

DeSyn Protocol Whitepaper

Lite Version





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Just as digital downloads have revolutionized music and book publishing, exchange traded funds (ETFs) are changing the way investors do business around the world.

-Foster (2011)

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Contents

Section 1: Introduction	2
1.1 The Crypto Asset Industry Is Expanding Rapidly	2
1.2 Pain Points Are Increasing Rapidly	3
1.3 DeSyn Protocol Could Be One Of The Right Solutions	4
Section 2: DeSyn Protocol Overview	4
2.1 Glossary	4
2.2 NPM Packages	5
2.3 Protocol Overview	5
2.4 Participants	6
2.5 Pricing Models	6
2.6 Smart Contracts	7
2.7 Product Features	8
2.7.1 ETFs/Portfolios:	8
2.7.2 Investors (Retail and Institutional)	9
2.7.3 KOLs/Fund Managers	15
2.7.4 Projects owners	18
2.8 Future Consideration	19
Section 3: DSN tokens	19
3.1 Token Utility	19
3.2 Governance	19
3.3 DSN Buybacks	19
3.4 DSN Tokens Allocation	19
Section 4: Summary	19
Section 5: Disclaimer	19
Section 6: Contact	19

Section 1: Introduction

1.1 The Crypto Asset Industry Is Expanding Rapidly

a. The whole crypto market is expanding rapidly

With the continuous updating of blockchain technology and the continuous evolution of crypto products, the whole crypto asset market presents a vigorous development trend. As of 2021 Q1, the total spot trading volume of crypto assets reached a quarterly high of \$14 trillion, surpassing the full-year trading volume in 2019, equivalent to 66.4% of the full-year trading volume in 2020 (\$21.08 trillion), accounting for about 46.06% of the entire market.

b. DeFi and Derivatives play an important role in shaping the future of the crypto industry

It is worth mentioning that the development of DeFi is particularly bright. The total value of DeFi at 2021 Q1 has grown to \$71.51 billion, an increase of 207.3%, which is much higher than 140.7% growth rate in market value in the overall crypto asset market.

However, at the beginning of 2020, many investors were not optimistic about the DeFi market, compared it with the short-lived ICO in 2017, and believed that the future of DeFi would collapse. But, the trading volume of DeFi shows an overall growth trend, and the user group increases significantly.

DeFi has realized the multiplier leap of blockchain finance from simple ownership transfer to lending and various advanced financial derivatives. It solved the mortgage through cross-chain and leverage through the margin system and finally realized the operation was similar to credit derivatives. Its own characteristics, such as low trust cost, low transaction cost, anti-censorship, security, and ecology, have also been widely recognized and continuously expanded in the market.

For a mature financial market, the transaction scale of derivatives is often much larger than that of spot transactions. When derivatives transactions reach a certain scale, they often affect the spot market in turn. The world of encrypted assets should have no exception.

However, as a new arrival, we can see that the development of crypto derivatives is just at the very start stage. As of 2020 Q4, the transaction volume of the crypto derivatives just achieved \$2.4 trillion. But we can still find the growth of crypto derivatives is very rapid. Its year-to-date growth rate is 4.35 times that of the spot market year-to-date. Therefore, the market believes that the demand and trading volume of crypto derivatives will increase rapidly in the next phase.



c. Social trading in crypto may speed up massive adoption in the mainstream

While the transaction capacity of the market is rapidly increasing, in the crypto world, there is also a fast-growing market, social trading. It is not only a single trading method, but a series of trading methods. These trading methods require different degrees of active participation, but they all have a strong social component.

Documentary trading is arguably the most well-known form of social trading. In documentary trading, you choose to follow exactly the same strategy as another trader's portfolio. The absolute amount of each asset is determined by the user, but the allocation mode of the portfolio should be the same as that of the trader you follow. Etoro is a good example. In 2018, the valuation was \$800m with registered users of 7m. But within 2 years after the introduction of crypto trading, it rises 2.5B in valuation with 13m registered users in 2020.

Those social trading platforms all show a strong record of attracting new crypto investors with little to zero cost.

1.2 Pain Points Are Increasing Rapidly

In the process of the rapid development of the crypto industry, we found that there are still broad development opportunities due to the following market pain points:

a. Cognitive Overload

With the continuous increase of cryptocurrencies and products, the cognitive load of users on the underlying assets of investment is also increasing day by day. Every time a user wants to add a transaction token, he must fully understand and be familiar with all the characteristics of the token, and ensure to constantly pay attention to the development and changes of the token and its program in the process. According to the data of CoinMarketCap, by 2021 June, over 5000+ cryptocurrencies have been included and increasingly at the same time.

b. High Transactions Cost

In the Ethereum account interaction program, when multiple tokens need to be traded, it will lead to high transaction costs. Every operation on the Ethereum virtual machine (EVM) has a corresponding gas cost. For example, adding two numbers takes 3 gas; It will take 400 gas to obtain the account balance; Sending a transaction costs 21000 gas. Smart contracts usually include multiple operations, which can even cost hundreds of thousands of gas. If users need to trade dozens of different tokens, he has to pay dozens of times the transaction cost. This poor trading experience is also a problem that multi-token derivatives trading must solve.

c. Lack of Vehicles To Invest Easily

The cognitive overload mentioned above, coupled with the endless stream of crypto products and the high transaction costs, will frighten many users who have just come into contact with crypto. For them, they need simpler channels, easier and safer products to meet their investment needs.

d. KOLs Lacks Channels To Manage Their Own Portfolio Derivatives And Get Followers

Professional investors who want to show their trading talents in derivatives trading, need better channels to raise more trading funds, more optimized income sharing methods, and

more followers. Therefore, both KOLs and common users need a platform that can provide derivatives social trading function, and meet the needs of both sides for security, convenience, and cost-saving.

e. Projects Lack Of Channels To Promote Tokens

For the projects, they need better channels to promote their tokens, so that their tokens can be more recognized, achieve decentralized consensus, and feedback the ecology of their projects, and therefore they can achieve wider application quickly.

