Decentralized Asset Management System

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Prelude

This whitepaper describes Phase-1, the first part of the Crepe project. The subsequent part will be released when we implement the real-world assets (RWAs) and incorporate AI that will be developed later.

Executive Summary

CREPE is a Decentralized Asset Management System (DeAMS) designed to manage all assets on the planet, including Real-World Assets (RWAs) and Virtual Assets. This system allows both financial experts and the laypersons alike, regardless of their technical understanding of blockchain or web 3.0, to accommodate, tokenize, and manage all assets in baskets.

The system enables users to prove the authenticity of assets through Proof of Reserve (PoR) and interlink different types of assets using protocols like the Cross-chain Interoperability Protocol (CCIP). It also provides an ecosystem where anyone can operate tokenized assets through smart contracts. Thus, users in this system can combine assets into one basket and manage or operate them as prosumers in a decentralized web 3.0 ecosystem.

The asset management engine of this system, known as **PaaM™**, is comprised of the following three component platforms:

- multiple asset management strategies. Especially, financial experts can create and sell innovative financial products equipped with strategies through a few simple clicks, without needing a deep technical understanding of smart contracts.
- "One-click" Activity Platform: This platform enables financial experts to create asset management baskets wiAsset Tokenization Platform: This platform allows RWAs to be accepted and tokenized as assets in the Cryptoverse. It uses PoR to prove the existence of assets and CCIP to enable cross-chain asset interoperability.
- Strategy Creation Platform: This platform provides a makerspace where financial experts can easily use th innovative strategies and mint tokens, which ordinary users can buy or sell with just one click.

The **Crepe** system has the following features.

CREPE is **a decentralized asset management system (DeAMS)**. It resolves the inconvenience of managing and operating fragmented blockchain assets and extends to tokenizing and integrating real-world assets for easier management. Even users with limited blockchain and smart contract knowledge can easily adopt and implement management strategies with a few clicks, including historically practical and theoretically proven strategies from the traditional financial market.

CREPE is **a creation system** for asset management professionals to tokenize all assets and apply their strategies. It expands the virtual asset market, allowing tokenization and issuance of not only blockchain native assets but also traditional financial market and real-world assets. Financial and asset management experts can combine various assets and apply their strategies on them.

CREPE operates on **a web 3.0 collaboration ecosystem** driven by protocol economics. It ensures a decentralized collaboration ecosystem where individual contracts and transactions are executed through smart contracts. The system introduces a Non-Transferable Reputation Token (NTRT), the Soulbound Token, to manage users' reputations, fostering efficient collaboration and collective intelligence among users.

CREPE is **a sustainable ecosystem**. In the theory of Mechanism Design in the cryptocurrency ecosystem, it's crucial to design for sustained incentive compatibility, encouraging voluntary participation. This system is designed to learn and measure each member's activity and contribution within the community, providing monetary and non-monetary incentives accordingly, thereby naturally fostering a sustainable ecosystem.

1. Introduction

1) Decentralized Asset Management System

The Crepe System (https://crepe.fund) is a DeFi platform for real-world assets (RWAs) and virtual assets (VAs). Unlike other DeFi platforms that primarily use RWAs and VAs as collateral, the Crepe System is designed to employ them as investment instruments. This system operates as a decentralized asset management system (DeAMS). While traditional financial markets manage assets through securities such as stocks and bonds, and derivatives like futures and options, the Crepe System manages both RWAs and VAs as a decentralized asset management system.

Recently, one of the world's largest asset management companies in the traditional financial market, BlackRock, requested approval from the U.S. Securities and Exchange Commission (US SEC) for a Bitcoin ETF (Exchange Traded Fund). This type of asset management is a prime example of listing cryptocurrency assets like Bitcoin on traditional financial market exchanges. CREPE, on the other hand, takes an exact opposite approach to traditional financial ETFs and has designed a service product called CrW™. CREPE's CrW™ enables the tokenization of all valuable assets and allows users to manage and trade them in baskets.

Our vision goes further, aiming to tokenize not only assets in the traditional financial market but all assets that exist in the world. This includes non-traditional assets like real estate, carbon credits, RA-100, and others, making them tradeable in the crypto market. Financial professionals with creative ideas can use these various assets to create their unique strategies in basket-type products, implementing and tokenizing them as web 3.0 products for sale. Lastly but not leastly, it is a system where ordinary users can simply click to manage or trade tokens created by financial experts encompassing both traditional and non-traditional assets.

2) Makerspaces for Financial Product Creation

CREPE provides Makerspaces, creative spaces where anyone can become a creator and design financial products, operate funds for themselves, or release them as products for general users. CREPE aspires to be “the makerspace” of the crypto industry, offering a platform for creation and distribution where not only blockchain-native virtual assets but also all physical and futures assets traded in the legacy financial market can be issued, combined, and synthesized on the blockchain, along with designing their asset management strategies.

3) Features of the Crepe System

Crepe, the decentralized asset management system has the following features:.

First, it fuses the advantages of traditional finance with those of crypto finance.

This system effectively bridges the gap between traditional finance and crypto finance, leveraging the unique strengths of each sector. It integrates financial product techniques typically exclusive to traditional finance, such as ETFs (Exchange Traded Funds) and DI (Direct Indexing), into the realm of blockchain financial products. Additionally, it incorporates concepts primarily active in crypto finance, like perpetual futures, further enriching the blockchain financial product landscape. From this approach, we have created platforms that enable users to adopt these methods and create a range of innovative products such as CrW (Crepe Work), CrD (Crepe Direct), and so on. This comprehensive integration not only broadens the spectrum of assets to include everything from traditional to crypto assets but also diversifies them, significantly reducing the intrinsic risks associated with asset management and investment..

Second, anyone can become a prosumer and design financial products.

The traditional financial system has been a one-directional, closed market where financial consumers and investors pay a certain fee to receive services. Realistically, only a few businesses licensed by regulatory authorities benefited from this closed market. However, in the decentralized crypto financial market, the exclusion of traditional institutions has opened new opportunities for financial consumers and individual investors in areas such as liquidity supply, product composition and sales, and risk management. Yet, for laypersons lacking expertise, it is nearly impossible to use smart contracts to create financial products and become providers of various services. This system is equipped with easy-to-use tools, enabling anyone to produce, supply, and consume financial products, thereby becoming prosumers.

Third, a one-stop financial product design is possible by integrating on/off-chain assets and non-blockchain assets.

Creating financial products with cryptocurrency can be challenging due to the complex nature of the ecosystem. Here's why:

Different cryptocurrencies operate on various blockchain networks, which often aren't compatible with each other. This means you need multiple wallets, one for each network, along with a set of unique passwords and seed phrases to manage. This complexity can put users at risk of significant asset losses.

Additionally, even when cryptocurrencies are compatible, the process to integrate them can be costly, time-consuming, and risky. Often, it involves using third-party bridging services, which adds another layer of complexity.

To summarize, Crepe is a decentralized asset management system capable of configuring, investing in, and managing asset portfolios. This includes assets and rights traded across multiple chains and markets.

As shown in the service configuration diagram below, anyone in Crepe can become an investor or user, consuming financial products. Furthermore, Crepe encompasses even non-blockchain assets, providing accessibility and enabling anyone to design, supply, and sell asset baskets as products, easily becoming managers, suppliers, and sellers.

Figure 1. Service Diagram

2. Problems in DeFi and the Solutions

"Why Rapid Growth Kills Small Businesses"

Eric George, Ph. D.

