



# FST Network

Fast Smart Trustworthy

*With Modules, Everything is Possible*

FST Network White Paper

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# FST Network

## Leading the New generation of Internet

Over the past 30 years, the Internet has had a significant impact on our daily life. The demolition of barriers to the transmission of information has given birth to a completely new dimension for the business environment. An array of new corporate giants facilitates a fresh era of convenience for life, the maturity of society and the evolution of technology.

Today, society endures with the limitation of these 30-year-old network technology. Furthermore, legacy hardware also raises issues of security and accountability. We believe that the Blockchain is the key network technology that perfectly corresponds to the next evolution of networked technological solutions.

At the moment, a proven multi-interactive architecture (dynamic) technology that can support business development is not readily available. Similarly, matured Blockchain ecosystem such as Bitcoin and Ethereum or other popular newcomers like EOS and RSK are still unable to break away completely from the Web 1.0 level. Most of the time, their focal actions still revolve within the protocol proposal stage as well as an exchange of information and content interaction. There is an obvious lack of in-depth study on smart contracts, digitisation of ledger and infrastructure of the underlying protocol even though the industry is attracting the entry of many new players. Unfortunately, we have yet to see any viable projects that can effectively drive changes in the ecosystem for mass adoption and unlock and enable the use of the commercial potential of Blockchain technology.

By looking at the evolution of network development, we all can acknowledge the potential future of the Blockchain. When third layer architecture integrates with module technology (software engineering, Blockchain engineering), it covers and connects all the existing first layer (Main chain) and second layer (service accelerator) technologies. The implementation and integration of Blockchain will no longer be a barrier for any business, allowing everyone to concentrate on the development of services.

Through FST Network's IT products and architecture, applicable across different protocols, to support distinct business needs, a new era of technological evolution will be realised.

**"If Blockchain is technology that everyone desires, FST Network will lead everyone to leap to the brand new Internet era."**

## Mission and Market Position

As the leading Layer 3 architecture modular service provider, FST Network helps enterprises seamlessly adopt Blockchain technology without the need for deep technological know-how. Similar to today's web services, end users will enjoy all the convenience and security that will be brought by Blockchain technology. Moreover, it paves the way for the accumulation and enhancement of infrastructure mechanism required for the next-gen Blockchain technology.

From "Tokeneden," "SHeX"(Super Hybrid Exchange), "EnSo"(Enterprise Solutions) to "Module Kits," enterprise-level Blockchain application barriers will be substantially reduced. From simple data entry and selection of desired settings, anyone can create their own tokens and applications easily with the execution through smart contracts from a webpage. In this way, FST Network can truly provide the real boost for the market to adopt Blockchain technology.

### Two Major Tasks of FST Network:

Project infrastructure	Experience Enhancement
<ul style="list-style-type: none"> <li>▶ <b><u>Industrialised</u></b> Improve smart contract projects, modules, and software, at the same time continuously develop Layer 3 technical architecture.</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b><u>Universalisation</u></b> 70% of enterprises will no longer need their own Blockchain engineers, nor need to rely too much on the knowledge of technicians.</li> </ul>
<ul style="list-style-type: none"> <li>▶ <b><u>Configurable</u></b> Remodel Blockchain into a software architecture that is customisable, easy to create, maintain, and assemble.</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b><u>Commercialise</u></b> Supplement enterprise management tools to a business level, no longer have to be managed by engineers.</li> </ul>
<ul style="list-style-type: none"> <li>▶ <b><u>Specifications</u></b> Enable new network technologies to exchange information and data across protocols and consensus securely.</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b><u>Applicable</u></b> Through the application of Layer 3, companies can seamlessly interface existing systems with future systems.</li> </ul>
<ul style="list-style-type: none"> <li>▶ <b><u>Fairness</u></b> Create tokens and ledgers through smart contracts.</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b><u>Serviceable</u></b> Let end users feel value and participate in business scenarios</li> </ul>

The above will mitigate the problems of current barriers to enter in the Blockchain technology: high cost, low flexibility, and immaturity of foundation layers (Layer 1 and 2). It also assists more enterprises to go straight to actual roll-outs and will guide the industry to enter a brand new robust business space, allowing end users to adopt and enjoy the advantages of new services on Blockchain.

FST Network takes advantage of its strong technological foundation and practical industrial application approach, that will ultimately enable more projects to achieve full launch. This then enables the entire ecosystem to achieve the highest-standard infrastructure that rivals today's technology giants. Driven by social and technological evolution, businesses can then focus on drivers for growth and adoption instead of being bogged down by technology

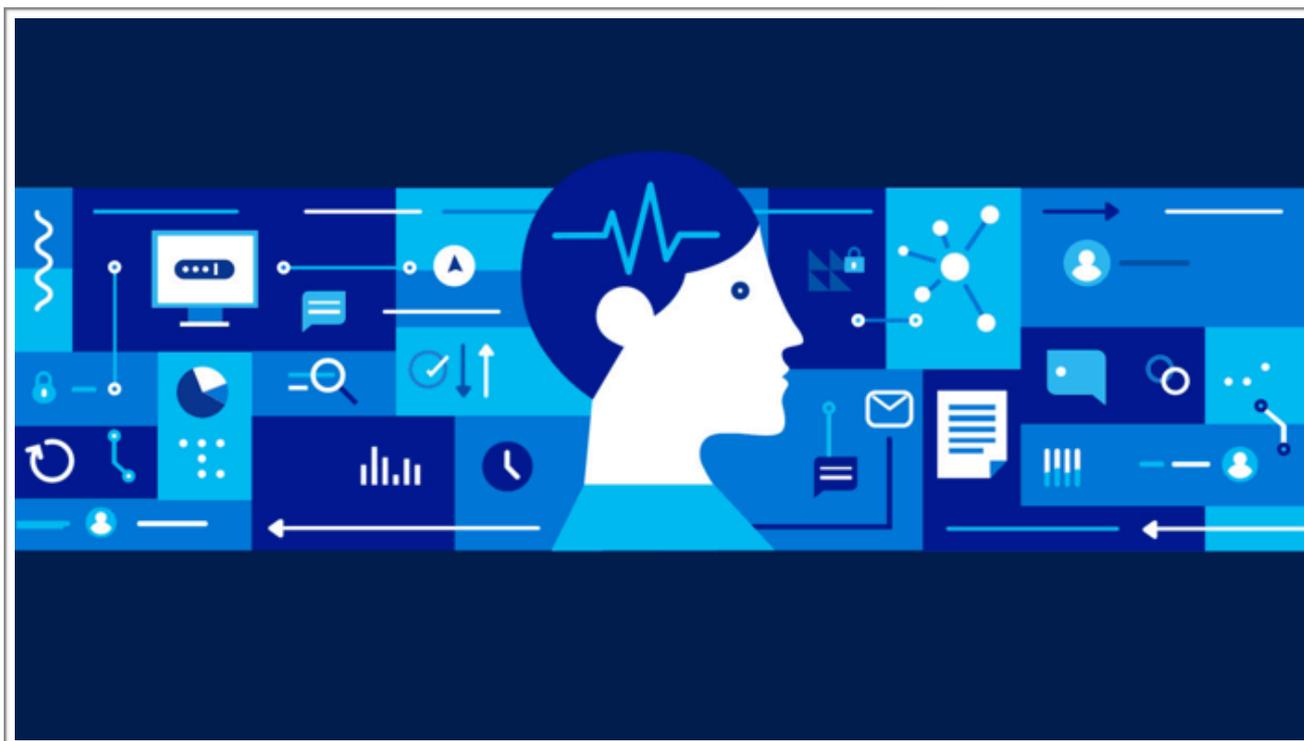
## Market Opportunities

Although there are plenty of technologies and applications in the industry, yet decentralised applications still face the technical barrier to realise real-life use cases and adoption. As a result, the development of the industry remains in the incubation stage. As the market is overly focused on the first and second layers of infrastructure building, the **shortage of developers, excessive commitment in the bottom layer of the technologies, and the difficulty of rolling out Blockchain services in commercial applications** are too common.

### ► The Shortage of Developers

The Blockchain is a relatively new innovative technology that only came to prominence in recent years. Blockchain projects and infrastructure that are already available in the market are far from ideal, making it difficult for enterprises to develop quickly and effectively. The shortage of relevant talent has also interrupted the process of developing applications, thus causing the problem of unpredictable costs.

Moreover, the uneven skill levels of developers also bring great risk to enterprises. From communication, system interface, inter-chains integration, and even the development of smart contracts and ledgers, the lack of comprehensive architecture and engineering experience have led to leakage, which has made it difficult for companies to expand.



### ► Excessive Commitment in Bottom Layer of the Technology

The first layer of the main chain (ETH, EOS, NEO, Cardano, Qtum, ICON, Steem...etc.) or the second layer of smart contract and service accelerator (sidechain, state channel, etc.), although having undergone extensive development, remains at the level of framework formation. This means that companies still face a series of difficult barriers to the production of smart contracts, ledgers as well as system interfacing.

From the context of network development, it is identical to requiring the average enterprise to additionally understand the basics of Hypertext Transfer Security Protocol (HTTPS) in the process of creating services and web pages, which makes it impossible for enterprises to focus on the realisation of their services and businesses.

