

**ETHER UNIVERSE**

Project White Paper

30th March 2018

## **Abstract**

As the world's first decentralized high-performance cross-chain service platform based on EOS, Ether Universe is dedicated to provide infrastructure services for different blockchains, and thereby to connect them and allow exchanging value across them in a decentralized manner.

Increasingly more blockchains may emerge; in result, cross-chain services may become increasingly important. Manufacturing, retailing, real estate, and finance will all have their own chains, and alliance chains will emerge to serve different fields of the economy, where, products will be represented by tokens. Based on Ether Universe, blockchains which are currently isolated may be connected. Be it a public blockchain, a private blockchain, an alliance blockchain, or an application based on a blockchain, it may integrate with Ether Universe seamlessly and thereby connect to each other. Cross-chain digital asset liquidity shall be made profoundly easier.

# Background

Since Bitcoin was introduced in 2008, blockchain technology has received great development. Entrepreneurs and developers have engaged in researching and promoting the technology, in order to offer even broader applications.

Later, as Ethereum came into existence, smart contracts have greatly leveraged the applicability of blockchain technology. Recently, EOS with DPOS is able to provide millions of users with low-latency transactions. In future, thousands of blockchains will emerge in various industries. Should a user want to access features provided by a blockchain, the user would have to purchase tokens of the blockchain; this would greatly limit the use of blockchain technology. Ether Universe aims to connect those different chains, in which an important application is to allow the exchange of tokens from different chains in order to actualize trading between goods, eliminating the necessity of currencies. Such exchange services may boost the development of many traditional industries. For example, manufacturers may pre-release tokens to pre-sell future productions — say a rubber manufacturer, it may deposit some of its products and demonstrate its credit records to hold a pre-sale by issuing tokens, which will enable the liquidity of its future productive forces when being traded over platforms including Ether Universe, and eventually accelerate the development of the manufacturer and other merchants on the supply chain. Similarly, traditional manufacturers may all liquidize their productions and assets with blockchain technology. Ether Universe, as the nexus of such liquidity, of great importance, must be evaluated carefully.

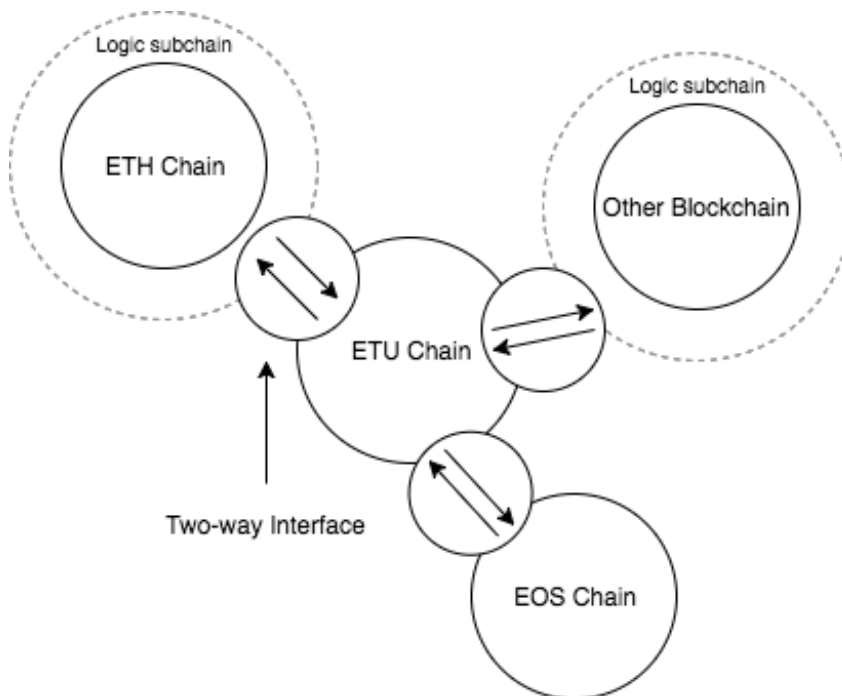
Ether Universe shall become a competent infrastructure for blockchains. It shall provide basic applications based on its own basechain, e.g. cross-chain wallet apps. Ether Universe provides a series of public services including status channels and service APIs. Any application based on EOS may make use of Ether Universe to implement inter-blockchain information exchange

functionalities. Be it a public blockchain, a private blockchain, an alliance blockchain, or an application based on a blockchain, it may integrate with Ether Universe seamlessly. Cross-chain digital asset liquidity shall be made profoundly easier.