In an article titled above, Dr. Eric George, a council member of Forbes magazine, asserts that the problem in the startup business is rapid growth, not pitch decks or founder/investor inspiration.[3] Because fast growth destroys business. DeFi showed rapid growth in 2020 after AAVE and BANCOR were introduced in 2017, and TVL (Total Value Locked) started from U$200,000 in December 2018 and recorded U$20 billion in May 2021. It surprised everyone by growing 1.25 million times to U$250 billion in December 2021 (see Figure 2 below). Unfortunately, however, it has grown without a sufficient foundation for it.

As a result, hackers and spammers are rising, and the cryptocurrency industry is becoming a hotbed for large-scale hacking and other crimes. According to REKT data, in 2021 alone, about 600 projects were hacked and suffered financial losses of U$2.2 billion. Compared to 2020, the number of projects suffering from hacking attacks increased about four times, and the financial loss increased about ten times. In the end, for these reasons, virtual assets were classified as risky, and problems occurred, such as not being able to form long-term diversified investment financial products for the general public and not being able to expand their sales. Although the crypto market has grown and expanded, the foundation has advanced little.

Based on the recognition of the issues in the blockchain industry, particularly what the DeFi market users are experiencing, we may categorize them into three;

(1) Disconnection from legacy finance and fragmentation of the blockchain ecosystem
(2) Immature decentralization
(3) Investment risk that is difficult to manage

We at Crepe Inc. believe that if one can solve the above, cryptocurrencies can become manageable assets that can be constructed and sold as long-term diversified financial products for the general public.

1) Disconnection from legacy finance and fragmentation of the blockchain ecosystem

Blockchain and DeFi are plagued by numerous serious issues. Among these, the most well-known is the 'trilemma' involving scalability, security, and decentralization. Many developers are actively trying to resolve these challenges.

However, we at Crepe believe there exists a problem even more critical than the trilemma. It is the market fragmentation and ecosystem fragmentation, caused by the incompatibility of blockchain systems, which occur both voluntarily and involuntarily.

For example, if a user wants to supply liquidity to Mango Market on the Solana network while also investing in the Polygon market, managing assets across these two chains can be inconvenient and complex. It requires high-cost workaround solutions..

Although the DeFi market shows outward growth, the ecosystem has not grown as much as it should have because of ecosystem fragmentation. As a result, the risks are being amplified and expanded excessively. Among them, What we at Crepe attempt to solve may be summarized as the problem of three disconnections.

Disconnection of assets not existing on the same chain: In many cases, because blockchains are incompatible, it is difficult for investors to mix assets on different chains in a portfolio and manage. Investors should carry different wallets for almost every chain and remember different ways to log in. Users often run into the problem of having to record and keep a different seed for each wallet.

Disconnection of assets not existing on the blockchain: Currently, most real assets are not issued on the blockchain and cannot be configured and managed in a portfolio. Investors wishing to implement an asset hedging strategy want to easily invest and manage all tradable assets in the market beyond legacy financial assets on one platform.

Disconnection from the legacy financial investment strategies: In the legacy financial markets, many hedging strategies and investment theories have evolved through numerous scholars' research and investors' experiences. DeFi, invented by the crypto industry, is a new product, and it is clear that it has developed a new financial system. However, one could not manage the risks as well as one should because the wisdom from experience could not be transcended and translated well.

Points for Solutions

It is necessary to find a way to connect and bundle as many types of assets as possible within a single gigantic ecosystem. In other words, users must invest, manage, and trade the assets in multiple chains on the platform supporting the ecosystem, even those in the non-blockchain markets on Earth. It should also offer users access to legacy financial investment products such as ETF (Exchange Traded Fund), Direct Indexing, etc. It enables users to adopt those various strategies.

Therefore, building a single gigantic ecosystem through tokenizing, integrating, and connecting all possible assets and strategies is necessary. To make the ecosystem comprehensive and inclusive, we must understand the types of assets to be tokenized. Assets may be classified in a few different ways as follows:

- Assets may be classified by blockchain or not.

    a. Blockchain Assets

    - Same-chain assets (on-chain assets): Assets that can be traded on-chain without custody
    - Heterogeneous chain assets (off-chain assets): Assets that can be traded on-chain only by using custody or bridge services

    b. Non-Blockchain Assets

    - Non-blockchain exchange-regulated assets: Assets that are listed following the rules of legacy financial exchanges and transaction information which are provided by oracle data services

    - Non-blockchain non-exchange regulated assets: Unlisted assets or deeds of right that are traded daily through markets or brokers in real life (e.g., unlisted real assets such as real estate, agricultural and fishery products, intermediate goods, or deeds of rights such as corporate bonds, leases, copyrights, and bills of lading)

- Tokens issued based on non-blockchain assets can be classified according to the presence of custody, type of collateral, and collateral verification method.

    a. Classification by entrusted or not

    - Data Token: Virtual Matrix Token issued based on (Oracle) data without custodial assets

    - Custody Asset Token: Token issued based on assets entrusted to the custodial institution

    b. Classification by type of collaterals

    - In-kind Asset Custody Token: Token issued by custody of non-blockchain assets that match one on one

    - Heterogeneous Collateralized Custodial Token: Token issued by collateral with an on-chain asset that will preserve the value of the token underlying a non-blockchain asset

    c. Classification according to the collateral verification method

    - Oracle Auditor Verification: A method of verifying custodial assets through the auditor nodes of oracle services

    - Trusted DAO Auditor Verification: DAO auditor's periodic verification/reporting method for non-blockchain trusted assets

Building an ecosystem that comprehensively encompasses all the aforementioned assets is ideal. Therefore, the supporting system should incorporate all assets as on-chain tokens, categorized according to the classifications. This will enable users to implement various management strategies on these tokens and receive incentives based on their operational performance.

2) Immature decentralization

With blockchain technology, the need for centralized third-party intervention is disrupted, leading to shifts in wealth distribution. Particularly, DeFi's tendency to offer higher interest rates than traditional finance is appealing. However, DeFi is not only susceptible to attacks such as hacking but also exposes investors to significant risks. This is because there is no system like the FDIC in the USA, which insures deposits and oversees financial institutions for safety, soundness, and customer protection. In recent years, many DeFi platforms have lured participants with excessively high interest rates, creating a misconception that ultra-high interest rates are a norm in DeFi. Unfortunately, as the Terra/Luna crisis demonstrated, services offering such high rates often lead to Ponzi schemes.

In traditional finance, big financial corporations design and market financial products, with the end consumer being merely a passive target of sales. However, DeFi requires individuals to shift from passive consumption to active participation and ownership. DeFi participants are expected to play an active role in maximizing profits and minimizing risks, in contrast to the passive role typical in traditional finance. This means that DeFi users must alter their perceptions and make efforts to diversify risks and optimize profits by building their portfolios. Yet, few DeFi platforms offer users the means and opportunities for active participation. Some even restrict user access, similar to traditional finance systems.

Points for Solutions

The shift in the ownership of financial products requires a paradigm shift from legacy centralized services to decentralized services. In other words, DeFi designers must

(1) recognize that each participant is an owner and a stakeholder,
(2) increase the access to facilitate user participation;
(3) allow participants to seek to maximize profits actively
(4) allow participants to choose the risk to take at their own discretion

Unfortunately, CeFi (Centralized Finance) and many DeFi services are immersed in the traditional service paradigm and remain unchanged. A paradigm shift is necessary to allow users to decide what to do with their own assets and employ various management strategies that may exist in both legacy and crypto finance.