### ► The Difficulty of Services Rollout

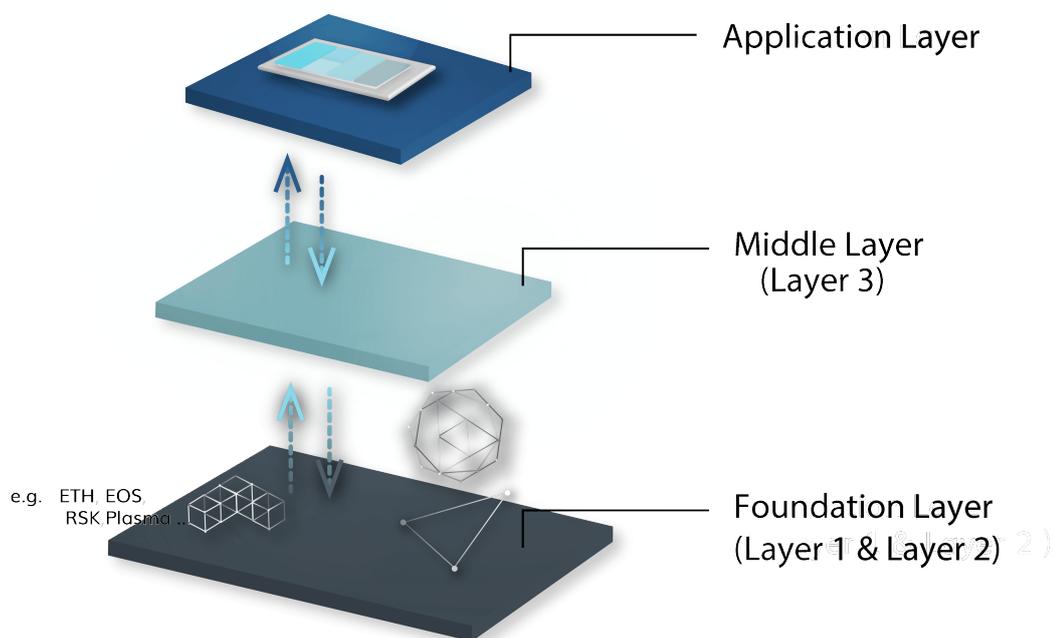
Due to the shortfall of developers and overexposure to the underlying technology, lack of resources will lead to the neglect of the user experience and interface. Also, the existing Blockchain engineering technology is not sufficiently adaptable to cater the commercial needs. In this regard, the obstacle to user adoption will directly cause tremendous difficulty for commercial services to be implemented on Blockchain.

## Solution

Hence, we need an **intermediary layer that allows applications to break away from the base layer**, so that applications can be fast, flexible, and not limited by any infrastructure constraints and changes, and so that anyone who participates in the ecosystem without noticing the existence of Blockchain, but still be able to enjoy the benefits of Blockchain.

**The standardised modules are buffers of the project.** Any Blockchain project can solve the above three problems through modules so that the project will be implemented safely and developed stably.

FST Network builds 3rd architecture on top of multiple protocols. Driven by modules, it will be **compatible with base layer technology** as well as on-chain and off-chain integration. FST engine will produce diversification of modules to power the application of Blockchain technology.



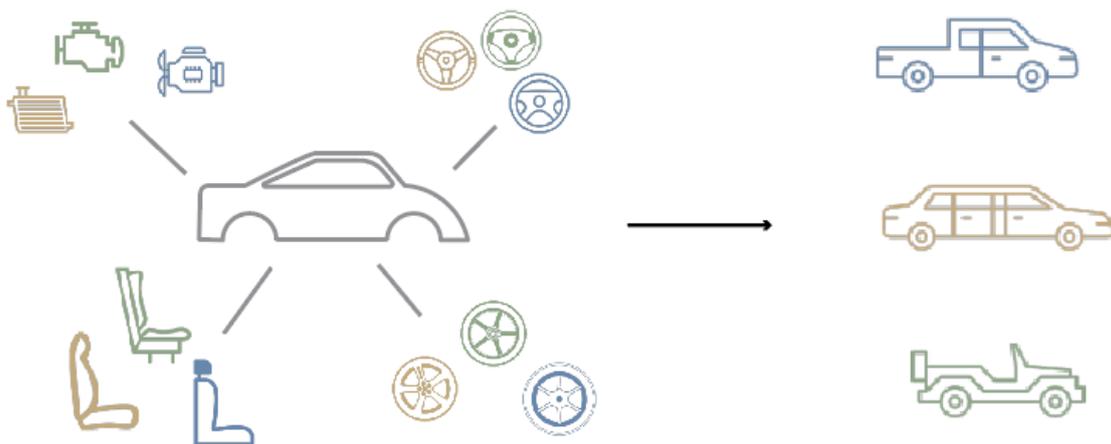
# Technological Value

The most important feature of FST Network is the inductive deconstruction of complex Blockchain technology. The establishment of diverse and safe modules for different functions is similar to creating a production unit, which greatly reduces the technical barriers and costs of the enterprise Blockchain. While emphasising a modular Blockchain, companies will be provided with high levels of **flexibility, extensibility and diversification**.

## Reduce Technical Barriers and Cost While Enabling High Flexibility

FST Network will function similarly to a car manufacturer and the FST Network will be equipped with features similar to the factory's stations of parts of tires, engines, casings and other multi-component (modules). Enterprises only need to put forward their own needs (business needs) in accordance with business logic and do not need to reproduce tires, engines and other components themselves. All can be easily assembled with all relevant modules of the Blockchain on FST Network.

If the company needs to convert the runway (work on different chain), FST Network can also accommodate different components to operate on different runways (chain protocols), which saves cost for the enterprise in different chain ecological conversion and cross-chain information exchange. The company can also choose its suitable runway in accordance with its own needs.



## Extensibility and Diversification

From the very beginning, the enterprise can create a simple “mini car” by utilising FST Network’s module kits, test its industry and Blockchain compatibility and commercial direction, eliminate the needs to invest huge sums of capital and time from the start-up stage, and it can immediately jump into conducting the feasibility test of this product.

If there is any increase or decrease in demand during deployment, the modular nature allows the company to quickly select the module for **seamless assembly and update**, depending on whether the company is “changing tires” or “changing the shell” (using modules). What “colour” does the shell want? Colour (parameter variable) can be quickly added to the modified car that the customer wants (ecological establishment).

Thanks to the modular architecture, companies can **intuitively** confirm the feasibility of each module for commercial needs from the outset, such as whether there are “tires” that meet the needs of the company, or whether the “car” has a way to run in the snow (technical achievability). If there is no such “tire” that meets the demand, FST Network can quickly customise the module that meets the needs of the enterprise. The module can also be eventually used and reused by other companies afterwards.

As a result, the modules on FST Network will only be improved and expanded. Thus these will become better and more complete over time.

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We will introduce the technical architecture of FST Network in the next chapter (Chapter 2), to show how we can achieve such a flexible, diverse and extensible multi-module.

## Fast, Smart, Trustworthy

### Faster

- ▶ **Blockchain Application Setup**

The intuitive and simple FST Network modules allow companies to quickly and securely build their unique Blockchain application services and ecosystem.

- ▶ **Update optimisation and maintenance**

Through modules, companies can quickly optimise Blockchain applications, add “tires” or “turbines” (build new modules), quickly replace and update without affecting other functions.

- ▶ **Faster Blockchain**

FST Network, through its own unique chain optimisation protocol (Relay Network), allows “cars” (Blockchain services) to perform better on different chains, by increasing transaction throughput and increase transaction volume to speed up transaction verification. In the case of Ethereum, it can potentially increase its throughput by hundreds of times.

### Smarter

- ▶ **Development**

Enterprises can use APIs or SDKs for their developers to create their Blockchain applications without the need for Blockchain engineers, making it easier for developers to tweak and maintain applications through reusable and standardised modules.

- ▶ **Enterprise**

FST Network's modules provide high flexibility, scalability, and diversity to meet the various requirements of enterprise applications. As with LEGO, it is easy to understand assembling different unique models (business models), and the future will be for business development or market needs, the LEGO blocks can be partially replaced, unlike reorganising or even rebuilding the product from scratch such as in the case of what traditional service contractors would normally do.

- ▶ **User**

The user-friendly experience is the deciding factor of the viability of an application. The Blockchain should bring the same level of user experience as the Internet. i.e., natural, comfortably on every level of operation of the underlying technology yet enjoying the convenience and the value of the application. Therefore, end users of the application that is participating in FST Network will no longer be limited by the need for knowledge of the Blockchain, nor will they need to hold native tokens (e.g. ETH) of any public Blockchain to access and execute in a different ecosystem.

### Trustworthier

FST Network solves development iterations with reliable and versatile modules, allowing companies to change modules at any time, while focusing on the technical implementation of the chain, enabling data storage and flow to be effectively protected and traced. At the same time, it is also compatible with any other chain solution.

## FST Token

The above-mentioned FST Network modularised ecosystem requires an ultimate key (KEY) to power the entire FST Network. Whether to act as **payment, stake, reward**, and other functions, it can make the ecosystem to become more robust, and this key (KEY) is the Utility Token that we specially designed.

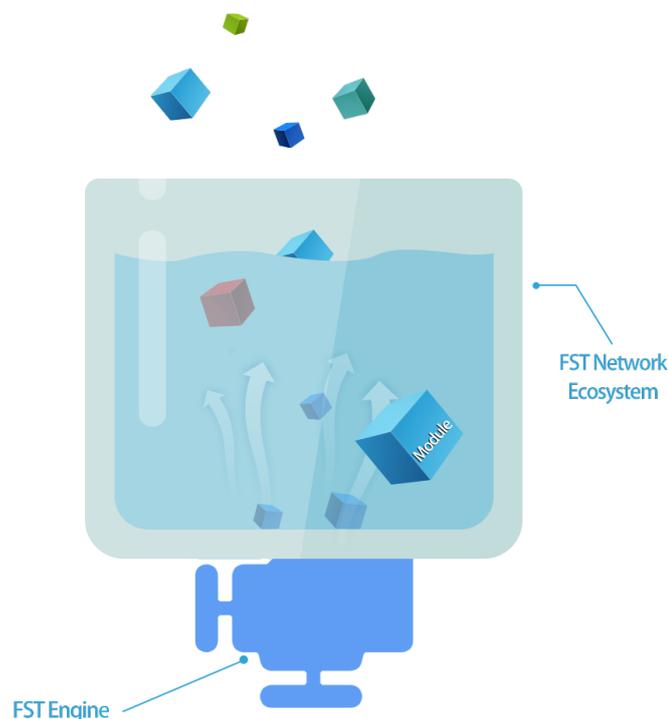
FST Token (Funder Smart Token), flows through and supports the entire FST Network. Enterprises, developers and users can use our products and services to enter the Blockchain space through FST and become an FST Network ecosystem node. This simultaneously accelerates the development of the entire Blockchain ecosystem and FST Network.

