CLPS Paper

Version 0.9

Abstract

In this paper, we present how the Continuous Liquidity Protocol System (CLPS) will become a key feature of the Investoland ecosystem by providing liquidity to the system in a fully automated manner. We also present the ways in which the CLPS will provide a return on investment to liquidity providers by charging a fee from all transactions performed on Investoland, and by leveraging arbitrage opportunities.

Since Decentralized Finance (DeFi) applications struck the market in 2018, the concept of continuous liquidity rapidly became one of the most important features within this new industry. But, until now, continuous liquidity solutions had mainly been used in the digital-assets space. The novel idea behind Investoland's CLPS is to also enable real-world projects and assets to have access to continuous liquidity; incentivizing new investors into this venture.

We will be presenting some basic aspects of what Investoland is, and some background of how blockchain technologies evolved up to the point where we can think about how to support real-world projects with continuous liquidity. We will also be presenting the main components of the proposed solution and how to become part of it.

We hope you enjoy this reading!

Contents

1. Introduction

Background

The Internet paradigm

We live in a world that is ruled by the Internet paradigm. This paradigm has enabled the appearance of new ways of producing and distributing existing products and has also enabled the creation of new products, services, asset classes, and markets. One of the key features of Internet-based markets is their massive scale, which was inaccessible before the emergence into the mainstream starting in the '90s with the birth of the web. Being able to coordinate large networks of users in order to generate, provide, and extract value has enhanced the emergence of multiple multi-million dollar businesses such as Apple, Amazon, Facebook, and Google. But this paradigm shift towards a digital world didn't include a key feature that now seems obvious: native Internet money.

The blockchain technology paradigm shift

This innovation was finally born with the publishing of Bitcoin's White Paper in 2008 and the subsequent massive adoption that has turned it into an asset class with more than $219 B in market cap. Bitcoin not only proved that the idea of having a decentralized digital currency based on cryptographic consensus at large scale was possible, but it also introduced a novel underlying technology: blockchain, which has since powered the emergence of many platforms such as Ethereum, which dramatically lowered the barrier to entry for the issuance of digital assets

The emergence of digital assets

Fast forward to 2020,the concept of smart contracts is revolutionizing financial services. Many smart contract platforms have emerged and thousands of digital assets have been issued, enabling novel ways of thinking about how to represent and transfer value over the Internet or in a decentralized fashion. Just to name a few types of digital assets, we now have cryptocurrencies, stablecoins, equity-backed assets, utility, and synthetic assets. It has become an industry with more than USD 363B market cap and, although Bitcoin still has a dominance of around 60%, other assets and networks have accrued a lot of value.

Digital Assets issuance

Digital assets are issued via a specific type of smart contract, which are simple computer programs that run deterministically in the context of a blockchain that supports them. Smart contracts have some special characteristics, being two of the most important ones: immutability and that they are deterministic, meaning that the outcome of its execution is the same for everyone who runs it, given the context of the transaction that initiated its

execution and the state of the blockchain at the moment of execution. The unit of value representation of a given digital asset is commonly known as a token, which can be owned and exchanged between peers and in different types of exchanges. Tokens are issued via a special type of smart contracts, the most well known and widely used being Ethereum's ERC-20 standard[1].

DeFi

Decentralized or Open Finance, commonly referred to as DeFi, refers to the industry of financial services – payments, lending, trading, and more – provided through decentralized platforms on public blockchains, as opposed to highly centralized traditional financial institutions, according to defiwiki.org. These set of technologies, which mainly run on the Ethereum blockchain, have seen explosive growth from 2018 to 2020.

The first application that had significant traction within DeFi was DAI, a stable coin that is issued by Maker DAO's Foundation protocol and was launched on the Ethereum mainnet in 2017. After DAI many other DeFi applications launched and have together nurtured a vibrant ecosystem that today includes Decentralized Exchanges, Lending Protocols, Derivatives Issuance Platforms, Stable Coins, and Automated Market Makers, among others. These applications today account for more than $10.68B of Total Value Locked (TVL)[2] in their smart contracts and there is almost $19B[3] worth of stable coins issued only on Ethereum, at the time of writing. Investoland aims to blossom as one of the main players in this industry, and one of the first ones to create a bridge between real economy projects and DeFi.

Bringing real-world assets to DeFi

Until now, most of the assets that have enjoyed the many benefits of the DeFi ecosystem are native blockchain assets or digital assets. Users can leverage the use of these assets by accessing the protocols in existence and take loans, buy and sell assets without depending on a custodian, leverage their trading positions and access liquidity from a large share of shareholders across the globe by using Automated Market Makers.

Today, the first set of applications that aim to provide these same benefits to real-world assets such as real estate, mortgages, and loans is being born within the DeFi space. Protocols such as Centrifuge allow real-world assets to be issued on the Ethereum blockchain and the CLPS is launching the first Automated Market Maker focused on providing instant liquidity to real-world projects, which usually struggle to access it, due to the nature of their industries.