# Technical Solutions

## 2.1. Cross-chain communications

At present, three major methods are employed in cross-chain solutions — notary scheme, sidechain/relay, and hash-locking. Ether Universe will select the sidechain method in supplement to logic subchain.



In the BTCRelay solution, events (e.g. generation of blocks and transactions) in the basechain are validated with SPV Proofs by sidechains. As sidechains are anchored on Bitcoin, users are allowed to verify Bitcoin transactions over Ethereum with smart contracts. This the first effective attempt and it was truly ambitious.

## 2.2. Communicate With Other Blockchain

Ether Universe intends to enable the exchange of value across non-specific blockchains. In order to do this, we will first implement a logic subchain based on Ethereum or another blockchain. The logic subchain is employed to set two-way anchoring with other blockchains (basechains), which thereby enables associating transactions, including locking. Ether Universe communicates with EOS basechain over the cross-chain communication protocol of EOS.

Ether Universe employs a mechanism of block producers, witnesses, guarantors, and a reward system to secure the information over blockchains other than EOS. At the very beginning, Ether Universe employs several trusted nodes to help verifying transactions; these nodes are located on sidechains of different blockchains. This will accelerate the development of Ether Universe. When the network grows mature, Ether Universe will gradually enhance its verification system; guarantors will participate in verification processes. And eventually, Ether Universe will verify transactions combining votes of miners and witnesses.

## **2.3. Participants**

Logic subchains delegates the supervision power of tokens to the miners on the platform, allowing the miners to vote to determine where to send the unlocked tokens. Miners do voting with certain fields on the blockchain. The more workers engage in the voting, the more secure the system is.

Ether Universe employs a mechanism of Witness and Guarantor. As long as only a few miners will engage the verification, the system would risk being compromised if it solely relies on miners' verification. Witnesses and guarantors will vote jointly to determine the token unlocking. Different witnesses have different voting weights; the weights of the miners will be adjusted dynamically according to the change of miners and guarantors. Guarantors are participants who possess potent power; they delegate deposits to witnesses and elect

witnesses to vote on their behalves. As the systems grows, the witnesses' overall weight will decline. Ether Universe will retain witnesses in favor of system stability.

## **2.4. Reward/Punishment Mechanism**

Ether Universe employs a reward-punishment mechanism, in which all who engage in verification shall have their rewards according to the rules. Vice versa, the system will punish the witnesses and the block producers who fail to fulfill their responsibilities. The system will first decrease their credibility. One's credibility will directly affect the weights and rewards of the participant. If a witness makes too many false statements (e.g. providing invalid block proofs), the system will confiscate its deposit.

## **2.5. EOS Communications with EOS**

Ether Universe basechain can communicate with EOS basechain directly. This is done by the simplification of generating existence-proofs and chronicle-proofs of messages. The proofs are incorporated with application structures — concealing the application developer's identity when doing cross-chain communications regarding message details and validation.

## **2.6. Ether Universe Chain**

Ether Universe is a public chain based on EOS, and the distinct cross-chain features are developed upon the foundation of EOS. EOS is capable of serving millions of users, and its service is provided for free. Additionally, upgrading and restoration from bugs are made easy. Its low-latency and high performance in both serial and parallel computations are remarkable. Ether Universe takes advantage of the excellent capacity of EOS to provide high-volume, high-speed, low-latency data services.

