution timing/term and so on and vote to make decisions with Smart Voting.

Third, we will build OlleNature, an e-commerce service that can be purchased in cryptocurrency to expand the usage of cryptocurrency and transparently check the production and sales history of products in Blockchain. Based on the Blockchain infrastructure of 12Ships, it records origin, all ingredients, production / shipment history in its own Blockchain, OlleChain, and consumers can find this information conveniently by smartphone through OlleChain. 12Ships launches 100% natural products made with advanced vacuum drying / extraction technology based on the good raw materials from Jeju Island for the successful start of the OlleNature and OlleChain, and all the history from the purchase of raw materials to shipment will remain in the Blockchain.

Holders of TSHP token distributed by the 12Ships Foundation will participate in making major decisions in the Blockchain Infrastructure, meaning that they will be in part of the growth of the 12Ships. A total of 5,000,000,000 TSHP tokens based on the ERC20 of Ethereum will be issued.

1 ABSTRACT

Panokseon II, a mining machine equipped with ASIC chip for bitcoin/bitcoincash, will be launched in the beginning of June and be used to operate the Mining Infrastructure of 12Ships. OlleNature will be launched in the end of April. And the OlleChain will be a trusted platform for anyone to participate in when the block depth and hash power are sufficiently secured.

Our vision is that we expand the use of TSHP token by implementing a blockchain platform based on 12Ships Mining Infrastructure and by developing a service that is beneficial and reliable for games and e-commerce, and ultimately, we will create a globally trusted platform based on this blockchain infrastructure.

Our core team of outstanding experts and experienced professionals in the area of business strategy and planning, hardware and ASIC development, Blockchain algorithm and software development, and heat exchanger development has been working together to actualize what is mentioned above.

We will keep you informed about various activities of our 12Ships through SNS channel or homepage. 12Ships will work hard until the day comes when the blockchain becomes active and your life becomes enriching and healthy.

2 CURRENT STATUS AND PROBLEMS OF MINING MARKET

As the blockchain technology got its spotlight primarily with the bitcoin, the blockchain related market is being created and it is growing enormously every year.

Fig. 1 blockchain related market classification

[Source : Frost & Sullivan]

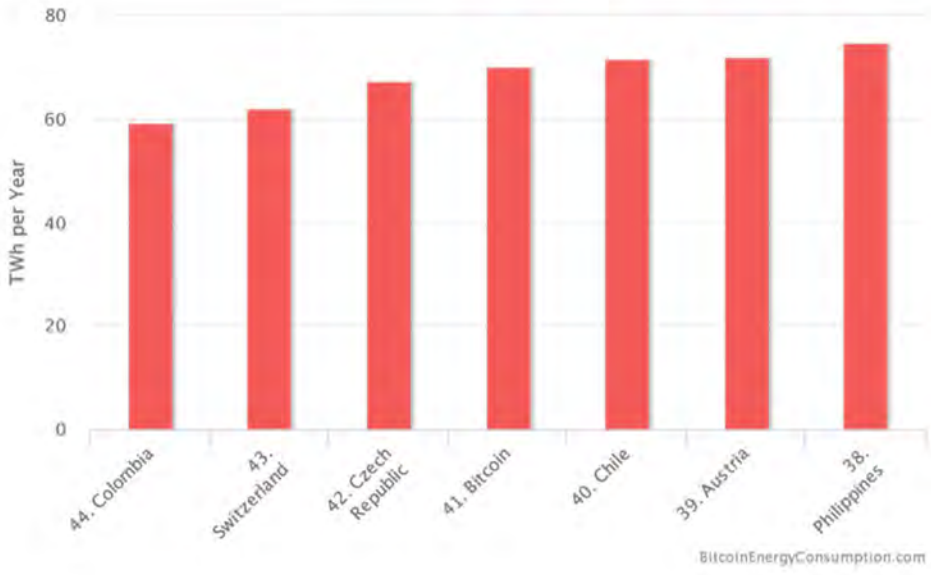
The largest market of the blockchain market is the mining machine market, estimated at 3.3 trillion won in 2017 and is dominated by Chinese companies such as Bitmain and Canaan.
In addition, in the market where mining pools are built and operated, Chinese mining sites such as BTC.com and Antpool occupy over 50% of the total hash power. Bitmain, the No. 1 player in the miner and mining pool market, is reportedly to have an operating profit of over 4 trillion won in 2017.

To activate a public blockchain that is safe from counterfeiting and hacking, it is necessary to facilitate the mining activities to record and audit all transactions occurring in the blockchain. Also, voluntary involvement of a great number of miners is essential to ensure that the reliability of the blockchain is not compromised by collusion of a few.

However, from looking at the recent mining situations, it shows that there are many incidents that do not happen to process things as stated above, which is being a significant risk to the blockchain ecosystem.

First, there are the following problems with the mining machine market.
A few manufacturers supply mining machines almost exclusively, and due to its irregular supply and unexpected significant price increase, many miners have difficulty in getting mining machine.
(https://www.youtube.com/watch?v=unQMEH-HNIQ)
Miners prefer better performing mining machine for higher profitability. Subsequently, the currently sold versions of machines are focused only on the improvement of performance, and they inevitably consume more power as they are upgraded. Total amount of power consumption in bitcoin mining would rank 41st among nations in the world in terms of electricity consumption. Above all, large mining machines consuming high power worsen the miner's profit and it is becoming a risk for voluntary mining.