1.3 DeSyn Protocol Could Be One Of The Right Solutions

Most ordinary investors, especially those whose investment decisions are influenced by market short-time fluctuation, urgently need a solution.

Mutual funds (Portfolios) and ETFs are two good solutions. Here let us use ETF as an example. In the traditional financial market, ETF has the advantages of simple investment logic, low cost, good liquidity, and high asset allocation efficiency. Since 2000, ETF's product innovation has accelerated significantly. While the number of products and asset scale has continued to grow, the products have gradually developed from the traditional broad-based index to the refinement and depth of style, industry, cross-market, and asset category.

Over the past two years, ETF based on cryptocurrency has been gradually regarded as the potential "Holy Grail" of the cryptocurrency industry. Just one week after listing on Nasdaq, two ETFs based on blockchain investment theme attracted us \$180 million.

Thanks to overall crypto market development, those increasing pains from investors and KOLs make us think deeply about a potential solution while :

- a) spirit of DeFi (transparency, justice, and inclusiveness) and its associated features (universal access, non-custodian, and code is law) behind it;
- b) an amazing business model behind the social trading platform, (everyone makes money together);
- c) a simple, cost-effective and convenient financial product - ETFs/Portfolios inspire us to come up with a current solution: DeSyn, a DeFi derivative protocol that focuses on ETFs/Portfolio and social elements.

Further after studying the competitive landscape on the market, it is believed that an end-to-end/integrated product solution could be a better solution to offer users a supreme experience.

So, the business idea of the DeSyn protocol is fine-tuned further:

DeSyn Protocol is a new generation of DeFi derivatives protocol that allows users to effectively and freely create, trade, and manage crypto ETFs / portfolios and else.



Its aim is to promote ETFs/Portfolio products to a wider range of investors and bring the user experience to the utmost.

Section 2: DeSyn Protocol Overview

2.1 Glossary

Here are many related terms which could be helpful for understanding the protocol, see the definition here:

- a) **Core Pool:** A BPool contract object - this is the "base" pool that actually holds the tokens
- b) **Balance:** The total token balance of a pool. Does not refer to any user balance.
- c) **Denorm:** Denormalized weight. Weights on a BPool, though often displayed as percentages, are configured and stored in their denormalized form. For instance, in a two-token pool with denormalized weights of A=38 and B=2, token A's percentage weight would be $38/(38+2)$, or 95%. Conversely, token B's proportion would be $2/(38+2)$, or 5%.
- d) **Controller:** The pool's "owner"; an address that can call CONTROL capabilities.
- e) **Dynamic Pool:** A contract that owns (i.e., is the controller), a Core Pool.

2.2 NPM Packages

Here are related NPM packages that will be released soon:

a. Crypto assets package (*note:* DeSyn Asset repository)

The contract address of DeSyn BFactory, Proxy, Multicall, and all tokens is uploaded via node to IPFS and the hosting platform fleek

Release: will release soon

b. Trade-routing Package

Smart Order Router, Trade-Route, is an off-chain linear optimization of routing orders across pools for best price execution.

Trade-Route exists in the bronze release as a way to aggregate liquidity across all DeSyn pools. Future releases of DeSyn will accomplish this on-chain and allow aggregate contract fillable liquidity.

Liquidity aggregators are free to use the Trade-Route NPM package or create their own

order routing across pools.

