

# Element Earth



ELEMENT

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# Origin

## 1. Element origin

The Babylonians and ancient Egyptians once regarded water, air and soil as the main elements of the world, forming a three-element saying. That is, the elements as the simplest part of all real objects in nature, has been produced in ancient times. In both Indian or Western ancient philosophy, elements are regarded as an expression of the abstract, primitive spirit, or the basic nature of substance. Elements are the origin of the material formation of the earth, which further argue that the elements are the origin of all matter. During the time when Mendeliev established the periodic system of chemical elements, it is clear that the basic properties of the elements are atomic quantities. He argued that differences between elements focus on different atomic quantities. He proposed that two different concepts should be distinguished between monolithic and element, noting that there is no metallic mercury and gas oxygen present in red mercury oxide, only elemental mercury and elemental oxygen, which behave as metal and gas when monolithic is present.

In the late 19th century, electrons, X-rays, and radioactivity were discovered, leading scientists to study the structure of the elements. In 1913 the British chemist Sody proposed the concept of isotopes. After the 20th century, scientists further argued that all matter on Earth was made of elements through different chemical formulations. For example, water is composed of the  $H_2O$  chemical formula, and carbon dioxide is composed of  $CO_2$ .

When discussing the composition of matter, it is generally described by "what elements the so and so substance consists of". For example, water is composed of hydrogen and oxygen, or water is composed of hydrogen and oxygen; iron is composed of iron. The position of the elements in the periodic table reflects not only the atomic structure of the elements, but also the recursive laws and the intrinsic connection between the elements. Make it constitute a complete system.

Elemental Earth Element Earth,, based on chemical principles, builds a blockchain ecology with earth elements as the cornerstone and digital economy as the backbone. Element Earth super application group makes blockchain evolve into a new life and develop independently. At the same time, it continuously delivers the growth power for the periodic table of earth elements, and becomes a new financial model amazed by science and technology financial experts.

## 1.2 About the Element Earth initiator

### The 1.2.1 Element Earth Foundation and the American Chemical Society

The ACS Element Earth project, jointly launched by the Element Earth Foundation and the American Chemical Society ACS, is based in New York and with offices in major countries in Europe and the United States. The Element Earth Foundation focuses on the development of emerging technologies represented by blockchain, network communication technology, artificial wisdom, big data and so on, and the development of high-tech fields such as chemistry, micro science, so as to promote the progress and commercialization of science and technology with chemical element NFT.

The American Chemical Society ACS is a professional organization in the field of chemistry, founded in 1876. It are 60,000 members from each branch of the chemical community. The American Chemical Society holds two annual meetings covering all directions of chemistry and has a number of slightly smaller professional workshops. The American Chemical Society has numerous journals of which "American Chemical Society" (Journal of the American Chemical Society) is 137 years old.

### 1.2.2 Team members

The Element Earth team members come from around the world and include experts from various industries, such as technology experts, mathematics experts, atomic energy scientists, computer experts, chemistry experts, blockchain experts, and more. The foundation aims to promote and maintain the construction and healthy development of the foundation and the whole Element Earth ecology through a reasonable and effective governance mechanism, safeguard the relevant rights and interests of the holders of the general certificate, and create a decentralized application shared by the whole people.

As the management organization of Element Earth, Element Earth Foundation is committed to the construction of Element Earth system technology architecture, product application development and community ecology, including promoting technology research and development, project cooperation, product development and repeated operation, application promotion and community construction and maintenance. All operations of the Foundation shall follow local laws, regulations and regulatory requirements.



Giauque

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Member of the American Silicon Valley Blockchain Innovation Association

Secretary-General of CMCA International Blockchain Innovation and Application Alliance



David Garrett

Element Earth CTO

One of the Telegram program developers

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### **1.2.3 House support**

The Element Earth Foundation has been strongly supported by the US government, and in November 2020 it received a \$30 million investment from the US Overseas Private Investment Corporation (Overseas Private Investment Corporation, OPIC) for the R & D and operation of the Element Earth project.

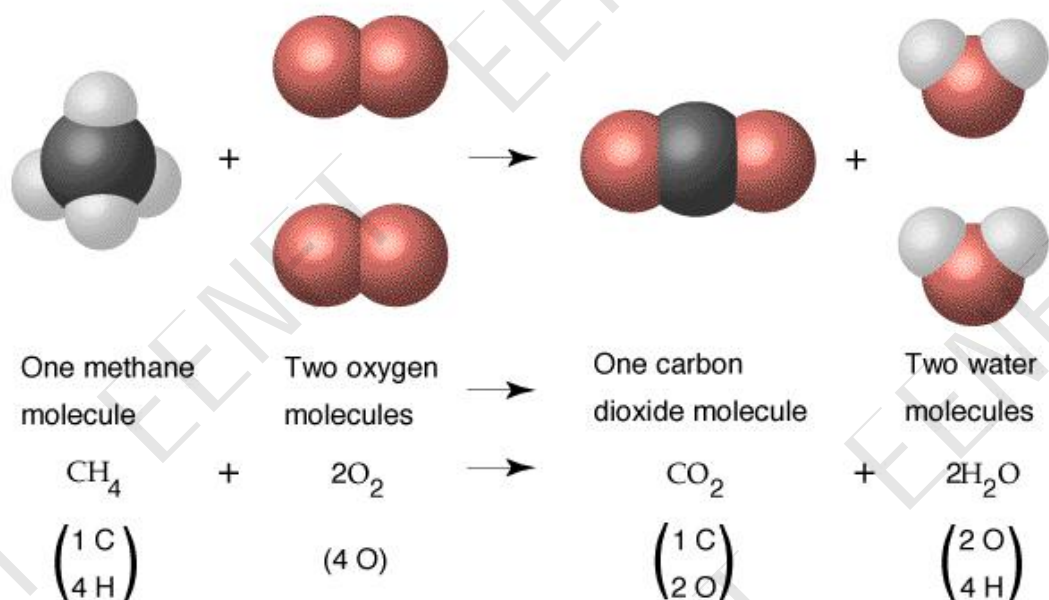


# The Concept

## 2.1 Chemical Elements and blockchain technology

There are 118 known elements on Earth, through which 118 elements, more than 3,000 playing different substances are constructed. Combining blockchain with Earth elements would be of unprecedented significance.

Element Earth cast all the chemical formulas into a unique NFT. NFT is a non-homogeneous general certificate based on blockchain technology. Blockchain is a common database, the data or information stored in it, with the characteristics of unforged, whole-process traces, traceability, open and transparent, collective consensus and so on. Based on these characteristics, by combining chemical elements with blockchain technology, Element Earth has laid a solid foundation for trust, created a reliable cooperation mechanism, and has broad prospects for application.



## 2.2 Change the law of wealth distribution

We realize that blockchain will change the rules of capitalist centralized wealth, because of this, Element Earth step ahead from the bottom of the public chain chain business contract, let take over human nature, thousands of commercial behavior implanted decentralized genes, business rules strictly follow the mathematical logic, end all fraud and unfair existence, guarantee even in the darkest environment, Element Earth contract always make the most just ruling.

