Whitepaper

ISSUAA Protocol

**Next generation DeFi protocol for derivatives of real world
and crypto assets on blockchain**

Alpha

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Content

Executive Summary

Blockchain technology and cryptocurrencies have the potential to change the lives of hundreds of millions of unbanked people worldwide to the positive. Besides the possibility to execute and receive payments without having a bank account as well as to save money without having to fear inflation and government interference, the opportunity to invest into various asset classes such as equities, stock indices, commodities, bonds and crypto assets would open up the chance for many to invest at significantly higher long term returns and to diversify risks.

However, at the moment this opportunity is unavailable. Centralized solutions, with a custodian locking up the respective assets, are difficult to realize as security laws in most countries would not allow them without the issuance of prospectuses, KYC procedures etc.

Decentralised solutions on the other hand have so far suffered from the high volatility of some of these assets. In order to make sure that decentrally issued derivative products, which mirror the value of an underlying asset, remain solvent at any given time, these assets have to be significantly over-collateralized. An example here is Synthetix, which requires a collateralization ratio of 600%. This, however, significantly limits the returns for investors which help to fund the issuance of these derivative assets.

Another significant problem with the existing systems such as Synthetix is risks associated with adding assets to the system. If synthetic assets are minted, somebody needs to take the contrary position - this role is being taken by the investors. In theory, the risk could be diversified and offset by long and short positions. However, in reality this is not the case. While there are ways to offset these risks, they require additional investments, which will further reduce returns. In reality, Synthetix investors which have provided assets to the system would have lost money in recent months, if this would not have been offset by staking rewards, which however need to run out over time.

ISSUAA thus takes a different approach to solve this problem:

- To mint synthetic derivative assets on ISSUAA, investors must deposit stable coins, which are pegged to the USD.
- Investors will receive not one but two tokens. One long token, which one to one mirrors the development of the underlying asset as well as a short token, which inversely mirrors the development of the underlying asset.

With this solution, no central counterparty, that assumes the risk of a price change, is needed and it is secured that there is always enough collateral to fund all outstanding assets.

The system will be governed by a governance token, the ISSUAA Protocol Token (IPT) and is set-up as a decentralized autonomous organization (DAO). IPT will be issued to investors which provide liquidity in the ISSUAA asset market pairs and for participating in voting processes. The rate of issuance is dependent on the delta between the amount of issued tokens as well the max. supply, which amounts to 100m IPT. Additionally, IPT will also be issued to investors who add liquidity to the IPT / USD stable coin LP pool on ISSUAA. This reward mechanism is designed to attract as much capital as

quickly as possible, as we believe that this will significantly increase the attractiveness of the system and thus also the value of the IPT token.

The value of the IPT token will result from fees, which are generated from trading derivative ISSUAA assets. These fees are locked in the smart contract of ISSUAA. To access these funds, IPT tokens can be burned. Given that the fees per token are set to increase constantly and rise with every trade of ISSUAA assets, it will however be highly unlikely that investors chose to burn IPT tokens in larger volumes as the market price should most likely exceed the value of the locked up fees.

The ISSUAA Protocol

The ISSUAA protocol is designed to tokenize real world and crypto assets such as stocks or stock indices, commodities or crypto assets on a public blockchain. The protocol is fully decentralized, without the need to trust any centralized middleman.

The basic concept behind the ISSUAA protocol is the idea to issue synthetic assets always as a pair. When minting new assets, the user will escrow a fiat pegged stable coin. In return, the user will receive a pair of synthetic assets: A long token, which mirrors the value development and price of the underlying asset, as well as a short token, which mirrors the development of the underlying asset inversely. This means that if the price of the underlying asset increases by 1 USD, the long token will gain 1 USD in value while the short token will lose 1 USD in value. The change in value of the two assets combined does thus not change. The underlying assets will thus remain fully funded, no matter in which direction the price of the underlying asset develops.

Users that hold 1 long token and 1 short token can at any time redeem the underlying collateral by burning the two tokens.