Release: will release soon

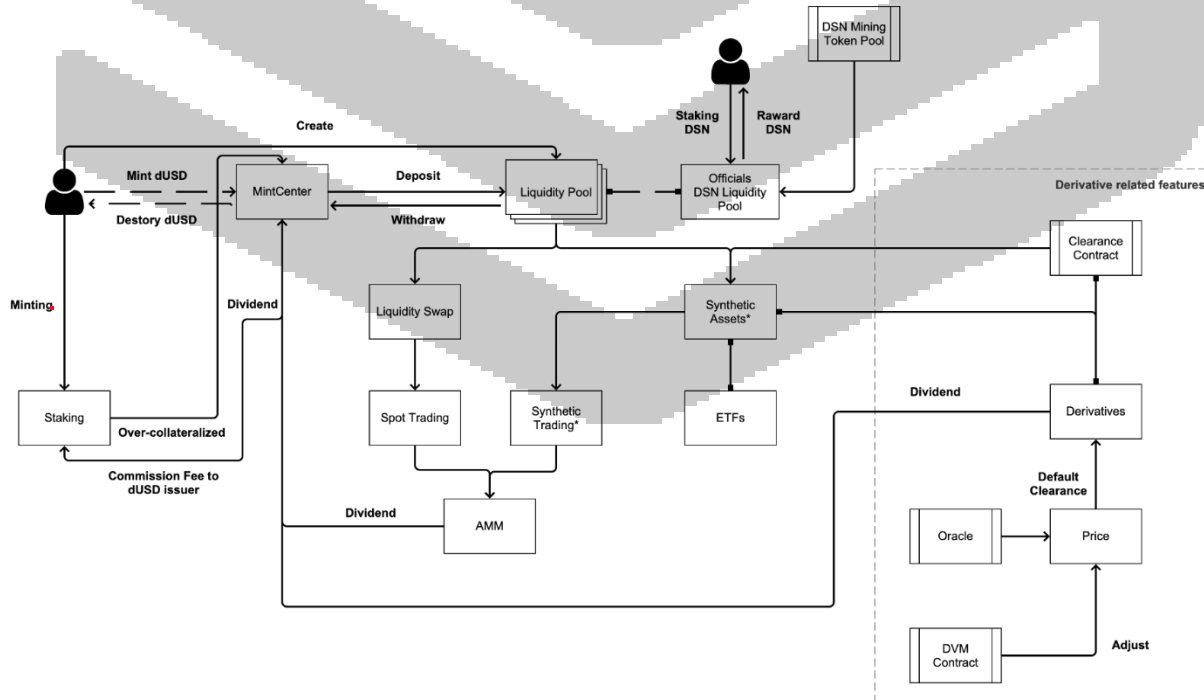
2.3 Protocol Overview

The DeSyn Protocol defines procedures for creating, issuing, rebalancing, and trading DeFi derivatives' assets (ETFs/Portfolios) using a collection of smart contracts based on customized liquidity pools.

It includes three important components: (see the picture below)

- **Stablecoin Issuing:** users could use our DSN tokens as collaterals for our platform stablecoin since our platform stablecoin will serve our main utility function (all kinds of associated costs such as swap fees, creation fees, and else)
- **ETFs/Portfolios Management:** users could create and manage their ETFs/Portfolios based on customized liquidity pools here.
- **Liquidity Trading:** users could trade ETFs/Portfolios tokens and other tokens via our smart order routing as well as provide their multi-assets for liquidity mining purposes.

The reason behind this structure is that after studying the competitive landscape on the market, it is believed that an end to end /integrated product solution could be a better solution to offer users supreme experience compared to the rest since it offers much flexibility to design based on users' scenarios instead of relying on an external party to provide many functions which are not designed for your purposes.



* Synthetic Assets: we define synthetic assets as new type of assets originated from existing crypto assets

Here we will not cover mechanism of the stablecoin issuing in this version, but will be in next version of white paper. Many defi derivative related features such as DVM contract, oracle and clearance contract also will not be covered here since they will be used for future products (e.g.: leveraged tokens and else) because our main focus is ETFs/Portfolio for the next few years.

2.4 Participants

There are a number of participants in the DeSyn ecosystem:

- a) **Asset Issuers/Creators:** they utilize their domain knowledge, creativity, and intuition to design, create, and manage different DeFi derivatives that have market appeal.
- b) **Liquidity Providers:** they can gather components from various centralized and decentralized liquidity sources to provide the liquidity for the liquidity pool and earn the liquidity fee.
- c) **Traders/Investors:** they are normal users that are economically driven to buy or sell assets (including synthetic assets) in the DeSyn market.

2.5 Pricing Models

a) DeSyn AMM Value Function

The value function V of DeSyn AMM is:

$$V = \prod_t B_t^{W_t}$$

Where

- t ranges over the tokens in the pool;
- B_t is the balance of the token in the pool;
- W_t is the normalized weight of the token, such that the sum of all normalized weights is 1.

b) DeSyn Spot Trade Price

The spot price between any two tokens SP is the ratio of the token balances normalized by their weights in the dynamic pool:

$$SP_i^o = \frac{\frac{B_i}{W_i}}{\frac{B_o}{W_o}}$$

Where:

- B_i is the balance of token i , the token being sold by the trader which is going into the pool.
- B_o is the balance of token o , the token being bought by the trader which is going out of the pool.
- W_i is the weight of token i ;
- W_o is the weight of token o .

c) DeSyn Liquidity Formulas

The DeSyn protocol allows users to deposit and withdraw assets from the dynamic pool to generate ETFs or other financial products. The common weighted-asset withdrawal is the reverse operation where a pool token holder redeems their pool tokens in return for a proportional share of each of the assets held by the pool. By redeeming $P_{redeemed}$ pool tokens given an existing total supply of P_{supply} , one withdraws from the pool an amount A_k of token k for each of the tokens in the pool where the ETFs management fee is M_f (could be 0):

$$A_k = \left(1 - \frac{P_{Supply} - P_{Redeemed}}{P_{Supply}} \right) \cdot B_k - M_f$$

Where B_k is the token balance of token k before the withdrawal.