Element Earth was born for collective profit, the public can participate in asset creation and redistribution through Element Earth, consortium and technology groups can quickly release chain business application through Element Earth, cross-chain trading is no longer a paper conversation, people eager for freedom can be barrier-free for anonymous social, blockchain talent will get better resource allocation through the chain business system...

Everyone is a believer, everyone is a participant, and even everyone can be a rule-maker. Social finance will present more orderly competition, and thus more flowers will bloom.

Element Earth is not only a blockchain project, but also a social experimental engineering that changes the human journey, which will play an important role in identity security, privacy protection, DEFI, digital asset aggregation, etc.

The greater the ability, the greater the responsibility, the Element Earth public chain burst out the light of fairness and universality, do its best to smooth the friction of the world, lead mankind to the perfect world, and finally obtain the supreme wealth freedom and personality freedom.

## 2.3 Faith

Element Earth's faith can be seen as a belief developed from several technology, like Christianity, Islam. People who hold Element Earth certificates can become believers, pursue higher value and create higher value for mankind. The Bible says "You heard both the truth, the gospel that called your salvation and believed in Christ. Believe in him, the Holy Spirit is promised. The Holy Spirit is the "common proof" of our foundation, waiting straight until the people of God are redeemed to praise his glory."

Element Earth for the benefit of believers, the public can participate in asset creation and redistribution through Element Earth, consortium and technology groups can quickly release chain business application through Element Earth, across chain trading is no longer on paper, eager for free people can be free to anonymous social, blockchain talent will get better through the chain business system resource allocation.

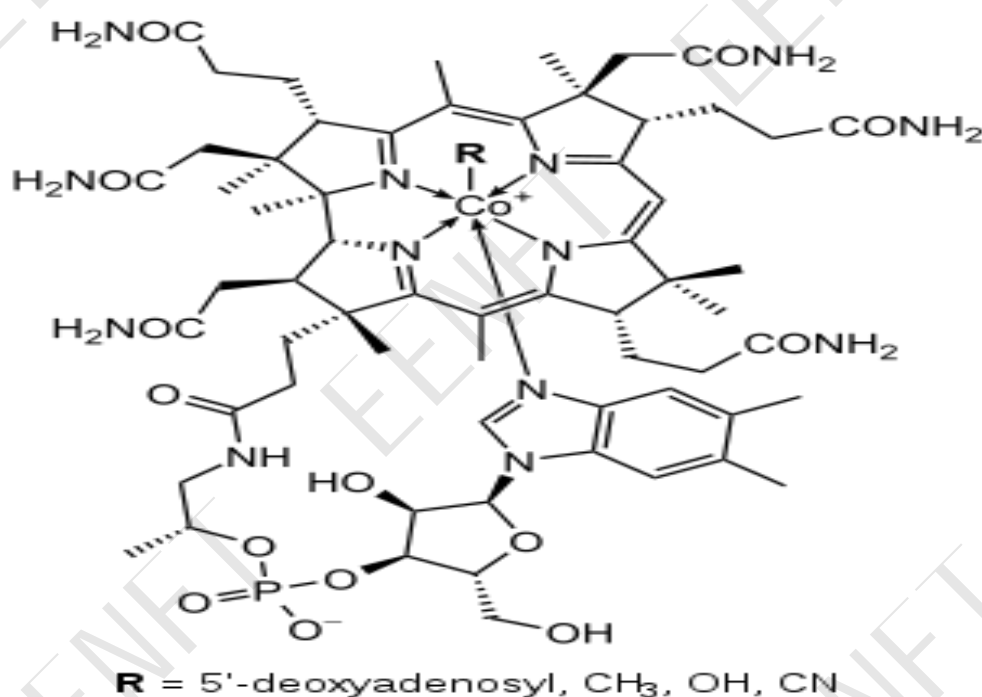
Element Earth and Ecopartners aim to address problems in digital financial activities and provide revolutionary distributed digital financial services to people around the globe. Let more people of different nationalities and backgrounds simply and safely participate in the digital asset market. Element Earth has always paid attention to how the blockchain technology and the digital asset market can further level the financial industry form, consolidate the foundation for the economic industry, and set the life for the blockchain industry.

Element Earth shoulder to provide open, high-quality use of underlying blockchain infrastructure, is committed to build a boundless, no boundaries, infinite open blockchain ecosystem, for all Element Earth believers and followers and proforth has unprecedented significance, all members to promote the development of the whole ecology, build a world-class industrial chain, realize blockchain commercial application scenarios, pratt & Whitney forth.

# Element Earth technical features

## 3.1 Connector for blockchain and chemical elements

In blockchain, can only get the data on the chain, and not access to the real world data outside the chain, which means that the blockchain world is closed with the outside, blockchain internal circulation but can not contact with external, when some functions or wisdom contract need to read outside information is not receive signals, that is to say, the wisdom contract cannot take the initiative to obtain chemical elements outside the chain, can only passively accept data.

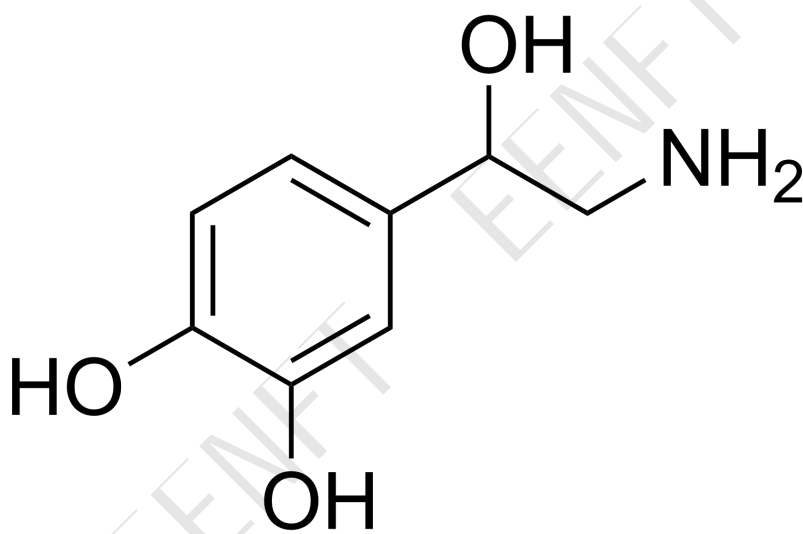


What conditions are reached triggers the corresponding result, which is the execution of the smart contract. But the smart contract cannot read the chemistry outside the chain itself, and an external source must tell it what has happened to enable it to execute the corresponding content. The chemical element is an information outside the system and is uncertain. The results are different according to different chemical formulas, and even the same node going to the outside world at different time may be different.

