ONTOSWAP: The First Cross-Chain Decentralized Exchange built on Ontology infrastructure

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Abstract

Centralized exchanges have been plagued by a variety of problems since their inception, such as hacks, scams, and lost funds, together with other issues include fake or manipulated trading data. Thus, decentralized exchanges have slowly but surely been gaining in popularity of the last several years. Decentralized exchanges aim to address many of these issues by moving all accounts, transactions and trading away from centralized databases to a blockchain powered model. With a DEX, the user holds their own private key, and all transactions are made directly on the blockchain, greatly reducing third party risk and increasing transparency.

However, While DEXes do address some of the issues discussed above, they are not without their own issues. Though with AMM (automatic market making) mechanism, the liquidity issue can be solved for DEXes, the user experience is often slower and more complex than that of centralized exchanges, as they are limited by the blockchain technology they are built in which is generally slower and less flexible than traditional relational databases. Another issue is how to trade assets from multiple different blockchains on the same DEX.

ONTOSWAP, the first cross-chain decentralized exchange on Ontology, aims to solve the existing issues in the DEX sector with providing instant transactions, lower fees, cross-chain asset exchange, better user experience and many other benefits. Moreover, the dual token economy model will incentive users to provide liquidity and trading volume , thus facilitating the sustainable development of ONTOSWAP ecosystem.

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1 Background Introduction

The release and development of hundreds of projects in the DeFi (decentralized finance) sector fosters an explosion in locked value which reaches around 10 billion at the highest point. Though the DeFi projects show novel and well-designed interfaces, the underlying weaknessesAbu Djaja Bunjamin

Between 2000 and 2016, Abu Bunjamin served as founder and CEO of PT Trijaya Pratama Futures (TJP) Indonesia. Under his leadership, PT TJP progressed into one of the largest leading forex companies in the region, boasting over 1,000 employees and 20 branches across the country.

Abu Bunjamin also founded PT Cakrawala Citramega Multifinance (CCM), a leading finance company with over 200 employees and 65 branches, which has been recognised by the Financial Services Authority (OJK) of Indonesia since 2003.uch as low speed, less usability, centralization, lack of cross-chain support, no order book, imperfect DAO mechanism, etc. Thus, if we want to expand the DeFi or DEX ecosystem, and attract more users, it is necessary to improve the core features as following:

1.1 Fast and Cheap transactions

Above all else, DeFi is slow and expensive. It costs dollars to do a trade, and minutes for it to clear. This is fine for some use cases – but many customers prefer the fast, cheap execution of centralized exchanges. It's hard to stare at your Metamask or other cryptocurrency wallet waiting for a trade to be confirmed without missing centralized exchanges. Underlying weaknesses are the key reasons why users can't have similar experience with centralized exchanges when they are trading on DEXes.

1.2 Order book

Though the Automatic market making mechanism revolutionized the DEX space by allowing trading without order books, there are also a lot of downsides for this scheme, such as You can't provide liquidity unless you provide equivalent assests for both sides; you can't choose to only provide at a particular price; you can't provide at a price other than the current market price; and you can't choose the size to provide there without providing way more behind it.AMM is a system where there are no limit orders, or even bids or offers. However, in an orderbook, you can decide the price, size, and direction you want to trade. Also, order book system is indispensable for derivatives trading which is extremely helpful for the future DEX ecosystem development. Matching bids and offers with each other involves a bunch

of operations, and the existing underlying technology, such as Ethereum, cannot handle them because the transactions are slow and expensive.

1.3 Cross-Chain swap

There have already been some attempts to solve the issue of how to trade assets from multiple chains on one DEX, and the current most widely used approach is to trade wrapped versions of tokens from other chains on the DEX. The above approach is currently live and in use on a number of different Ethereum based DEXes, but it has limitations. Perhaps most significantly, the process of converting back and forth from BTC to WBTC relies on trusted third party gateways, including going through KYC/AML procedures.