2.6 Smart Contracts

Here are related smart contracts in DeSyn Protocol:

a. Pool Factory Contract

Factory contract for creating pools. Pools deployed from this factory appear on DeSyn user interfaces (e.g., the Exchange and Pool Manager).

b. Core Pools Contract

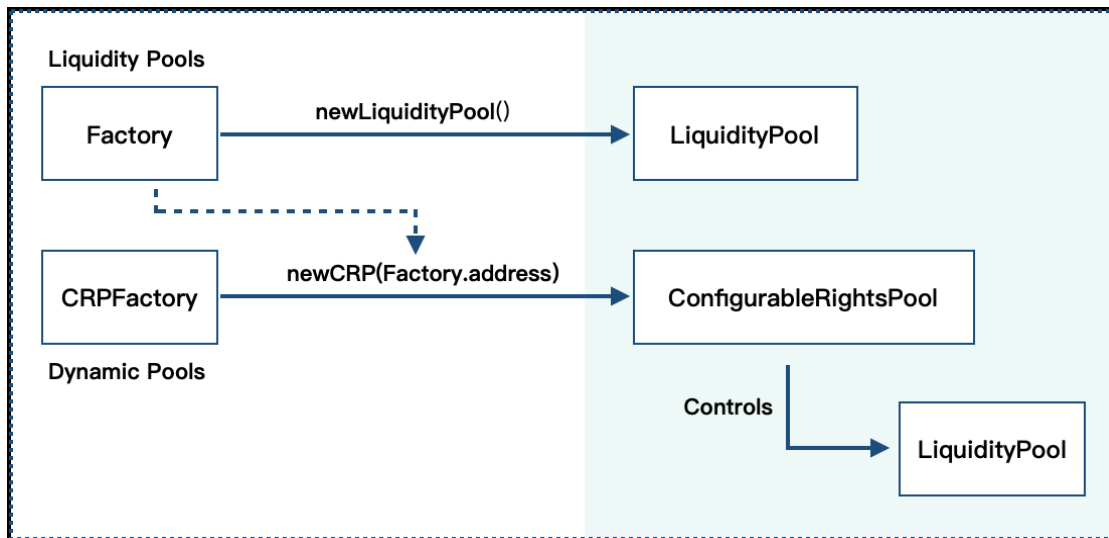
The fundamental building block of the DeSyn Protocol is the DeSyn Pool. Pools are smart contracts that implement the DeSyn Protocol and hold value in two or more ERC20 tokens.

You can think of a Pool as an automated, market-making portfolio. Each token asset has an independent weight and can be traded against any other token in the pool. For example, you could have a pool with three tokens in the following proportions 50% WETH, 25% MKR, and 25% DAI.

c. Dynamic Pools (Smart Contract Controlled Pools)

One very powerful feature of the DeSyn Protocol is the concept of Dynamic Pools. A smart contract-controlled pool can fully emulate a finalized pool, while also allowing complex logic to readjust balances, weights, and fees.

- A pool that adjusts swap fees as a function of the volatility of the pool's assets
- A pool that updates weights to implement a particular market strategy



For clarity, here is a graphical representation of the process for creating both Core Pools and Dynamic Pools - it can be a little confusing keeping all the addresses straight.

In a nutshell, DeSyn has deployed Factory contracts for creating pools. Users deploy new pool contracts by calling create methods on these factories. In both cases, the actual "pool" visible to traders on the public interfaces is a new BPool contract.

If you deploy a Core Pool directly, you are the controller of that pool. If you deploy a Dynamic Pool, you need to pass in the core BFactory address, since two contracts will be deployed. You are the controller of the Dynamic Pool - and the Dynamic Pool itself is the controller of the BPool.

d. Rights Manager Contract

Defines a struct of Boolean values, corresponding to each right; the Dynamic Pool stores this struct in storage.

e. Dynamic Pool Manager Contract

Factors out computationally intensive functions, mainly to reduce the bytecode size of the Dynamic Pool, to keep it deployable.

f. Exchange Proxy Contract

This contract includes swap forwarding proxy logic and on-chain smart order routing functionality. It can help you to trade different assets on top of relevant pools.

2.7 Product Features

2.7.1 ETFs/Portfolios

In the traditional financial industry, mutual funds (Portfolios) and market indexes funds (ETFs) are the most popular financial instruments widely accepted by common investors. At the end of 2019, mutual fund assets and ETFs assets in the US alone were \$26.7 trillion and \$4.9 trillion. 23% of household financial assets were held in mutual funds and ETFs in the US.

Both are considered ideal core portfolio holdings for many people's accounts. They usually have professional management, allow for diversification, and lower trading costs for investors since common investors lack knowledge, time, resources, and else. Further, as the financial market becomes mature and it is hard for most fund managers to beat the market, ETFs (to track the performance of the market) have become more popular in recent years since they offer lower management expense ratios compared to mutual funds.

If the traditional world could be a good reference, we believe that ETFs/Portfolios will get rapid development in the crypto world as long as the overall crypto market continues to advance (more users/investors, more projects, more sectors...)

So, here is where DeSyn comes from. It provides the natural tool for users to create their own ETFs/Portfolios to meet the increasing demand. They can be used for investment, ETFs/ Portfolios creation, market-making, and advanced derivatives by various parties.

2.7.2 Investors (Retail and Institutional)

ETFs/Portfolios on the DeSyn platform offer investors many advantages such as asset diversity, cost reductions, and lower maintenance requirements.

ETFs/Portfolios on the DeSyn platform allow both retail and institutional investors to diversify and manage their risk across any particular asset class. If investors do not know which individual crypto assets to purchase, but believe in the entire market or one of its sub-sectors and want to get exposure to, they can buy into ETFs/Portfolios

For example, an investor wanting exposure to the top 10 tokens in DeFi by market capitalization for long-term investment can invest by purchasing a single ETF token composed of the top 10 ERC20 tokens in DeFi. For an ETF set that does not exist, the investor can invent/create their own using the protocol.