3) Investment risk that is difficult to manage

The high risk in the cryptocurrency market is caused by many inherent reasons, such as rapid price volatility, technical complexity, hacking and spamming, and program errors (or malicious code) in smart contracts. In addition, external factors such as rug-pull, pump-and-dump, and Ponzi scams arise from the lack of a system that includes legal regulations that can block crimes and fraud.

a. Risks in Decentralized Finance: According to CME, price discovery is defined as the act of setting a price for an asset.[4] The cryptocurrency market exhibits sharp price volatility compared to other asset markets. The market is immature, and the price discovery function works inefficiently. The problem is that not many techniques to hedge this have been introduced, and even if they are, it is not easy to use due to the disconnection between the blockchain networks.

b. Technical risks: Due to the complexity of blockchain technology, it is difficult for average users to understand the contents of the technology described in the whitepapers. Moreover, programming errors or malicious code that may exist in smart contracts can only be detected at the level of professional experts. Similarly, knowing the potential of hacking attacks and spammings is almost impossible at the layman's level. The public needs to be protected by insulation from potential technical risks. In other words, we need a service that allows the public to be freed from technical risks and to hedge from financial risks as much as possible.

c. Risks of the Reputation-less System: Although the decentralized market has the advantage that anyone may conduct trustless transactions, criminals and groups who want to gain illegal profits through anonymous transactions have emerged. A system is needed to prevent such crimes from occurring in advance.

Points for Solutions

a. Solutions to the risks of decentralized finance: There is a need to actively adopt hedge techniques and theories from traditional financial markets. Due to the fragmentation of many DeFi services across disconnected blockchain networks, even experts face significant difficulties in using these services to hedge risks. Therefore, by providing a system that can connect and integrate assets across different blockchains and even non-blockchain assets, this issue will be addressed.

b. Solutions to technical risks: Among the above risks, those that ordinary people cannot solve are probably technical problems. It is difficult for financial experts or ordinary people to understand technical problems that only professional programmers can understand, and it is even more difficult to understand smart contracts. Furthermore, it is virtually impossible to find and avoid the risk of malicious code that may be inherent there. Therefore, there is a need for a platform that provides a device that protects general users from technical risks.

c. Solutions to the risks of a reputation-less environment: A system is required to filter and block criminal attempts within a decentralized and third-party non-intrusive environment. Although blockchain systems are decentralized and guarantee trustless transactions, it is still vital for transaction parties on the blockchain to have evidence that their counterpart is not a hacker, spammer, or criminal. This calls for the introduction of customer due diligence (KYC) and anti-money laundering (AML) mechanisms in decentralized blockchain networks, akin to the reputation management systems provided by traditional systems. In other words, while preserving the advantages of a decentralized system by blocking or protecting personal information, it is also about transparently profiling and displaying reputation and past performance. It involves showing the expertise and performance of individuals with special expertise on the blockchain, irreversibly connected to decentralized IDs and contextual data, thereby enabling the identification of accomplishments.

4) Summary

In conclusion, virtual assets are currently classified as high-risk assets due to problems such as disconnection from legacy finance (esp. fiat currency touch points) and fragmentation of the blockchain ecosystem, immature decentralization, and investment risk that is difficult to manage. In order for virtual assets to be constructed and sold as long-term diversified investment financial products for the general public, a solution that can make risk management a little easier is needed. To this end, we at Crepe propose the following measures.

First, as a way to realize the transfer of ownership, a space# where financial product makers can easily access smart contracts and users can easily design financial services, that is, multiple ‘Makerspaces’ must exist. In this makerspace, not only financial services for cryptocurrency but also various financial asset management strategies that exist in legacy finance should be selected and used. To this end, the makerspace needs to provide legacy financial service templates, including cryptocurrency, to makers. For example, makers must be able to compose and sell financial products such as ETF and direct indexing of legacy finance. In addition, it should be possible to select various on/off-chain assets and non-blockchain assets. Through this makerspace, anyone should be able to easily design, sell, and supply financial products made of smart contracts without exposure to technical risks.

Second, continuous 'risk profiling' for low-risk long-term diversified investment financial products such as crypto funds, long-term deposit products, and insurance, etc., created by makers, i.e., suppliers in the makerspace, by a decentralized entity that can replace the compliance role of legacy finance is needed. Through this, consumers must select risks and expected rates of return and implement them so that stable and safe consumption can be achieved. Likewise, a system that can easily calculate profits must exist for the makers, that is, the supplier side.

Third, there must exist a system that provides a platform where these products can be sold and provided with liquidity. This system not only leads a paradigm shift with decentralization, but the change should enable individual participants to actively decide on maximization and stabilization of profits as equity participants.

Fourth, there should be the ability to adopt and implement traditional financial regulatory systems. In particular, actively applying Decentralized KYC (Know Your Customer) and Decentralized AML (Anti-Money Laundering) is essential to minimize risks by ensuring regulatory compliance within the decentralized paradigm of blockchain.

Finally, as a decentralized asset management system, it needs to be designed to operate and optimize value creation in a decentralized environment, distinct from traditional asset management. The design should ensure that value generation is sustainable and permanent.

3. PaaM™: The Engine of Crepe System

PaaM™ (**P**lanetary **A**ugmented **A**sset **M**akerspace) is a one-click asset management system designed to solve the various problems pointed out in Chapter 2. This system provides the platforms of the following three layers.

a. Asset Tokenization Platform: This platform connects and tokenizes all assets existing in both the virtual assets ecosystem and the real-world ecosystem. Once tokenized, the assets will be managed and traded in the size of a basket, such as **CrW™** and **CrD™**, etc.

b. Strategy Creation Platform: Experts with unique ideas may use tokenized assets and construct a basket. Then they may add strategies (in the form of smart contracts using **ScoFact™**), create tokens, and run them to prove their ideas on the sandbox.

c. "One-click" Activity Platform: General users can review the performance of various strategies. Some strategies may be market-neutral, while others may not. Some may be aggressive, while others may not. Users can select tokens that align with their activity goals to pursue yield farming.

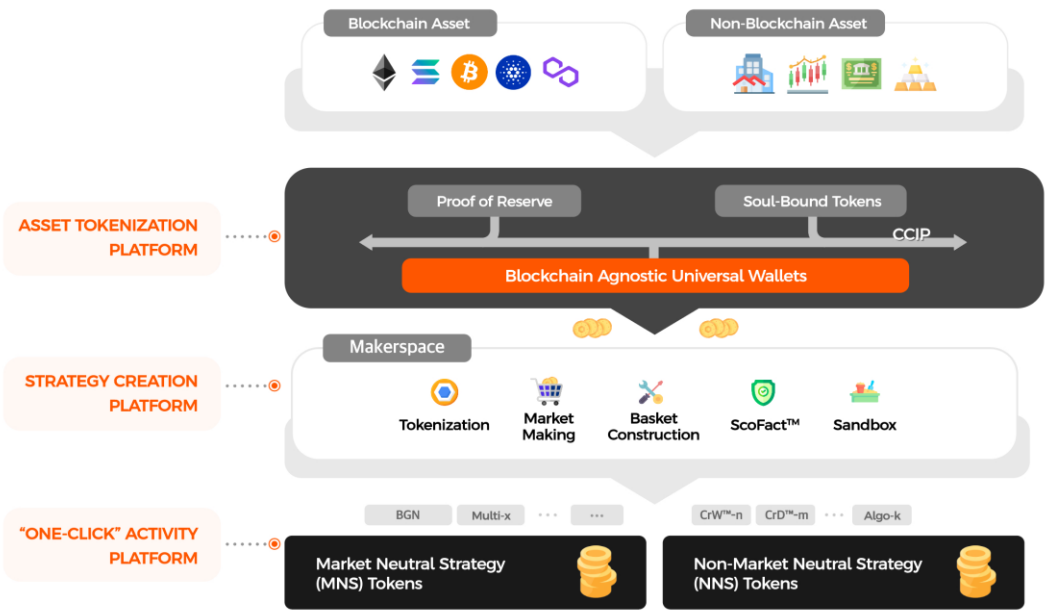


Figure 2. Crepe Asset Management System's Component and Concept Diagram

1) ScoFact™ (Smart Contract Factory Technology)

CREPE is equipped **ScoFact™**(**S**mart **Co**ntract **Fac**tory **T**echnology) for financial experts and laypersons who lack understanding in smart contract programming. **ScoFact™** is a technology that provides users with a standardized framework for smart contracts.