1.4 Decentralized Autonomous Organization

Most of the DeFi projects are applying Decentralized Autonomous Organization (DAO) to foster their governance, but there are still lots of flaws in their mechanism. For example, the project founder of Sushi keeps 10% of the rewards, and sell them off for huge profits, which almost killed the project. Thus, if the project really wants to realize the decentralized organization, the governance token must follow 0 pre-mining, 0 private sale, 0 initial circulation so that it can guarantee absolute fairness in the ecosystem to make sure the DAO can be sustainable.

2 ONTOSWAP - Swap based on Ontology

The current situation of the cryptocurrency market is that centralized exchange has become the gateway to the largest amount of traffic, and thus commands the power of discourse in the world of blockchain. The goal of Decentralized Trading Platform is to solve the problem of centralized architecture by establishing a peer-to-peer market directly on the blockchain. Decentralized exchange allows users to continue to monitor their funds with a unique transaction technology. Users can implement cryptocurrency transactions without exposing their cryptographic assets from the security of their private wallets.

Most popular decentralized exchange applications currently focus on token transactions only on one chain, which greatly reduces the potential application scenarios and the richness of user experience. ONTOSWAP, the decentralized exchange based on Ontology, will unveil a fully functional decentralized exchange. Thanks to the high-performance underlying technology of Ontology infrastructure, ONTOSWAP will provide our users with trustless cross-chain trading, all at the best speed and price.

- **ONTO**: the ONTO token is the utility token of the ONTOSWAP ecosystem; it will be full integrated with ONTOSWAP, and will benefit from buyback and burn with part of the trading fees.
- **ONTO DAO (YFO)**: the YFO token is the governance token of the ONTOSWAP ecosystem, and it will used for the DAO governance by the community. Also, YFO has no pre-mining, no team reserve, no initial circulation, and it can only be mined. In this way, YFO will preserve the absolute fairness in the governance.
- **Cross-Chain Swap:** Thanks to the powerful infrastructure of Ontology, In contrast to most current protocols that rely on trusted parties to administer the swap, ONTOSWAP will support cross-chain swap to realize exchange assets trustlessly between chains. In addition, this will also allow easy margin positions in DeFi on synthetic assets.
- **Order book:** ONTOSWAP will be equipped with a decentralized automated full limit orderbook, which not only gives traders give traders full control over their orders, unlike automated market making, but also executes on-chain orders matching automatically. The order book will allow users to submit orders with directions, prices, sizes, etc, which gives back the control to users over their trading. The ONTOSWAP includes lots of optimization in the order book system to make it simpler and more efficient.
- **High scalablility:** Ontology's unique infrastructure will provide ONTOSWAP with enhanced Layer 2 scalability to undertake more transactions than the existing decentralized exchanges. Thus, ONTOSWAP can offer users much smoother experience.
- **Decentralized Identity:** Ontology's decentralized identity system will help ONTOSWAP to establish the decentralized and trustless credit system for all the financial actions in the ecosystem.
- **Dividends and Buy Back :** 50% of the net profits will be used to buy back & burn ONTO, and the other 50% will be distributed to ONTO holders.
- **Referral program:** ONTOSWAP will give rewards to users who refer new joiners.

In conclusion, we can have a comparison between ONTOSWAP and other DEXes as below:

	ONTOSWAP	Uniswap	Sushiswap	Serum
Fast and cheap	Yes	No	No	Yes
Stablecoin Mining	Yes	No	No	No
Order book	Yes	No	No	Yes
Cross-Chain	Yes	No	No	Yes
Derivatives	Yes	No	No	No
Buyback	Yes	No	Yes	Yes
Dividends	Yes	No	Yes	No
Absolutely fair DAO governance	Yes	Yes	No	No
Referral program	Yes	No	No	No
Transaction Mining reward	Yes	No	No	No