## **2.7. Ether Universe Chain Core**

## **2.8. Shared Computational Resources**

ETUChain has an independent committee, witness, computational resources, currency, and currency supplying mechanism. ETU tokens can be anchored to EOS over an API to enable associating transactions, including locking. The suppliers of computational resources can either provide them to EOS or to Ether Universe.

## **2.9. Communication Confirmation**

The communications between Ether Universe and EOS are solely administered by block producers. When communicating with other blockchains, witnesses and guarantors are used, in order to ensure that the system may not be compromised when only few block producers work. Guarantors need to make a deposit for security, and the witnesses need to fulfill their witnessing responsibility by voting with signed votes. Ether Universe received the voting information from block producers on different blockchains and verify with the voting information provided by the witnesses, eventually making consensus.

## **2.11. Latency**

Ether Universe is designed to enabled the exchange of information across different blockchains. block producers must wait until there is 100% certainty that a transaction has been irreversibly confirmed by the other blockchain before accepting it as a valid input. When communicating with EOS, with 21 block producers and delegation proofs, it will take approximately 45 seconds to confirm. If a chain of block producers do not wait for confirmation of the transaction, like a transaction is accepted and the withdrawal of this operation, which will affect the validity of chain consensus. communicating with other



types of blockchain, depending on notary and block producers' confirmation times, our estimated times are as follows:

$$\text{Latency} = 45 \text{ seconds} + \text{verifiers} * \text{Pt1} + \text{Witnesses} * \text{Pt2}$$

Where Pt1 and Pt2 is determined by the weights.

## **2.12. ETUChain Interface**

ETUChain relies on extended APIs for communications with other blockchains. ETUChain employs a series of APIs and logic subchain communications to enable the exchange of information across blockchains. These APIs will have the following features:

### **Complete Functionalities**

It is necessary to consider the variance of architectures of different blockchains. When designing the APIs for cross-chain communications, functionality completeness is necessary.

### **Extensibility**

Ether Universe is designed to be compatible with all blockchains. In future, increasingly more blockchains will be developed.

## **2.13. ETUChain Services**

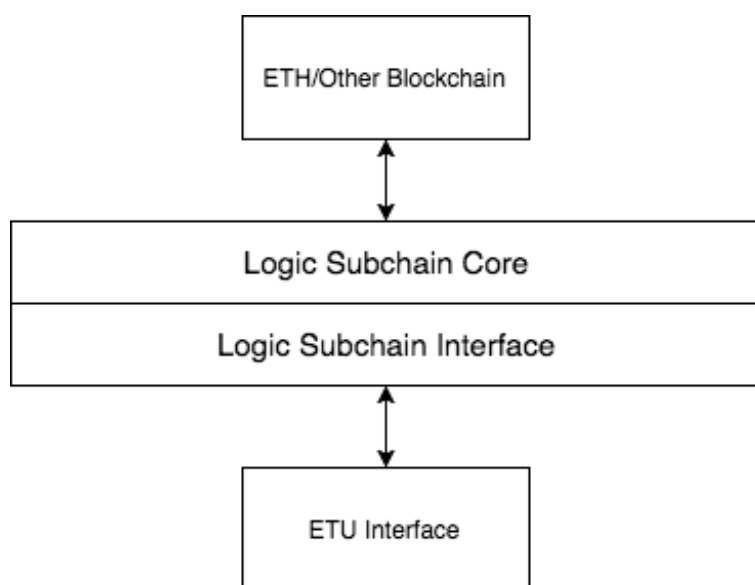
ETUChain itself is a platform dedicated to provide more users and applications with information exchange services across blockchains.

ETUChain provides external services like status channels and service APIs. Over Ether Universe, any EOS application can use the platform to build cross-chain information exchange applications.

## 2.14. Application

Ether Universe will provide basic applications upon itself, e.g. clients for making cross-chain transfers. The client will be totally open source, offering competent support for the entire ecosystem.