We will have further details later in the white paper, regarding how FST Token model works, how the token economy is interconnected with all the services and products on FST Network, and why it will increasingly become far-reaching in the future.



# Technology Framework

## FST Factory



In the past, the company must be customised from the recruitment and training of relevant personnel or of curated external contractors.

In new Blockchain working environment, in addition to the countless hours of time and cost spent, the smart contracts and code written by various companies are highly repetitive and hardly go through any relevant code verification, resulting in wastage of resources while being exposed to unimaginable risks of potential smart contract vulnerabilities and attacks.

In addition, due to the decentralised nature of the Blockchain, this would incur many fixed costs for business, development, and maintenance. The enterprise is currently limited by the low layer technology and unable to revise the business model dynamically. Once the changes of the low layer smart contracts or protocols activated and powers the entire ecosystem, it will be near impossible to partially maintain and optimise.

FST Engine uses the module factory to produce reusable, highly extensible modules by integrating smart contracts with on-chain and off-chain technologies. These modules enable companies to significantly slash development outlays, enhance development and operational flexibility, making it easy to develop multiple applications, and end users can have more stable, safer, better-performing applications and services. By its nature, the module factory will continuously generate standard modules or client-customised modules to fulfil more

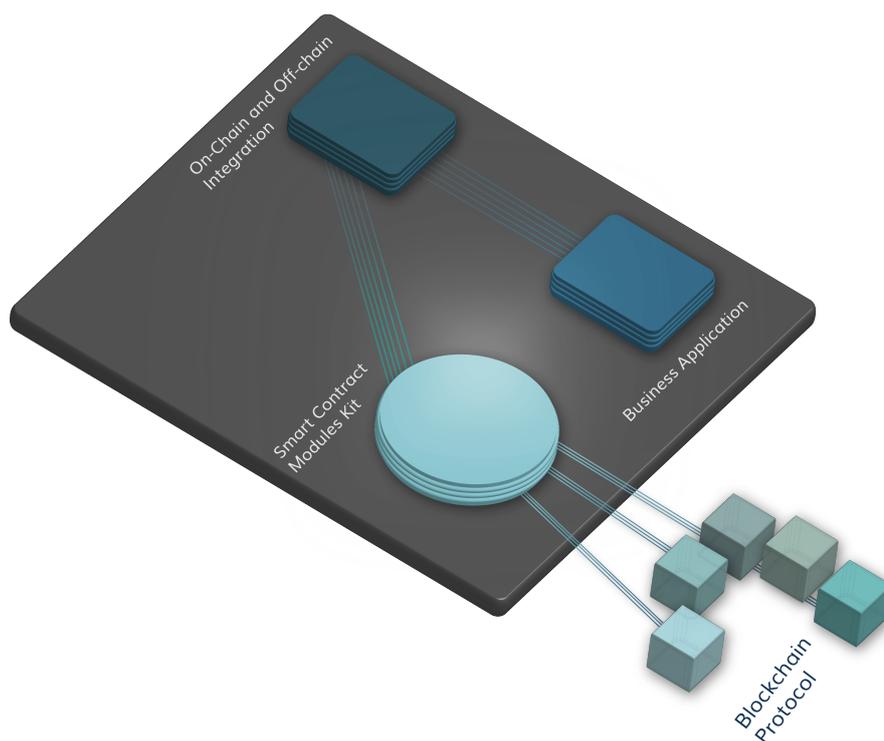
business obligations. The module itself is also initiated on smart contracts, leaving a marking on the process of building different services, bypassing the risk of human errors and boosting the efficiency of automation.

## Service-Oriented Module Architecture

FST Network leverages the robust modular architecture to trim complex functions into small pieces (e.g., a standalone smart contract) rather than one single large deployment. These elements can be operated in a single use (small modules) or can be freely cascaded under different systems to form large modules.

Small modules are independent of each other and any interface can be freely replaced, similarly to LEGO, then the large modules can be multi-sourced, disassembled, optimised, and finally stacked to support any module kits of complex business models.

In order to make the service convenient and customer's usage more stable, balanced and flexible, the system categorises of module kits fall into 4 – Enterprise Application, On-chain-off-chain Integration, Smart Contract module, and Chains Protocol compatibility.



Modular Architecture

## Enterprise Applications

For enterprise application and adoption, it can be directly managed by a businessman (DIY without coding on Tokeneden), or the value-added development of technicians on the FST Network module. The enterprise application side focuses on the product optimisation of APIs/SDKs services and interface processes.

In this way, enterprise service creation can get the security of Blockchain specifications, the simplicity of business management services, the scalability of future development, and the flexibility of maintenance and repair. Companies can focus on resources for business development without having to worry about smart contracts, decentralised environments, and integration under the chain.

## **On-chain-off-chain Integration**

When the smart contract is simplified, the call-to-action module can form a variety of integrated services through the process, just as more than a dozen smart contracts can link the traditional digital ledger. Under open standards of FST Network, by setting the “enable” or “disable” of the function, it will meet the requirements of the application and create APIs/SDKs of the interface to facilitate the application to fulfil numerous tasks and the necessary integration.

The call and interaction between a large number of smart contracts are also required in specific circumstances, where communication must be established between the traditional server and database. The integrated server analyses complex scenarios, architects, and expansion and shifts into an automated mode (engineering and software) to minimise the risk of creation, maintenance, implementation, and the maximisation of convenience and scalability.

## **Smart Contract Module**

Smart contract by itself is a fairly secured application, the error tolerance is extremely low. The decentralised architecture design that has to be tamper-proof may disrupt the flexibility to match the requirements for business operation.

FST Network's smart contract module kits can be reused, assembled and sorted and stored after stress testing. The function of partial smart contracts is to combine with other smart contracts, create digital ledgers and assign rules to achieve automated security execution and formation. Each module has its Application Binary Interface (ABI), enabling companies with high-end Blockchain engineers to utilise or stack more complex applications and services. Therefore, customers will not be limited to FST Network's existing enterprise application features, possibly saving more than six months of development time.

## **Compatibility of Chain protocols - *Third Layer Blockchain***

Technology can be displaced and phased out, but business can hardly permit beyond transformation. Enterprises normally opt for stability in making key technology deployment strategies. Based on this principle, to make the ecosystem more functional and reliable, FST Network packaged the underlying construction of all modules independently to prevent the over-dependence on the protocol layer to improve the rationale of “third-layer Blockchain.”

From the pioneer Blockchain Ethereum to other large-scale public Blockchains, everyone can make full use of the FST Network architecture, building functions and services, and reduce the needs to rely on certain Blockchains for enterprise applications. This architecture also

includes compatibility with the certified chains and private chains, as well as the basic construction of the cross-chain.

## FST Network Technological Embodiment

FST Network						
<b>Products &amp; Services</b>	Tokeneden	Module Kits		Super Hybrid Exchange (SHeX)	Enterprise Solution (EnSo)	
<b>Automation &amp; Delicacy: FST Factory - Smart Contract Factory</b>						
<b>Infrastructure</b>	Relay Network		Cross-chain Network		Order-matching Network	
	Service-Friendly Token Standard			Application Token Standard		
<b>Technical Construction</b>	Smart Contract Factory	On-chain Signature Validator	Token Transfer Continuation	Challengeable Token Consumption	Token Transfer Delegation and Rewarding	Multiple-Signature Asset-Flow Control
	Token Storage Optimisation	Proof of Order (like PoW, but matching orders)	Chainless Consensus Channel	Programmable Consensus	Blockchain firewall (Rule card)	Encode DB Indexing

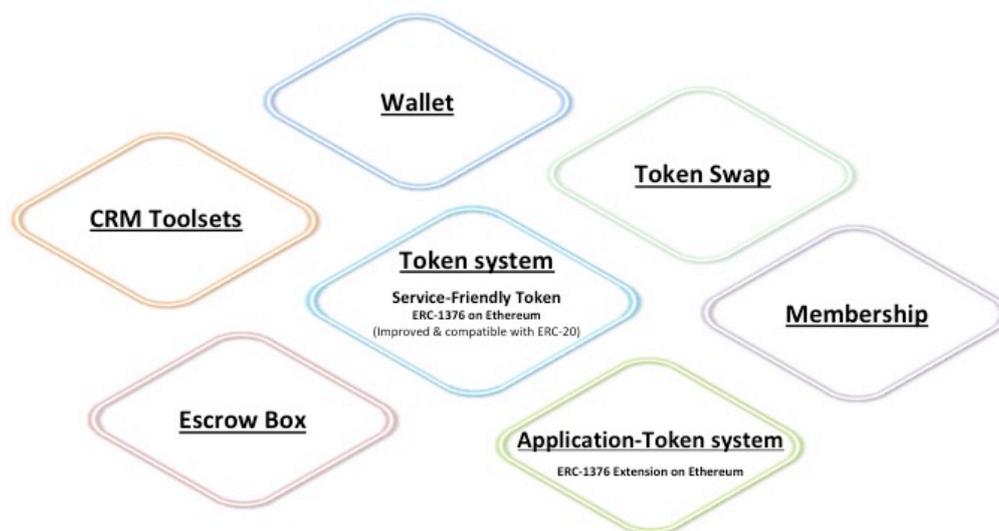
### Products & Services

For the past year, FST Network poured in rigorous efforts to develop four comprehensive offerings that can fulfil business requirements. These four offerings can lower the Blockchain technology adoption blockade for business use. Enterprises would then be able to focus on their business operation, while applying Blockchains with clear business operation logic, and extract the core value of technology to gain maximum benefits. At the same time, the ecosystem of FST Network will expand steadily under the conditions of providing better service and best service to larger numbers of users.

### Tokeneden

FST Network launches its own smart token and facilitates business-issued tokens that are smarter and more logical. Enterprises can create and manage their tokens without or with very little coding. With the smart token facility, every customer can adopt the Blockchain technology and realise the unlimited possibilities of the token.