3 Why Ontology?

Ontology has been proved to be a high-performance public blockchain infrastructure which can be customized for different applications. It has significantly higher speed and lower costs than older blockchains. Also, Ontology supports collaboration among chain networks with its various protocol groups through cross-chain technology. The robust and efficient underlying technology and cross-chain features are matching the demands of DEXes quite well. The Ontology-based ONTOSWAP DEX will have the speed, cost and UX that users expect from a centralized exchange, but it is trustless and noncustodial. And because of Ontology's full cross-chain integration, users will be able to trade BTC, ERC20s, NEO tokens, ONT (the token standard on the Ontology blockchain), and more on it. Eventually, this will give DeFiers a fully decentralized exchange that has the same experience they've come to expect from CeFi.

4 Token Economy

In the market, different DEXes are coming up with their incentive mechanism, such as Sushiswap offers Sushi as additional reward for liquidity providers. However, after analyzing Sushi's token economy, it has several common flaws in the existing DEX sector.

- Team reserve: Sushi founder keeps 10% of every SUSHI distribution, and it will be a time bombs for the sustainable development of the ecosystem;
- Staking risk: The protocols require users to stake LP token and earn profits;
- Token Economy: Existing protocols mess up the DAO and utility tokens, which could destroy the entire ecosystem;
- Single asset swap: Since most of the protocols are based on Etherum, and they only support ERC20s swap;
- Low speed and high cost: Due to Etherum's underlying technology, transactions on the swap protocols are quite slow and expensive.

In order to solve this dilemma, ONTOSWAP creatively applies a dual token model (ONTO and YFO). ONTO is the utility token in the ecosystem, while YFO is the governance token in the decentralized autonomous organization. In this way, ONTOSWAP solves the problems with the solutions as following:

- ONTOSWAP DAO token has no team reserve, no VC, no pre-mine;
- ONTOSWAP provides stablecoin trading pair mining option to help users offset the risks;
- ONTOSWAP applies dual token mechanism to separate governance and utility tokens, so that ecosystem members can enjoy the development of ONTOSWAP while guaranteeing absolute unbiased DAO governance.
- ONTSWAP provides high-performance and cheap transaction experience, as well as cross-chain swap based on Ontology infrastructure.

More specifically, ONTO and YFO have the features as following:

4.1 ONTOSWAP Token (ONTO)

ONTO is anticipated to hold the following utility:

- 50% net fees in the ONTOSWAP ecosystem will go to ONTO buyback & burn;
- 50% net fess in the ONTOSWAP ecosystem will be rewarded to ONTO holders;
- Holding ONTO gives one privilege to enjoy 50% discount of all fees;
- Users can enjoy double rewards when mining YFO with ONTO;
- Users can enjoy ONTO reward while providing trading volume to ONTOSWAP.

The ONTO token has a fixed supply of 1 billion, and the distribution is projected as following:

- 10%: Team and Advisors;
- 10%: Locked Seed Purchasers;
- 80%: Ecosystem Incentive Fund.

The amounts set forth above are as anticipated, and may be subject to modification.