## 2.15. Logic Subchains



Logic subchain is an important component in the interaction between ETUChain and other blockchains. Since the very beginning of the ideation, Ether Universe is supposed to serve as bridges among blockchains, in which a unified protocol is used to exchange information. Such a bridge is called a logic subchain. ETUChain can make two-way anchoring through logical components.

## 2.16. Logic Subchain Core

On different blockchains, the number of logic subchain cores may differ. Ether Universe is designed to offer different logic subchain cores, ensuring compatibility across different blockchains with a reduced instruction-set virtualization technology. Logic subchains need to cooperate with the basechain in order to let block producers vote for confirming, locking, and

unlocking.

## **2.17. Block Producers**

We don't want to oblige all block producers to do voting verification. Although it is a safer option, the system latency would be overwhelmingly unacceptable. Hence, Ether Universe Logic Subchain Core may randomly select a portion of the block producers to vote based on the participants on the basechain. The amount is dynamic. When block producers are few, the system will try to select all block producers; when block producers are many, only selected few may vote. All block producers are marked with credibility, which is associated with pseudo-random seeds. We can then make sure that block producers with extremely low credibility will never get selected to vote, in favor of system security.

## **2.18. Logic Subchain Interface**

Matching the extended APIs of ETUChain, all logic subchains are guaranteed to have consistent APIs. At the beginning, we will need locking, block producer information confirmation, unlocking, etc.

## **2.19. Account System**

Ether Universe includes a complete accounts system. As mentioned above, Ether Universe is a platform based on EOS, hence it inherits the user-friendly features of EOS. In addition, Ether Universe is a communication platform over various blockchains; one account is enough to associate with other accounts in other blockchains, enabling the sharing of information and the exchange of value.

## **2.20. Account Link**

Ether Universe allows all accounts to have a human-readable name to index, with 2 to 32 characters. This name is determined by the creator. Ether Universe abstracts accounts on Ethereum and other blockchains into one single account in transactions, and specifies a single key-pair. The user may access logic subchains on different blockchains with the key-pair to exchange information.

## **2.21. Account Management**

Ether Universe takes the advantage of EOS to enable management of multiple accounts. Beyond that, Ether Universe allows users to manage other accounts in other blockchains under the current account.

## **2.22. Light Clients**

### **Based on LCV client**

It will be easier to incorporate different blockchains if the client is free from processing the transactions of the entire network. For an end user, the user's own transactions are more important than the transactions of the entire network. ETUChain makes use of LCV to reduce the necessity to trust the producers of other blocks, further allowing producers of their own blocks minimize the cost of synchronizing with others.

Ether Universe will provide a series of easy-using client apps. They will support major operating systems.

### **Proof of Completion**

Ether Universe supports communications across blockchains. A unique ID will be assigned to each transaction, which will be verified by block producers. With the unique ID, users can identify a particular transaction and verify that a list of given transactions are processed in the expected order.