Fig. 2 Energy consumption of mining by country



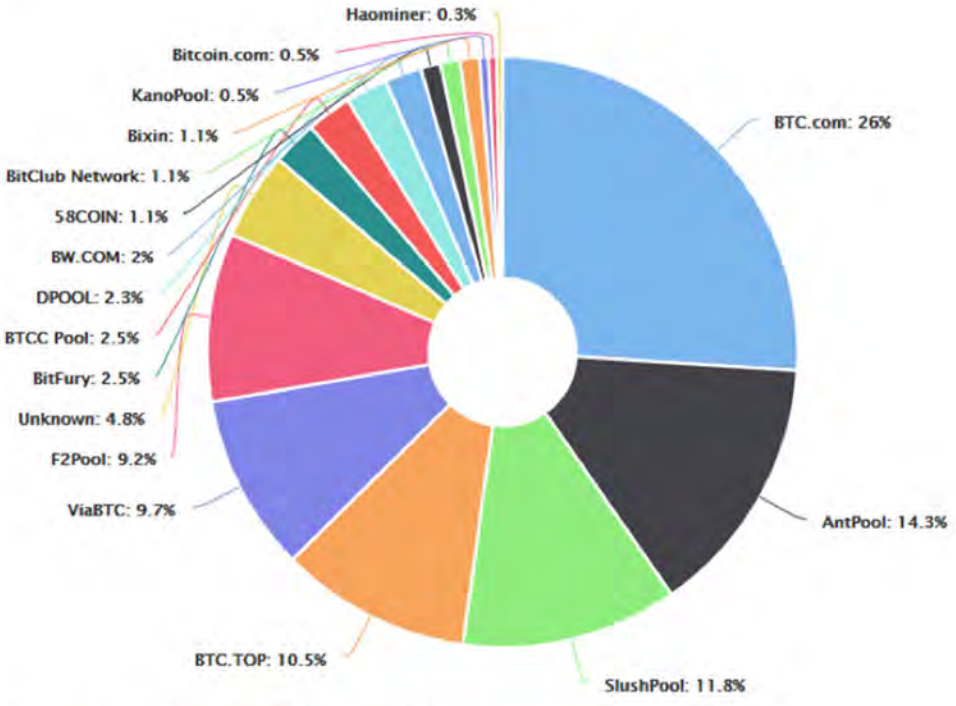
[Source: bitcoinenergyconsumption.com, 2018/06/04]

Next, there are the following problems regarding the operation of mining pools and sites.

Looking at the Bitcoin's hash power distribution, the hash power of the top three global mining pools is exceeding 50%. In other words, the decisions of few mining pools have a great influence over the Bitcoin ecosystem. Although the power of these mining pools comes from the numerous miners involved, the few pool operators are making important decisions on their own regarding the operation of the mining pools; this means the hash power gathered by all miners is being misrepresented, and it is more likely that the operation of the mining pools is to represent the profit of the pool operators rather than that of the blockchain and its miners.

In addition, many mining machines are being developed without considering the environment of mines, so the environment of the mine place is very poor due to the noise, dust and heat generated by the miners. In addition, being exposed to the accumulated dust, high heat and electric current increases the risk of fire. There is an urgent need to create a safe and clean environment.

Fig. 3 The distribution chart of Bitcoin mining hash power



[Source: blockchain.info, 2018/06/04]

Fig. 4 A picture of the mining place with a poor environment full of heat, dust, and noise

[Source: New york Times]

Finally, in order for a Blockchain infrastructure to grow well, there must be a lot of Blockchain services that are easy for users to use.

Fig.5 Forbes Blockchain Actual Case Report

30+ Real Examples Of Blockchain Technology In Practice

Bernard Marr, CONTRIBUTOR
FULL BIO
Opinions expressed by Forbes Contributors are their own.

While Bitcoin and cryptocurrency may have been the first widely known uses of blockchain technology, today, it's far from the only one. In fact, blockchain is revolutionizing most every industry. Here are just a few of the practical examples of blockchain technology.

[Source: https://www.forbes.com/sites/bernardmarr/2018/05/14]

3 SOLUTIONS

In order to solve the problems raised above, 12Ships operates a profitable Mining Infrastructure in a transparent and democratic manner using Panokseon II, a high-performance miner, and provides eco-friendly and smart mining solutions that recycle the generated heat energy.

In addition, we will expand the use of TSHP tokens through OlleChain, which records production / sales history in a Blockchain, and OlleNature, which sells healthy products made from clean Jeju raw materials through vacuum drying process

3.1. High performance / low power ASIC chip

In Korea, there are many companies specializing in semiconductor design with world-class semiconductor foundries and high technology. 12Ships is developing ASIC chip by working with the semiconductor company which has expertise and experience in the cryptocurrency computing ASIC and GPU and the foundry division of Samsung Electronics which has the best process technology.

Fig.6 TSB1101

This ASIC chip mounted on the Panokseon II is a state-of-the-art bitcoin / bitcoin cash (for SHA-256 hash function calculation) chip. It is produced in the 11nm semiconductor process with Samsung Electronics foundry's Low Power Plus technology. 11nm Low Power Plus technology can produce ASICs up to 10% smaller in size and 15% higher performance when using power consumption similar to ASICs fabricated in 14nm processes.

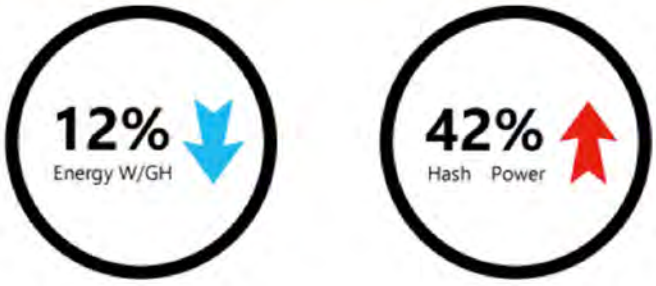
Within one ASIC chip, 25,600 cores specialized for SHA-256 encryption operation are built in, providing higher hash power than existing ASICs. The patented low-voltage operation technology enables powerful performance at very low voltages.

The hash power of one ASIC chip is over 105 GH/s, which is 42% faster than other competing ASICs. Estimated energy consumption is 0.073 W/GH, which consumes 12% less energy than the highest performance miners currently available. The ASIC chip mounted on the Panokseon II will provide higher hash power with less power consumption.

Table. 1 Performance of ASIC chip for bitcoin/bitcoin cash by operating voltage

Operating voltage	Hash power	Power Efficiency
0.405v @80c	105 GHash/s	0.073 W/GHash
0.450v @80c	145 GHash/s	0.085 W/GHash
0.500v @80c	222 Ghash	0.103 W/Ghash

Fig. 7 bitcoin type ASIC chip performance comparison



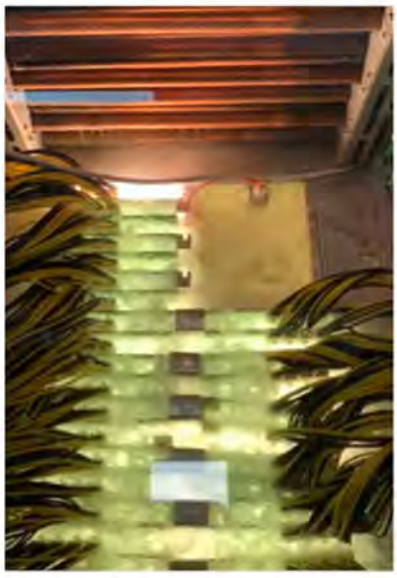
3.2 Immersion Cooling Type Miner - Panokseon II

An ASIC chip that performs a hash operation at a tremendously high rate will generate a lot of heat, and if this heat is not effectively cooled, the ASIC will become inoperable.