The framework offers numerous templates connected for designing financial products. Users of the makerspace, i.e., makers or creators, can use this framework to design financial products. With this framework technology, even those with no understanding of programming can develop and operate financial products based on smart contracts. **PaaM™** incorporates **ScoFact™** as its base technology, enabling financial experts and laypersons with little or no understanding of smart contracts to design financial products and create smart contracts with innovative strategies, simply using mouse clicks.

Moreover, **ScoFact™** minimizes the risks of technical hacking for makers by including proven UI/UX templates and specialized program modules for each product, utilizing a connected framework. By offering **ScoFact™**, **PaaM™** resolves the fragmentation issue mentioned earlier, lowers the risk of hacking, and provides a comprehensive platform that responds immediately to the globally changing regulatory environment.

ScoFact™ enables a multitude of generic services. That is, it has created a framework that can easily apply traditional financial services like ETFs and Direct Indexing. Thus, financial experts and laypersons can use the framework to design, launch, and sell these services themselves.

Furthermore, **PaaM™** allows users to tokenize not only non-blockchain assets but also imaginary assets that do not exist in reality. Therefore, PaaM™ offers a wide spectrum of asset choices encompassing on-chain/cross-chain assets and RWAs, enabling the creation of an ecosystem where planetary assets can be used as underlying assets for portfolios.

In summary, **PaaM™**, through **ScoFact™**, provides a system where:

(1) Users can design and develop their financial services;
(2) Users' ideas are actively incorporated;
(3) The composition of various services offered in traditional finance is made possible; and
(4) It is designed to allow financial experts lacking knowledge in smart contracts to develop products without exposure to the risk of hacking.

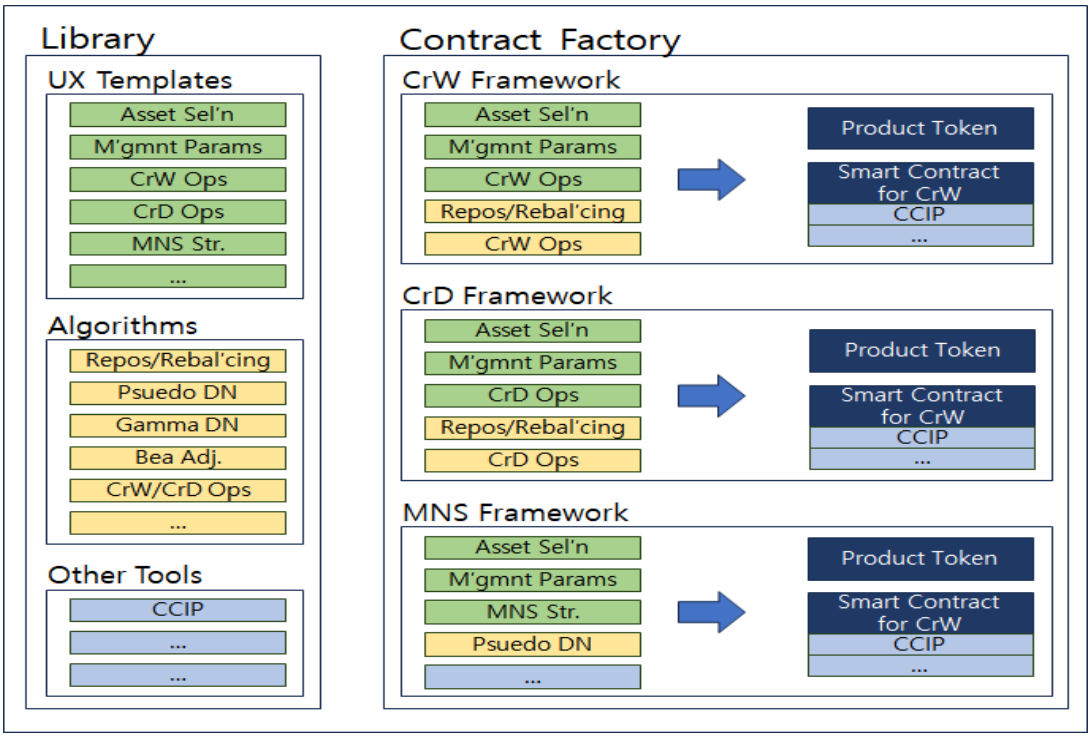


Figure 3. ScoFact™ Structure

2) Makerspace

The Makerspace is a UI/UX space where anyone can easily use the financial products and strategy tools provided by ScoFact™. It's a place where creators can use their imagination to build financial services.

Especially for financial experts and laypersons who have a limited understanding of smart contract or blockchain cryptocurrency technology, a variety of tools for implementing strategies are provided, enabling them to easily create their own financial products. Additionally, PaaM™ has created specialized makerspaces to maximize the benefits of these various tools.

a. **CrW™** (Crepe Work) Makerspace: In traditional finance, ETFs (Exchange Traded Funds) are one of the most popular investment vehicles in the financial market, offering high liquidity, a variety of investment options, low costs, transparent operations, and tax efficiency. Particularly, most ETFs are index-based, following the performance of an index, thereby implementing an investment strategy that seeks the market's average return. As they use a passive management approach, they incur low management costs and enable investment across various markets. The **CrW™** Makerspace has implemented specialized tools to create products designed for passive management, similar to ETFs, enabling the creation of index-tracking baskets.

b. **CrD™** (Crepe Direct) Makerspace: In traditional finance, an investment technique called Direct Indexing is used to meet the specific needs and goals of investors who wish to build personalized portfolios. The **CrD™** Makerspace is a space where creators can construct baskets tailored to their unique requirements.

c. **MNS** (Market-Neutral Strategy) Makerspace: In traditional financial markets, numerous investment strategies have been developed for specific purposes. Among them, market-neutral strategies are considered suitable for many investors due to their pursuit of relatively stable returns. The MNS Makerspace within the Crepe System serves as a hub for innovation, where these market-neutral algorithms can be refined and integrated with diverse asset classes.

The above Makerspaces verifies and realizes the unique ideas of specialized financial creators through an open ecosystem so that they can produce, distribute, sell, and consume them. In addition, a strategy developed and verified may be fixed in the form of NFT to be distributed, sold, and consumed.