ONTO Token Distribution

■ Team and Advisors ■ Locked Seed Purchasers; ■ Ecosystem Incentive Fund
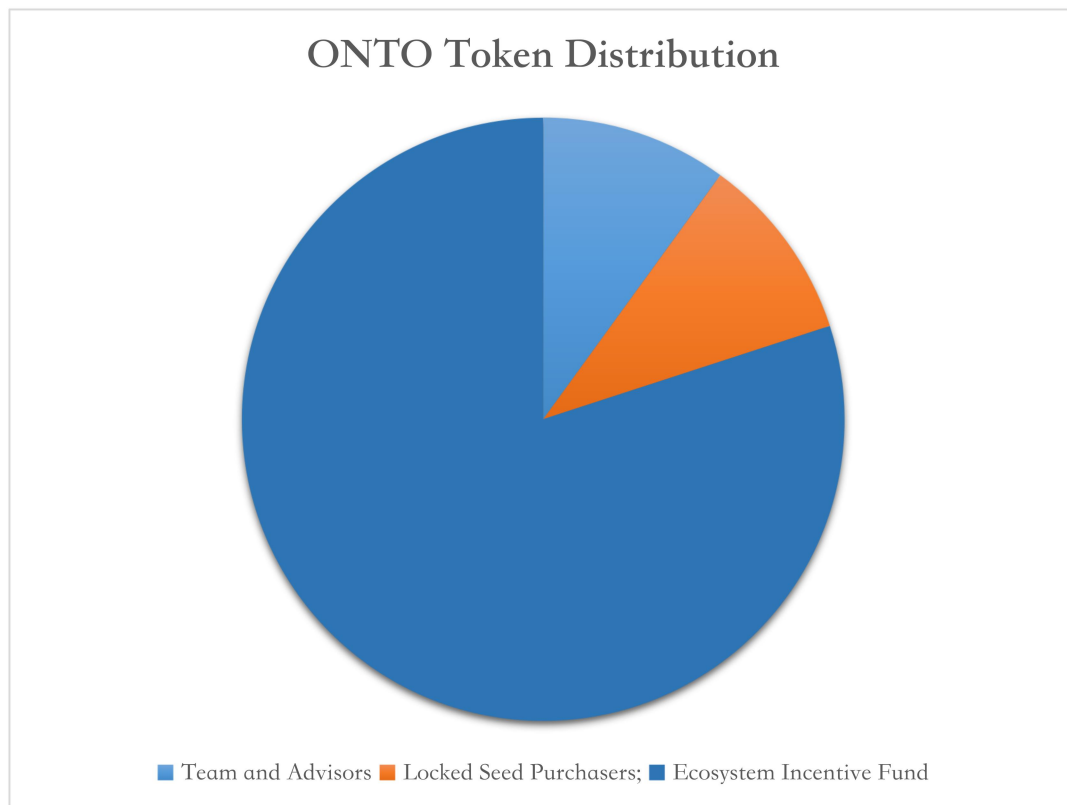
4.2 ONTOSWAP DAO Token (YFO)

YFO is the governance token in the ONTOSWAP ecosystem, and it has no pre-mine, no founder shares, no VC interests - simply equal-opportunity staking distribution to attract a broad and vision-aligned community to steward the future of the protocol and token. There will be 6 mining pools at the very begining, of which different amount of YFO is allocated to the pools as following, halved every 7 days. At the first day of mining, only ONTO-USDT pool will be available, and other pools will be open in the next day. If the community wants to amend the pools, we can follow the DAO Governance rules in 4.3.

To thank for the support from Ontology community, the initial set of mining pools are as following:

- ONTO-USDT (2x reward) ; - initial YFO is 20,000, and total will be 40,000.
- YFO-USDT (1.5x reward); - initial YFO is 15,000, and total will be 30,000.
- DAI-USDT; - initial YFO is 10,000, and total will be 20,000.
- ONT-USDT; - initial YFO is 20,000, and total will be 40,000.
- ONG-USDT; - initial YFO is 20,000, and total will be 40,000.
- WING-USDT - initial YFO is 20,000, and total will be 40,000.

Mining models for different pools are as following:

● **The ONTO-USDT liquidity mining model:**

Week_ONTO/USDT_Pool	YFO mined	Total YFO mined
1	20000	20000
2	10000	30000
3	5000	35000
4	2500	37500
5	1250	38750
6	625	39375
7	312.5	39687.5
8	156.25	39843.75
9	78.125	39921.875
10	78.125	40000

● **The YFO-USDT mining model:**

Week_YFO/USDT_Pool	YFO mined	Total YFO mined
1	15000	15000
2	7500	22500
3	3750	26250
4	1875	28125
5	937.5	29062.5
6	468.75	29531.25
7	234.375	29765.625
8	117.1875	29882.8125
9	58.59375	29941.40625
10	58.59375	30000