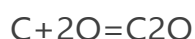
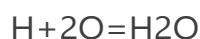
Element Earth provides a bridge for such a blockchain predictor that connects the chemical elements to the blockchain. Each node can become a hub on the blockchain, confirming whether the original data on the chain is correct. The consensus mechanism of blockchain is based on chemical elements, all known elements and formulas of the Earth within smart contracts.

### 3.1.1 NFT chemical formula

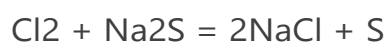
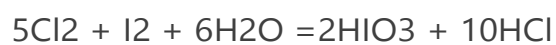
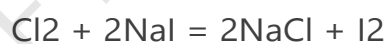
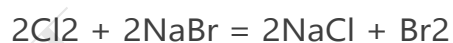
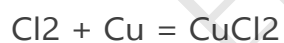
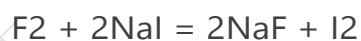
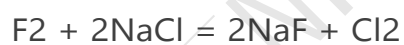
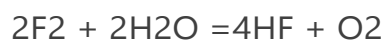
In element earth ecology, element earth provides a hub connecting blockchain and chemical elements. Element earth provides random extraction of chemical elements, such as hydrogen (H), sodium (NA), potassium (k), rubidium (RB), cesium (CS), francium (FR), magnesium (mg), calcium (CA), strontium (SR), barium (BA), radium (RA), etc. Through smart contracts combining elements into chemical formulas, smart contracts follow the law of chemistry and turn into a unique NFT chemical formula. NFT Chemical can be traded for added value.

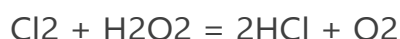
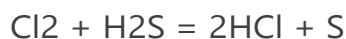


Element Earth has now contained all geochemical elements and chemical synthesis formulas. The Element Earth produces any element every day, and the different elements are synthesized according to the chemical formula to form the NFT chemical formula. For example:









## 3.2 Smart contract prediction

Element Earth is a Web3.0 component-layer solution for managing data that addresses the data availability and reliability issues of blockchain in Web3 using Element Earth's Dapps to access data through the Element Earth's public smart contract data side instead of, accessing data via a pre machine outside the blockchain. Element Earth's data is a data source for community optimization, providing DApp users and developers with a data source framework that can operate, optimize, and manage themselves for purposes that can be trusted and reliable.

Element Earth code is all audit public, anyone or organization can tamper with, is a decentralized application (DAPP) belonging to everyone.

By creating a standard framework for community governance logical data, Element Earth can create a community scalable approach so that all DApp s can widely adopt and integrate trusted data.

Element Earth data interfaces and applications are cross-platform, meaning that they can be used to optimize and manage the data purposes that any community sees fit. This, data sources can be aggregated using an average, median, or majority, and can be aggregated from multiple sources (such as centralized external data sources or on-chain data aggregators). Examples include:

Asset price data sources include cryptocurrency to cryptocurrencies, cryptocurrency to French currencies, traditional securities, and commodity prices. decentralized financial applications rely on these external price data to build decentralized lending, stableciins, derivatives transactions and so on.

Real world events include sports events, LOT data output, real payment transaction settlement, etc. Many smart contracts need to rely on these data to reach a deal. For example, the prediction market can be very simply constructed using our source of motion events without relying on token holding people to solve the input and output of each contract.

certification data includes information such as certified, credit score, degree and work experience. Decentralized exchange markets and markets are potential applications to rely on this type of data.

Location data includes the GPS location. Any decentralized application that needs to leverage the map can rely on such data.

Most importantly, Element Earth does not define how the data is handled. provides the community to collectively determine how the data will be used or optimized. Element Earth does not assume how the data should be processed or optimized, this power is entirely in the community that wants to use the data into decentralized applications. Create the best motivated participant to create — reliable sources of data for his own decentralized applications with other users.

In addition to advancing the goal of a truly decentralized world, Element Earth is building an ecosystem that can share private data between private enterprises. Many of the data are sensitive and managed by many private businesses that cannot easily and safely share the data among the right stakeholders. Element Earth extends our support for Web3.0 to cover this privacy sharing to create world databases of critical and useful information such as identity and trust.

### **3.3 Element Earth Proer members**

#### **Data Provider:**

Participants who provide various data in the agreement, including providers of verifiable chaos, multi-asset prices, and verifiable computing power. Anyone who just holds an amount of Element Earth can be a data provider. If the data provided eventually takes effect, then the data provider is rewarded.

#### **Validated by:**

If a data provider provides the data, the verifier can challenge the data. The verifier can verify the identified data through VRF, validable calculation tools, asset prices on the standard chain. The verification results are submitted to the arbitration node, which disputes the challenge, if the arbitration is successful, and thus obtains benefits.

The verifier needs to provide a new data after identifying the data. If the verifier challenge fails, the verifier pledged will be proportional to the data provider and arbitration nodes. Data caller: Call the Element Earth prophecy machine contract and pay a certain fee, and any contract and account can become a price caller.

### **Data supply and data validation**

The pipeline for the data provider is slightly different depending on the specific application scenario.

#### **Veridnumber can be verified**

The data provider uses the verifiable random function Verifiable Random Function (VRF) to generate validable random and pass the random and pledged Element Earth into the smart contract. The data verifier can verify the uploaded random number and pass the verification results to the arbitration node.

The arbitration node arbitrates the verification results. If the number of uploaded chaos cannot be verified, then the Element Earth of the transaction pledge will be distributed as the reward to the data authenticator and the arbitration node.

If there is no problem with the data provider, the Element Earth will be rewarded as data and the pledged Element Earth will be returned to the data provider after a certain interval.

To understand how VRF works first understand the miscellaneous functions like SHA256, SHA3 and don't discuss in detail. An ideal miscellaneous function, whose value field should be discrete, evenly distributed, given different input values, its output value should be irregular, random sprinkling, distributed in the value field interval.

There is also a simple variant of the patchwork function that combines the key secret, such as  $\text{result} = \text{SHA256}(\text{secret}, \text{info})$ , then it is not enough to get the result that result, only has info, you have to know secret to calculate, which is the miscellaneous function with the key.

The random function Verifiable Random Function (VRF) can be verified. Simply put, the miscellaneous functions combining asymmetric key technology such as  $\text{result} = \text{VRF\_Hash}(\text{SK}, \text{info})$ , SK is a private key, not disclosed, secret saved, and the PK paired with SK is an open key that needs to be disclosed to the verifier.

**Specific operation procedures are as follows:**

The 1, data provider generates a pair of keys, PK, SK;

The 2, Data Provider calculates the result =  $\text{VRF\_Hash}(\text{SK}, \text{info})$ ;

The 3, Data Provider calculates the proof =  $\text{VRF\_Proof}(\text{SK}, \text{info})$ ;

The 4, data provider submits the result and the proof to the data authenticator;

5, data provider submits PK,info to the veriator;

The 6, data validator calculates whether the result =  $\text{VRF\_P2H}(\text{proof})$  is valid or, if so, proceed with the following steps, otherwise suspend;

The 7, data validator calculates the True/False =  $\text{VRF\_Verify}(\text{PK}, \text{info}, \text{proof})$ , True means that the validation passed, and False means that the validation failed.