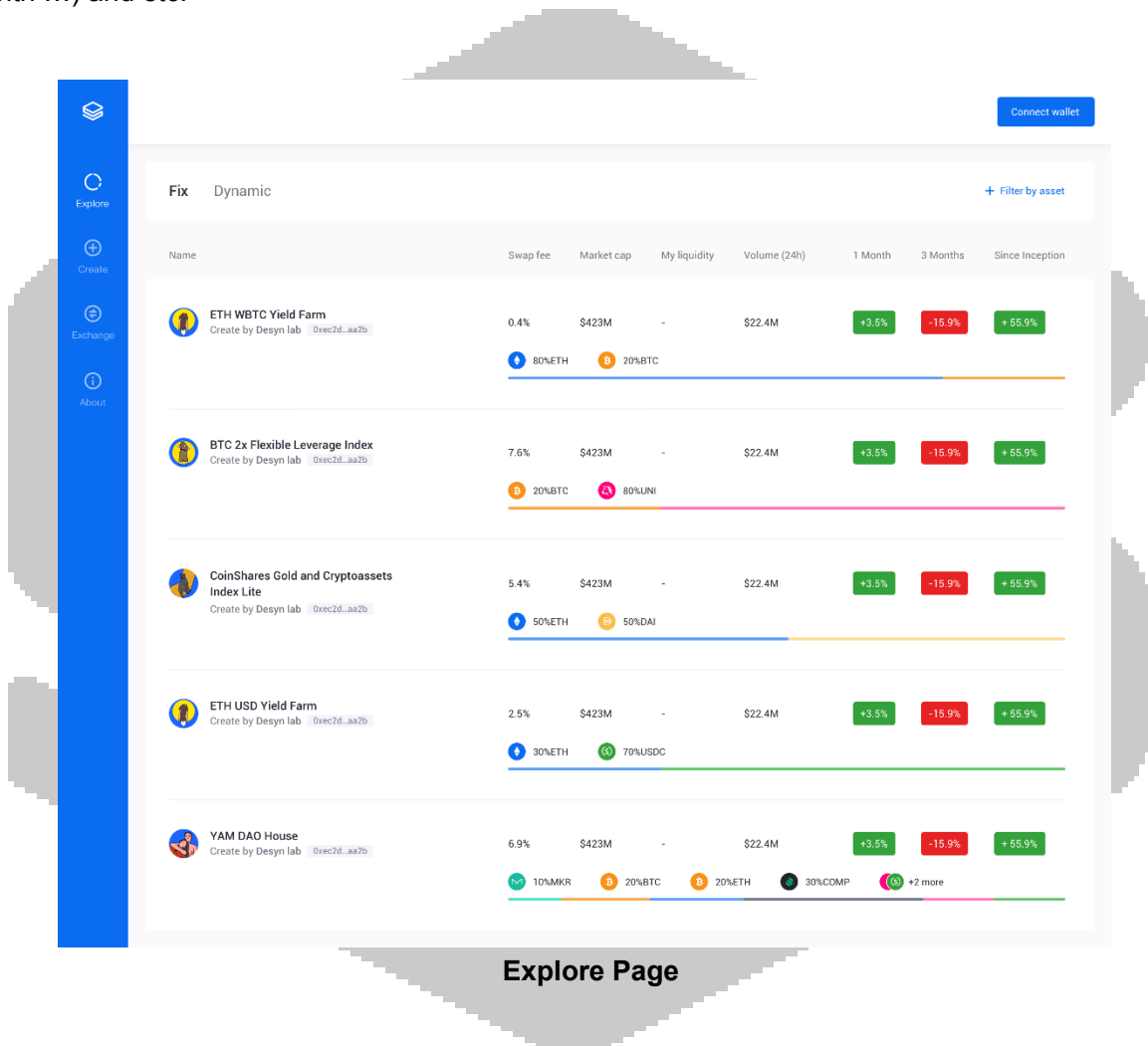
In order to make this process easier, DeSyn creates the following main functions/features to facilitate the process of the whole cycle of ETFs/Portfolios from investors' perspectives:

- a) Explore ETFs/Portfolios:** investors could explore and select ETFs/Portfolio they like
 - b) Buy and Sell ETFs/Portfolios:** (secondary market): once investors decide to buy/sell ETFs/Portfolio, they could go to AMM and purchase/sell ETFs/Portfolio tokens.
 - c) Issue and Redeem ETFs/Portfolios:** (primary market): once investors decide to buy/sell ETFs/Portfolio, they also could issue/redeem from portfolio managers directly.
-

Here we explain each one in detail:

Explore ETFs/Portfolios:

Investors could go through the “explore page” to find ETFs/Portfolios they prefer by first searching address, name, or symbol etc or ranking them based on market cap, performance (1 day, 1 week, 1 month ...) and etc.