## 2.23. Network Building

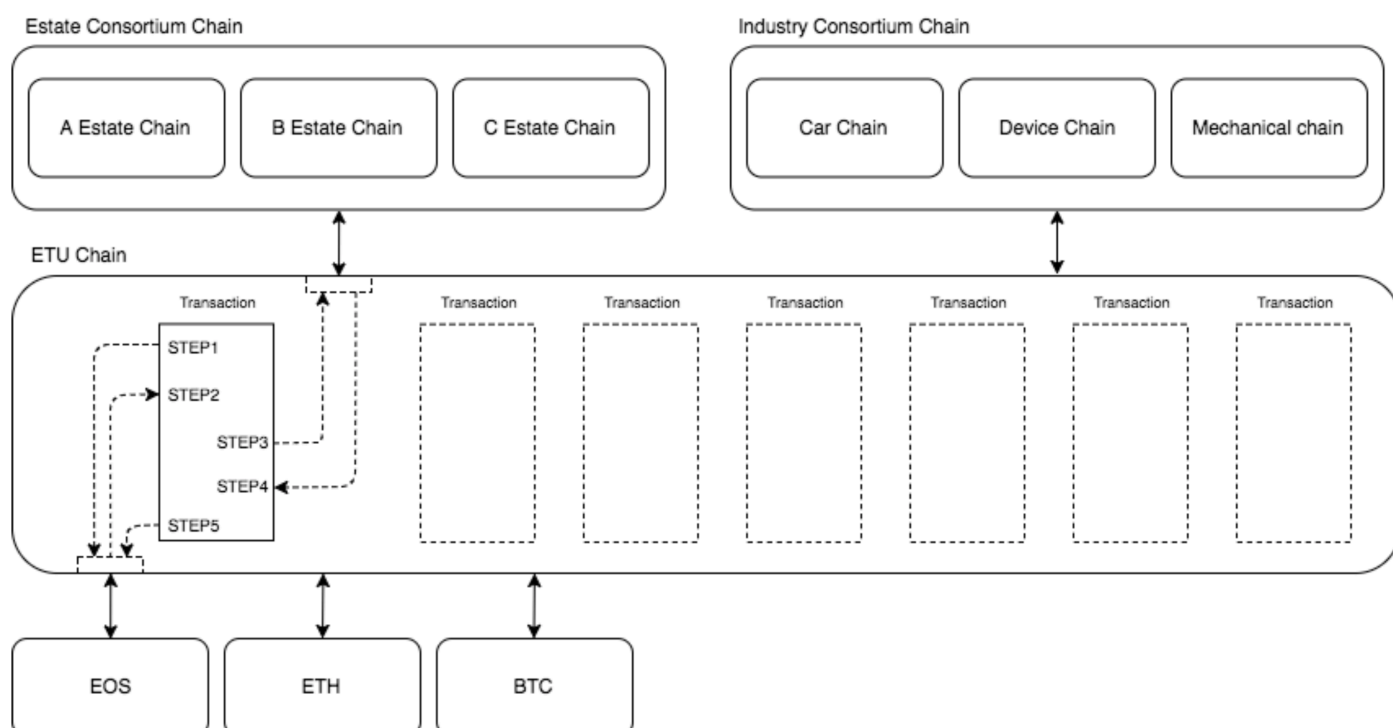
In order to accelerate the development of Ether Universe, three phases have been planned.

- The first phase: Ether Universe will cooperate with several sidechains, aiming to use their nodes to verify transactions on Ether Universe. At the very beginning, we will select several trusted nodes to verify transactions. As the platform grows, more trusted nodes will be added, and the system will randomly select several among them to verify transactions.
- The second phase: Ether Universe will rely on guarantors and witnesses to verify transactions. Trusted nodes previously employed may play as witnesses. In this phase, block producers on various chains may engage in the verifications.
- The third phase: Ether Universe will rely on block producers, witnesses, and guarantors to verify transactions. The purpose of this mechanism is to make sure that Ether Universe will evolve over time. It is impossible to move to the final stage at the first step. If the reliability of witnesses, guarantors, and block producers gets compromised, the security of the entire network would be in danger. Therefore, such three phases are scheduled to allow the network to mature gradually.

# Commercial Prospect

Ether Universe is a service-centered platform, hence great commercial value has been embodied. In future, increasingly more corporations may build their own blockchains, thus cross-chain services will become unsurprisingly important by connecting different chains with universal compatibility.

Increasingly more blockchains may emerge; in result, cross-chain services may become increasingly important. Manufacturing, retailing, real estate, and finance will all have their own chains, and alliance chains will emerge to serve different fields of the economy, where, products will be represented by tokens. Ether Universe aims to connect those different chains, in which an important commercial feature is to allow the exchange of tokens from different chains in order to actualize tradings between goods, eliminating the necessity of currencies.