The so-called verification pass means whether proof is generated by info, whether result, can be calculated by proof to deduce whether info and result match, and whether the data given by the prover is a problem. Throughout the operation process, the witness never shows its private key SK, validator can derive whether info and result match.

There can also be a summary of the evolution history of the miscellaneous function:

Original miscellaneous function:  $\text{info} \rightarrow \text{result}$



Mttr function with key: (info,secret) - -> result

The miscellaneous function of the public key version (i. e. VRF): (info, SK) - -> (proof,verified by PK)

--> result

## Multi-asset prices

Take BTC/USDT as an example, a data provider who intends to quote 1BTC=10000USDT, He needs to quote the asset category "BTC" and asset Price 10000USDT (10000USDT here only as a price, not need to transfer to smart contract) and the pledged Element Earth as parameters into the prophecy contract. The whole process is completely open, anyone can become a data provider, and the price and pledge scale are set by them.

After the data provider assets, prices and pledged Element Earth are submitted to the quotation contract, the price can be identified by any verifier as problematic. After that, the arbitration node will conduct arbitration. The arbitration node will determine the quotation time according to the block where the quotation is located, and then inquire the real price of the current head exchange at this time according to the time. If the deviation between the price and the real price provided by the data provider is greater than the threshold value, then the data provider will lose the pledged Element Earth. This mechanism guarantees that the offer is a fair price on the market.

## Validate the computational computing force

1. computing task initiator, upload code to be executed and provide commission.

The 2. data provider discovers this task, considers the commission acceptable, performs the calculation task and passes the calculation answer and pledged Element Earth into the smart contract.

The 3. verifier reperforms the task, and if the data provider is found fraudulent, he can pass his calculation results and the pledged Element Earth to the arbitration node.

The 4. arbitration node distributes the Element Earth pledged to the fraudulent party by reperforming the calculation task or the real calculation results in a certain proportion to the verifier and the arbitration node.

5. If no one can provide evidence that the data provider is falsified for a time, then the data provider will receive a Element Earth commission provided by the task initiator.

### **Data validity period and validation period**

From the time of data submission to the prediction machine, the validity period of any piece of data is limited.

The system is temporarily invalid from the submitted data transaction being recorded to the block and passes through 30 blocks. For the asset price on the chain, the data within the validity period will be calculated according to a certain calculation, and the price inquiry service will be provided externally.

To prevent users from maliciously generating incorrect data, each data has a long validation period, tentatively scheduled for 40 hours. During this period, the verifier can challenge the data. After the validation period, data not challenged is called effective data, which will be awarded for mining.

### **Anti-attack calculation**

If the Element Earth call is large, there may be an attacker. An attacker tampering with a normal data, or the attacker poses a malicious challenge so that the data will not be updated (because the data cannot be adopted and updated once challenged). The attacker is willing to sacrifice the pledged Element Earth, in exchange for greater gains.

We guard against attacks by increasing the cost of our attackers:

First, the verifier must pledge a Element Earth. The verifier must leave a new data and asset with the challenge. This means that the verifiers will either leave the right data or lose more Element Earth,. There will inevitably be other verifiers in the market to arbitrage and correct the data.

Secondly, in order to amplify the cost of the attacker, the pledge scale of all the verifiers is arranged as follows:

The scale of the data provider pledge is  $n_1$ , so the pledge scale of the verifier  $n_2 = m * n_1$ , where  $m > 1$ , namely, the verifier must challenge with more than double the size of the pledge. We take  $m=2$  as an example, and the initial pledge of  $n=100$  Element Earth, comes with constant challenges,  $n_1=200$ ,  $n_2=400$ ,  $n_3=800...$  and so on. The attacker takes a great cost to distort the market price for a time.

## 3.4 NFT Copyright Foundry Rules

Element Earth cast all the chemical formulas into a unique NFT. Each NFT pass is cast, the miners provide node network support and assign this part of the fee charged to the POS miners who record the transaction.

### 3.4.1 节 point of mortgage reward and punishment system

The block out and verification in Element Earth network are completed by POS node, and the system automatically selects the first 100 nodes with the most mortgage number and the most stable online as POS nodes (hereinafter referred to as POS node). The POS node is dynamic. If the POS node is not connected, the patch bit is automatically replaced by other qualified alternate nodes. The POS nodes are dynamic to ensure that the network is never annihilated.

The standby node refers to the number and stability of the management certificate mortgage on the mining machine line but on the Element Earth that failed to rank to the top 100 bits, hereinafter referred to as the standby node). Only POS nodes can make arbitration voting, community voting (e. g. how much Element Earth to get how much chain space to be destroyed).

### 3.4.2 Reward for Points

When miners need to transfer mainstream currency from their Element Earth, they will charge a block gas (e. g. about 0,000 USDT, s) burned in the block with a LP mining reward after 10 minutes.

### **3.4.3 NFT**

After copyright publishing, the NFT copyright casting fee paid no less than 0.001 BNB, networks the busier the higher the casting fee will be. All paid cast fees are randomly allocated to 100 supernodes.

### **3.4.4 reward for nodes**

No collateral becomes a POS node collectively known as backup nodes. As long as the mining machine operation provides frequency width and storage space, the copyright income share of the copyright party, whether mortgaged or not. Standare nodes can improve their mining efficiency by manually downloading popular resources, so that their nodes can get more access, thus improving their frequency width contribution rate and obtaining higher mining benefits.

If the backup node is not mortgaged, either online or offline, but frequent offline drops will reduce the task of the backup nodes and affect the mining income of the backup nodes.

### **3.4.5 Burning pool rewards**

Each cycle, a new round of chemical burner activity is opened. You can use the chemical type synthesized by the element NFT obtained from the daily drawing into the combustion pool. When the expiration, the reward will be awarded according to the size of the burning NFT chemical number. After each round of distribution, the next round is opened. The main purpose of this activity is to ensure that users can get rewards, but also burn too many elements on the market, keep the major elements in balance, and improve the scarcity of element NFT.

### **3.4.6please pool for rewards**

Each new user can get an iron element NFT, iron element which can be synthesized with the oxygen element NFT obtained by the draw into iron dioxide. After iron dioxide is put into the invitation pool, the invitation pool will be rewarded to the user's own wallet application according to the number of iron dioxide held.  $\text{Reward line} = (\text{total bonus pool amount} / \text{Fe}_2\text{O}_3 \text{ full network number}) * \text{Individuals holding Fe}_2\text{O}_3$

### 3.5 Element Earth ecological Role

In the ecology of Element Earth, it includes nodes, supervision, developers, contract users, consumers, DAPP, community and other roles.

**Node:**

The governance of Element Earth has decision-making and governance power. The nodes are not only responsible for operating the infrastructure of various chains, but also provide computing power and research and development support for Element Earth ecology, but also responsible for the daily operation, major decision-making and the governance of several logistics environment of Element Earth.