Furthermore, there is customer relationship management (CRM) inbuilt, managed through the modular support provided by FST Network, to establish an effective interaction with funders, and extract technical advantages from the Blockchain for the company's operations. It will provide modularised and zero-coding customer relationship management toolkits, thus eliminating the need for businesses to write their programs and to build their Blockchain infrastructure. Just enter the **parameters**, and everyone can create their token and make use of our CRM toolset on Blockchain.



### ▶ **Token System**

The uniquely optimised ERC-1376 is compatible with the ERC-20 standard. (Further details about ERC-1376 will be featured in the "Infrastructure" section)

### ▶ **Application Token System**

Enterprises can issue utility-based tokens through the Application Token System. This sub-token to the main token system is fully compatible with the ERC-1376 standard. These tokens can set functions such as expiry date, usage condition and purchaser qualification.

### ▶ **CRM Toolsets**

When enterprises need Blockchain for commercial applications, they are easily restricted by technical know-hows. Through the CRM system, enterprises can easily perform business needs such as airdrop, market liquidity control and promotion management.

### ▶ **Membership**

This module allows companies to build their membership structure and data on blockchain.

### ▶ **Escrow Box**

Through this module, enterprises can input specific terms or conditions, easily create mandatory sets of smart contracts.

### ▶ **Wallet**

The DAPP allows wallet function through this module.

### ▶ **Token Swap**

This module allows multiple parties to perform a synchronised token exchange swap through the meeting of certain conditions (that all the parties agree to).

### ▶ **Continuous Updates**

In addition to the above module system use cases, FST Network has collections of fully-developed modules (e.g., cross-chain trading escrow, multi-signature). Over time and market demand, multiple offerings will be put up on the platform, providing full functionality and enable the ecosystem to reach an ideal hassle-free Blockchain development milieu.

## Module Kits

FST Network has been deployed in Ethereum, and many fully developed modules are available for enterprise selection. The following table shows the basic framework and list of the modules.

Enterprise Application	On-chain-off-chain Integration	Smart Contract Module
<input checked="" type="checkbox"/> Member Modules	<input checked="" type="checkbox"/> FST SDK	<input checked="" type="checkbox"/> Service-Friendly Token Module (ERC-1376 as ERC-20 extension)
<input checked="" type="checkbox"/> Desktop Wallet Modules	<input checked="" type="checkbox"/> Token Transfer API	<input checked="" type="checkbox"/> Application Token Module (ERC-1376 extension)
<input checked="" type="checkbox"/> Mobile Wallet Modules	<input checked="" type="checkbox"/> Official Tokens FST Information API	<input checked="" type="checkbox"/> Non-Fungible Token Module
<input checked="" type="checkbox"/> Smart Tokens	<input checked="" type="checkbox"/> Member Information API	<input checked="" type="checkbox"/> Service-Friendly Token Campaign Module
<input checked="" type="checkbox"/> Localisation	<input checked="" type="checkbox"/> Service-Friendly Tokens API	<input checked="" type="checkbox"/> Application Token Campaign Module
<input checked="" type="checkbox"/> User Profile	<input checked="" type="checkbox"/> Application Tokens API	<input checked="" type="checkbox"/> Time-lock Token Campaign Module
<input checked="" type="checkbox"/> CRM Toolset	<input checked="" type="checkbox"/> Non-Fungible Tokens API	<input checked="" type="checkbox"/> Airdrop Module
	<input checked="" type="checkbox"/> Campaign API	<input checked="" type="checkbox"/> Swap Escrow Box Module
	<input checked="" type="checkbox"/> Airdrop API	<input type="checkbox"/> Cross-chain Escrow Box Module (2019 Q2)
	<input checked="" type="checkbox"/> FST Gas Tank API	<input type="checkbox"/> Multi-sig Module (2019 Q2)

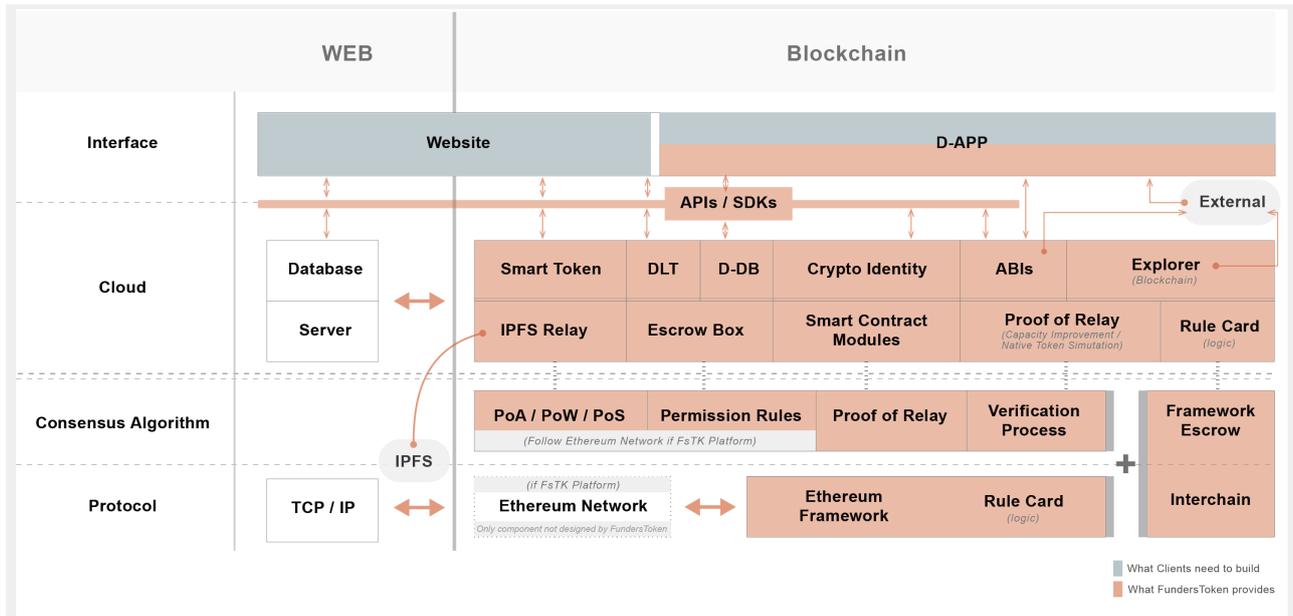
## Super Hybrid Exchange (SHeX)

When decentralised applications grow to a stage where users or developers must communicate with other main chains, it is a common practice to exchange tokens with different main chains. At the moment, most people tend to choose centralised exchanges to perform such action, but there will be potential risks such as theft of funds by hackers and the inappropriate use of funds by centralised exchanges.

FST Network uses the escrow module to implement decentralised cross-chain value transfer at the smart contract level. If two users wish to trade the token on different Blockchains, the two parties can transfer the assets to two different main chains. On the escrow module smart contract, if two smart contracts confirm that the funds have been received, they will automatically transfer the money to another person's wallet. Every cross-chain message exchange will be concluded with the decentralised method.

Therefore, the use of the SHeX module and FST Network's three main protocols (Relay Network, **Order Matching Network**, **Cross-chain Network**) can be deployed to create a cross-chain decentralised token exchange, or to support **cross-chain information and value exchange in decentralised applications**. It improves the current issues of the inability of conducting direct communication between different Blockchain (**interoperability**). This, in turn, will solve one of the major stumbling blocks to achieve mass adoption of Blockchain technology.

# Enterprise Solution (EnSo)



## Protocol

Leverage on Ethereum’s relatively matured infrastructure and basic multi-framework (multi-signature, algorithm rules, etc.) to design the base architecture that is scalable to meet users requirements. The Rule Card here refers to the various requirements of clients; this logic will be recorded onto the Rule Card within the module. The evaluation rules are unique to the company. The computation is compiled into a balanced consensus rule, and the evaluation rules obtained will be owned by the company.

## Consensus

In accordance with the customer's security specifications, licensing requirements, multi-party trust relationship, departmental structure, authority flow, to determine the requisite consensus rules. This is an important part of the certified Blockchain. If it is a public Blockchain, it should directly comply with the rules of the public Blockchain.

## On-Chain Infrastructure

Multi-module, supporting the of infrastructure linking, includes connecting IPFS to a decentralised data system, or using smart contracts to create smart contracts. The Rule Card here refers to the various requirements of the customer, and this logic will be recorded onto Rule Card within the module. Assemble modules into higher scaled modules or products, whereas these multi-architectures are the proprietary technology of the company.

## On-Chain Application Technology

The utility module, for digital ledger (DLT), decentralised database (D-DB), token system and smart contract, etc. can be directly linked to the DAPP by assembly.

## **Traditional Technology Integration**

Other than the ability to connect APIs and SDKs to various systems, EnSo module can enable the integration of on and off chain's framework, that makes sense and is operable on conventional architecture as well. All databases and information will be securely stored in the Blockchain.

## **Application Connectivity**

Likewise, customers can use our platform as a back-end to manage various Blockchain technologies, ledgers and smart contracts. Customers will have to adjust their systems and interfaces in sync with their brands and integrate with our traditional technology integration architecture to achieve real commercial use. The Blockchain system check and the data accumulation system provided by the company can easily get diversified data viewing and declaration benefit to the government.