If the price of the underlying asset increases too much, the above mentioned mechanism would eventually break as the value of the short token cannot move into negative territory. To avoid this, each asset comes with a predefined upper limit. If this upper limit is breached, the assets will be frozen. The long token can then be redeemed for the price of the upper limit without the need to also burn a short token. This mechanism is comparable with so-called knock out certificates, which are available for all larger stocks and indices in traditional finance.

To determine if an asset has breached its upper limit, users have the opportunity to notify the system that a breach has happened. This will trigger a voting process, which is performed through a smart contract. The result of this vote will determine if the asset is frozen or not.

Each synthetic asset also has a predefined expiry time. Once that time has come, a voting process is initiated which determines the asset price at the time of the expiry. Tokens can then be burned without the need to burn both sides. The proceeds are calculated based on the expiry price. This expiry time is necessary to assure that the synthetic assets closely mirror their underlying asset prices.

Voting is based on a user's holding in the protocol's governance token, IPT (ISSUAA Protocol Token). This ensures that the voters have skin in the game. If a vote would turn out to have a wrong result, this could undermine the value of the users IPT token significantly.

ISSUAA Protocol Tokens (IPT) are distributed as a fair launch. Once per week, new IPT tokens are minted and granted as rewards to users which add value to the network. This includes providing liquidity to the individual asset liquidity pools as well as participation in the governance votes.

Per week, 3% of the delta between issued IPT tokens and the maximum supply is minted. 80% of these reward tokens are distributed to liquidity providers, with each liquidity pool receiving an equal share. The remaining 20% are distributed to those voters which have taken part in the governance

votes. In case of ISSUAA Asset freeze votes and expiry votes, only those voters, which have voted for the result chosen by the majority will receive a share of the rewards.

The value of the IPT token is generated by trading fees. Synthetic assets can be traded on the ISSUAA market, which is designed as an Automated Market Maker market. Liquidity providers will receive 0.25% trading fees, while 0.05% are kept for the IPT governance token. These IPT trading fees are locked up in the fee pool, which can be redeemed by burning the governance token. The proceeds are based on the share of tokens relative to the maximum total supply. Given that the maximum supply will never be reached, burning tokens will result in a discount to the current fee pool per issued token, which means that burning tokens will increase the fee pool per token for the remaining holders. The fee pool per token is thus set to always increase over time, providing an ever increasing floor price for the IPT token.

What does the ISSUAA protocol offer to its users?

The ISSUAA Protocol addresses the needs of two different user group:

Investors seeking yield - Liquidity Providers

ISSUAA offers interested investors the opportunity to earn a relatively safe yield as a liquidity provider in the asset pools. Trades on the ISSUAA Protocol cost 0.30%, of which liquidity providers will receive 0.25%, while 0.05% go to the governance token. Other protocols have shown that trading volume tends to be 10% or of the pool volume per day - which at 25 basis points trading fee equals roughly 10% yield per year.

While this might not appear to be a very high return at first glance, one should keep in mind that these returns come with a low risk.

Typically, liquidity providers are exposed to a significant price risk. If one of the assets in the liquidity pool depreciates significantly in value, this causes also a significant loss for the person holding the assets in the liquidity pool.

Let's assume that a liquidity provider invests 1000 US-Dollar into a liquidity pool, which consists of 50% TokenA and 50% a US-Dollar stable coin. If the price of the TokenA would drop by 50%, liquidity providers would also suffer a loss of 29%. While this is called impermanent loss as the loss would disappear if the token price would return the original price, this is quite a misleading statement as this loss can very well be permanent.

The ISSUAA Protocol, however, allows Liquidity Providers to invest in both long and short tokens and to provide liquidity in the respective long and short ISSUAA Asset pools. While they would still lose slightly when the price of the asset changes, the losses would be relatively small and easy to compensate with the earned trading fee. In the above mentioned example of a drop of 50% in the value of the underlying asset, the loss for the liquidity provider would be a mere 3%[1] - which is easily compensable by the earned fees. The following graph shows the expected losses depending on the change of the underlying asset price:

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[1] Assuming that the value of the long token and the short token are equal at the time of the investment
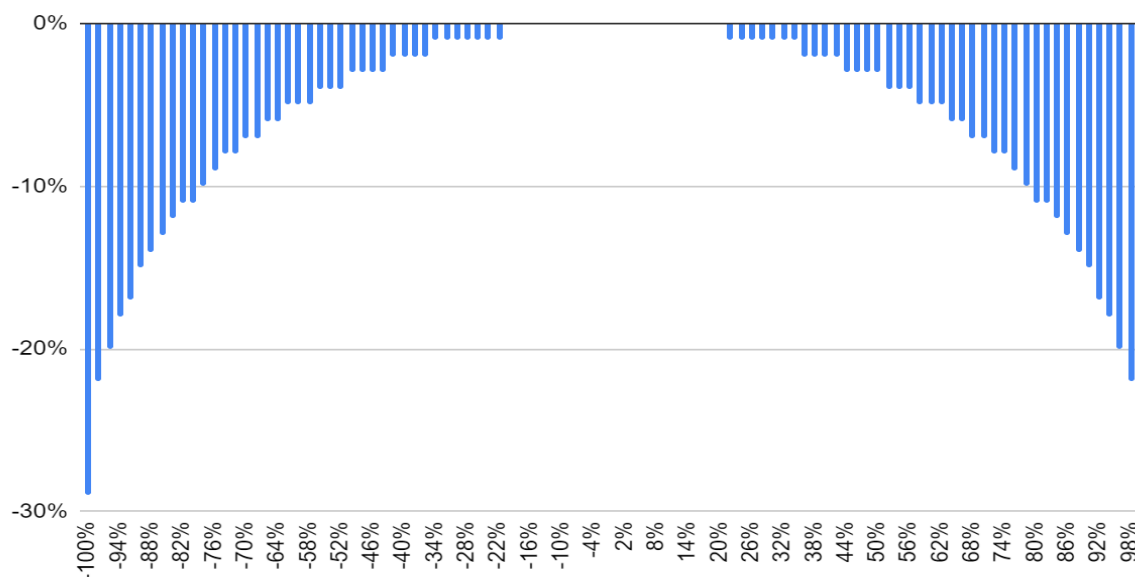
Even in the scenario of a price change of 70%, the loss for the Liquidity provider would not exceed 10%, which would likely be more than compensated by the expected trading fee.

Investors seeking exposure to stock markets, commodities etc.

While the larger crypto currencies such as Bitcoin or Ether have historically been great investments, risks associated with them are also large. Many investors will thus prefer to invest only a smaller portion of their net worth in cryptos.

However, there are many other reasons why investors would prefer to invest into a token compared to a direct investment in stocks or stock market indices.

1) No bank account is required
2) Fractional ownership is possible
3) Money locked up in crypto assets
4) Low transaction costs (depending on gas prices)
5) Arbitrage opportunities
6) Easy access to shorts
7) Crypto assets cannot be seized by governments

The ISSUAA Protocol can offer access to a variety of assets directly on chain.

Creating, minting and burning synthetic assets

The AssetFactory smart contract is used to create new Assets, convert USD stable coins into assets and to burn assets to receive USD stable coins in return.

Asset creation

When a new asset is created, the name of the underlying asset, the symbol and a short description are recorded in order to properly identify the asset and its underlying. Also, the upper limit is defined, which constitutes the price of the underlying asset when this will freeze. This data is saved by the AssetFactory smart contract and two new ERC-20 tokens are automatically deployed by the TokenFactory contract - a long token and a short token. Initially, this function will only be callable by the initial deployer of the contract, but ownership is transferred to the DAO smart contract right after the initial deployment and the creation of the first assets. The definition of new assets is then governed exclusively by the ISSUAA DAO.

Minting assets

When assets are newly minted, the minting address will be required to transfer USD stable coins into the AssetFactory contract. The minter will then receive an equal amount of long and short tokens, with the amount being defined by:

$$amount\ = \frac{USD\ stable\ coin\ amount}{upper\ limit}$$

Burning assets

Asset tokens can be burned at any time to redeem the locked value. There are three different scenarios that are covered by the smart contracts:

During the normal lifetime of the assets, it requires to burn an equal amount of long and short tokens to redeem the locked up capital. The amount to be redeemed is defined by:

$$USD\ stable\ coin\ amount\ = upper\ limit\ *\ amount\ of\ asset\ tokens$$

When an asset has been frozen, the short token is considered worthless. It thus requires only long tokens to be burned in order to redeem the locked up capital.