**Supervision and examination organization:**

Important players in Element Earth, who can be institutions or individuals, regulate, audit, verify, rating, arbitration and several logistics behaviors in Element Earth.

**Co Partner Service Provider:**

Co ators providing related digital logistics services based on Element Earth.

**Developer:**



Important players in Element Earth, who can be companies and individuals. They offer development services in Element Earth, including the development of smart contracts, and the development of DAPP. Element Earth requires that any smart contract deployed into the ecology be registered in the governance contract and signed with the developer.

#### **Consumer:**

Use Element Earth to centralize individual users of applications or services through DAPP, Web applications, wallets, etc.

#### **Community:**

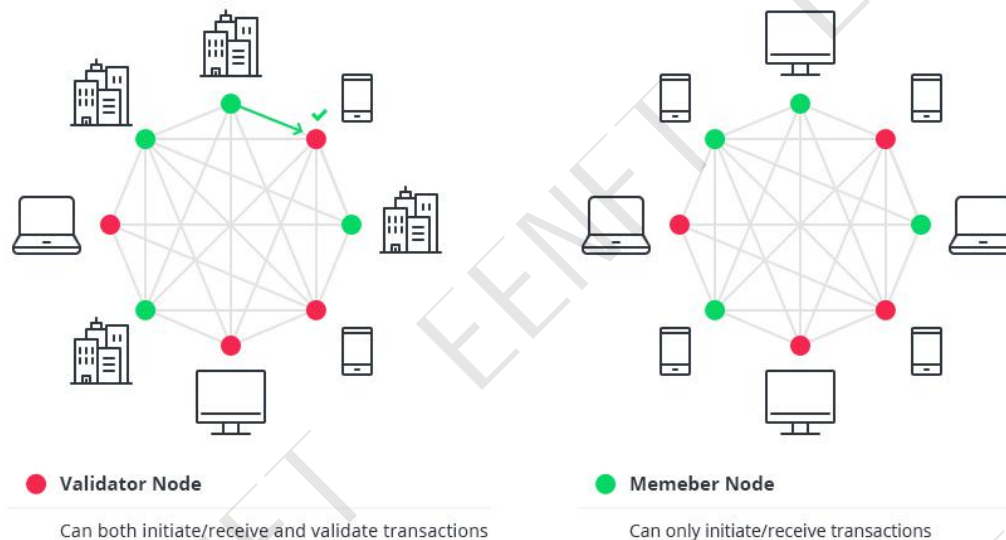
Element Earth values the power of the community. Element Earth will absorb scientific and technological talents from institutions and individuals from home and abroad through the application of the community, and provide strength for the technological realization and repeated technological operation of Element Earth.

#### **DAPP:**

The quality and innovation of DAPP determines the vitality of a blockchain ecosystem. In order to help developers develop the development of DAPP faster and accelerate the creation of the developer ecosystem, Element Earth will incubate digital logistics DAPP applications in various industries on the chain based on its rich resources.

### **3.6 Element Earth block validation**

Assuming there is an adequate set of recoverable broadcast networks as well as a set of static verification groups, any blockchain fork can be detected and the margin submitted by the veriinitiating the attack is deducted. This innovation, first proposed by VitalikButerin in 2014, can address the problem of other equity proving that cryptocurrencies are "without any equities." However, since the validation group must be able to change, the initial verifier may be unbound for a long time, which is free to create new chains from the creation block without any cost because they no longer have a locked margin. Such types of attacks are called remote attacks (LRA), contrary to short attacks, which are bifurcations caused by vericurrently bound, and are punished (assuming there are bifurcated accountability Byzantine fault tolerance calculations such as the Element Earth consensus). Long-distance attacks are often considered important blows to the equity proof mechanism.



LRA can be mitigated by. First, for the untie (to restore the mortgage and no longer earn the participation fee), the deposit must be nontransferable for a certain period of time and may be known as the "untie period", possibly up to weeks or months. Second, for light user security, its first connection to the network must verify the nearest one or preferably multiple blocks based on a trusted source. This situation is also sometimes referred to as "weak subjectivity". Finally, for security, the latest validation group must be frequently synchronized (as at each interval). This ensures that the light user knows the validation group changes before the reviewer unties the funds (thus without any interest), otherwise the untied reviewer will trick the user by performing remote attacks, creating a new block start return point at the height of its binding (assuming it can control enough early private keys).

Solving LRA problems with this pipeline requires a thorough inspection of the original security problems of the workload proof model. In PoW, the light user is considered to be synchronized from a reliable creation block to its current height at any time, a process that can be done simply by processing the proof of workload on each block head. However, to address the changes we need to light user online regular tracking verification group, and for its first time launch, special attention must be paid to verify the information collected from the network based on a reliable source. Of course, this later requirement is similar to Bitcoin, where agreements and software must also be obtained from reliable sources.

The above method of preventing LRA is just suitable for the blockchain verifier and all nodes driven by Element Earth, because it is task to keep them connected to the network. This approach is also suitable for light users who want to do frequent network synchronization. However, there is another way to solve LRA problems for light users who don't want frequent access to the Internet or a blockchain network. Nonverifier token holder amounts can release tokens as collateral over a long untie period (e. g. longer than the reviewer's) and provide a second level solution for the light client to confirm the effectiveness of current and block chores in the past. Even if these nodes do not include the security of the blockchain consensus, they can provide strong security for the lightweight client. If Historical Block Collection is supported in Yum, anyone can bind their tokens with specific smart contracts and provide paid proof services to effectively develop a market for light-user LRA security issues.

When we have verifiable computing power, computing power-dependent products can be designed, for example:

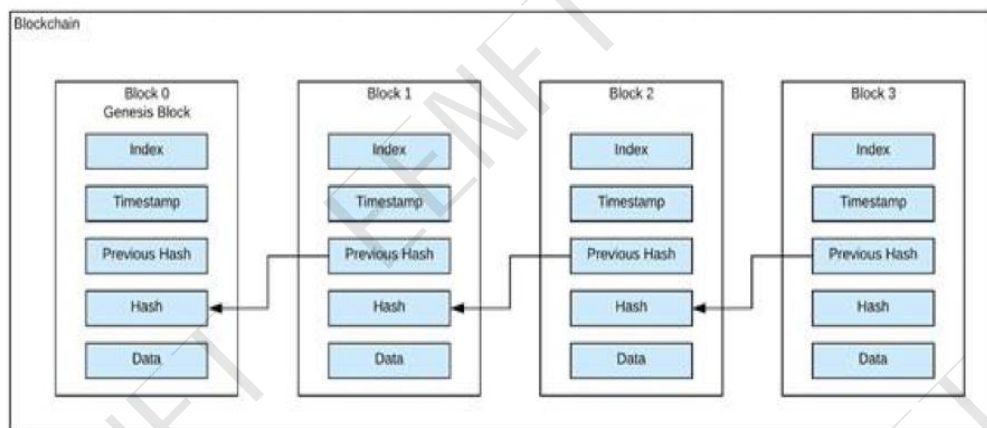
The 1) exceeds the calculation task of the commission limit on the chain. Take Ythereum as an example, there is an upper limit on the gas in a single transaction, that is to say, when the amount of operations on the smart contract exceeds the upper limit, the smart contract cannot be fully implemented. Within the limit of gas, gas costs more, which leads to excessive fees and waste of fees for single calls to smart contracts. The verifiable out-of-chain computing force will solve this problem perfectly. One example is the Doge Ethereum bridge, verifying that the workload proof of the dog currency (DogeCoin) counts Script, This is a strong memory demanding and computationally intensive function that cannot be completed within the gas upper limit of the Ethereum block.