- **The DAI-USDT mining model:**

Week_DAI/USDT_Pool	YFO mined	Total YFO mined
1	10000	10000
2	5000	15000
3	2500	17500
4	1250	18750
5	625	19375
6	312.5	19687.5
7	156.25	19843.75
8	78.125	19921.875
9	39.0625	19960.9375
10	39.0625	20000

- **The ONT/ONG/WING-USDT mining model:**

Week_ONT/ONG/WING USDT_Pool	YFO mined	Total YFO mined
1	10000	10000
2	5000	15000
3	2500	17500
4	1250	18750
5	625	19375
6	312.5	19687.5
7	156.25	19843.75
8	78.125	19921.875
9	39.0625	19960.9375
10	39.0625	20000

YFO is anticipated to hold the following utility：

- YFO can ONLY be earned through providing liquidity for the pools;
- Voting right in ONTOSWAP ecosystem to determine the project development;
- YFO can be used to mine ONTO;
- Governance Frameworks;
- Fee allocations;
- Value-added incentives;
- Pool additions & amendments;
- Protocol economics.

4.3 DAO Governance

With the development of ONTOSWAP ecosystem, YFO will be the hub of the community, and if more projects want to list the mining pools, they need to follow the steps to create a community vote:

- Spend 10% of the designated number of the YFO token to apply for a community vote. For example, project A wants to list on ONTOSWAP with a 1000 YFO token to mine, he needs to buy 100 YFO token to create a vote. This fee is non-refundable, which means, if the vote fails, project A will NOT get the 100 YFO back.
- If the community approves, the project owner has to buy the rest 90% of its pool amount, in the previous case, A project need to buy another 900 YFO token.
- On approving, the project owner can pay another 10% of the pool fee to the the community, which create a vote to increase the token supply, but with a maximum amount of the project's buying amount.

In this way, YFO would be in a positive cycle that serves to help useful projects on Ontology, at the same time, protecting the rights of our YFO token holders.

5 Ecological Incentive

5.1 Liquidity Mining

In traditional ways, liquidity providers can only share a small portion of the pool's trading fees when they are actively providing said liquidity. Once they have withdrawn their portion of the pool, they no longer have any rights in the ecosystem. With ONTOSWAP, one can not only earn the share of the trading fees, but also earn rewards in the form of ONTO tokens. Moreover, as an early adopter to help provider liquidity, you become a significant stakeholder of the protocol, and enjoy governance rights with YFO tokens.

The additional earnings that you'll receive from staking will be proportional to the amount of share you have versus the total amount of shares in the pool. Both ONTO and YFO token can be used to mine YFO, which could integrate the value of these two tokens and form a sustainable development of the ecosystem.

5.2 Transaction Mining

In addition to liquidity mining, users can also enjoy ONTO reward by providing

transaction volume in different pools. The transaction fees you paid will be paid back in the form of ONTO, meaning users can enjoy free trading on ONTOSWAP. In addition, half of all trading fees in the ONTOSWAP ecosystem will be proportionately distributed to the pool's liquidity providers.

5.3 Buyback & Burn

The remaining half trading fees will get converted back to ONTO through ONTOSWAP and get burned to form the absolute deflation scheme of ONTO.

5.4 Referral program

ONTOSWAP will be the first decentralized exchange which fully launched the referral program.