The Panokseon II, which will be used by 12Ships, uses an immersion cooling method that can cool the ASIC chip most effectively. By using the immersion cooling method in which a hash board is immersed in a non-conductive liquid and cooled, the heat generated from the ASIC chip can be cooled most effectively and the hash performance can be maximized. Noise and dust generated from the existing air cooling system are not originated, so it can be improved to a clean and pleasant mining site environment.

Immersion cooling, which is 100 times more efficient than the air-cooling method in which the cooling fan cools the air, will be a very important factor for cooling the next-generation ultra-high density hash boards. It can increase the hash power to the maximum limit without worrying about the inoperability of the ASIC chip due to high temperature, saving up to a maximum of 50% of the space required for cooling as well as reducing the energy consumed by cooling by 40%.

Fig. 8 Self-developed immerson cooling system



The greatest benefit of immersion cooling is the increased hash power of the ASIC chip through over-clocking. Through applying over-clocking of 30%, Panokseon II will have a powerful hash power of 355 TH/s using 2,600 ASICs and 29.3 kW of power.

Table. 1 Performance of ASIC chip for bitcoin/bitcoin cash by operating voltage

Hash Power	355 TH/s *
Power Consumption	29.3kW +5%
Power Efficiency	0.083 J/GH +5% (With proper PSU at 25°C room temp.)
Input Power	133A / AC 220V
Number of ASIC chips	2,600
Cooling Method	3M 2-phase immersion cooling

* Estimated rate with 30% over-clocking applied

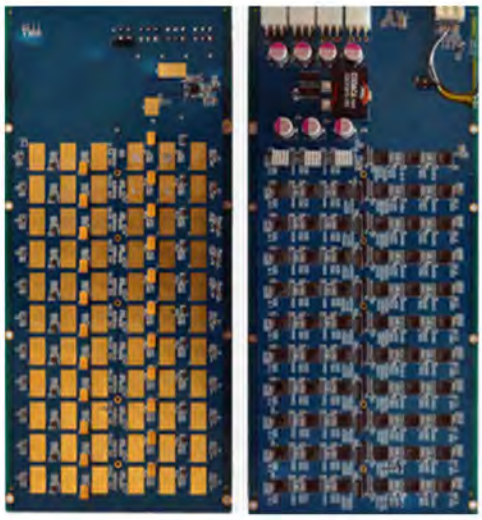
Table. 3 Competitive product performance comparison

Model	Panokseon II @0.405V	Antminer S9i	GMO B2
Hash Power	355 TH/s	14.5 TH/s	24 TH/s
Power Efficiency	83 W/TH	94 W/TH	81 W/TH
BTC mining volume for 30 days per unit[1)]	0.43	0.017	0.029

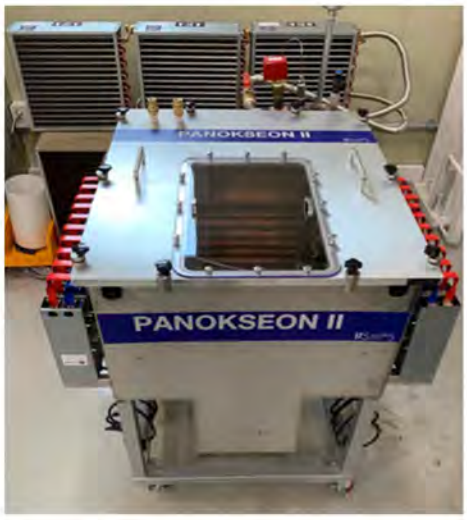
1) 2019.03.26 Whattomine.com Est. Reward

Fig. 9 hash board and Panokseon II module

The greatest benefit of immersion cooling is the increased hash power of the ASIC chip through over-clocking. Through applying over-clocking of 30%, Panokseon II will have a powerful hash power of 355 TH/s using 2,600 ASICs and 29.3 kW of power.



Hash bored



PanokseonII Prototype

3.3 Thermal energy recycling using mobile container module

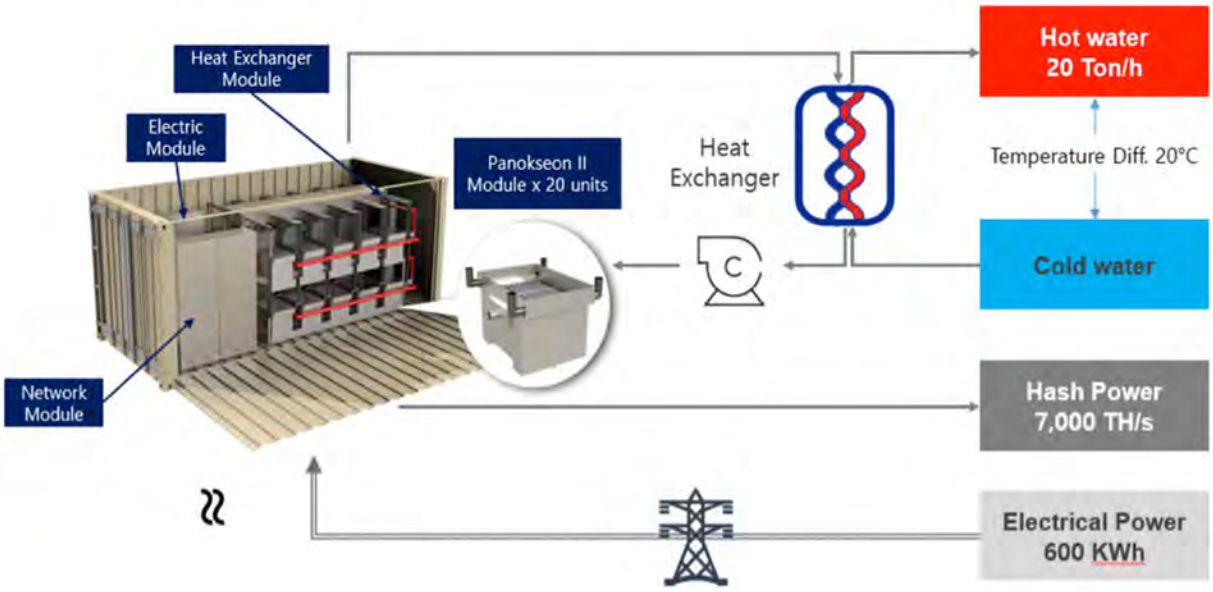
The mobility of the miner is very important for mining in the optimal mining environment. So, you can easily move Panokseon II by installing it in a 20ft container. Ten to twenty Panokseon IIs are installed in a 20ft container, and one container can provide more than 3.55 PH s of hash power.
In addition, we are developing a modular design of heat exchanger facilities, electric facilities and communication facilities in addition to Panokseon II in 20ft containers to facilitate maintenance.