Finally, when an asset has expired, long and short tokens can be burned individually. The value to be redeemed for burning long tokens is defined by:

$$USD\ stable\ coin\ amount\ =\ asset\ value\ at\ expiration\ *\ amount\ of\ asset\ tokens$$

The amount of value to be redeemed from burning short tokens is defined as following:

$$USD\ stable\ coin\ amount\ = (upper\ limit\ -\ asset\ value\ at\ expiration)\ *\ amount\ of\ short\ asset$$

Trading and liquidity providing for ISSUAA Asset tokens

The ability to trade asset tokens is an integral part of the ISSUAA protocol. For each asset as well as for the ISSUAA Protocol Token there will thus be a marketplace, which is organized as an automated market maker (AMM) or constant factor market model. The core functionality of this part has been taken from the uniswap V2 contracts, with adaptations having been made for the remaining ISSUAA framework.

At the core of the market is the MarketFactory smart contract, which is used to deploy new market pairs and to keep track of the existing pairs.

For each individual ISSUAA Asset token, i.e. for each long and each short asset token as well as for the IPT token, an individual market pair is being set up. These market pairs are ERC-20 tokens, which handle the market functionality on individual asset level. All pairs are being set up as a pair of an asset token as well as USD stable coins.

Distribution of the ISSUAA Protocol Token (IPT)

The majority of the max. supply of 100m IPT is issued to users of the platform, which add value to the platform. Especially in the early stage it will be crucial to attract as much liquidity to the platform as possible. Also, tokens will be issued for users that participate in governance voting processes.

Weekly rewards volume

Every week, 3% of the so far unissued volume will be issued as rewards to liquidity providers and voters in the governance voting process. The following chart shows the distribution over the first two years - assuming that no tokens are burned:

IPT rewards per week
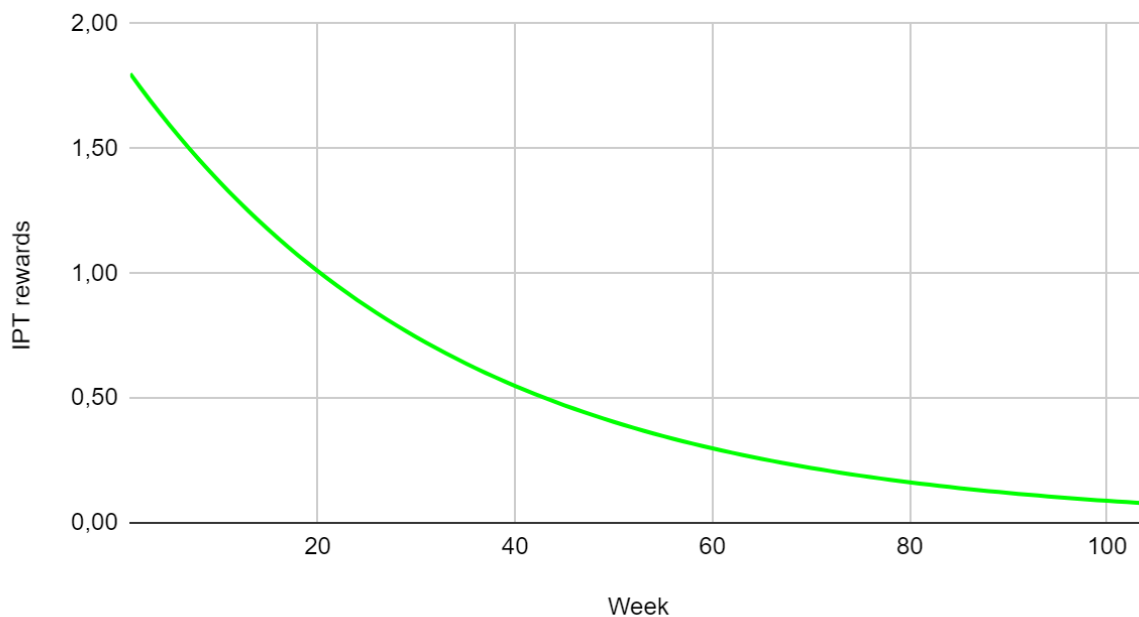
One of the liquidity pools that receive the weekly rewards will also be the IPT pool, which is aiming to increase liquidity of the IPT token.