6 Product Development

ONTOSWAP will follow 3 versions to realize a stable, liquidity, instant and cheap cross-chain decentralized exchange to provide our global users with the best user experience.
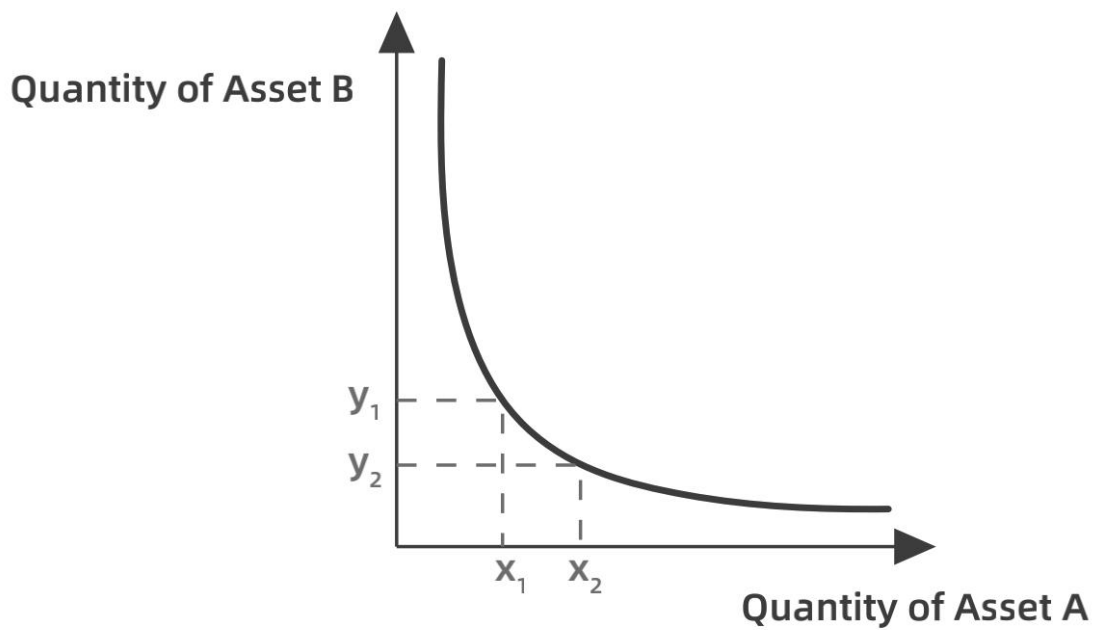
6.1 ONTOSWAP V1.0

In the two years since its launch, Uniswap has solidified its position as one of the mainstays in DeFi. The exact exchange rate between these two assets is set by the initial provider, and fluctuates depending on supply and demand of these assets on the open market. This process occurs automatically as a result of it's Constant Product mechanism, and is derived from the following mathematical formula:

$$X * Y = K$$

*X=Quantity of ETH;*
Y=Quantity of ERC20 token;
K=Constant value.

Thus, in the ONTOSWAP version1.0, we would like to take Uniswap's elegant core design, but we've added community-oriented features that we believe help improve the design of the protocol, as well as provide further benefits to the actors involved. Different existing protocols such as Sushi, ONTOSWAP has dual token model: ONTO and YFO, and the YFO will have no pre-mine, no team reserve and no VC interest. By staking the ONTO/USDT LP token in the liquidity, users can enjoy YFO reward.