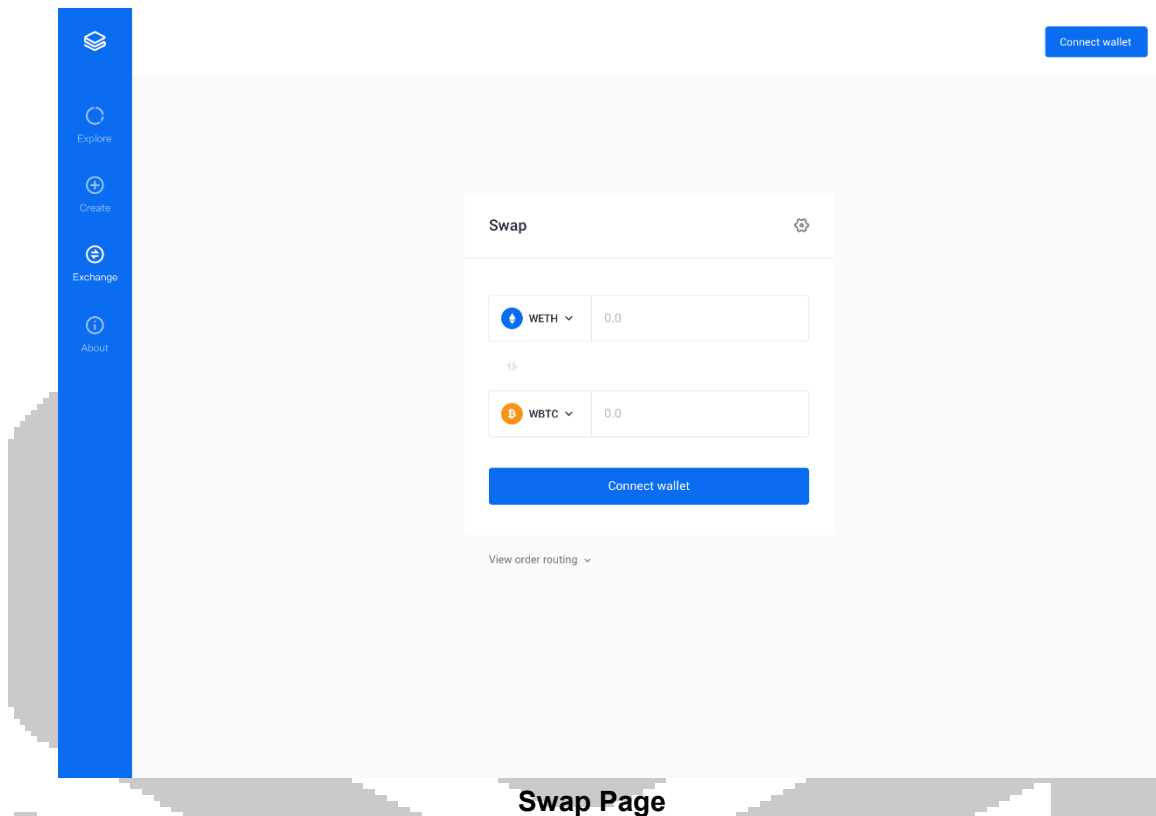


Then we could go to the “details page” to further check information including creator, market cap, fees, and etc.

Buy and Sell ETFs/Portfolios (Secondary Market):

Investors could have two options to buy and sell ETFs/portfolios,

- via DeSyn platform: it will exchange your ETH/USDT into ETF token via our dex (“swap page”);
- via other DEXs: it will be available if lists the ETF token.



Issue and Redeem ETFs/Portfolios: (primary market)

Investors could go to the “detail page” to provide their own ETH/USDT/More via their connected wallet to issue the desired ETF token in return, inversely Investors are able to redeem ETF tokens in return for their allocation of the underlying collateral.

The differences between a) and b) are two things:

- Cost, there will be a premium/discount to NAV of ETFs/Portfolios based on market demand/supply.
- There will be a time lag since the issue/redeem frequency (daily, monthly, and else) is decided by KOLs when they create the ETFs/Portfolios.

Here we also design a super awesome feature to allow investors to participate in the first round of fundraising by KOLs. In short, you can become cornerstone investors of any ETFs/Portfolios. Basically, KOLs will allocate a certain percentage of the future management fees to those cornerstone investors in exchange for those investors’ first check.

Also, if those investors can bring more investors into the ETFs/Portfolios, they will receive referral fees in return. After investors buy or issue a new ETF/Portfolio token, investors could go to the

“dashboard page” and manage them on the regular basis.

In short, we intend to make investors with better transparency as well as supreme user experience such as (one-click buy-in/sell out)

2.7.3 KOLs/Fund Managers

Another super cool part of DeSyn Platform is the ability to allow anyone to become an on-chain asset manager. This design is what opens the protocol to all participants that want to manage money. For example, you are an institution wanting to offer high AUM prospect structured projects to customers. Also, we offer various tools for KOLs to manage their ETFs/Portfolios including creation, fundraising, daily fund management and else. It is simple, easy, and efficient. Its main functions include:

- a. **ETFs/Portfolio Creation:** KOLs/Fund Managers could create their own ETFs/Portfolios by following a simple process. (a few clicks)
- b. **ETFs/Portfolios Management:** KOLs/Fund Managers could conduct daily management here such as liquidity fees, trading, and else.
- c. **ETFs/Portfolios Trading:** KOLs/Fund Managers will do rebalance ETFs/Portfolios by our own smart-routing technology.