## Competitor Analysis

### Contractor vs Module Provider (Module kits)

	AMIS	Corda	Freelancer	FST Network
Smart Contract Creation		✓	✓	✓
APIs provided	✓	✓		✓
ABIs provided		✓		✓
Public Blockchain			✓	✓
Permission/Private Chain	✓	✓	✓	✓
Distributed Ledger Technology	✓	✓	✓	✓
Distributed Database System		✓		✓

### Token Issuance Platform Comparison (Tokeneden)

	Simple Token	Etherparty	MyWish	FST Network
ERC-20 Issuance		✓	✓	✓
APIs provided	✓		✓	✓
ABIs provided				✓
Blockchain Gas Fee reduction	✓		✓	✓
Flexibility for adding new features		✓	✓	✓
Token Locating System				✓
Native Token Environment				✓
Protection by Public Blockchain		✓	✓	✓

### Decentralised Exchange (Super Hybrid Exchange)

	IDEX	0x	DEx.top	FST.Network
Decentralisation	✓	✓	✓	✓
Multiple Booking Orders	✓		✓	✓
Auto Order Matching	✓		✓	✓
Trade Incentives	✓		✓	✓
Cross-chain Transaction			✓	✓
Package of Multiple Orders		✓		✓
Low Transaction Gas Fee			✓	✓
Real-time Trading	✓		✓	✓
Exchange White Label				✓

## Technical Construction

Technical Construction	Cross-chain Network	Order-matching Network	Relay Network	Service-Friendly Token Standard	Application Token Standard
Smart Contract Factory			✓	✓	✓
On-chain Signature Validator	✓	✓	✓	✓	✓
Token Transfer Continuation	✓	✓		✓	✓
Challengeable Token Consumption					✓
Token Transfer Delegation and Rewarding	✓	✓	✓	✓	✓
Multiple-Signature Asset-Flow Control	✓	✓			
Token Storage Optimisation			✓	✓	✓
Proof of Order (like PoW, but matching orders)		✓			
Chainless Consensus Channel	✓	✓			
Encode DB Indexing				✓	✓

### Infrastructure (Third Layer Architecture - 3 Protocols & 2 Standards)

Reflecting on the past Internet evolution, the current state of Blockchain technology is comparable to Netscape and IE's early web browsers, providing only simple data display and transmission. In order to extend the technical possibilities of the Blockchain application landscape, FST Network covers and links the existing first layer (Blockchain) and a second layer (smart contract and accelerator services). Besides the third layer framework, there are three additional protocols and two major standards.

Similar to dynamic web pages opened up the interaction and experience between users and developers, the three major protocols will allow more interaction and information exchange among FST Network's participants. These protocols include a "Relay Network" for user experience optimisation, "Order Matching Network" that accelerates the decentralised transaction protocol, and secured and robust "Cross-chain Network".

The two core standards are triggered based on the token framework, aiming at the application and structure of business requirements, providing a basis for the full architectural functionality of Blockchain-related products and services, creating the possibility of setting up applications and automation. These are the Service-Friendly Token Standard and its extended Application Token Standard. These enable companies to close the gap on the level of user experience in the process of value exchanges carried out in Blockchain closer with user experience. Furthermore, these provide truly seamless integration into existing systems.

Through these infrastructures, FST Network can increase the throughput of transactions by hundreds of times, reduce Blockchain native fees (e.g. Ethereum ETH), and create simple and secured cross-chain smart contracts, enabling companies to use traditional software and connect with API/SDK completing the deployment and operation outside of Blockchain, and even makes the non-native token of the Blockchain the same as the native token (see the Relay Network for details).

## Three Pillars of Protocols

### - Connectivity & Compatibility of the infrastructure

#### Relay Network

At this moment, most protocols of native tokens (e.g. Ether for Ethereum) have full privileges and rights on their proprietary technology, such as the ability to launch smart contracts on Ethereum. Non-native tokens and smart contracts themselves are not directly coherent in the right to integrate multiple smart contracts and grant automation.

The core of Relay Network is to give any non-native token and smart contracts a higher pledge, through ERC-1376 standard and introduction of the concept of "Double-layer Mining", to facilitate a better ecosystem and upgrade the functionality of any non-native token, without having to join another Blockchain or have large number of miners.

The "On-chain Double-layer Mining" is primarily through a smart contract to organise a network called "Relayer" on any Blockchain protocol. Relayer gets the benefits of packaging a large number of transactions by paying the gas fee for the native tokens (e.g. ETH gas), compressing hundreds of transactions, and verifying the original miners behind the smart contract, resulting in **improved throughput of a hundred times**, and ensuring the fairness and security of its on-chain execution.

The reward of the Relayer is the token for their payment, and they can earn more efficient benefits in the process. When the network of Relayer is only one person (such as the issuing company itself), the revenue model can determine the gas fee for a reward through commercial evaluation and award the transaction fee from the end user. Based on this technology, the coverage network is built through smart contracts, and the security of the system network is maintained without regard to the business objectives.

Through this technical mechanism, companies that use non-native token can avoid end users from relying solely on the native token. When a company becomes a "Relayer", it can make its own enterprise ecosystem free from the interference of the native token and can further create a shared network without creating a new Blockchain ecosystem.

#### Order-matching Network

FST Network differentiates from other cross-chain Blockchain solution by providing an on-chain smart contracts completing the cross-chain transaction. Followed by escrows service of protocol, smart contracts are compatible in different chains and back the cross-chain infra. This core design is to activate the multi-sig function on 2 chains and allows an Endorser to validate both chains. Due to decentralisation endorsers consist of multiple nodes and complete as Proof of Stake.

Endorser will stake FST and vest FST in the cross-chain smart contracts for PoS. With multiple nodes of network elections, elected endorser can validate data exchanges details and execute when confirmed. The security of endorser network strengthened by Merkle Proof.

And this competition nature will enhance network security. Since each chain agreement has its own consensus requirements, FST Network is an unique service provider in the market, and the cross-chain infrastructure with modules can effectively span between various ecosystems. Any Blockchain ecosystem with FST Network infrastructure can achieve important information exchange through this cross-chain settlement.

### Cross-chain Network

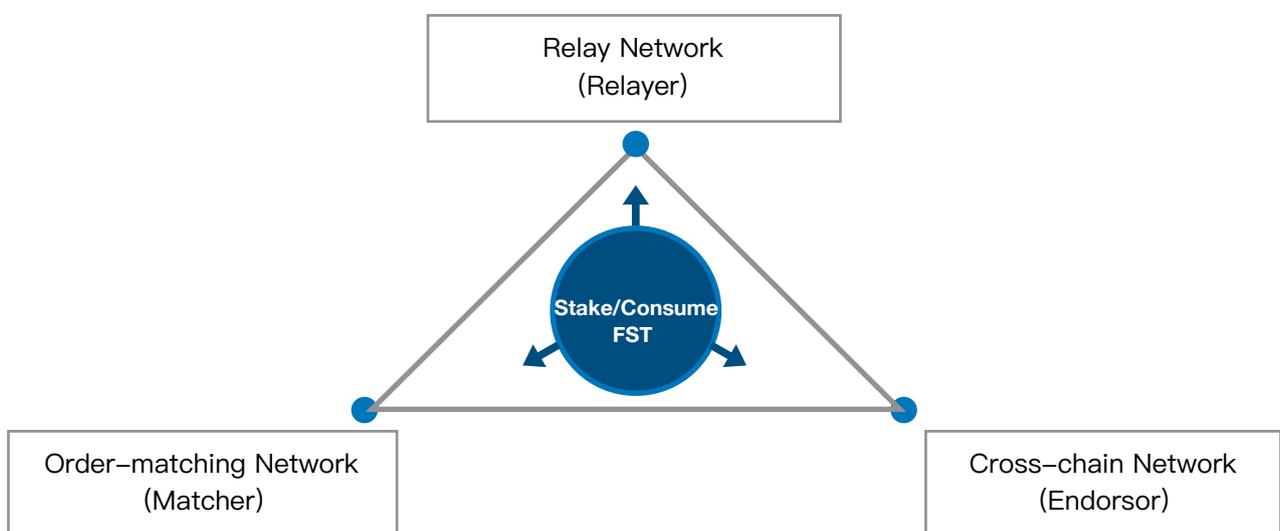
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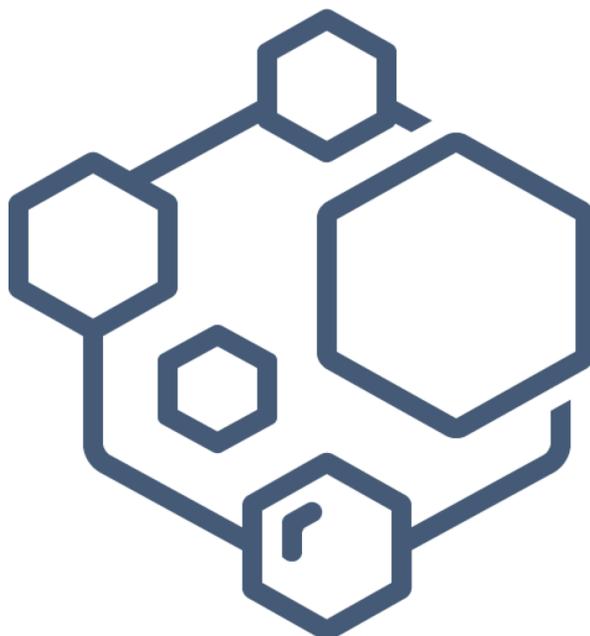
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### **FST Network Ecosystem Node - Software Mining**

"Relay Network", "Order Matching Network" and "Cross-chain Network" make up the three pillars of technical protocols that drive on-chain optimisation and mining verification from their respective ecosystem nodes to maintain their networks. In order to achieve decentralisation and verify the fairness of the result, participants must stake FST to become a node for mining.



## Token Standard – Cornerstone of Blockchain Applications



### Service-Friendly Token Standard

Most of these token projects and markets that originally resulted from initial crowdfunding activity have had to endure a period of uncertainty during the transition period amid utility token adoption. These projects or enterprises are prone to problems of insufficient functionality of the tokenised smart contracts. They also encounter the difficulty of supporting basic business models and offer more real-world services or products.

To make sure the token satisfy the actual commercial application, this standard has significantly reduced the difficulty of **communication between the cross smart contracts** and **on-chain-off-chain integration** and will achieve the effect of contract transfer or continuous triggering of smart contracts to support more utilities of the token. The Relay Network of the native autonomous environment simulates the native Blockchain with smart contracts, allowing end users to eliminate the restrictions of paying the native token on Blockchain.