Rewards for liquidity providers

Liquidity providers will receive 80% of the weekly rewards. This volume will be distributed evenly amongst the individual liquidity pools. Within the liquidity pools, the rewards will be distributed proportionately to the share of each user of the total pool volume.

Rewards for voters in the governance voting process

Voters in the governance voting process will be rewarded with 20% of the weekly rewards. Each account has the chance to generate voting points in every individual voting process. Voting points will be granted proportionately to the amount of staked IPT tokens. Users which participate in freeze votes or expiry votes and fail to vote for the majority side of the vote (for freeze votes) or are more than 1% away from the consensus' expiry price will receive neither voting rewards nor LP rewards for this week.

Vesting of IPT Tokens

Newly issued IPT Tokens will be given out as two components. 20% of the rewards volume will be handed out as liquid IPT tokens, which are immediately transferable. The remaining 80% will be staked with a vesting period of 180 days. This intends to attract investors with a longer term interest in the platform while at the same time reducing initial sell pressure.

DAO share

10% of all tokens will be minted during the initial deployment. They will be transferred to the Voting machine contract. Users can request a grant for providing services that the community of IPT owners consider valuable for ISSUAA. IPT holders which have staked their IPT will then vote whether the grant will be provided or not.

Bug bounty and early bird testers

A share of up to 5% of the total IPT tokens will be granted to users participating in early testing and for a bug bounty program. These tokens will be staked with a vesting period of 180 days.

Strategic partners and investors

Up to 10% of all tokens are available for sale to strategic partners and investors. Funds generated from the sale will be controlled by the treasury multisig wallet. These are used to finance expenses such as audit fees and marketing expenses as well as providing liquidity for the IPT LP pools.
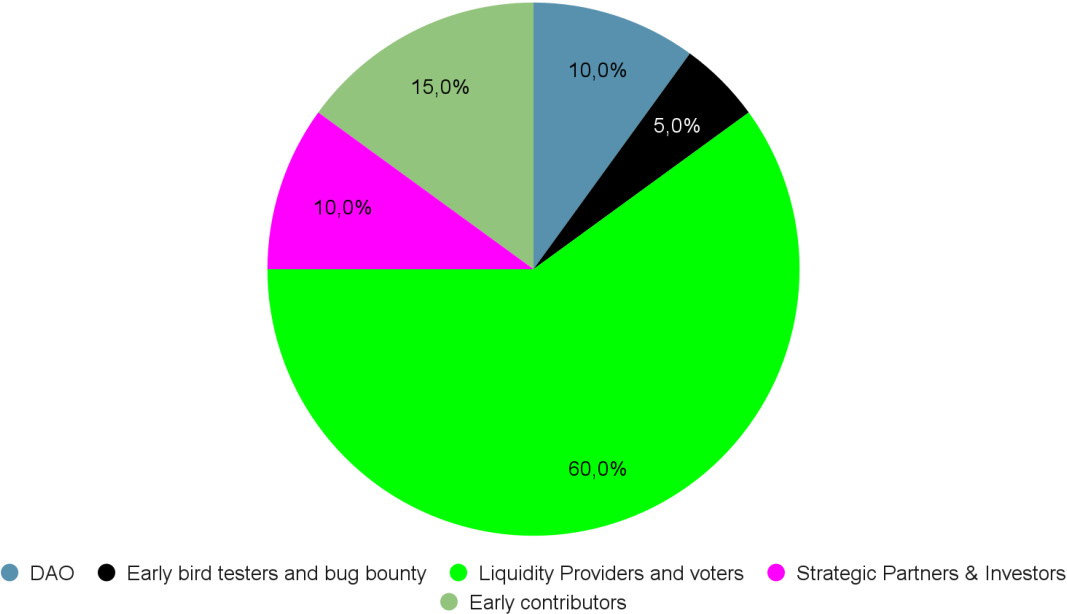
DAO treasury

Tokens that have been reserved for the bug bounty and early testers share as well as the strategic partners and investors share, which are not allocated until mainnet launch, will be transferred to a multisig wallet, which is controlled by DAO members. These tokens can be used for a variety of community governed purposes, including bootstrapping initial liquidity for the IPT token.