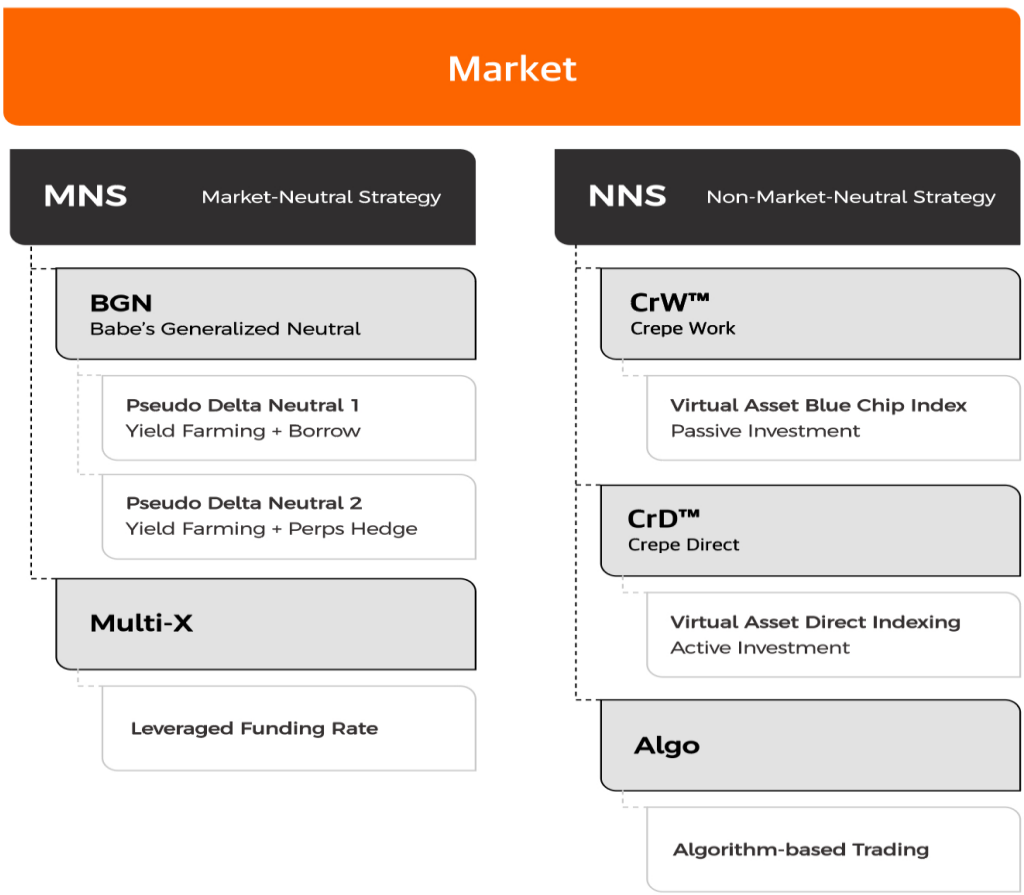


Figure 4. Crepe Makerspaces and Kinds of Products

3) Soulbound Tokens

PaaM™ aims to foster an open ecosystem. It provides ScoFact™, which allows "anyone" to build baskets of virtual assets, create corresponding tokens, and then launch and sell them. However, an open ecosystem can be exposed to various risks. In traditional finance, numerous regulations have been established and efforts have been made to reduce these risks. Blockchain and distributed ledger technology have many advantages, but ignoring historically evolved regulations can easily expose one to crime. The most important regulations in traditional finance are Customer Due Diligence (KYC), Anti-Money Laundering (AML), and Personal Information Protection Act (PIP). These three regulations are very difficult to comply with in a decentralized environment. To address these regulations, PaaM™ is equipped with Soul Bound Tokens (SBT).

4) Blockchain-Agnostic Design

PaaM™ has a long-term vision of accommodating and tokenizing all assets in the world. Therefore, to realize this, it has been designed to be blockchain-independent as follows:

a. **Universal Wallet**: A wallet that allows easy access to and management of multiple blockchain platforms and digital assets in one place. Users can effectively manage various cryptocurrency assets from a single interface without being conscious of which blockchain they are using. This wallet provides users with convenience and efficiency.

b. **Integrated Token Use to Pay Gas Fees**: This design ensures users don't have to pay gas fees separately for each blockchain. All gas fees are paid using the Crepe Token (its symbol name, CRE).

c. **CCIP (Cross-chain Interoperability Protocol) Implementation:** CCIP is a protocol that provides a method for heterogeneous blockchains to interact and share information. This protocol enables the transfer and use of data and transaction details originating from different blockchain networks to be shared among heterogeneous blockchains.

5) Link to AI Technology

All crypto ecosystems must be designed with sustainability in mind. In the Crepe system, principles have been established to distribute wealth based on participant behavior using artificial intelligence. The AI measures the degree of voluntary participation and the extent of incentive compatibility, which largely depends on the configuration of DAOs (Decentralized Autonomous Organizations). At a certain point, the Crepe Project will transition to governance led by DAOs to ensure the sustainability of the ecosystem. This aspect will be fully designed and developed in the Phase-2 whitepaper.

6) Summary

In Chapter 3, we have explained the PaaM™, which serves as the engine for the asset management system. Equipped with ScoFact™ (Smart Contract Factory Technology), it enables the creation of Makerspaces for designing financial products. In these Makerspaces, a variety of strategy implementation tools are provided, allowing anyone to easily create their own financial products. To prevent exposure to crime and mitigate risks in a decentralized ecosystem where anyone can launch and sell financial products, we have designed Soulbound Tokens (SBT) to track credit. Lastly, we have designed and equipped various mechanisms as standard product creation tools to make their use more user-friendly.

As seen in the figure below, what is additionally needed for the PaaM™ system is the manifestation of collective intelligence that can support it. In the next chapter, we discuss the design for the manifestation of Crepe's collective intelligence..