Such exchange services may boost the development of many traditional industries. For example, manufacturers may pre-release tokens to pre-sell future productions — say a rubber manufacturer, it may deposit some of its

products and demonstrate its credit records to hold a pre-sale by issuing tokens, which will enable the liquidity of its future productive forces when being traded over platforms including Ether Universe, and eventually accelerate the development of the manufacturer and other merchants on the supply chain. Similarly, traditional manufacturers may all liquidize their productions and assets with blockchain technology. Therefore, Ether Universe, as the nexus of such liquidity, of great importance, must be evaluated carefully.

Ether Universe provides cross-chain services. When a user need a service, a "GAS" will be charged according to the type and time of the service required. And such "GAS" need to be redeemed with ETU tokens, which, are employed to support the development of Ether Universe project.

It is supposed that more than 10000 transactions will be made over Ether Universe per second in short future. The service fee may approximately be equivalent to \$0.01, hence a revenue of \$360k/hr may be expectable. This is only a very conservative estimation. As the ecosystem of digital assets grows, the service volume may increase exponentially. Therefore, Ether Universe enjoys an extraordinarily superior commercial prospect.

# Ether Universe Cross-chain Ecosystem

## 4.1. Ether Universe Developers

The developers of Ether Universe are dedicated to build and maintain the project. As Ether Universe is a service-centered platform, not only does the development of cross-chain functionalities require the attention of our core team, but also the establishment of a series of secure and powerful service APIs. In addition, we have a separate team which focuses on the compatibility with other blockchains. We wish to support as many chains as possible in future and to provide users with high-quality services.

## 4.2. Chains

Ether Universe consists of its own basechain and subchains of other chains. In the entire ecosystem, the basechain is the most critical component, which operates basic functionalities and record all transactions. ETU tokens generated on the chain are used to pay GAS for cross-chain services. Subchains, however, are used to support the basechain in terms of making two-way anchoring with other chains.

## 4.3. (block producers) Block Producers, Verifiers, and Guarantors

In order to verify transactions as quickly as possible, Ether Universe requires block producers, verifiers, and guarantors. As long as we need to do locking operations on different chains, block producers are then inevitably distributed on different chains. Verifiers and guarantors also operate on multiple chains and they can then greatly accelerate the verification process.



## **4.4.**

Users are consumers in the ecosystem. They spend ETU tokens to purchase cross-chain services they need. Users are the most predominant factor of the development of the system.

## **4.5.**

Ether Universe is a fundamental platform for cross-chain services. However, the part that most directly determines the users' experiences is the application platform. Ether Universe will provide a collection of native applications at the very beginning, and the most basic one among them is a transfer app which allows transferring digital assets. It will be totally open source and is supposed to initialize the application ecosystem.

Ether Universe allows developers to build their own applications based on the platform. Therefore, developers are also very important for us. We designed a system to encourage developers to make good applications, and to punish certain developers who intend to harm the ecosystem.

# **ETU ETU Token Distribution Plan**

## **5.1. ETU ETU Tokens**

In order to encourage the community, and to grow our ecosystem, ETU tokens are issued in a total amount of 100 billion.

## **5.2. TOKEN Token Allocation**

### **5.2.1 Early Token Sales**

These tokens are sold to raise money which will compensate the cost of

technical development, hardwares, bandwidth, and project operations, in order to ensure the sustainability of the project.

## **5.2.2 Management Committee Fund**

Ether Universe is a project of long terms. In order to develop and flourish the Ether Universe ecosystem, we have to hire talents to work together. Also, upon certain milestones in the race, external partners may be needed. This partition is reserved to encourage and reward the people and organizations who will engage in the project later.

## **5.2.3 Community Incentive Fund**

In order to maintain a sustainable and equal participation process, 25% of ETU tokens shall stay in a reward pool. 5% of the pool were spent in airdrop events for early bootstrap; the other will be released to the public every year, and the last ones will be exhausted in the 5th year.

## **5.2.4 Core Team**

Ether Universe core team makes undeniably great effort for the creation and development of the project, and early contributors spent undeniably great resources in various kinds to finance the development. A portion is reserved to reward these people.