2) takes much computational time. Some repeated operations like SPV proof take a lot of time, if all operate on the chain, all nodes work over to complete the consensus. This results in reduced operational efficiency across the entire chain. This problem is resolved if these operations are placed outside the chain and go back to the file through the event listening mechanism.

3) is unable to perform extensive data calculations on the chain due to limited storage capacity on the chain. For example, some operations require a lot of data support that cannot be stored on it due to the limitation of its storage capacity. Putting operational and operational data outside the chain and verifying it through validable mechanisms will effectively solve these problems.

### 3.7 Element Earth Smart Contract

Element Earth's smart contract (Element Earth Smart Contract) is a collection of codes (its functionality) and data (its status) stored on the Element Earth with a specific address. Contract accounts can pass messages to each other to achieve Turing-complete operations. Both compatible EOS, ETH virtual and JSVM virtual machines can meet the establishment and chain transfer of all kinds of DAPP s. For example, the DAPP originally running in EOS, ETH can deploy the smart contract to the EVM/WASM virtual machine through the interface provided by Element Earth, or it can call the EVM /WASM contract to execute the smart contract. Easy transfer to the chain of Element Earth; Element Earth supports multiple languages, smart contract development language as follows: GO, Solidity, C + +, Javascript. A friendly and powerful attitude for future ecological expansion and DAPP. On Element Earth, providers can develop various contracts and DAPP to serve end users, and providers can build and issue their own Token. for their DAPP through smart contracts



Smart contracts in Element Earth are event-driven, state, multi-recognized, running on the blockchain, and can automatically process assets according to preset conditions. The biggest advantage of smart contracts is to replace human decisions and execution contracts. Smart contracts for Multiple TriMechanism (MTM), in addition to traditional transaction trigger mechanisms, introduce time and event triggers into smart contracts. These three trigger modes are selected from various scenarios and can meet the requirements of complex smart contracts. Element Earth Smart contract inherits three characteristics of blockchain: data transparent, tamper-free, and permanent operation.



For each smart contract, Element Earth adopts the management pipeline of the whole life cycle of assets on the chain to conduct complete and controllable process management for the submission, deployment, use and cancellation of smart contracts, and integrates the license management mechanism to carry out comprehensive security management for various mechanisms of smart contract operation.

In terms of security, Element Earth also carries out the protective audit of automatic tool audit and professional program code audit, further integrates the automation tools of program code review and formalization verification, and integrates the review tools of unit test coverage rate.

Element Earth Smart Contract will provide contract models, such as the issuance of several assets, according to different industries, and developers only need to simply modify the parameters to quickly and secure contract functions. Element Earth Smart Contract will provide online contract editing and debugging tools to help developers write debugging contracts efficiently.

## **Ellement combination**

### **4.1 Ellement combination model**

The Element Earth ecology forms the NFT chemical formula through 118 known elements known on Earth by chemical formulas. NFT chemistry is a unique NFT certificate and can be circulated in the NFT section of major exchanges. NFT chemistry can be traded, bought, sold, and pledged. Element Earth has no tokens, platform coins, built based on the chemical foundation.

The first phase launched 24 basic elements, and all the basic elements

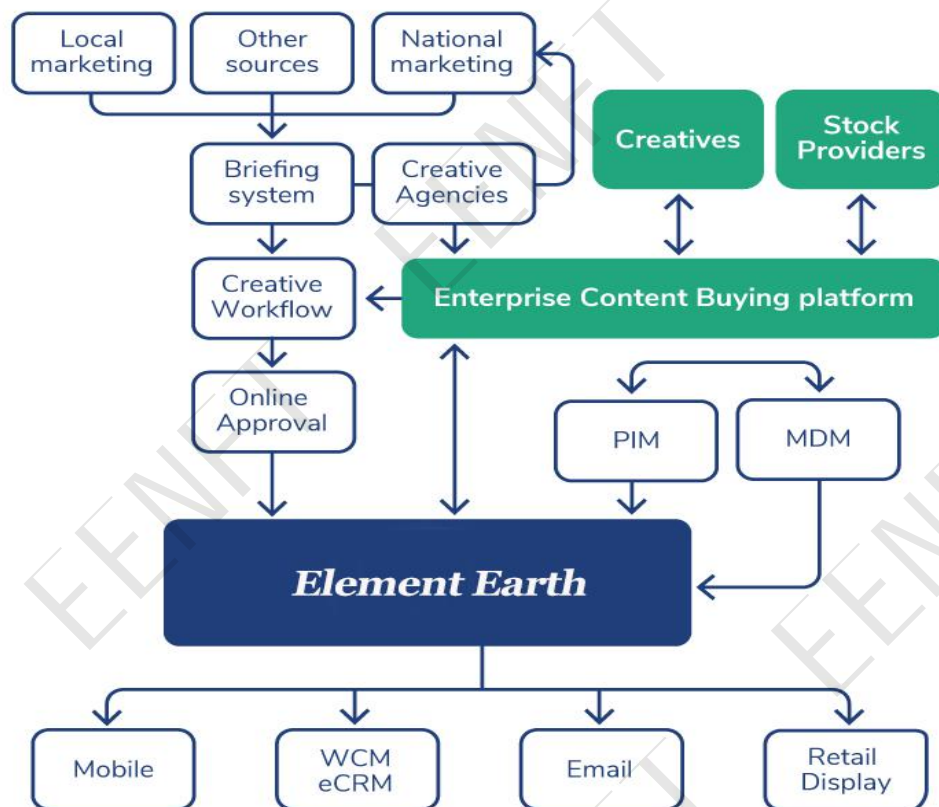
Each element has marks from 1~10000000, random

The ecology is constantly expanding, and the gameplay is constantly updated

Token name	No tokens
Base element	118 known elements on Earth
Elements are released in such ways	Daily random sampling
Chemical-type synthesis	It is synthesized into NFT chemistry based on the periodic table
Trading mode	NFT chemistry is selected to the NFT zone of any exchange
Chemical startup	Started through the mainstream digital assets
NFT chemical pledge	DPOS Pledge

# Element Earth ecological applications

Element Earth public chain describes an economic model of a distributed smart contract industry, in which Element Earth reshape the "decentralized" DEFI value through decentralized and decentralized architecture, community and consensus; Element Earth will first aim at finance, social, consumption, media and other industries, making more products or services access to the Element Earth ecology, and gradually form an autonomous self-driven distributed business network. When we have Element Earth public chain advance, we open the chemical and virtual world channels, and the ecological application is more widely.