Fig. 10 Image of 20ft container system

Fig. 11, a large-scale mining farm operating 1,600 units of the Panokseon II, a immersion cooling type miner, can provide a hash power of 568 PH/s at a power of 46.9 MW.
While cooling the miner, the heated non-conductive liquid is sent to the heat exchanger to cool and circulate back to the hash tank, where the coolant is used to cool the non-conductive liquid in the heat exchanger. If the temperature of the cooling water is raised by 20 ° C through the heat exchanger, it can generate up to 2,000 tons of hot water per hour.

As well as mining cryptocurrency with high-capacity power, hot water can be produced and recycled in various fields.
There is also a study stating that when the hot water using the waste heat of the fusion power plant is used for the fish farm, the annual electricity cost of raising the water temperature of 500 tons per hour from 20 ° C up to the optimum water temperature of 27 ° C, can be saved by 3.6 billion per year.
(Source: Yu Myoung-Kee, representative of Asta Biotech)

Fig.11 Large Mining Farm concept of recycling thermal energy as hot water



The hot water produced by switching from electric energy to thermal energy to operate the Panokseon II can be used for the following purposes to create a profit model for a new type of secondary business.

① Recycling of commercial waterways

In recent years, as interest in water for therapeutic purposes has increased, functional hot springs such as ionized water, magnetized water, hydrogenated water, alkaline water, and sparkling water have been actively developed. The hot water produced by Panokseon II does not cause any significant changes in the cleanliness of water or water quality other than the increase in water temperature, so it can be used as raw water for the development of functional hot spring water so that high added value can be achieved. In addition, the development of an open-air bath utilizing the hot water generated from a power plant centering on some local governments in Korea is proceeding. In a similar form, an open-air bath can be constructed and operated at a low cost in the area where the Panokseon II is installed. If hot water is supplied to the existing bath or bathing facilities in the sauna, it is possible to reduce operating costs related to the boiler facilities.

② Recycling of industrial waterway

Most of the industrial facilities that require hot water use coal, oil, and city gas as energy sources for operating the boiler. In this process, a lot of energy is consumed, and the hot water produced in Panokseon II can be supplied directly to the industrial facilities to save energy costs for boiler operation. Especially, the quantity and temperature of hot water can be flexibly used in conjunction with existing boiler facilities and it can save energy in existing industrial facilities.

③ Recycling of domestic waterways

Most domestic hot water is operated as individual heating or central / district heating and it is produced through boilers. Similar to the above-mentioned water for industrial use, the hot water generated from the Panokseon II can be converted into domestic hot water for energy saving.

④ Recycling of agricultural and fishery waterway

Continuous and stable hot water supply is essential for sustainable agriculture in hydroponic cultivation in the form of a greenhouse, or for aquaculture in the colder winter months. To secure hot water, most of the existing facilities use energy sources such as coal, oil, gas or partially use new renewable energies like solar, geothermal, and wind power. The hot water generated from the Panokseon II will have the effect of replacing or saving the energy sources mentioned above.

12Ships intend to recycle 50 ° C of heat energy recovered from Panokseon II as a heat source of vacuum dryer. We are going to make clean and healthy lava sea salt and mineral water with lava sea water which contains a lot of minerals by installing in Lava Seawater Complex of Jeju Island.

Fig. 12 Concept of Lava Seawater Vacuum Dryer

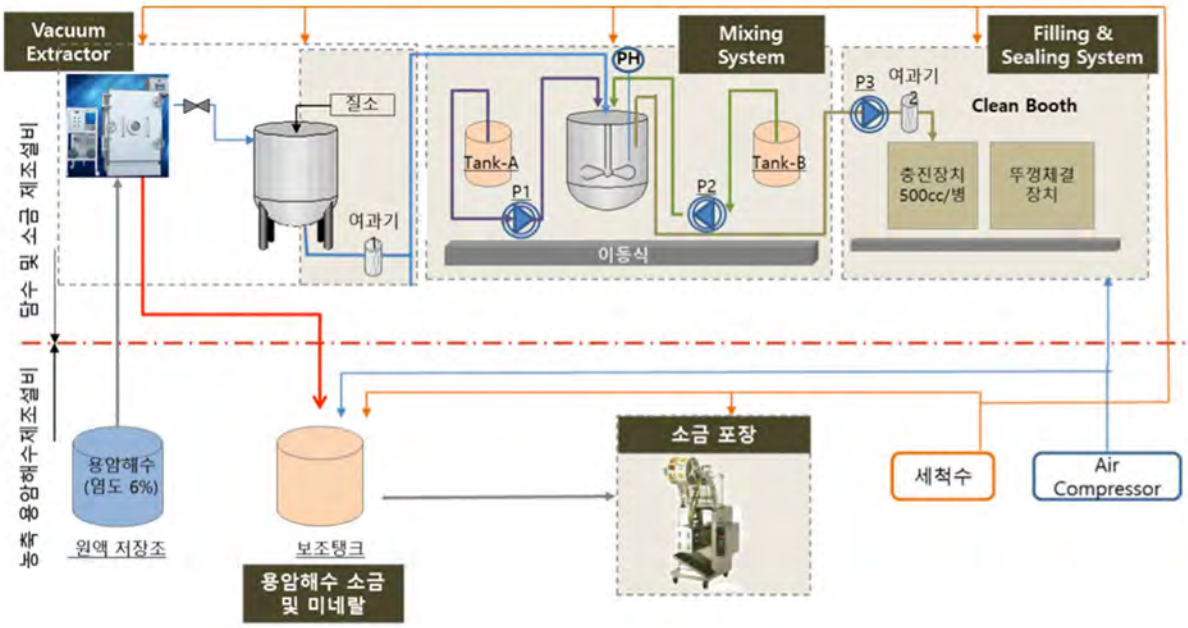


Fig. 13 Vacuum dryer installed in Lava Seawater Complex

3.4 Smart Mining Pool Management

Holders of TSHP token will receive in proportion to the amount of the tokens of cryptocurrency they have which is mined in Mining Infrastructure operated by the 12Ships. 12Ships aims at presenting a breakthrough
alternative for transparent and democratic operations by arranging the Ethereum-based software device for the three Smart Operations in not only miners required for mining, but also the core policy that controls and operates it.