## **5.2.5 Ecological Fund**

20 billion ETU tokens are reserved to incubate or support high-quality DAPPs on Ether Universe.

## **5.3. Pre-sale Target**

Pre-sale counts 30% of the total tokens, namely 30 billion ETU. These tokens are issued in exchange for the ETH tokens raised in ICOs, which are happening in jurisdictions where ICOs are legitimate. Residents of certain jurisdictions (including, with no limitation to, United States and China Mainland) are prohibited from purchasing tokens in ICOs.

## **5.4. Team Lock Positions Promise**

15 billion ETU are held by Ether Universe core team. The team promises that no more than 10% of the total amount shall be unlocked in each season.

## **5.5. Launching on Exchange**

ETU tokens may launch on Top 15 digital exchange markets when certain conditions are met.

# **ETU ETU Token Value**

## **6.1. ETU Value of ETU Tokens**

Ether Universe grows rapidly. In future, thousands of applications will be built on it, and thousands of transactions will be made over it every second. As the users grow and the ecosystem matures, ETU tokens may be increasingly valuable.

## **6.2. ETU Acquiring of ETU Tokens**

- Purchase ETU tokens in ICOs or private fundraising events with ETH tokens
- Get rewarded by contributing to the ecosystem
- Purchase from third parties;

## **6.3. ETU Applicable Scenarios**

Applicable scenarios includes:

- Users may pay ETU tokens for cross-chain services
- Only ETU tokens are accepted in providing developers with technical supports
- Ether Universe rewards community members who make remarkable contribution to the development of the ecosystem
- Users may purchase third-party services with ETU tokens
- Users may purchase hardware wallets with ETU tokens
- Other cross-chain usages with Ether Universe

## 6.4. ETU Possibility of Deflation

- Users who possess too few tokens to pay transaction fees may be regarded as dormant, hence their tokens can hardly be traded.
- Users who lost their private keys and who don't make transactions frequently may make their tokens dormant.
- Ether Universe provides dormant users who don't trade for a while with special rewards, and hence the amount of active tokens on the market may be limited.

## Roadmap

- 2018 Jan: Started market researches regarding the demands of cross-chain solutions for EOS, Ethereum, and other blockchains.
- 2018 Jan: Completed early technical research. Determined system architecture.
- 2018 Jan: Project launched. Website version 1.0 launched.
- 2018 Feb: Confirmed platform product form.
- 2018 Mar: Community members reached 180k.
- 2018 Apr: Angel Round Token Distribution.

- 2018 Apr: Started public token offerings in jurisdiction where legitimate.
- 2018 Apr: Intensively exam cross-chain practices in EOS testnet.
- 2018 May: Get ETU tokens launched on a Top 15 digital exchange market.
- 2018 May: Launch on two Top 20 digital exchange markets.
- 2018 Aug: Publish an Alpha release.
- 2018 Sep: Publish the first blockchain-based digital assets exchange platform.
- 2018 Sep: Deploy super nodes.
- 2018 Oct: Debug with the sidechain of EOS mainnet.
- 2018 Dec: Attune the cross-chain communications between Ethereum and EOS and release some source code.
- 2019 Feb: Publish a Beta release with source code.
- 2019 Mar: Publish API and documentations.
- 2019 Apr: Publish cross-chain wallet app version 1.0 beta.
- 2019 May: Implement multi-central cross-chain node security protocol with independent nodes.
- 2019 Jun: Optimize the cross-chain performance.
- 2019 Aug: Build Ether Universe ecosystem and accept third-party developers.
- 2019 Oct: Launch the first series of third-party applications.
- 2019 Nov: Launch developer community to allow developers help improving the ecosystem platform.
- 2020 Jan: Get Ether Universe adopted by traditional industries in terms of digital assets.