## 5.1 DEFI decentralized financial applications

## **decentralized transactions**

The current decentralized transaction is mainly based on point-to-point quotation matching transaction, and the new decentralized exchange with a free market maker system is more consistent with the needs of users. Market makers provide quotation in both directions and participate in the transaction in both directions. decentralized exchanges need to obtain objective and fair asset prices on the chain to balance their own quotation system.

## **Self-settlement mortgage lending**

This is also the most widely used DeFi service now, due to the chain price, involving liquidation or automatic settlement, the price can complete the trigger of certain conditions, allowing the lending behavior system to be automatically completed.

## **Futures and options products**

Similar to lending products, futures and options products in general sense need centralized institutions to force liquidation, etc., and the decentralized platform has a chain price prediction machine mechanism, which can capture the chain price in real time, so as to automatically complete the realization of the product contract and do not assume the risk of centralization.

## **Decentralized wallet system**

The wallet system is an important tool for user storage and use of Element Earth (Token), which provides multiple versions of the wallet to give users secure storage of digital assets.

Element Earth Wallet will integrate transactions, social networking, financial management, convenient payment, rapid conversion and secure storage. As the Element Earth project advances, the Element Earth asset wallet can eventually be realized through the extensive use of Element Earth digital assets.

## **decentralized supply chain finance**

Element Earth supply chain financial solutions will be based on the account payable of the core enterprises and the real trade between the participants in the industrial chain as the background, so that the credit of the core enterprises can be transferred level by level on the blockchain, so that more small and micro enterprises in the upstream of the supply chain can obtain equal and efficient inclusive financial services. Through the supply chain upstream and downstream enterprises, the supply chain to eliminate the industrial chain suppliers originally need 3 months of account period, only a few seconds can obtain financing, especially when several warrants can be anchored on the chain, through wisdom contract can also realize the upstream and downstream enterprise capital split and circulation, can greatly improve the speed of capital, solve small and medium-sized enterprises financing difficult, financing expensive problem.

### **Application of the digital settlement system**

At the digital settlement level, the Element Earth public chain will build a powerful digital settlement system. Focusing on Element Earth token, the system builds a unified, efficient and transparent global information settlement system to solve many problems existing in the Internet financial settlement today, stimulate the circulation of all links in the industry, and promote industrial growth.

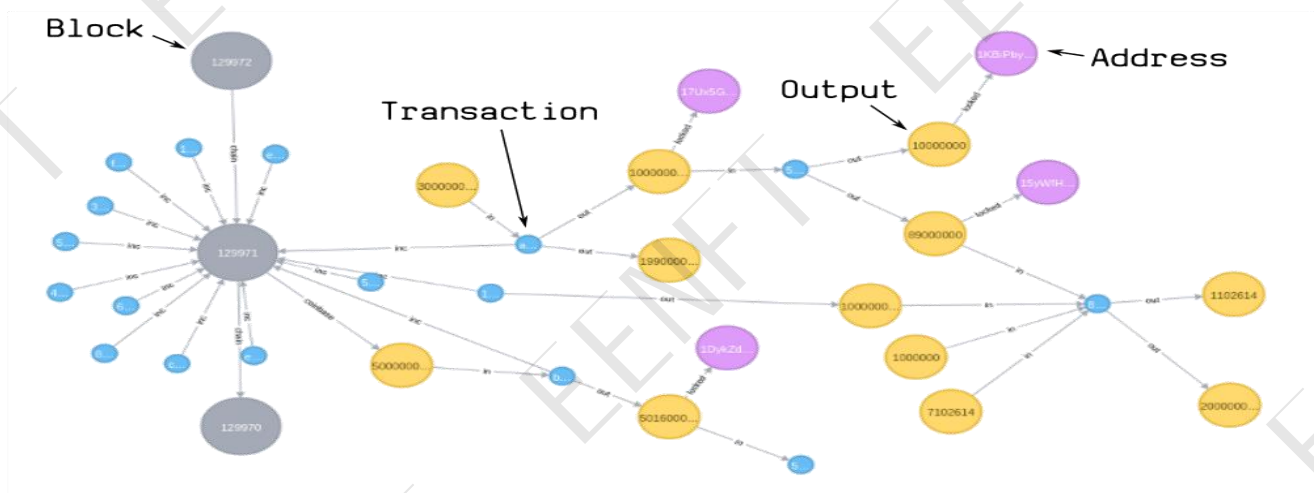
As a barrier-free Token, on the platform, Element Earth has the features of safe, open, transparent and decentralized. It perfectly combines the offline entity services of merchants with the efficient characteristics of blockchain, connects the chemical and digital world, and establishes a blockchain digital payment and settlement system serving the world.

#### **Centralize your wallet**

Wallet is an important tool for user storage and use of Element Earth (Token), Element Earth will provide multiple versions of wallet like mobile phone, PC, Web, allowing users to secure storage of their own digital assets, Element Earth wallet will integrate convenient payment, fast conversion and secure storage service functions with each other. With the Element Earth project advancing, through the extensive use of the Element Earth digital assets, the Element Earth asset wallet can finally realize the exchange settlement and the Element Earth digital asset financial management between the Element Earth digital assets and the mainstream digital assets.

## 5.2 Element Earth Business applications

In terms of business architecture and profit model, Element Earth takes technology as the core driving force, product as the transformation, and consensus as the business logic, combining the side chain development system of digital authentication system. Element Earth blockchain network covers most business scenarios, including data storage, data authentication, financial transactions, asset management, election voting, etc., and can provide complete development elements and multi-adapted branch network to provide convenient, secure and perfect side chain development services for enterprises and developers. Businesses or developers receive side chain development services only by submitting development information to Element Earth,.



The development of the side chain is closely combined with the digital pass certificate of Element Earth, which will be used as a value basis to balance the development services. Holding the general license and promoting the Element Earth blockchain will gain a higher side chain development weight, and enjoy weighted services including application development, digital mall development, and Dapp development. With the further deepening of the side chain development, the whole ecology will feed back the Element Earth digital certification, forward to form an organic circle, and promote the improvement of the whole business model.

At the level of science and technology, rely on Element Earth blockchain network to build a digital certification system, chain information and record in the contract system, open the ecological value chain, let the decentralized, certificate confirmation and traceability information be recorded on the chain, and ensure the absolute rights and interests of each relay node involved.

At the product level, all kinds of decentralized applications and side chain development will improve the whole business logic, so that the value certificate has an anchor value. In terms of main chain and side chain, they establish associations by "two-way anchor", realize the transfer of value between the master chain and side chain. Main chain assets can be used on the side chain, and through the side chain to compensate for the shortcomings of the main chain function. Although they have the ability to transfer, they are isolated, and even if the encryption in the side chain is cracked, all the damage is limited to the side chain itself.