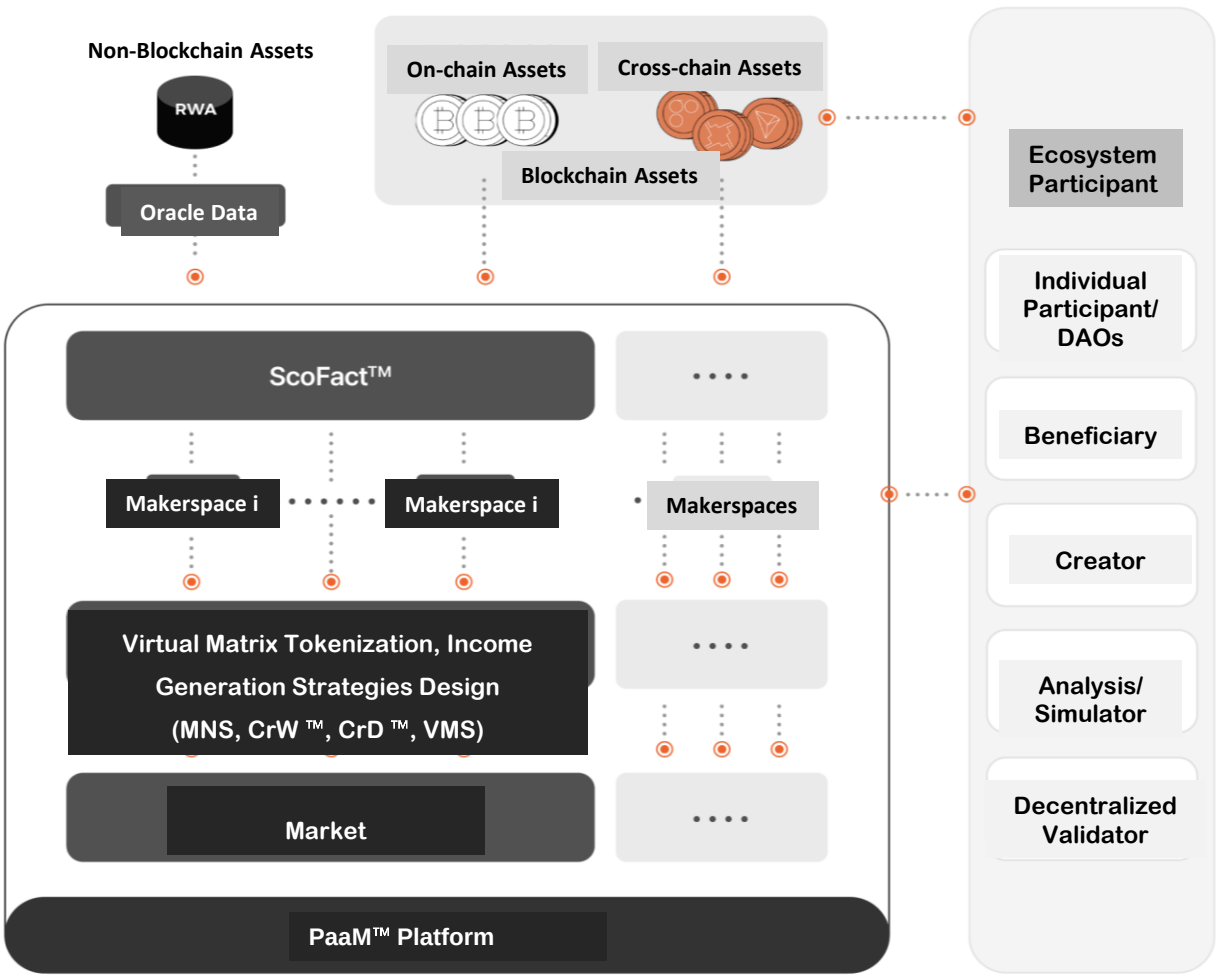


Figure 5. PaaM™ Architecture

5. Tokenomics

1) Protocol Economies

Crepe provides a creation platform that supports creators' production activities by providing a Makerspace where they can combine various assets and allows creators to tokenize and publish their results. At the same time, it is a collaborative ecosystem that provides incentives to experts, including many ordinary people, who perform various roles (design, operation, management, etc.) in the entire process necessary for producing financial products. In addition, it is a funding and investment system that raises investment funds necessary for creators' product management from investors and provides various incentives to liquidity providers. It is a protocol economy platform that operates so that all participants in the process of issuance, operation, and investment receive the value produced in the platform as an agreed-upon incentive.

A. Participants

1. Creators (index developers, investment strategy developers, fund managers) create financial products using the tools provided by makerspace within the PaaM™. The designed product can be issued and sold as an intellectual property NFT.
2. Analysts report research, risk management, and monitoring and analysis of market situations to designated channels.
3. By holding NFT, users can also invest in the creator's product and upgrade the NFT according to the investment result. Investors can sell trading access rights for investment data as NFTs.
4. Liquidity providers provide liquidity for relevant products and receive compensation.

B. Incentives and Penalties

1. CREPE Token staking contributes to ecosystem stability by reducing the circulation quantity of CREPE Token, a Native Governance Token, depending on the period and quantity, and receives rewards.
2. Activities of ecosystem participants are stored as NFTs linked to DAO, and utility is created through community activation. Users will get rewards with CREPE Token incentives for all these activities.
3. Transactions not meeting the minimum staking period are subject to penalties upon withdrawal.

C. Tokens Issued

Tokens issued by this platform are as follows.

1. CREPE Token: It serves as a means of storing financial value within the ecosystem and also as a payment method for the use of products and services created by all active entities within the ecosystem. The value of CREPE Token changes based on the growth of the CREPE ecosystem's size, usability, and velocity of circulation, as well as demand and future revenue potential. It can be mined as a reward for investment activities such as staking and liquidity provision, as well as community activation activities like marketing, sales, research, and CIP submission.

2. Soulbound Tokens (SBTs): Used as a decentralized identifier for participants within the CREPE ecosystem. Since SBTs cannot be transferred or sold, they act as a means of tracking personal attributes such as reputation, credentials, credit amounts, and rankings, as exemplified below. An independent entity can have multiple profiles for different purposes. An SBT cannot be removed unless it is burnt by its owner.

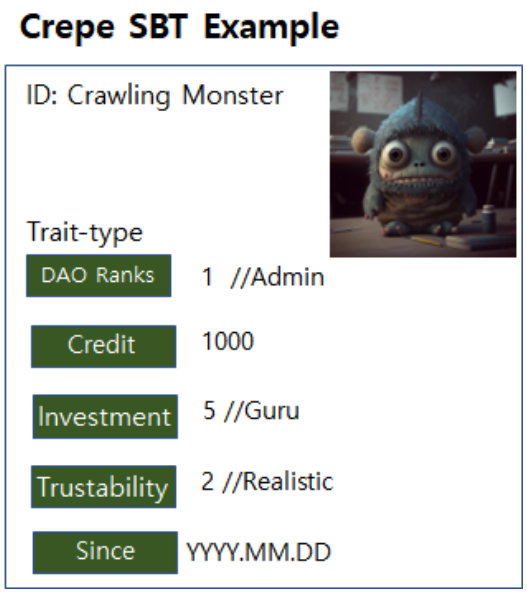


Figure 6. Example of Soulbound Token

3. Product Token: These tokens are issued by makerspaces, minted, and offered in asset management products like **CrW™**, **CrD™**, and MNS. They are in principle security tokens that are backed by underlying assets, but are only traded internally and not on external exchanges. To redeem the tokens, they can be exchanged for CREPE tokens on CrepeSwap.

2) CREPE Token Distribution Plan

The CREPE Token issued by Crepe Foundation is designed to be issued in a limited amount of 1 billion tokens. Of this, 350 million tokens (35%) can be mined as a reward through various staking methods, and 150 million tokens (15%) are paid for community expansion. Among team quantities, 50 million tokens (5%) for founders will be paid in a lump sum in February 2025 after the 3-year vesting period from February 2022 and 30 million tokens (3%) for early contributors will be paid in a sliding way for 12 months from November 1, 2023 after the lock-up period from February 2022. The remaining 120 million tokens (12%) for teams are paid for the salary and compensation of the development team and management team, development expenses and marketing expenses, etc.