Currently, FST Network has completed the actual deployment of this standard (ERC-1376) in Ethereum. In addition to being compatible with ERC-20, it also optimises the ERC-20's lack of support for complex application development, making it easier to match the business needs for CRM. It also removes the need to pay Ethereum fees as well as other common operational barriers that come with tokenisation on the Ethereum Blockchain.

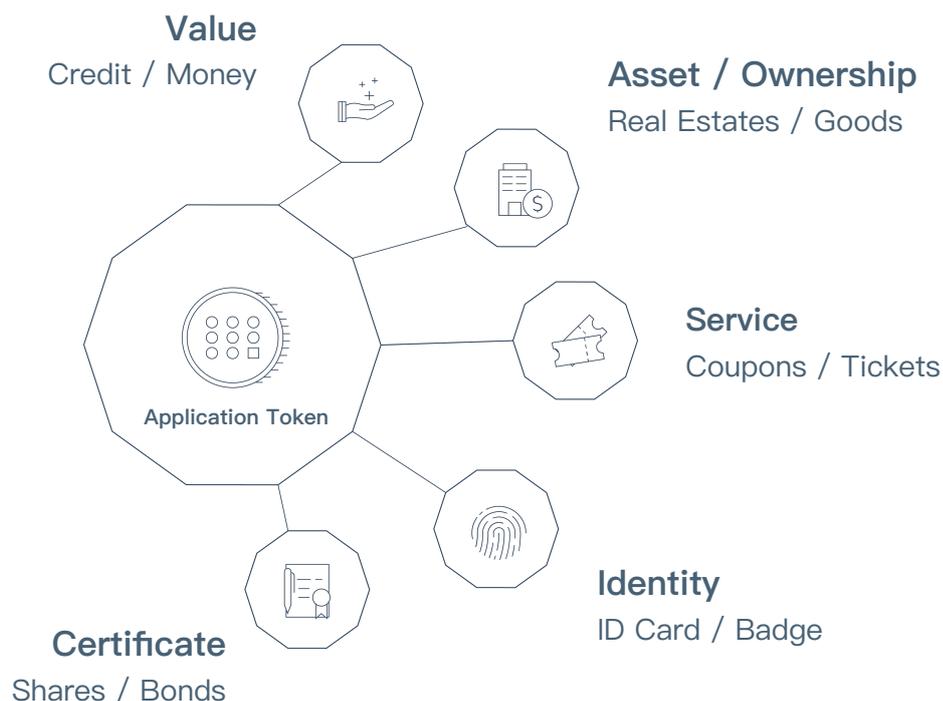
## Application Token Standard

Token is normally regarded as value or information carriers, such as keys, stakes, proofs, etc., and applications ranging from games to finance require more complex application infrastructures. The Application Token Standard is the extension of Service-Friendly Token Standard, and both maintain the fundamental interaction standards of smart contracts. Besides, there are also additional functions such as "expiry time" and "burnability."

Through the increased benefits of these two functions, the liquidity limitations of business scenarios (such as expiration) and service triggering (such as voucher consumption) can be introduced into the Blockchain environment.

Its "burnability" function is primarily a set of mechanism to verify that the behaviour outside the Blockchain is justified and that the burning or additional functions of the token can be triggered if the conditions are met. Each token that is consumed on Blockchain can have a unique "Challenge Code", allowing the enterprises to confirm the purpose of the consumption outside the chain so that existing business logic outside the chain can be easily cascaded, to bring the physical meaning outside the chain into the chain, but also to help the chain to verify the consumption that occurred outside the chain.

Starting from the token economics, enterprises can use the Challenge Code and available tokens for consumption off Blockchain to assist the real world with the verification of data corresponding to the Blockchain. It can be regarded as a sub-ledger of the Service-Friendly Token Standard. It can flexibly carry the business applications and requirements of the enterprise and transform a larger amount of key information into another form of value. Through the use of the token transfer, the on-chain ecosystem is achieved, and at the same time establishes a better on-chain and off-chain communication.



# Token Model (Funder Smart Token , FST)

What makes FST Network unique is more than its set of API or smart contracts that can be bundled as outsourcing solutions , the differentiation is the flexible, easy-to-operate service ecosystem for any enterprise and outstanding end-user experience. It will have a vital role in this technology ecosystem, besides being the payment medium for the use of modules in enterprises, it also drives the fuel cost of services provided within Tokeneden.

Moreover, through Relay Network framework and cross-chain transactions, in the case where an enterprise node or any third party node is required to perform verification, FST will be the staking mechanism to preserve the stability of the ecosystem.

## Token Utility

FST is a designated utility token that is compatible with Ethereum ERC-20 standard, developed and optimised by FST Network. FST is designed to operate under a diverse range of scenarios, with the primary function being the exclusive payment media for using FST Network module. The FST gives the holder the right to use FST Network services and also allows the holder to participate in the ecosystem operations.



### ► License Fee

In exchange for licensing to use the APIs and ABI modules provided by FST Network. The license fee has two different usage scenarios:

1. One-time consumption in exchange for "consumption voucher" that Blockchain can be positioned for one-time verification.
2. One-time consumption in exchange for "repetitive voucher" can be positioned for repeated verification on Blockchain within the stipulated timeframe.



### ► Gas Fee

The execution fee required to drive the module, which is valued and charged by FST Service Gas. (FST Service Gas is obtained by FST top-up)



### ► Stake

As a qualification for the various nodes in FST Network ecosystem (running software becomes the node for double-layer mining) and a guarantee for executing the escrow box modules.

## Token Distribution

FST will maintain the stable development of FST Network with the following form:

30% of total FST token supply will be released to the market through private placement, enabled more participants can get the best user–experience of every optimised projects offer in the FST Network platform. The rest of the tokens will gradually be released to support the continuous expansion of the entire ecosystem.

35% will be used as a reward to FST Network participants and attract more participants, 15% will be retained for further cooperation with large projects such as smart cities, and the final 20% portion is locked. It will be released annually to core team members, team advisors and as employee incentives

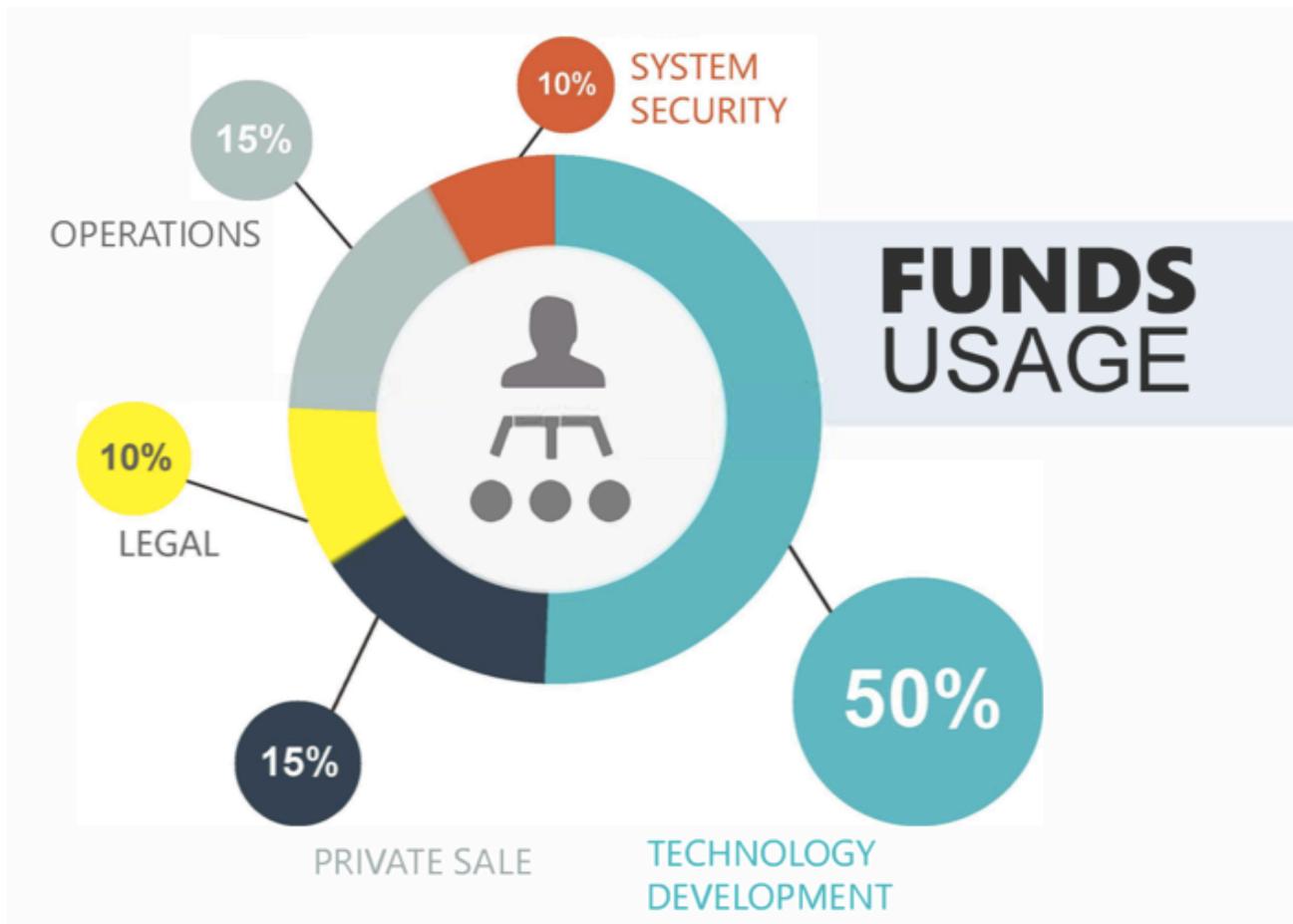


## Fund Usage

FST Token Economic Model is focused on maintaining the stable development of FST Network in the following form:

50% will be used to optimise and maintain the stability of the technical architecture of FST Network. Technically, we will replicate the module factory on other major Blockchains (EOS, RSK) and continue to develop our friendly environment and standards, as well as softwarisation such as optimisation protocols and service products, so that participants can easily adapt Blockchain technology.