ETFs/Portfolio Creation

KOLs could go to ETF/Portfolio “Portfolio/ETF Page” and follow a simple series of steps process, it includes

- a. Select tokens in your ETF/Portfolio;
- b. Set up information including Name, Symbol, Initial Price, Market Cap, various fees including management fee, liquidity fee, swap fee and else;
- c. Issue your ETFs/Portfolios. (“Portfolio/ETF Page”)

Here we also design a super awesome feature to allow KOLs to promote their own ETFs/Portfolio easily. One challenging issue facing every KOL is that it is hard to raise the first basic amount of capital (e.g.: first 1M USD) for ETFs/Portfolios from the first few investors. So what we decide to do is to allow KOLs to 1) incentive future management fees for them (here called liquidity fee); 2) referral program: investors who bring other investors in will receive a certain percentage of money in return.

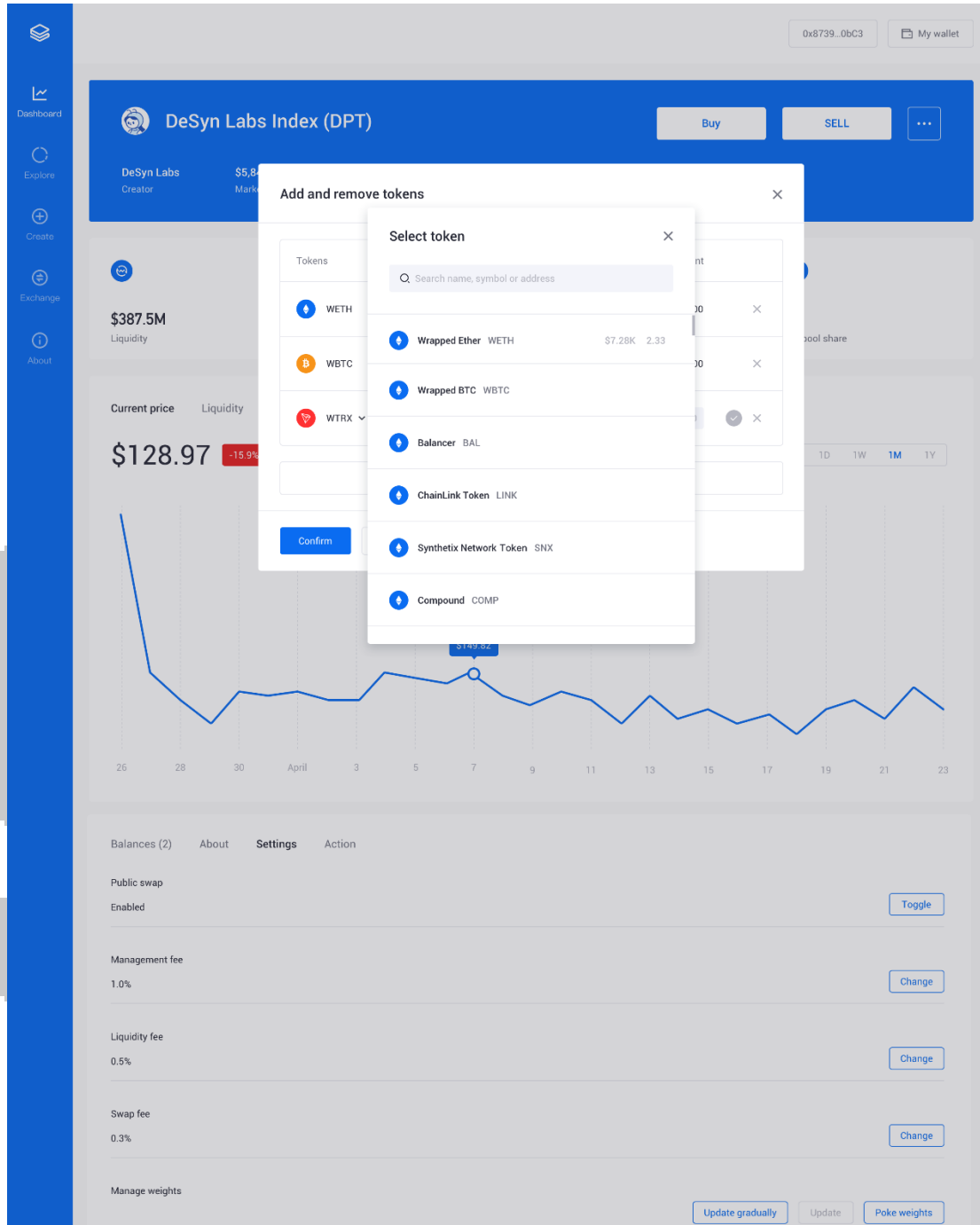
ETFs/Portfolios Management

On daily basis, KOLs could go to the “Portfolio/ETF page” to conduct three important things:

Issuance: buy, sell, issue & redeem your ETFs/Portfolios;

Fees: set up and collect fees from your investors;

Trade: trading various assets within your ETFs/Portfolios.



Portfolio/ETF Page

ETFs/Portfolios Trading

KOLs could trade various tokens within your ETFs. We will use a DeSyn router to aggregate the best price across multiple pools to provide you with the most efficient, highest yield trade path possible. (see "Portfolio/ETF Page")

2.7.4 Projects owners

Once we have both investors and KOLs on the platform, we plan to offer a great service: it allows crypto project owners to create your IDOs, promote their own tokens with ETFs/Portfolios made by KOLs, offer your liquidity mining, controlled and managed by yourself, all in one solution.