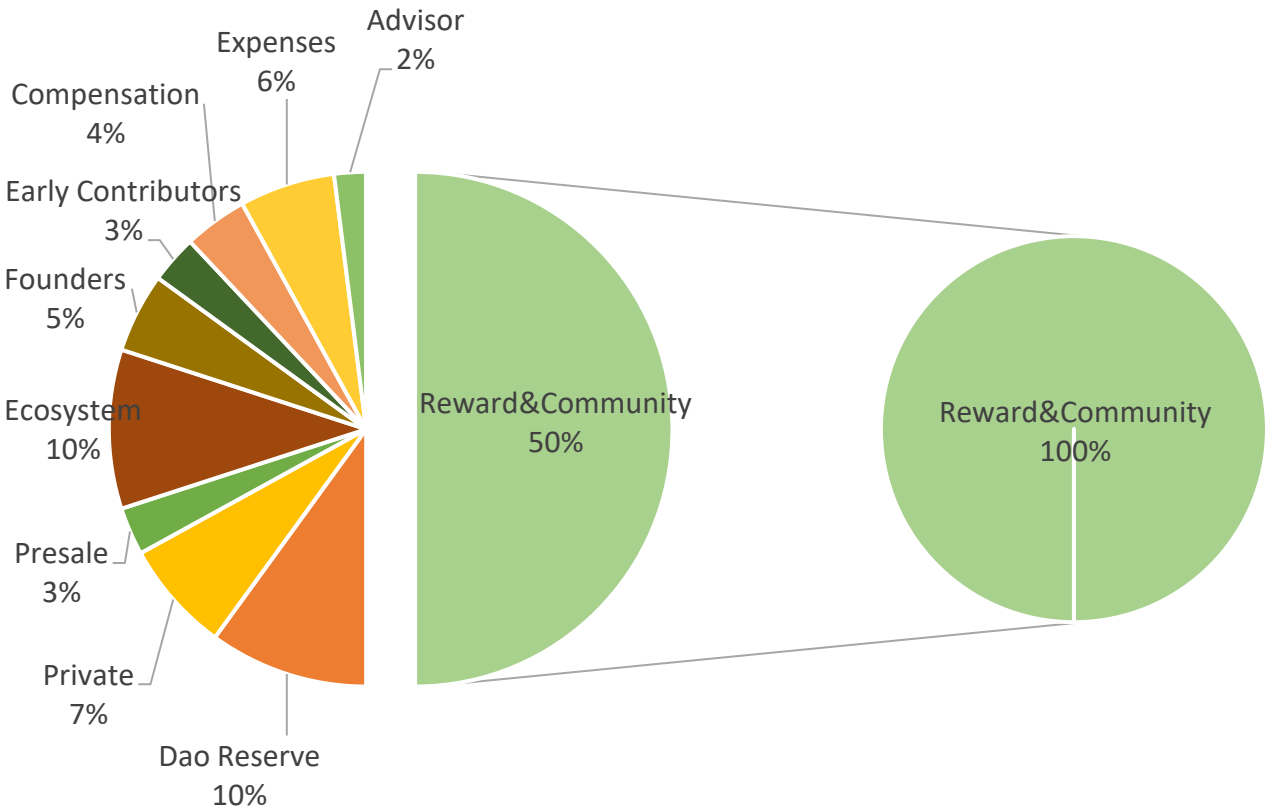
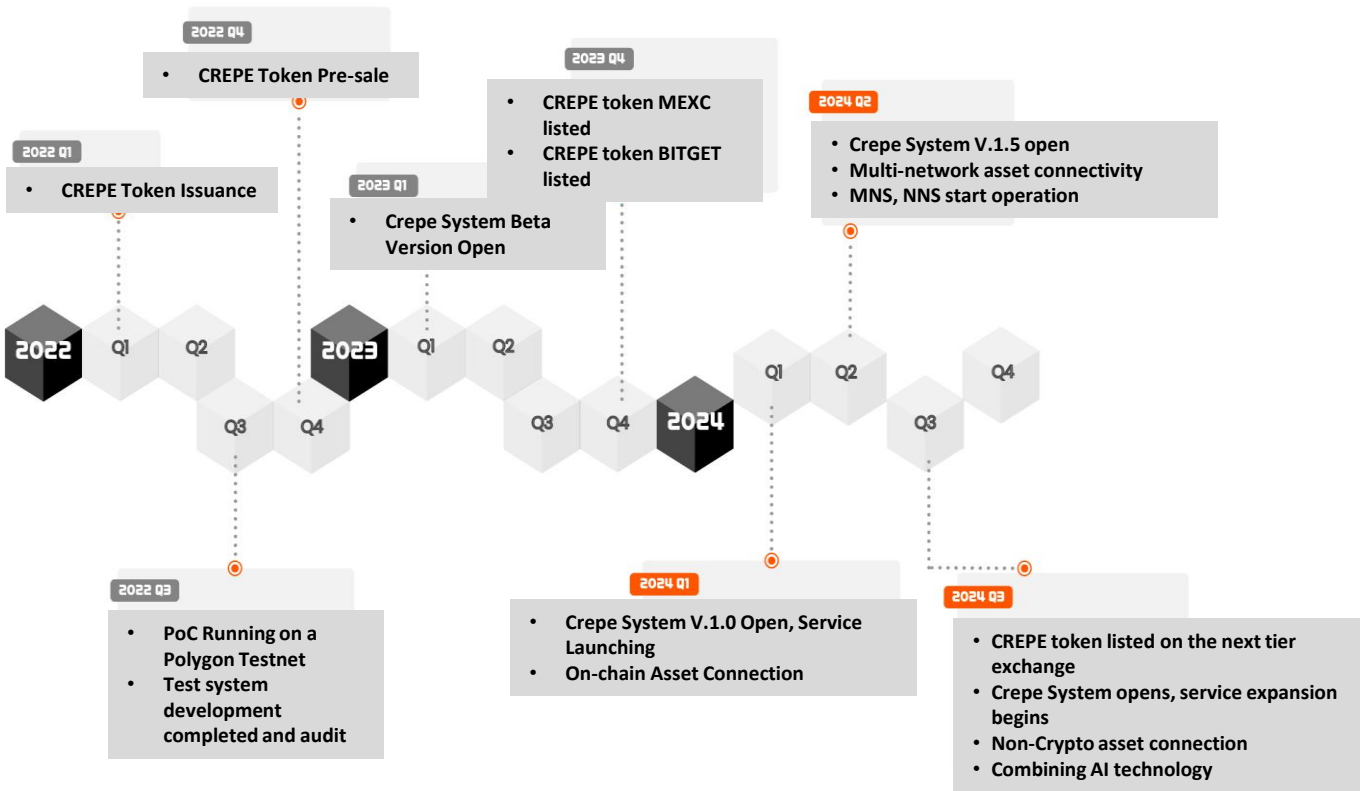


Figure 7. CREPE Token Distribution Plan

6. Roadmap


2022 Q4
• CREPE Token Pre-sale
2022 Q1
• CREPE Token Issuance
2023 Q4
• CREPE token MEXC listed
• CREPE token BITGET listed
2024 Q2
• Crepe System V.1.5 open
• Multi-network asset connectivity
• MNS, NNS start operation
2023 Q1
• Crepe System Beta Version Open
2022
Q1
Q2
Q3
Q4
2023
Q1
Q2
Q3
Q4
2024
Q1
Q2
Q3
Q4
2022 Q3
• PoC Running on a Polygon Testnet
• Test system development completed and audit
2024 Q1
• Crepe System V.1.0 Open, Service Launching
• On-chain Asset Connection
2024 Q3
• CREPE token listed on the next tier exchange
• Crepe System opens, service expansion begins
• Non-Crypto asset connection
• Combining AI technology

7. Conclusion

The **Crepe** is a system that provides a platform that tokenizes not only native virtual assets on the blockchain, but also all spot and futures assets on the planet traded in legacy financial and real markets as underlying assets on the blockchain network, and can design strategies such as portfolios or financial products by issuing, combining, and synthesizing these tokens.

In this system, a smart contract framework suitable for the type of existing asset or management strategy is provided through a creative place called Makerspace. Therefore, financial experts or ordinary people who have no knowledge of blockchain technology can participate in Makerspace and design financial products by exercising their creativity. Created financial products can be distributed and traded, and values can be created.

The advantages of this **Crepe** are as follows.