The remaining 15% allocated for the further expansion of FST Network and its ecosystem, including the creation and support of strategic alliances and promotional efforts; 10% will be utilised to apply for technology patents, complying to legal process to support the growth of ecosystem based on each country's regulations; 15% will be used to maintain team operations and market expansion, and the final 10% is for improving system security and code auditing.

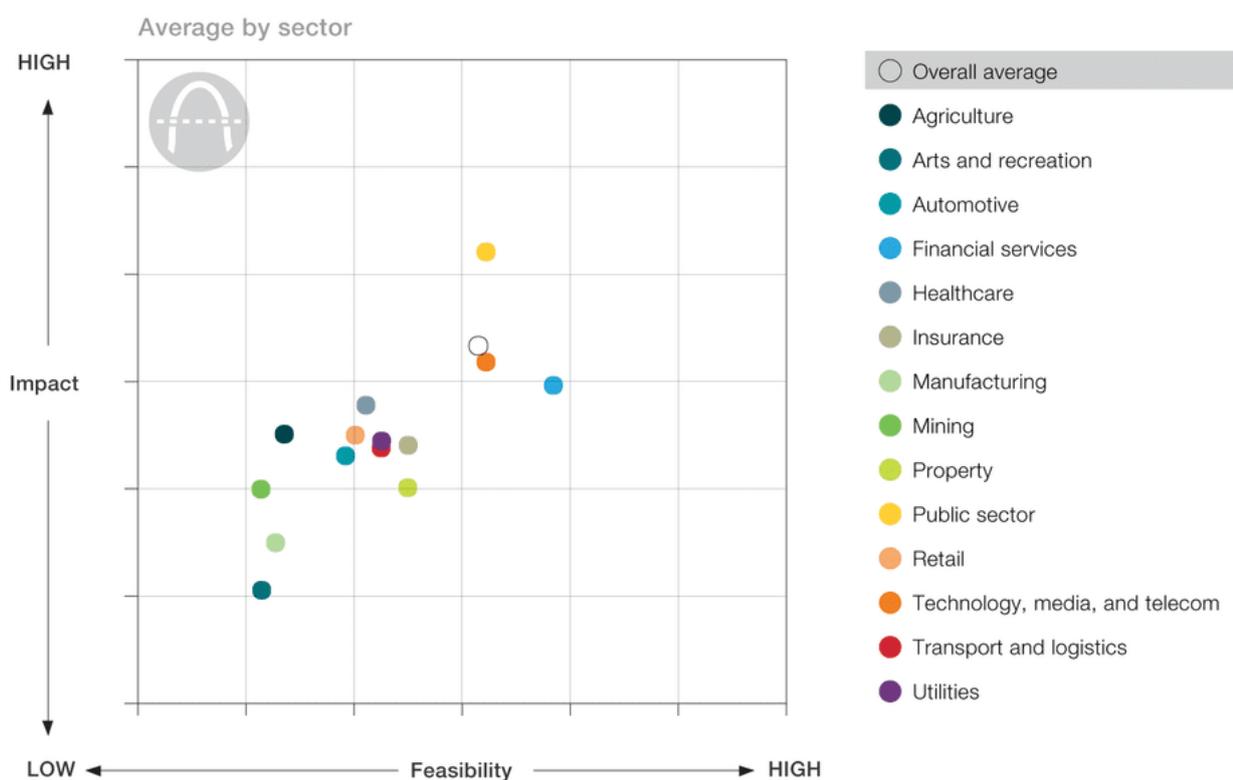


# Future Development

## Market Application

In general, enterprises need to write a smart contract or mobilise a considerable amount of labour and costs to adopt Blockchain technology. FST Network looks to solve these issues.

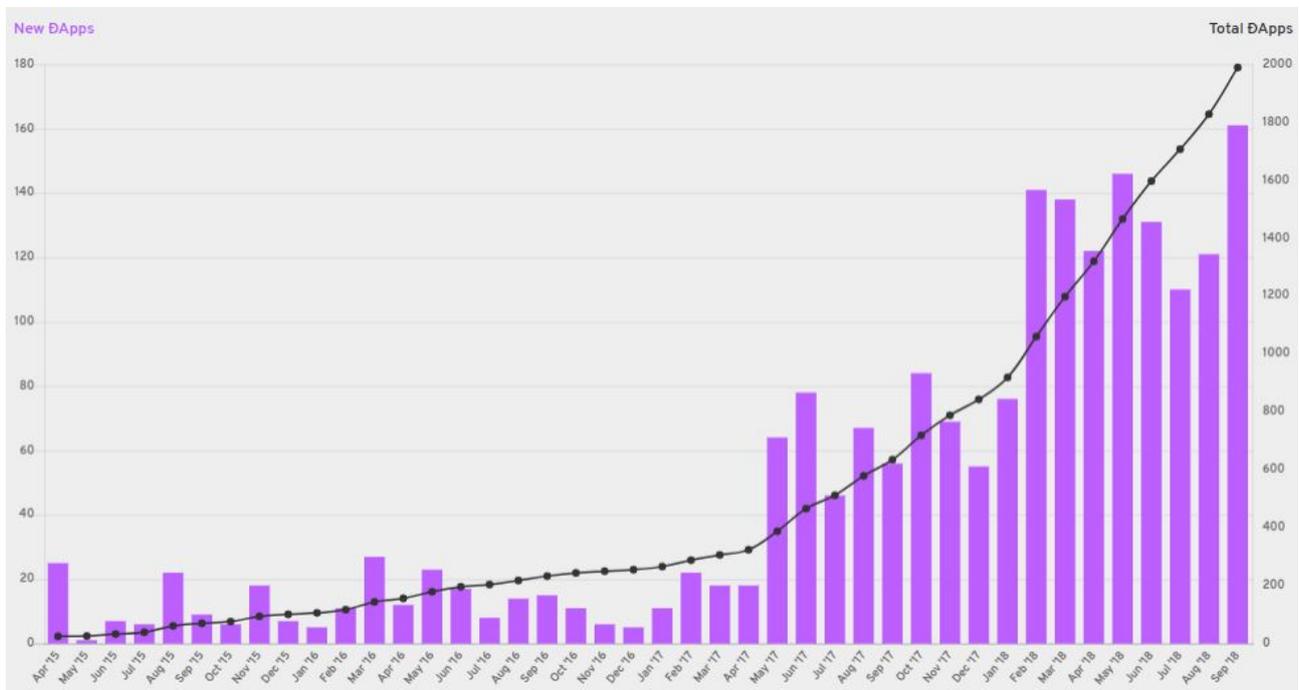
### Traditional application development



In such an environment, FST Network provides modular APIs and smart contracts that enable business owners to choose the appropriate modules for their specific needs, providing enterprises with a flexible, low-threshold and low-cost solution, and seamlessly connecting legacy applications to a new world of decentralised server-less Blockchains.

Whether it is tokenisation, DApp development, data exchange, or even AI, IoT to create supply chain, industry 4.0 or other application requirements, these can be comfortably developed through FST Network modules. We will see the actual adoption of Blockchain in the next three to five years. The global IT development expenditure is about 4 trillion US dollars. As the payment medium in the FST Network ecosystem, the demand of FST will also be riding on this mass adoption of Blockchain technology.

## Module Compatibility and Cross-Chain Applications



*The total number of DApps has increased from 25 in April 2017 to over 2,000 currently. This is an 80 times increase.*

The number of DApps developed in April 2017 was 25, and the number of DApps developed in September 2018 was 161, an increase of more than 600%. The total number of DApps has also risen from the 25 in April 2017 to more than 2,000 now, growing more than 80 times. In the future, enterprises that launch applications through the decentralised Blockchain will grow exponentially, and a large number of developers will gather to develop DApps. Excellent DApps can attract more users to complete the entire ecosystem, which means the future market possibility is brighter. FST Network's service needs have increased, and FST is required in order to enjoy the functions brought by FST Network, so that the demand of FST will rise synchronously.

The issues of specialised smart contract development language and incompatibility with existing enterprise software architecture have become an obstacle to the operation of enterprises and Blockchain. In addition, the hard fork caused by the non-scalable nature of the Blockchain makes it necessary for enterprises to make adjustments to upgrade on Blockchain, and the application flexibility is insufficient. In the future, FST Network will stand on shoulders of mainstream public Blockchains, provide technical services for enterprise users, assist enterprises to connect with Blockchains, and solve application flexibility problems, helping enterprises to create their own decentralised applications.

## Use Case

### Hospitality Ticketing System (Tokeneden)

In response to the hotel reservation ticketing system, the Japan Hotel Industry Group adopted a Blockchain smart contract to integrate its inventory management system, reducing the risk cost by about 20% and creating and optimising a new form of secondary ticket market that significantly enhances the liquidity.

The hotel will create a ticket corresponding to each room for sale. It will be recorded on the smart contract & Blockchain and will no longer accept booking refunds. The hotel reduces the cost of inventory management and can set a price that is more advantageous than its competitors. Customers can also freely trade the right to use the room in the secondary market and bid for hot spots.

### Gold Certificate Exchange (SHeX)

Gold and precious metals certificate has reduced transaction risk and processing flow through smart contracts, and increased asset liquidity through the characteristics of the Blockchain. Thereby it reduces the control costs within existing exchanges and lowers the usage threshold to optimise the user experience.

The trading platform publishes digital certificates on Blockchain based on 1 gram of gold stored in each batch of vaults. The ownership exchange and historical records are protected by smart contracts. Platform users can invest without holding real gold. In addition, the peer-to-peer transaction spans geographical restrictions, which greatly increases the liquidity of certificates.

### Smart city infrastructure (EnSo)

The Smart City concept embodies the integration of urban systems, improving asset and resource management through IoT devices to sense, monitor and collect data through secure networks. Firstly, digital identity is defined under the Blockchain protocol, and data accessibility, accountability, and authenticity can be reliably observed.