2.8 Future Consideration

All those above are just the beginning. We also create more useful financial products for investors such as leveraged ETFs tokens, basket default swaps, collateralized debt obligations Or give KOLs the options to

- a. use an automated portfolio management strategy for ETFs/Portfolios;
- b. increase their capital efficiency by connecting with other crypto projects such as AAVE, Compound, and else.

Section 3: DSN tokens

We design the DSN tokens to be a fungible token that adheres to ERC 20 token standard on the Ethereum blockchain. Its primary functions include main parts:

3.1 Token Utility

Users can stake DSN to receive the platform stablecoin. Then users can take stablecoin to pay for any fee such as swap fees, derivatives creation, all transactions fees etc on the platform. More than that, users can put DSN to the liquidity mining and receive additional rewards.

3.2 Governance

Once mature, DSN will gradually transit to community governance, allowing the community to decide the future of the protocol.

3.3 DSN Buybacks

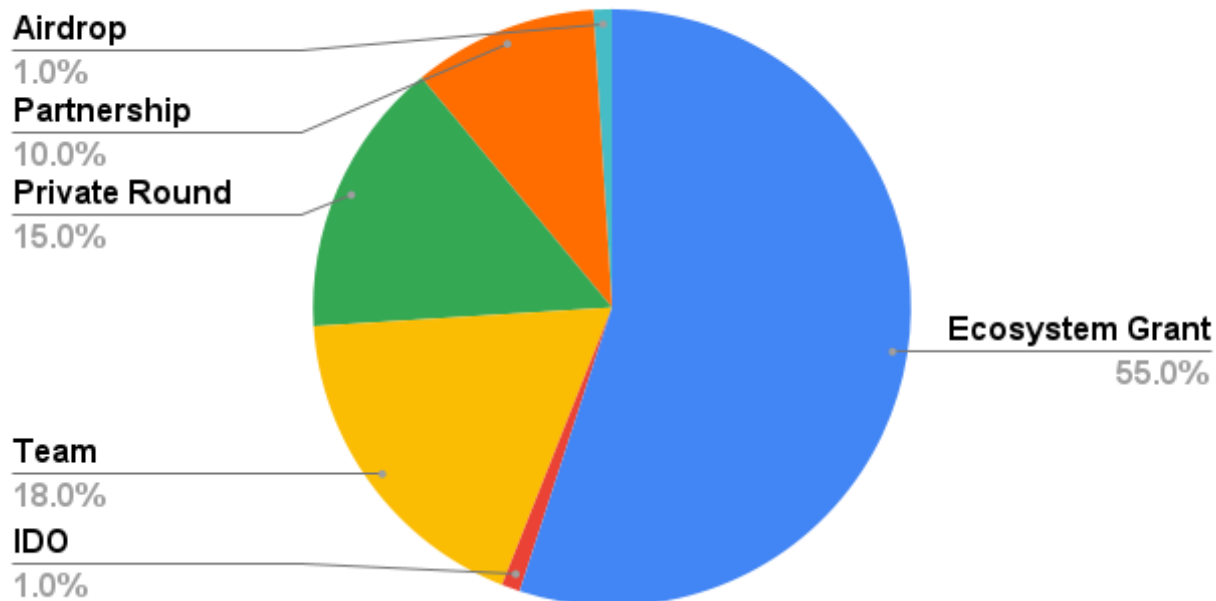
DeSyn initially will manage Trading fees (up to 70%) to be converted to DSN dynamically (via DEXs) and distributed as rewards.

3.4 DSN Tokens Allocation

DeSyn currently plans to have the following tokens allocation:



DSN Tokens Allocation



*Ecosystem Grant: include yield farming and else

Section 4: Summary

We build the DeSyn, a new generation of DeFi derivatives protocol, which gives everyone secure, transparent, and affordable access to create and trade various innovative financial products, including ETFs/Portfolios, and more, since we believe that everyone around the world no matter where they come from, what their faith is, whether they are rich or poor, shall have an equal chance to receive the best financial service possible.

Alongside people who share the same ideal with us, we intend to make our best efforts on this path and see it become reality until the end.

Section 5: Disclaimer

This paper is for general information purposes only. It does not constitute investment advice or a recommendation or solicitation to buy or sell any investment and should not be used in the evaluation of the merits of making any investment decision. It should not be relied upon for accounting, legal or tax advice, or investment recommendations.

The content of this white paper is just a plan of the project. It by no means be treated as a contract or an element of a contract. No relationship in this white paper can imply a contractual relationship. Its purpose is just to show the potential investors, cooperators, and customers the relevant information and project of DeSyn Protocol. Nothing in this white paper shall be deemed to constitute a prospectus of any sort or a solicitation for investment, nor does it in any way pertain to an offering or a solicitation of an offer to buy any securities in any jurisdiction.

This white paper may contain some statements, financial information, or estimates. All of them are just forward-looking statements or information, and cannot stand for any certain conclusions, and cannot be used as a commitment. Therefore, the potential risk and uncertainties underlying the investments cannot be promised.

This white paper is the primary information of the DeSyn Protocol. The team will continue its hard work to make the project more widely applicable. So, the whitepaper may be updated time by time to reflect the teamwork. The content in this white paper may be translated into other languages in the course of written or verbal communications. It may be lost or misrepresented, so accuracy cannot be promised. DeSyn Protocol is a continuously developing and improving the platform. Many implementations will be constantly improved in the process of development. If there is any inconsistency with the white paper in the course of implementation, the specific implementation shall prevail.

Section 6: Contact

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