The 12Ships ensures that Mining is always operated in optimal conditions through its hardware design technology and operational know-how. In addition, the 12Ships offers its own flexible and expandable solution that allows the operating conditions of miners and the distribution method of mined cryptocurrency to be operated differently according to token holders' preference for profit-seeking. This solution includes Smart Monitoring, which checks the status of miners and the mining in real-time, and provides the information necessary for optimal decision making, Smart Contract, which ensures that the contract is executed by recording the revenue distribution method of the mining pool on the blockchain, and lastly, Smart Voting, which is a system that openly and democratically determines the operation of the mining pool for mining targets, reinvestment, etc.

Smart Monitoring

Smart Monitoring makes it possible to check the operation status of miners, hash power, power consumption, mining status in mining pools, distributed revenue, etc. in real time. Smart Monitoring consists of a sensor part installed in the miner, a data center part that collects and processes the data from the sensor, and a dashboard that allows users to confirm the data.

In the sensor part, measured values such as the power consumption of the miner, the temperature of the chip, the heatsink cooling fan status and source voltage/current are transmitted from the sensor attached to the equipment to the data center part in real time through the wireless network. In the data center part, it computes the minimum/maximum values and the average value based on the raw data from the sensor part and then sends them to the dashboard. Then the dashboard shows clear graphs and signals that help monitor the data, and the CCTV footage of the mine is also accessible.

Moreover, you can confirm the ongoing process of the execution of Smart Contract including the status of mined cryptocurrency distribution through the dashboard, and a display of screen for Smart Voting to determine operational policies is also provided.
(Actual Smart Monitoring implementation functions may vary depending on your platforms such as web or mobile or other requirements.)

Fig. 14 Hansando Homepage

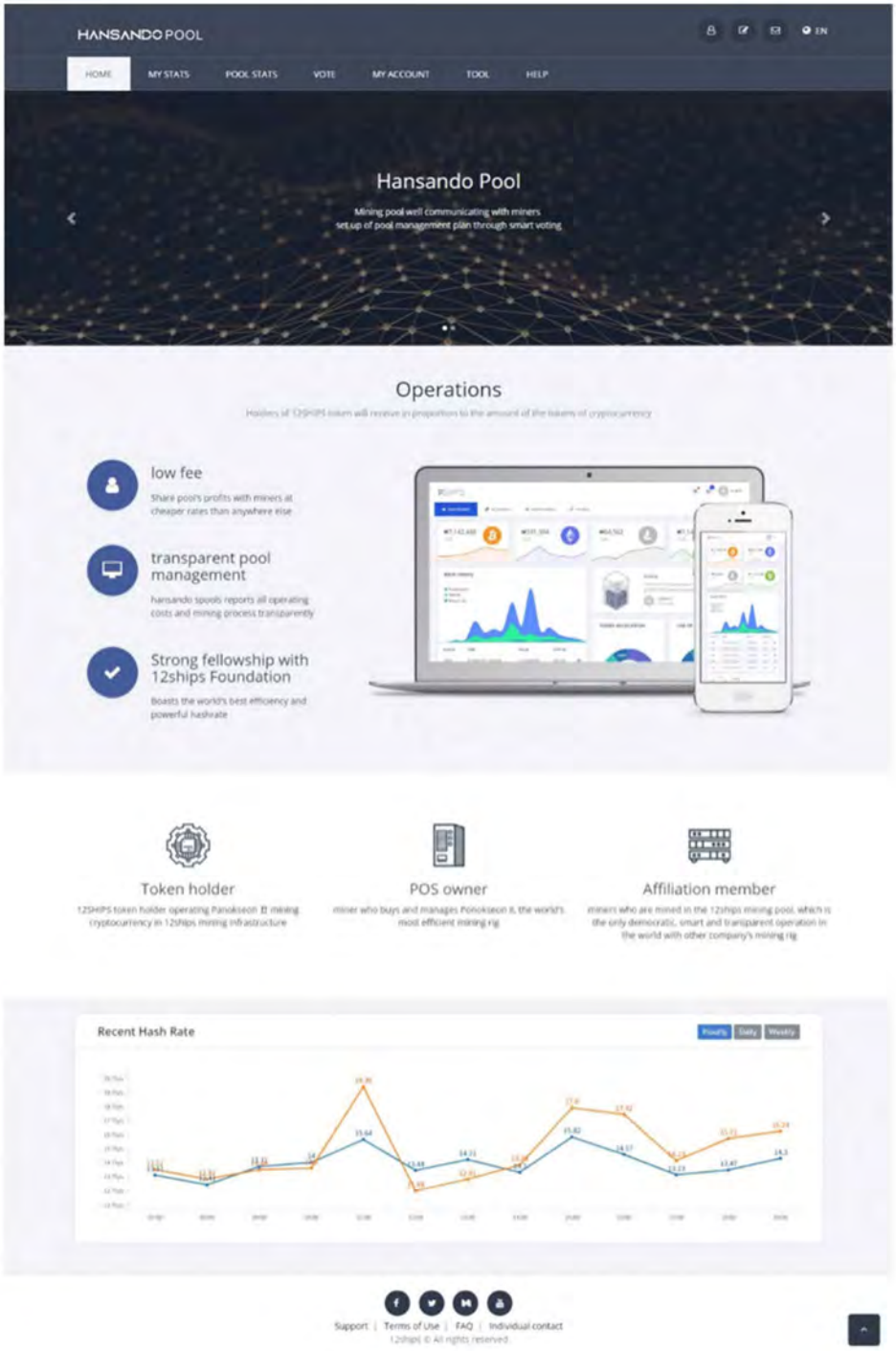


Fig. 15 An Example of Mobile Alerting

SMART CONTRACT

Ethereum-based Smart Contract makes it available for anyone to see the details of the mined cryptocurrency distribution method of participants and records it in blocks in the blockchain so that it can't be arbitrarily changed. In the case of the contract, one or more contracts may occur depending on the content and form of the contract between a main token issuer and a token holder, and depending on the satisfaction of the agreed terms in the recorded individual contracts, the time of contract implementation is automatically and openly defined, and its implementation details are guaranteed.