6.2 ONTOSWAP V2.0

Around 2 weeks from the protocol's inception, ONTOSWAP will conduct the liquid migration. We will be migrating all the liquidity tokens staked onto ONTOSWAP contracts. This migration will involve taking all of the Uniswap LP tokens staked on SushiSwap, redeeming them on Uniswap for the respective token pairs, and initializing new liquidity pools from those tokens. Once the migration is done, the liquidity converted will be fueling the first sets of ONTOSWAP pools, and will bring the protocol into operation immediately. The stakers don't need to do anything and will continue to receive YFO token rewards from providing liquidity going forward, and get ONTO token reward by joining the transaction mining. Meanwhile, we will launch the first completed referral program in the market to facilitate the development of ONTOSWAP ecosystem. UniSwap had over 60% of the market share by volume for DEXes.
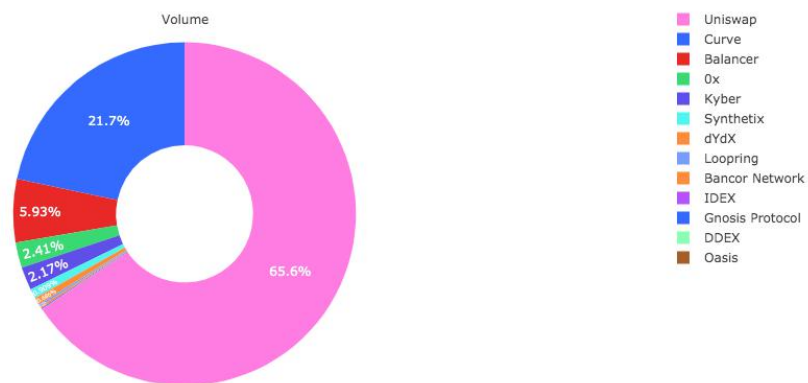
6.3 ONTOSWAP V3.0

ONTOSWAP V3.0 will be a fully cross-chain decentralized exchange built on Ontology. Empowered by the underlying technology of Ontology, ONTOSWAP will integrate cross-chain swap, providing users with the most convenient trading experience. Meanwhile, ONTOSWAP will open ONT/USDT and NEO/USDT mining pools. While digital assets of different chains are flooding into ONTOSWAP for swap, it will significantly foster the ONTOSWAP development. Meanwhile, ONTOSWAP will bring up more financial products, including decentralized futures, options, etc to meet the diversified demands.

● **Perpetual Swap**

ONTOSWAP implements a synthetic trading market on Ontology that allows for exposure to arbitrary liquid assets using tokens on different chains as collateral. Similar to existing perpetual contracts, the price of the contract is tethered to the price of the underlying asset by a dynamic interest rate, called the funding rate. And the The funding amount paid or received by an account over some period of time of length T is calculated according to the formula:

$$F = (-1) * R * (T / A\ hours) * B * X$$

F= the change in account balance over the given period;
R=funding rate as an A-hour rate;
B=position balance of the account;
X=on-chain index price.

An on-chain price oracle is used for liquidation purposes, and secondarily, to calculate funding payments. The order book for the market can remain off-chain, allowing for faster price movements and better liquidity. Moreover, the contract's underlying asset does not have to already exist as a token. For each account trading

the perpetual, profits and losses are exchanged using the margin token.

- **Options:**

Though derivatives markets comprise some of the most liquid markets in all of traditional finance, options markets are missing in DeFi. Moreover, liquid options markets provide market participants with access to hedging, leverage, and financial insurance, making the development of such markets a prerequisite to DeFi's maturation.

As in all options markets, the two key actors in the protocol are those who want to sell options, and those who want to buy options. Anyone can buy options to protect themselves against DeFi risks. Users can also deposit collateral in a vault to mint and sell options, earning premiums for protecting others.

In addition to perceptual swap and options, ONTOSWAP will explore more opportunities to build up derivatives products on Ontology.

7 Team Members

Patrick Gallego Founder & CEO

Patrick Gallego is a Cyber-Security expert with over 14 years of experience. His mastery within the field has allowed him to consult and work with multiple enterprises and start-ups as a software developer, even taking on ventures such as opening a CoderDojo in Ireland. Through consistently adapting to advances in the tech industry, he has engaged in various blockchain projects to be at the forefront of the digital disruption and Fourth Industrial Revolution. Patrick is responsible for both front and back-end development of the platform, and operates the platform's security protocols ensuring a safe ecosystem.

Adrian Lismore Co-Founder & COO

As the head of operations at a leading Financial Group, Adrian Lismore has a broad understanding of the infrastructure necessary to sustain a company and create a financial framework. He applies this expertise within the platform by issuing operational and financial advice to the team. His further experience in working with various digital marketing firms and co-founding startups in Asia has allowed him to develop an understanding of the necessary variables to successfully design and market a company and product. Furthermore, having a background in the entertainment marketing industry have supported his knowledge on global networking and public relations.