### **5.3 Element Earth Payment application**

The development of the Internet has moved offline cash payment methods to online to realize several financial payment. According to statistics, in 2019, among the global financial payment means, the total online transactions accounted for 73.24% of the total transaction volume, and the traditional cash payment methods are gradually being eliminated. The ecological business circle built by Element Earth will expand with the expansion of the level and commercialization of the side chain development system, and the binding value behavior based on the Element Earth digital pass certificate will also increase.

Element Earth Pay is a commercial payment system built based on blockchain technology, which can realize global real-time payment, point-to-point instant payment, without the participation of any centralized institutions. Both businesses or individuals only need to hold Element Earth to enjoy the interest in the payment transaction. While the middle fee is only the miner, Element Earth can truly achieve the transaction, high efficiency and low cost, and return the payment behavior to the user itself.

### **5.4 Element Earth profit model**

All users in Element Earth have some free card opportunities, which requires extra payment for NFT card. Some of the USDT spent in the lottery will be put into the chemical combustion pool, where users can gain income ranking and the user with the lowest number of the comprehensive element will get the highest USDT reward, and the USDT obtained will be directly distributed to the user's wallet address.

All NFT element cards support free buying and selling and both buyers and sellers need to pay a certain fee. Part of the fee will be used to issue invitation reward, each invitation a friend can get an iron element NFT, iron NFT can be with the daily draw oxygen NFT synthesis into iron dioxide, each round of invitation reward pool, hold more iron dioxide proportion more users will get more reward pool USDT reward, the reward will be directly distributed to the user wallet address.

High-yield DeFi mining will be hedging in some of the currencies in the pledge to control the maximum risk while ensuring returns.

## **5.5 Element Earth Mall**

Trading generates value, and after opening up a complete trading system, Element Earth will build a boutique mall. All the transaction information in the shopping mall will be recorded on the blockchain ledger, including the seller's commodity production data, processing data, logistics data, transaction data, as well as the buyer's shopping mall browsing records, purchase records, evaluation system, after-sales echo and other contents. The bad behaviors existing such as platform data fraud, information data disclosure and data smear will be completely cut off, and at the same time, the rights and interests of merchants and buyers are returned to them, rather than the platform's own family alone.

Element Earth Mall is a mall with information openness, transparent data and fair and fair. User data is only visible to users with private key, which completely eliminates the risk of privacy data theft. At the same time, for merchants, their store operation is obtained through the real-time echo of users, and there will be no fraud. For traditional shopping malls, Element Earth will help to realize the blockchain transformation of commercial services by quickly connecting the value of several assets and physical business.



Element Earth Mall will also be based on Element Earth Pay payment system, through global trade, in no need for offline logistics industry sector, such as knowledge services, skills services, intellectual property trading, intellectual property, online education, consultation services, etc., quickly realize cross-border trade, promote the circulation and trading of global goods, so as to improve the level of global economic development, achieve common prosperity, sharing and win-win situation.

## **5.6 Developer Mall**

With the expansion of the Element Earth side chain development system, the market demand for the side chain development will increase increasingly, and the development demand of the upper ecological applications will also increase. Based on this, Element Earth will build a developer mall for users with development needs. The mall will provide cloud server, cloud hard disk, cloud backup, project management, code management, cloud testing, cloud deployment and other customized services to meet the needs of the Element Earth developer market.

Developer Mall is an important step in Element Earth ecological development and the key to providing a full set of side chain and application development services. At the same time, this will once again reduce the access threshold of side chain development and expand the target user group, which is conducive to the construction and development of the whole Element Earth ecosystem.

## **5.7 DeCentralized e-commerce**

We went to eBay, and Amazon bought things because of our trust in these trading platforms, but these are all centralized e-commerce models. These centralized e-commerce models, generally have high prices, opaque transactions and other characteristics!

The online mall based on the loop mining node Element Earth has a more free, faster and safer blockchain mall transaction open source system, which supports public chain building scene combination, public chain building application combination and multi-currency conversion trading combination.

With the goal of building a decentralized e-commerce chain, Element Earth expands and expands more applications based on the e-commerce chain ecosystem (DAPP, applications such as paypal, have eBay, Amazon, Alipay and others, which can complete all kinds of life needs on a platform, similar facebook, Ebay and so on

Element Earth Mall is committed to making the capital exchanges between national currencies more simple and convenient through blockchain technology. Element Earth Mall focuses on providing services to small and medium-sized enterprises around the world, and is committed to solving SME participants through blockchain technology. It applied a variety of new mall systems developed, which broke the problem of expensive shopping and fake goods. Really achieve decentralization, transparency, information is not tamper-proof and so on.

## **5.8 Draw and game applications**

Almost all electronic raffle we can see are chaos, and the generation of verinnumbers is crucial. The mechanism of random occurrence is unpredictable and the attack is the bottom core of ensuring the raffle activities.

Through real chaos, a variety of chain betting games can be designed, such as lotteries, Raiders, etc., for betting through decentralized pipelines. Make the whole process more fair and transparent, to avoid hacker attacks, artificial cheating and other behaviors.

In the later stage, Element Earth will launch a variety of game modes, and users will consume element cards, each game can obtain the element card from the loser as the reward; some game mode Element Earth will draw part of the fees, which will be used as profit points and to build more game applications to enrich the whole Element Earth application ecosystem.

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# Risk tips

The archive is used only for the purpose of conveying information and does not constitute comments on several monetary investments. The Element Earth analysis does not constitute an investment decision, or specific recommendations. This file does not constitute any form of investment advice, investment intention or abetting of investment, nor is it any contract or commitment of any form. Element Earth makes it clear that the relevant interested users clearly understand the risks of Element Earth. Once investors participate in the investment, they understand and accept the risks of the project and are willing to bear all the corresponding results or consequences for this. The Element Earth team expressly stated that it does not bear any direct or indirect losses resulting from its participation in the Element Earth project, including:

1,'s economic losses due to user transaction operations;

Any error, negligence or inaccurate information generated by personal understanding;

3, personally trades the losses resulting from all kinds of blockchain assets and any resulting behavior. We cannot guarantee that Element Earth will add value and there is a decline of value in some case. 4, control of Element Earth does not represent ownership of the Element Earth platform or Element Earth applications, and Element Earth does not grant any individual the right to participate, control, or any decisions regarding the Element Earth platform and Element Earth platform applications.

Once 4, participants participate in the TOKEN distribution plan, they have understood and accepted the risks of the project and wish individuals to bear all the consequences for this;

The 5, project team clearly stated that it does not promise any return and does not bear any direct or indirect losses caused by the project;

6, The TOKEN involved in this project is an encrypted digit encoded used in the transaction link and does not represent the equity, income right or control of the project;

Although the 7, team will strive to solve the problems that we may encounter in the process of advancing the project, there are still policy uncertainties in the future. We must understand all aspects of the blockchain before supporting them and participate rationally on the premise of fully understanding the risks.

ELEMENT