The technical features of the 12Ships token(TSHP) are as follows.

① Environment & Operation

Deploy the Bytecode(DAPP, Decentralized Application) generated after compiling sources created by Solidity and execute it on the EVM (Ethereum Virtual Machine).

② ERC20 Token

ERC stands for "Ethereum Request for Comments" and is an official protocol that suggests the improvement of Ethereum networks, and "20" indicates a specific ID number for these proposals. Now that the ERC20 Token is implemented as a protocol on the Ethereum networks. it is sent by the Ethereum address and transaction. Therefore, all ERC20 Token, including TSHP, can share the same Ethereum address with all tokens that use the Ethereum wallet.

③ Definition Fidelity

Its implementation fulfills the definition of "a set of promises, specified in digital form, including protocols within which the parties perform on these promises." of Nick Szabo, who first proposed the concept of Smart Contract.

④ Deterministic Smart Contract

Vincenzo Morabito divided Smart Contract into Deterministic SC and Non-deterministic SC, and among them, the DSC is a type without the intervention of external data in execution, and the NDSC is a type that requires an inbound or an outbound Oracle, that is an external referrer.

The main data recorded in the blockchain, which are defined in Smart Contract, are as follows. (Items may vary depending on the policies and agreements at the time of drafting.)

① Drafting date and time: Timestamp when Smart Contract is recorded in the blockchain

② Parties of Contract (from): TSHP tokens use Smart Contract for the distribution contract of mining revenues, so the contents of this item are only available in the 12Ships unless there is a change in policy

③ Parties of Contract (to): This include those who own tokens at the time of drafting Smart Contract by getting assigned to the issued tokens after participating in the ICO and by acquiring through trading on the exchange.

④ Targets of Contract: A coin corresponding to the percentages distributed to the contracting parties among coins mined from Mining Infrastructure operated by the 12Ships. It can be determined by the decisions of more than half of the token holders.

⑤ Terms and Conditions : It is the way in which mined coins are distributed due to the token holding. Token holders choose among the ways that the 12Ships supports from representative distribution methods, PPS, PPLNS, PPLNSG, Score-based, CPPSRB, Proportional, etc.
(The default value will be set to PPS.)

⑥ Confirmation of the Contract Execution: If your payment is confirmed and checked when all the above items are met, the status will be changed to the fulfilled contract

Smart Contract is drafted and executed through the following process.
(The flow and description illustrated may differ from the actual realization).

① Smart Contract definition and coding: Define main contents and conditions of the contract and script it with Solidity. Declare a variable, define a function for execution, and do the coding work according to the grammar.

② Code compiling: When the Solidity source code is compiled, EVM Byte Code, a kind of machine language, is created.

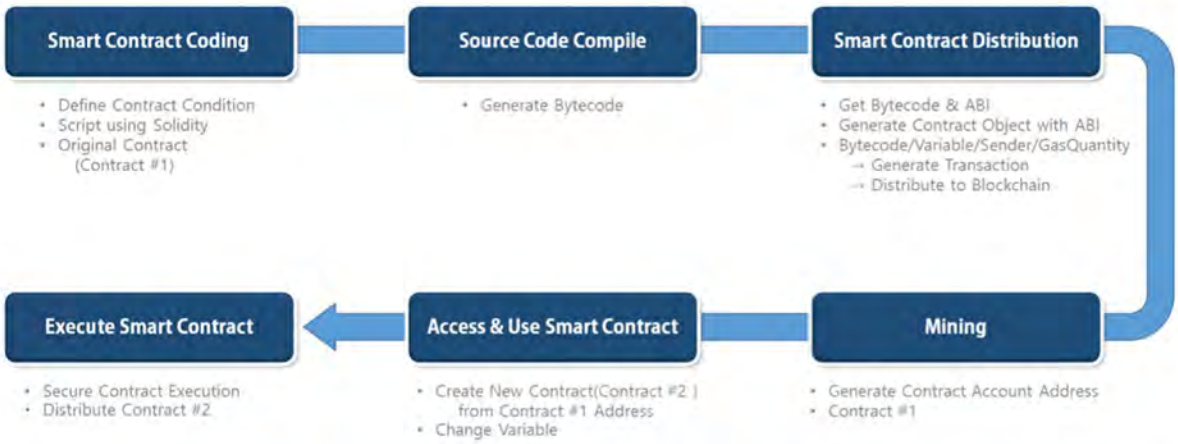
③ Smart Contract Distribution: Create a Smart Contract object from the Byte Code and the ABI(Application Binary Interface) in order to distribute the generated Byte Code to the blockchain. Include the object in the block so that it can be included in the blockchain, and to do this, enter the sender, byte code, and amount of Gas expected to be used together with the parameter to create Smart Contract like one transaction.

④ Mining: When a miner mines a block containing a transaction, the address of Smart Contract will be generated. In other words, Smart Contract becomes accessible and usable.

⑤ Access to and use of Smart Contract: You can use the address of Smart Contract to read and write the contract-related information.