## **Ether Universe Labs**

Ether Universe Pty. Ltd. ,the core director of Ether Universe the project, will operate as a non-profit organization to maintain the exchange rates between ETU and other cryptocurrencies in a reasonable range. Ether Universe Inc aims

to create the largest cross-chain service platform, in order to further push blockchain technology and ecosystem forward, providing more users with entrance to the century of decentralization.

## Team Partners

The core team, investors, advisors, partners, and cooperating media of Ether Universe grow constantly in number and quality.

Navigate to Ether Universe official website (<https://etu.link/>) to view latest information of the team and partners.

## Risks

### 10.1. Disclaimer

This document is only supposed to convey information. The contents shall not be considered a recommendation or invitation to sales of securities. Nor shall this document be considered a mean of trading of goods or any form of contract or promise.

Due to reasons unpredictable, the goals indicated in this white paper may be subject to modifications. Although Ether Universe core team shall do their best to achieve all goals listed within, the buyers of ETU tokens shall evaluate the risks of such purchases. This document may receive updates in respect to future developments, and such updates will be published online with or without specific notifications.

Ether Universe Inc and its subsidiaries are not liable for direct or subsequent losses due to:

- The reliance on this document

- The mistakes within the document
- Decisions based on this document

Ether Universe core team shall be dedicated to actualize the goals herein, but may not be able to guarantee completion.

ETU tokens are virtual items which are utilized in the operations in Ether Universe network, and may not be considered securities, currencies, or investment targets. ETU tokens do not mean any kind of ownership or possession. Having ETU tokens does not imply having any kind of control over Ether Universe Inc and/or its subsidiaries, Ether Universe network, or applications built on Ether Universe network. ETU tokens do not grant anyone the ability to participate or determine the decisions of Ether Universe Inc or Ether Universe network.

This document is for informational purpose only.

## **10.2. Regulations**

As blockchain technology and cryptocurrencies only have a short history in the eyes of the majority, no specific regulatory requirement has been passed in a sovereign legislative entity or ordered by a sovereign judicial entity in any jurisdiction. Regulations may or may not be established in future. These factors may all impact the development of Ether Universe. Blockchain technology and cryptocurrencies have gain attention from financial regulatory administrative authorities in major jurisdictions. If these authorities engage in the regulatory operations, the Ether Universe ecosystem may be affected, even exterminated.

## **10.3. Competition**

Nowadays, new blockchain projects emerge day by day. The competition among such projects has been increasingly intensive. Pressures exist in project

operations and marketing. Whether can Ether Universe outstand all potentially competing projects, present or prospective, remains uncertain.

## **10.4. Loss of Talents**

Ether Universe core team consists of a few ambitious and potent talents. Seasoned developers and investors are included. In future developments, the possibility of members' leaving and internal conflicts may not be eliminated, which may impact the development of Ether Universe.

## **10.5. Mathematics Computer Science**

The development of cryptography and quantum computers imposes danger to the cryptographic practices which are currently used commonly. And the cryptographic algorithms which are considered sufficiently secure may be compromised mathematically over time. Also, although recovery from bugs is considered carefully, software bugs may occur — note that it is mathematically impossible to verify if a program has bugs.

## **10.6. Interest Deficit**

It is possible that Ether Universe may not gain enough attention. The public may or may not be sufficiently interested in this particular project, or in the entire ecosystem of distributed computing networks. Such interest deficit may impact the preaching and adoption of Ether Universe.

## **10.7. Cyber Attacks**

Ether Universe may undertake cyber attacks from hackers or terrorists. These attacks include, but with no limitation to, DoS, Sybil attacks, malicious softwares, or



## **10.8. Absence of Insurance**

Unlike checking accounts, saving accounts, or asset management services, digital assets on blockchains may not be protected from losses by an insurer. If such losses happen, no individual or organization may be liable or responsible.

## **10.9. The Unexpectable**

In addition to all types of risks described herein, other risks may actually exist due to the dynamic nature of the society and the universe, occurring individually or jointly. Before you make decisions regarding Ether Universe the project, please acquire all applicable knowledge. Act rationally.