1) Innovativeness: Until now, crypto assets have been limited to on-chain. However, this system does not divide and reject traditional and crypto finance boundaries but actively utilizes each advantage. In particular, it is possible to create financial products similar to ETF (Exchange Traded Funds) and DI (Direct Indexing), which were only available in legacy finance markets. CrW™ (Crepe Work) and CrD™ (Crepe Direct) are those products.

2) Flexibility: On this system, creative users can flexibly mix on/off-chain assets with non-blockchain assets by participating in an open makerspace and hedging in various ways. For example, a user can manage assets by mixing on-chain and non-blockchain assets into a portfolio.

3) Comprehensive Diversity: In this system, all global assets such as real on/off-chain assets and non-blockchain assets can be mixed and even data without any assets are converted into virtual assets and issued as tokens. They can be composed in portfolios or financial products. Therefore, it is possible to create a wide variety of portfolios and financial products by composing total assets according to a creator's imagination.

4) Durability/Sustainability: This system provides many financial investment strategies developed in legacy finance as tools so creators can use them in the makerspace. Theoretically, if this investment strategy can be used flexibly, in that case, it is possible to maintain the asset value or generate continuous profits regardless of the sharp fluctuations in cryptocurrency or the global economic situation. However, to make this possible, the financial product creation, design ability, and operational know-how of experienced experts are very important rather than the durability of the tools provided by the platform. Therefore, Appendix A was added and explained many financial products designed by Crepe using its professional know-how.

5) Accessibility: Until now, designing financial products–using blockchain technology and smart contracts–was thought to be almost impossible for financial experts and ordinary people without knowing the technology. This system provides smart contract factory technology ScoFact™ so that smart contracts can be automatically created so that even financial experts and the general public with little knowledge of blockchain technology can easily create them.

6) Safety: The reality is that even highly skilled programmers are easily exposed to hacking. This system reduces the risk of hacking by using a proven framework.

7) Transparency: Financial products created on this system can be viewed on the blockchain to enhance transparency. A financial product created once is not only difficult to change arbitrarily because the smart contract limits the operator's authority, but anyone can easily and transparently read it even if it changes. Moreover, due to the characteristics of cryptocurrencies, the performance of financial products is updated in real-time, so the final consumer of financial products can transparently view the performance and other information of their investment products.

8) Openness: Anyone can participate and use this system. Therefore, general users with little knowledge of blockchain or lack knowledge about financial products can freely use the makerspace.

9) Ease/Convenience: The framework provided in each makerspace is designed to make it easy to create financial products with a minimum of clicks. This ease allows anyone to manage their assets and design financial products.

We at Crepe designed a solution that solves three problems identified in Chapter 2:

1) Disconnection from legacy finance and fragmentation of the blockchain ecosystem,
2) Immature decentralization, and
3) Investment risk that is difficult to manage.

The **Crepe System** facilitates asset management and tokenizes all assets, allowing multiple creators or prosumers to participate and collaborate. As independent creators of asset management, users can develop strategies on the platform, select and refine their own strategies among the provided strategies, or purchase strategies already specified by other creators. As a result, virtual asset investment, which has been perceived as a difficult and risky investment to control, can be an investment more safely profitable within controllable risk through tokenized asset management on the blockchain on this system. Through this series of processes, the System will build a gigantic protocol economy ecosystem for the basis of Web 3.0.

Glossary

CREPE	In this white paper, Crepe has three meanings. The first refers to the decentralized asset management system and its ecosystem. The second points to the token used for governance within the ecosystem. The third is the DAO group that governs the ecosystem. To distinguish the meanings, we denote them, **Crepe** for the system, CREPE for the tokens, and Crepe for the organization, respectively.
RWA	Real-World Assets. These refer to assets that have value in the world. In this whitepaper, they include both real and virtual assets that have value.
PaaM™	**P**lanetary **A**ugmented **A**sset **M**akerspace. **PaaM™** is the engine of the CREPE System that specializes in digital asset management. **PaaM™** composed of three component platforms: asset tokenizer, strategy creator, and activity taker. They are named Asset Tokenization Platform, Strategy Creation Platform, and "One-click" Activity Platform, respectively. Users may create a basket of assets using a makerspace in the system. Each makerspace carries a framework to develop a portfolio of investments. Assets include any on/cross-chain assets or non-blockchain assets with credential oracle market data.
MNS	**M**arket-**N**eutral **S**trategy. It is a type of investment strategy that seeks to stabilize the profit regardless of the directional risk of the underlying assets.
NNS	**Non**-market-**N**eutral **S**trategy. It is a type of investment strategy that seeks to maximize profit while taking some form of market risk.
VMS	**V**irtua**l** **M**atrix **S**trategy. It is an investment strategy that includes any off-chain or non-blockchain assets with credential oracle market data.
CrW™	**CrW™** (Crepe Work) is a basket of decentralized crypto assets. It is a blockchain version of the traditional financial Exchange Traded Funds (ETF), and similar to exchange-listed index funds (ETFs), it is an asset that strictly follows a particular index. A CrW basket is rebalanced or repositioned only as defined in its creation time. It is managed by authorized product managers, EPM (Expert Product Managers), or WPM (Whitelist Product Managers).

CrD™	**CrD™ (Cr**epe **D**irect**)** is a basket almost similar to a **CrW™**. The difference is that **CrW™** can only be created and operated by authorized managers following the index. In contrast, anyone can design, create, and operate **CrD™** by paying a small deposit and token issuance fee.
EPM	**E**xpert **P**roduct **M**anagers. The experts with the privilege to create CrW™ and their management strategy. The governing DAO authorizes them to be EBM.
WPM	**W**hitelist **P**roduct **M**anagers. The people with the privilege to create CrW™ and their management strategy. The governing DAO authorizes them to be WBM.
PPM	**P**rivate **P**roduct **M**anagers. Users may create their asset CrD™ without permission from any group or the DAO.
Virtual Assets	Another name for cryptocurrencies. The US Financial Action Task Force (FATF) and other regulatory authorities around the world are officially using the name.[1]
Maker/Creator	Those who use the makerspaces. They are expected to be financial experts to create financial products.
Makerspace	A makerspace is a placeholder that the **PaaM™** offers. Each makerspace carries a framework for a specific financial product/service that users may use to create their products/services.
Protocol Economy	refers to an economic ecosystem that implements fair distribution through decentralization, executing a contract as a smart contract between individuals. By signing all transactions in the form of smart contracts between all participants in the **PaaM™**, fair distribution, and protocol economy are realized.
Intrinsic Value	refers to the inherent or fundamental worth of an asset, independent of its market price or fluctuations. It is the actual value of an asset based on its underlying characteristics such as its usefulness, scarcity, quality, and potential for generating income. In finance, it is often used to determine the fair value of stocks, bonds, and other securities, and it is a key concept in fundamental analysis.
PoR	**P**roof **o**f **R**eserves refers to a method that transparently assures and proves to the public that a specific asset or financial asset genuinely exists, through methods such as audits. This method is primarily used to confirm the actual existence of a crypto asset and by recording evidence of this on the blockchain, it enhances the credibility of the blockchain ecosystem.

CCIP	The CCIP (Cross-chain Interoperability Protocol) is a protocol that provides a means for heterogeneous blockchains to interact and share information. This protocol allows data and transactions generated in different blockchain networks to be transmitted and used across disparate blockchains. Through this, assets, smart contracts, and data from different blockchains can be efficiently exchanged and their trustworthiness ensured, promoting interoperability between heterogeneous ecosystems. This ensures diversity in blockchain-based services and applications. In the Crepe System, this protocol is utilized to compose and manage a basket of assets dispersed across multiple blockchains.

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