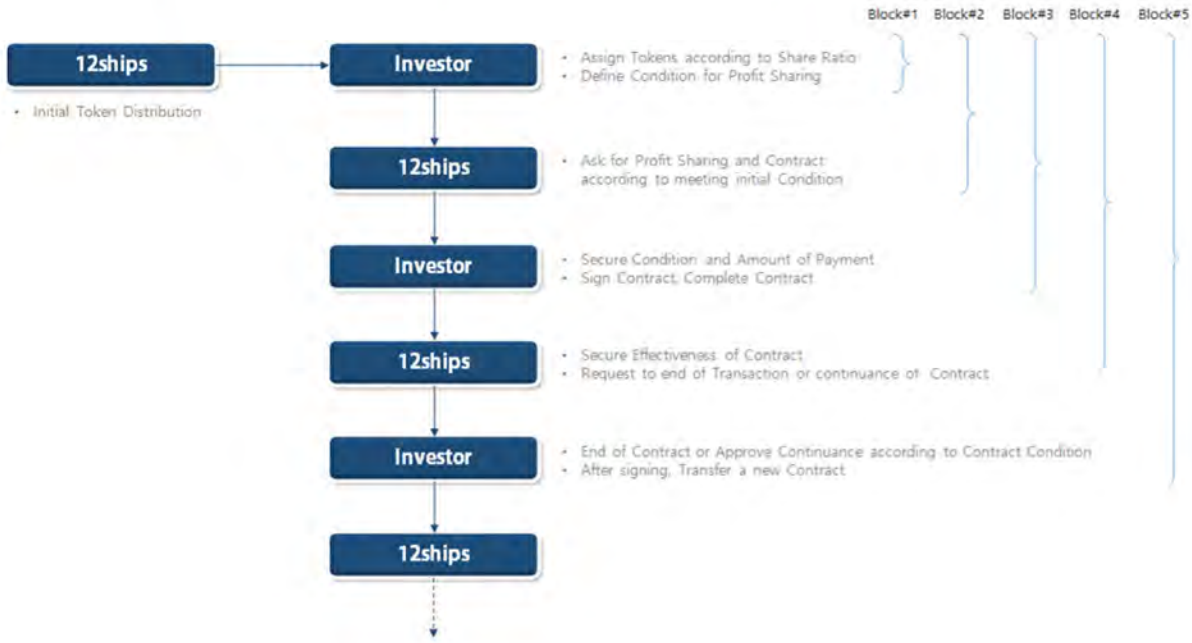
⑥ Execution of Smart Contract: If the execution conditions of the original Smart Contract are fulfilled, by using the contract, a new contract is created for the execution result. If the process of distributing it to the blockchain again continues, both contracting parties and blockchain participants will be able to transparently identify the contents of the contract, the execution process and whether it is executed or not at each stage of implementation from the beginning of the contract.

Fig. 16 Smart Contract Process



The process of requesting and approving Smart Contract and updating it to a new state is shown below. (The flow and description illustrated may differ from the actual realization).

Fig.17 The process of requesting, approving, and updating Smart Contract



Smart Voting

When the mining begins, the preference or will of token holders need to be reflected depending on changes in coins to be mined, coin's market price, level of difficulty of mining, hash power of mining pools, etc. In this situation, if main operators of the mining pool make decisions privately and arbitrarily, token holders will have to passively accept the results without knowing where the future gains or losses vested to.
Smart Voting is a device that makes it available to promote the transparent operation of mining pools and the ultimate profit maximization by the fact that the 12Ships has made it possible for token holders to figure out the situation themselves, participate in decision making process according to the situation, confirm the results of the decision- making and take their responsibilities. The agenda of Voting may be raised not only by the 12Ships, which is the subject of the operation but also by one or more holders who own more than a certain number of tokens, and Voting process design and submitting for consideration about issues, Voting period, criteria for judgment of results, etc. can be released as a system specification or be provided as another Smart Contract by the 12Ships.

Smart Voting may be considered as a special form applied with Smart Contract, and the following details are applied to the code(The actual realization of Smart Voting may change as needed).

① Define the object for which the vote is proposed. Such as the participants' address, quantity(the amount of tokens held), expiration time, whether or not it has been executed(or whether or not to exercise the right to vote), whether or not it has passed by a vote, voting participants, voting results, etc.

② Define a member object. It consists of data that can be used to confirm whether he/she is a token holder or not through the address of the member, the time of holding the token, etc. and set up a Modifier to allow participation on voting for token holders exclusively and submit voting.

③ Define voting rules. It needs to set up the period of the preliminary discussion for the vote, a quorum for the vote, the minimum polling rate to pass the vote, etc.

④ Define a framework for entering suggestions. In the case of TSHP, coins, which are currently subject to mining, and reinvestment rates can be targeted.

⑤ Define the voting form. For example, there are voting proposal numbers to be targeted, whether it is yes or no, etc.

The items that can be subject to Smart Voting are the coin to be mined, re-investment ratio depending on the mined amount and so on.
As shown above, by realizing and executing Smart Monitoring, Smart Contract, and Smart Voting, we build a reliable mining pool by providing real-time data and immediate feedback to token holders, and we ensure that the mining revenue distribution is carried out transparently through the released contract. In addition, our core strategy is to become a democratic Mining Infrastructure by directly participating in and determining important policies of the operation of the mining pools.
At the beginning of the hash pool configuration, the entire pool is composed of Panokseon II, and each Panokseon is connected to the Pool Mining Network on the hash pool server constructed by 12Ships, and the hash pool server is connected to the external bitcoin network to perform the chaining operation.
In the future, according to the development of other coin hash machines of 12Ships and the decision of TSHP token holders, a self-developed hash machine or an external purchase hash machine can be connected and expanded through the already established Stratum Network.

Independent external equipment can also participate in 12Ships network can. In order to join the hash pool through the Stratum Network, it is necessary to certify the purchase of TSHP tokens and satisfy the subscription requirements to be separately specified. After joining the pool, the same authority as the other TSHP token owners will be generated

The hash pool infrastructure configuration model may be changed for optimal performance depending on the update of the bitcoin network, the technology change, or the technology development situation of 12Ships .

3.5 Producer / seller's trustworhty blockchain – OlleChain

We would like to utilize it as a means of core authentication of online business and storage / confirmation of important data in the future 12ships developed by the OlleChain, which is a public blockchain that anyone can participate in.
OlleChain will provide a Blockchain as a service (BaaS) system, which is a complete Blockchain service that collects and records the information recorded in the block into a producer / seller unit
As cloud and Internet technologies evolve, services such as Infrastructure, Platform, and Software that were previously constructed independently in a virtual environment and used in the form of services are generally referred to as IaaS, PaaS, and SaaS, respectively

3 SOLUTIONS

When applying blockchain technology that features the concepts of security, sharing, and dispersion to new areas, we are going to make a business structure in which anyone can use a well-built blockchain model as a service instead of building directly blockchain node and an underlying environment. Moreover, we plan to let the OlleChain grown as a stable brand and independent service online eventually.