Team share

The team of early contributors will receive a 15% stake in the IPT token for their development efforts. 80% of these tokens will be staked with a vesting period of 180 days to 1 year.

Envisaged token distribution

10,0%

5,0%

60,0%

10,0%

15,0%

- DAO
- Early bird testers and bug bounty
- Liquidity Providers and voters
- Strategic Partners & Investors
- Early contributors

Governance Voting

In order to ensure that asset holders are receiving the fair value of the asset, ISSUAA relies on governance votes, which are undertaken by the holders of the ISSUAA Protocol Token. Token holders have an implicit incentive to be honest in such voting processes, as wrong results would lead to a lack of trust in the system. This would in turn lead to lower acceptance, lower volumes, lower fees earned and also a lower valuation of their tokens.

Additionally, voting is also incentivized by the issuance of reward tokens, which should further increase participation in the governance voting process - despite the gas fees this requires.

To participate in the voting process, users need staked IPT tokens. One staked IPT token constitutes one vote. During the duration of the voting process, IPT tokens will be locked from unstaking in order to prevent double voting.

Freeze votes

If an asset has surpassed the upper limit that is defined when the asset has been set up, the asset should be frozen, which means that the asset can no longer be issued and that long tokens can be burned at the price of the upper limit. Short tokens are becoming worthless.

If users consider the upper limit to be breached, IPT stakers with more than 50k staked IPT can initiate a voting process, in which all token holders can vote and decide if the upper limit has really been breached. The voting process will be open for 7 days. Every token holder can participate in this process, with each staked token counting for one vote.

After the 7 day voting period no more votes are accepted and the voting can be closed by anybody. If the majority has voted that the asset has breached the upper limit, the asset is frozen and all voters that have voted "yes" will receive voting points. If the majority decides that the asset has not breached its upper limit, the asset will continue trading as usual and the "no" voters will receive voting points. Voting points are the basis for the distribution of token rewards.

Expiry votes

Each asset has an expiry time, which is defined when the asset is created. After the asset is expired, a voting process can be initiated, which lets governance token stakers vote on the price of the asset at the time of expiry. This will set the price, based on which long and short assets are valued. This value is the basis for the amount the user receives when tokens are burned.

After the 7 days voting period is over, no more votes are accepted and the voting can be closed by anybody. The expiry price will be calculated based on the stake weighted average price of all votes.

New ISSUAA Asset proposal votes

New ISSUAA assets can be created by a DAO decision. Firstly, a new asset needs to be proposed by a user, who has a staked IPT balance of at least 100k IPT tokens. This will trigger a voting process, in which every user staking IPT can participate. The voting will go on for 7 days. After the voting period has expired, no more votes are accepted and any user can close the vote. If more than 50% of stake weighted votes have been in favor of adding the asset, the new ISSUAA Asset will automatically be added as a mintable asset. If not, the asset will not be added. Voting points will be granted to users that have supported the successful option.

DAO grant proposals

In order to be able to pay for services that users provide for the ISSUAA community, a 10% share of all IPT tokens is managed by the DAO. To receive a grant, users with a staked IPT balance of at least 100k IPT can propose users to receive a grant of max. 100k IPT. The hurdle of 100k IPT is set to avoid users spamming the system with grant proposals. Users with a balance below 100k IPT thus require to find a sponsor with a holding of at least 100k IPT to initiate a grant proposal. Once the voting process is open, users can vote on the proposal for 7 days. After the voting process is over, any user can close the vote. If the majority has voted in favor of the proposal, the DAO will automatically transfer the grant amount.

Resources:

Official website:

https://www.issuaa.org

Github repository:

https://github.com/issuaa/issuaa-contracts

Discord:

https://discord.gg/CtqQ2SJQ

Telegram:

https://t.me/issuaa_main

Twitter:

https://twitter.com/issuaa2

Medium blog:

https://medium.com/@issuaa