All data that are reflected and transmitted between devices are connected to the security infrastructure through IoT technology, thereby eliminating misbehaviour of unauthorised party and machine, effectively monitoring and collecting data. Finally, overall governance can be achieved by managing and organising the network as a unified system with a clear data structure.

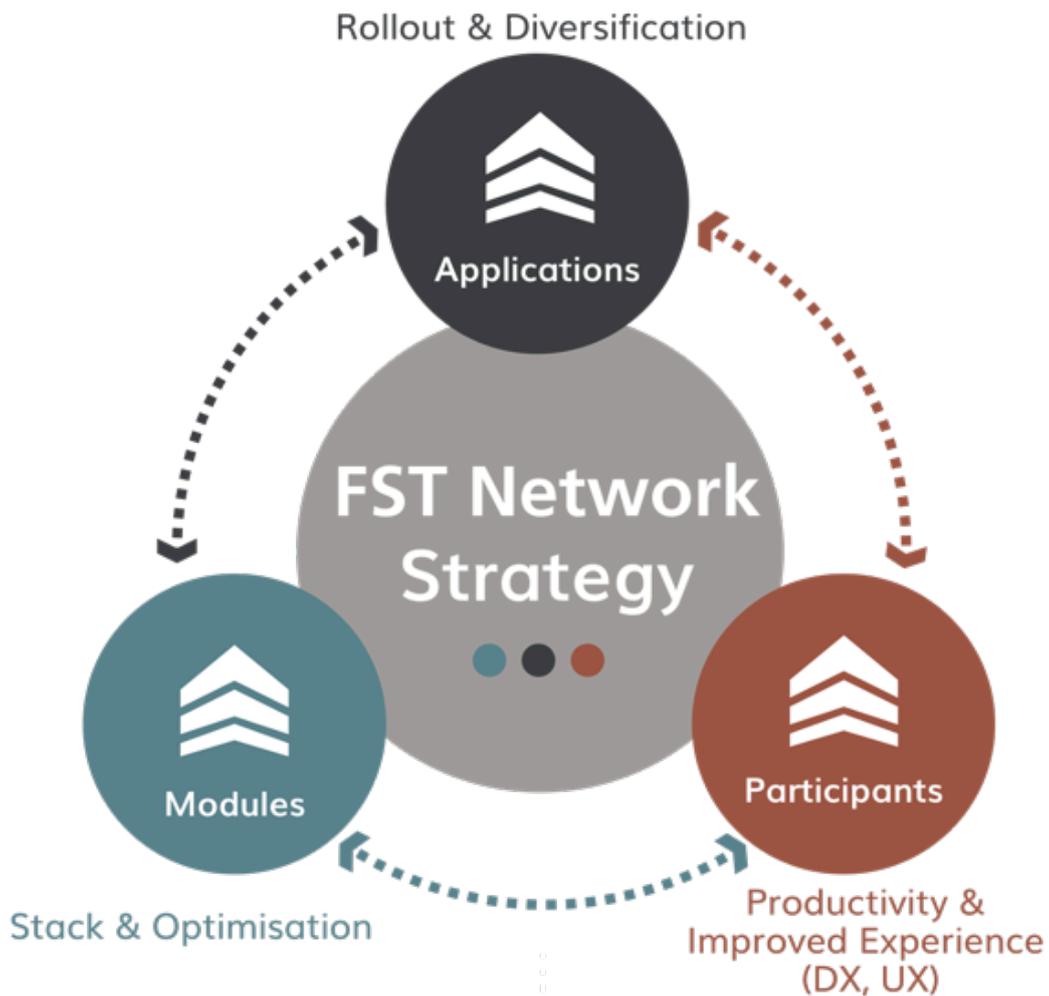
Through the multi-centred structure of Blockchain, the data and individual capital in the city are validated and exchanged effectively and quickly, and all forms of value and value flows can be clearly recorded or transmitted through reliable smart contract modules. The form of each central DPoA maintains a stable urban network. FST Network's enterprise solution builds permission Blockchain solution for projects such as smart cities or the Internet of Things through the deployment of consensus and provides a robust infrastructure reinforced with FST Network's modules

# Strategy

With aims to accelerating Blockchain evolution, FST Network addresses the technical blockades and dilemmas for companies and developers by providing modules and optimisation protocols and standards to drive adoption of commercial applications.

With the ever-increasing availability of applications, market demand will continue to catch up to the trend, and we will continue to stack and optimise modules to meet these needs, attract more participants to boost application capacity, optimise developer & user experience and attain diversification. These would again attract more newcomers to participate as end-users of service nodes or application services in the ecosystem. Through this flourishing cycle, FST Network continues to expand its ecosystem, increasing the number of modules, applications, and participants and a huge ecosystem.

Additionally, FST Network is based on most Blockchain protocols at the level of smart contracts that can integrate seamlessly with past, present, and future Blockchain participants in multiple scenarios.



## Vision of FST Network

Before the invention of Internet, data and information have always been the cornerstone for any infrastructural design, impacting the progression of science, society, and country level developments. 30 years ago, due to the hardware restriction and limitation, the key of data transmission was focusing on the 'delivery of the information'. However, with the evolution of hardware's capacity, the risk of data delivery has been minimised or eliminated. The focus is now not just on delivering but also on data management, accountability and privacy. In order to attend these goals, the Blockchain solution is an essential technology and will be the core of the new Internet.

However, with the existing social structures, traditional servers and databases are still in use and there could still be pen and pencil records in an organisation. Hence, due to these legacy factors, it is almost unrealistic and extremely challenging for an existing firm to adopt Blockchain or distributed ledger technology solutions from scratch. In order to provide an path, FST Network has built a Blockchain solution with the concept of modularisation and created a third layer to connect with existing corporate application with minimal cost, more logical and stabilised development framework.

Our first mission is to remove the problem of lacking Blockchain developer and increase the utilisation of Blockchain technology. The solution is more direct and easier for corporates to adopt and understand. This will reduce the significant cost and lower the barrier for adoption. FST Network will provide an infrastructural protocol and network for clients that they will feel easy to use and easily to visualise how to adopt the technology.

With the modularised FST Network becomes easier to use and more approachable, our clients will be able to provide better and flexible Blockchain based services. As time goes by, more business starts to adopt FST Network, e.g. Financial Services, Manufacture, Retail, Government, and etc, and adopting the blockchain. The ecosystem will become much more mature and just like the Internet today. It is everywhere! Fast-forward a few more years when Blockchain becomes prominent and mature technology, the FST Network will finally become a mature environment and more technologies can be integrated, e.g. IoT, Artificial Intelligence and Deep Learning. It is from then Blockchain will become the current world-wide web is able to change the valued individuals, societies, and smart cities.

**In short, the FST Network will continue to create more module based on market needs and we have also revolutionary products to enhance users experience. With the growth of enterprise users from all over the world, the FST Network ecosystem will bring endless imagination to the world, allowing industries, enterprises and communities to have their own chains, consensus, smart contracts and tokens that meet their specific needs, and will be able to communicate with each other at any time to achieve intelligent society and life.**

# Reference

## Roadmap

	Module Development	Products	Infrastructure
2017 Q2			<input type="checkbox"/> Module Conceptualisation
2017 Q3	<input type="checkbox"/> Basic Token	<input type="checkbox"/> Module Kits	<input type="checkbox"/> Module Infrastructure
2017 Q4	<input type="checkbox"/> Sub-token <input type="checkbox"/> Airdrop <input type="checkbox"/> Campaign		
2018 Q1	<input type="checkbox"/> Improved Token	<input type="checkbox"/> Tokeneden Beta Release	
2018 Q2	<input type="checkbox"/> Web Wallet	<input type="checkbox"/> Tokenden Official Release	
2018 Q3	<input type="checkbox"/> Escrow Box Swap <input type="checkbox"/> Time-lock Campaign <input type="checkbox"/> Improved Airdrop		<input type="checkbox"/> 12 Tech Infra <input type="checkbox"/> Service-Friendly Token Standard (ERC-1376)
2018 Q4	<input type="checkbox"/> Non-fungible Token (ERC-721 ) <input type="checkbox"/> Mobile Wallet		<input type="checkbox"/> Application Token Standard <input type="checkbox"/> Relay Network Light Paper <input type="checkbox"/> Relay Network Beta Release
2019 Q1	<input type="checkbox"/> Cross-chain Escrow Box		<input type="checkbox"/> Relay Network Official Release <input type="checkbox"/> Order-matching Network
2019 Q2	<input type="checkbox"/> Multi-sig Wallet	<input type="checkbox"/> Super Hybrid Exchange White Label (SHeX)	<input type="checkbox"/> Cross-chain Network <input type="checkbox"/> EOS Module Deployment
2019 Q3		<input type="checkbox"/> Enterprise Solution (EnSo)	<input type="checkbox"/> RSK Module Kits Deployment
2019 Q4		<input type="checkbox"/> City Chain	

## Team



Jack Chu / CEO, Founder

Jack founded a London Tech Start-up for ICT project optimisation through the proprietary algorithm in deep learning. Engaging in many tech-service companies, he offered system architecture for projects to become feasible in delivery and business operations.



Noel Bao / CTO, Co-Founder

Noel has been a lead developer from one of big four and helped a listed insurance company to develop Blockchain applications. With over 10 years of coding experience, he is an Ethereum and Smart Contract Pioneer in Taiwan.



Darren Goh / CMO, Co-Founder

Darren has managed, strategised, distributed content, secured business opportunities and developed marketing campaigns for several start-ups in APAC community with venture capitals.



Leo Chou / COO, Co-Founder

Leo has worked in a London-based VR/AR game company for effect testing and prototype integration from planning, initiating to coding. He has experience in business IT solutions for Taiwanese art company and specialises in UX integration and is a full-stack DevOps developer.



Atkins Chang / CIO, Co-Founder

Atkins has delivered development services of Elastic search to companies in China and US and advanced Facebook crawler for marketing and trend analytics. He specialises in Spark, Hadoop, data warehouse and machine learning, with experience in Play Lab, Akka, Slick, High concurrent infrastructure.