OlleChain based decentralized applications (dApps) refers to a distributed application that is connected and used by all participants in an equal structure (Peer to Peer, P2P) without a centralized administrator, whereas existing software or online services are constructed in the server-client model and described as being centralized.
And we will create a base blockchain structure, and develop the tools in forms of dApps to record and to retrieve the transactions in that blockchain by the users of the OlleChain.
The dApp tools can be divided into dApps that record production/sales history in blocks and those that can be easily viewed by consumers.
Each dApp can be provided as a stand-alone application for direct user experience, or in the form of an API that provides data authentication, recording and recall functions to other web/app services, allowing anyone to freely create/deploy a dApp that takes advantage of the benefits of the OlleChain.
Using OlleChain and dApps optimized for OlleChain, it enables small and medium-sized businesses and small merchants to easily archive their production/sales history to the blockchain, while consumers can conveniently check the history of their products with their smartphones.
In addition, we plan to operate a dApp market where anyone can develop and provide a dApp for companies, sellers(such as shopping malls), and their consumers using the OlleChain. Afterwards, we will gradually expand the application to agricultural and livestock products, starting with the manufacturing/product types

BaaS is a business model that develops a method of recording data on a public blockchain based on blockchain itself's reliability, providing service/product providers with an unabated recording method, and using the dApp to assure consumers of the reliability of their data, and we are developing technologies that can provide various forms of blockchain(public or private), node participation, and data logging authorization methods.

Examples of using OlleChain go as follows;

① Producer

- **When production is complete** : The production information of LOT unit is recorded in the OlleChain using dApp for producer.
- **When Shipment is completed** : Record the LOT shipment information on the OlleChain and print the link information to view the information in the QR code to attach it to the product.
- **When shipping starts** : Payment/delivery information in order number is recorded in conjunction with QR code.

② Consumer

- **Inquiry** : When you click on the product information in OlleNature, the latest shipment information, in available inventory, is taken from OlleChain and shown with production information.
- **Purchase** : After putting the product you want to purchase in the cart, enter the delivery information, and click 'pay with crypto-currency' to run the wallet application and record it in the OlleChain after payment is completed.
- **Shipping** : Receive the delivered product and scan the QR code attached to the product with your smartphone to verify production/shipment/order/delivery information in the consumer application.
- **Review** : Customer's review information is left on the completed order item.

The production information recorded in the blockchain depends on the nature or process of the product and the producer, but can be applied as shown in the following example.

- Lot Number (Key Index)
- Product name/product number/quantity
- Producer/production site/production date
- Name of raw materials/place of purchase/date of purchase

3.6 Blockchain of Trust Infrastructure and Healthy Living – OlleNature

Although the blockchain is the core technology of the 4th industrial revolution, there are not many services or applications to which the Blockchain technology is applied yet.
12Ships has developed an online shopping mall, OlleNature, which is based on blockchain infrastructure and can be purchased with confidence in good products.

OlleNature will release natural products made from advanced vacuum extraction technology based on good raw materials of Jeju Island and this technology will leave all the history of purchasing raw materials from shipment to shipment in a Blockchain

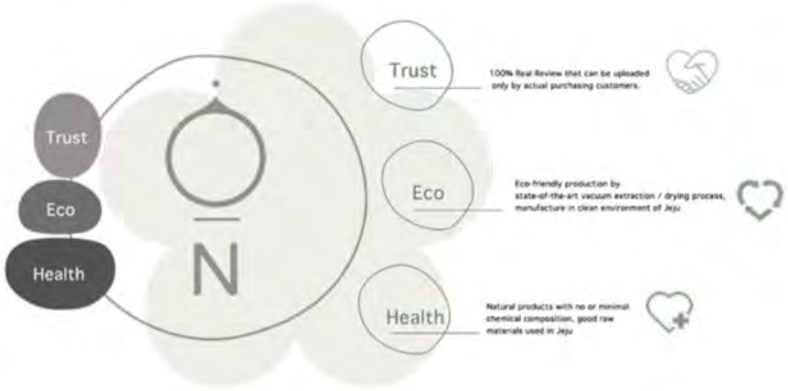
The production / shipment history of OlleNature is recorded in the OlleChain, which can not be falsified and can not be deleted forever, so that the consumer can check the history of the product conveniently with a smart phone, etc.

Based on the high-level blockchain related hardware / software technology accumulated by 12Ships, we have developed the PoW-based Blockchain network 'OlleChain'

The OlleChain allows anyone to record, store, validate, and recall important data without the risk of data transmission errors, hacking or tampering

This network is open to anyone who can access and use it, participate as a node, validate and create blocks, and receive a point reward, OlleStone, that can be used within a Blockchain network

Fig.18 OlleNature Homepage



4 ROADMAP

May
OlleNature open
August
ansando pool set-up
July
Development completion
of PanokseonII
End of Dec
Lauch BaaS based on
OlleChain

5 Token

5.1 Token Economy

The TSHP token is an ERC20 standard-based Ethereum token.
TSHP tokens contribute to a democratic Blockchain ecosystem and provide the following functions to specify access to services and products :

- It is used as the key token of the OlleChain, and is used as a commission for the OlleChain -based BaaS (Blockchain as a Service) system

- It is used as one of the payment methods of various Blockchain services such as OlleNature

- It is used for smart voting on various decision making for Hansando pool such as the selection of target cryptocurrency, and the reinvestment rate.

Rewarded cryptocurrency through Hansando's pool operations are used to increase the Panokseon hash power and manage Hansando pool.

- 90% is reinvested to increase hash power, such as increasing a number of Panokseon and investing R&D for next ASIC, or vitalizing Hansando pool.

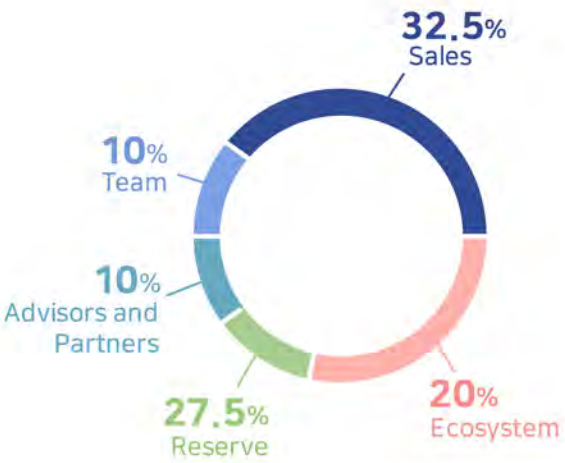
- 10% is expected to be used as a mining pool operating cost. The exact cost is expected to be released after the operation of Hansando pool.

5 Token

The total token issue amount is 5,000,000,000 TSHP.

Development progress, additional information and SNS channels to communicate with us can be found at http://www.12ships.com.

5.2 Token Allocation



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