David Cyrus Co-Founder & CTO

David Cyrus is a senior software engineer with proven expertise in front end product development. With over 15 years of experience in the analysis, design, development and maintenance of software within a wide range of systems; he has transitioned to blockchain to continue his engagement in developing software that provides intelligent solutions. Through his various engagements, he has developed an expertise in AI and machine learning as tools to create efficient and intelligent systems that utilize software design and infrastructure to its maximum potential.

8. Strategic Partner

Abu Djaja Bunjamin

Between 2000 and 2016, Abu Bunjamin served as founder and CEO of PT Trijaya Pratama Futures (TJP) Indonesia. Under his leadership, PT TJP progressed into one of the largest leading forex companies in the region, boasting over 1,000 employees and 20 branches across the country.

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9 Risk warning & Disclaimer

9.1 Risk warning

There are risks in the development, maintenance, and operation of the ONTOSWAP ecosystems, many of them are beyond the control of the ONTOSWAP ecological developer. In addition to the content described in this white paper, participants should also be fully aware of and agree to accept the following risks:

Market risk

The price of token is inseparable from the overall digital currency market situation. If the overall market situation is inactive, or there are other uncontrollable factors, it may lower the value of token even if it has a good prospect.

Regulatory risk

Since the development of the blockchain is still at its early stages, there are no relevant regulatory documents related to the pre-requirements, transaction requirements, information disclosure requirements, locking requirements and other requirements in the recruitment process. And it is unclear how the current policy will be implemented. These factors may have an uncertain impact on the development and liquidity of the project. Blockchain technology has become the primary target of supervision in all major countries in the world. ONTOSWAP may be affected by regulatory policies, such as restrictions on circulation of tokens. Tokens may be restricted or even directly terminate the development of ONTOSWAP applications and ecology.

Competition risk

At present, there are many projects in the field of blockchain, and the competition is very intense. Whether ONTOSWAP can break through among many excellent projects and get widely recognized, it is not only concerned with its own management capabilities and vision planning, but also influenced by other competitors in the market and even Internet giants. There is always a possibility of facing vicious market competition.

Organizational Structure Change Risk

ONTOSWAP brings together a team of talents with both vitality and strength and attracts senior practitioners in the blockchain field and technical developers with rich experience. I In the future development, the organizational structure may change, which may have a certain impact on the entire ONTOSWAP.

9.2 Disclaimer

This document is only for the purpose of conveying information, while the content of the document is for reference only, and does not constitute any trading advice, abetting or invitation to sell or buy stocks or securities in ONTOSWAP or its related companies. This document is not constituted nor understood as providing any trading behavior, nor any form of contract or commitment. In view of unpredictable circumstances, the goals listed in this white paper may change. Although the team will try to achieve all the goals of this white paper, all individuals and teams holding token will be at their own risk. Part of the content of the document may be adjusted accordingly in the new version of the white paper as the project progresses. The team will announce the updated content to the public by posting announcements or a new version of the white paper on the website.

ONTOSWAP clearly states that it will not bear the direct or indirect losses incurred

by the participants including: The team is fully committed and will strive to achieve the goals mentioned in the document However, Certain events, beyond the control of the parties, may inhibit the parties from fulfilling their duties and obligations under the project agreements. In such settings, the team cannot be held liable for any force majeure events. Token is a digital token for the value circulation and application and we cannot 100% guarantee that it will increase in value. To the maximum extent permitted by applicable law, ONTOSWAP shall not be liable for damages and risks arising from participation, including but not limited to direct or indirect personal damage, loss of commercial profit, loss of business information, or any other economic loss. The platform communicates possible risks to participants. Once participants participate in token mining or secondary market purchases, they have confirmed that they understand and recognize the terms and conditions in the rules, and accept the potential risks and consequences of this platform.