Meet SeSocio

SeSocio.com is the leading investments marketplace platform in Latin America. The management team has a proven track record in technology and finance. Together, they have

[1] Mastering Ethereum, Antonopoulos, Wood.
[2] https://defipulse.com/
[3] https://public.flourish.studio/visualisation/3828410/

built a company that has allowed hundreds of projects to be funded through its platform and more than 3M transactions executed.

The company provides a gateway for all kinds of investors to access a world of opportunities previously reserved for the wealthy or accredited investors.

The investment platform's opportunities range from real-world investments such as real estate, logistics, startups to cryptocurrencies and DeFi protocols.

Allowing crowd investment spaces to scale to its true potential SeSocio made the decision to develop the Investoland platform[4], which will create its own decentralized economy, powered with its own ERC20 native token, the Inve Coin. The platform will allow users to invest in a completely peer-to-peer, community-driven marketplace that is powered by smart contracts, which provide transparency and reliability.

The Team at SeSocio.com is proud of everything they have built and achieved. Their ethos of providing access to exciting investment opportunities to everyone has fueled their passion. The company has offices in five different countries. It has a client base composed of users from all over the world and is proud of the more than 100 people team they have built to serve their community. Investoland will be part of the same group of companies and carry the same trusted name of the SeSocio group. SeSocio was the first use case of Investoland's network.

Investoland

Investoland is an investment marketplace in which investors will be able to invest in real-world projects leveraging blockchain technologies. Investoland will be a global decentralized investment network built on top of the Bitcoin blockchain, developed with the funds raised by the SeSocio Group as a result of the Inve Coin token sale, in which $9.1M were raised in October 2019. Investoland will empower the widespread use of financial smart contracts, be it for any individual, software, or company, including SeSocio, thus creating a global, scalable, decentralized, and transparent solution to investments worldwide.

Inve Coin

The Inve Coin is the native currency of Investoland and the fuel behind every transaction performed on the network. Once a new user joins the platform and makes an initial investment in any given project or asset, she receives Inve Coins in exchange for the investment made, which can be done in Fiat or cryptocurrencies. Once Inve Coins are in her portfolio, she's ready to start investing within the platform. Investors also receive the return on their investment in Inve Coins, which they can later liquidate in Investoland's trading platform, taking advantage of the liquidity provided by the CLPS.

Trading platform - Why is it important in Investoland

Trading platforms

[4] https://www.investoland.io/

Digital assets can be bought and sold on a peer to peer (p2p) basis or in different types of trading platforms. Even though p2p transactions are very valuable and interesting in itself, in this paper we will focus on trading platforms. There are different types of trading platforms in the blockchain industry, with the most common division being between centralized and decentralized exchanges (DEXs). The main difference between centralized and DEXs is that, in the first case, there's a single entity that controls and manages the exchange's funds and investors must create an account to be able to make orders of any type. In the latter, investors use a personal, or non-custodial, wallet to make orders and all transactions are routed in a similar fashion as P2P, but supported by the use of smart contracts powered by the exchange. Independently on what type of exchange we're dealing with, there's one common feature which, together with security, is the key feature exchanges should have: liquidity.

Trading exchanges and liquidity

Liquidity in a trading platform refers to the ease in which an asset can be traded for other assets without having a significant impact on its market price. When we speak about an asset's liquidity we can observe that there are some assets that are more liquid than others, for example, intangible assets such as stocks or digital assets are more liquid than tangible assets such as real estate or art. But even among each category, not every asset is created equal, and that's why we observe that, for example, there are certain types of digital assets that are more liquid than others. There are many reasons that produce a lack of liquidity and can affect the trading of assets at their market price. Some of these sources are exogenous transaction costs; demand pressure and inventory risk, which means that if an investor wants to quickly sell an asset he might not find a counterparty to do it. Thus, he might be tempted to sell to a market maker at a discounted price; additionally it can be difficult to find a counterparty to trade a particular asset or a large quantity of a given asset. Finally, once the counterparty is met a price must be agreed in order to proceed with the transaction[5].

CLPS Value Proposition

The objective of the CLPS is to provide a mechanism to ensure liquidity within the Investoland ecosystem, allowing investors to instantly exchange any asset within the trading platform. This paper presents the proposed mechanisms to achieve automatic liquidity and the features that allow investors to become liquidity providers in exchange for a return on their investment. The return on investment is accrued by the CLPS by deriving a percentage of the exchange fees paid in the Investoland Exchange, and by arbitrage opportunities within the CLPS. All returns are automatically allocated to the CLPS in order to provide it with more depth and revalue the price of the Liqui Token.

2. Liqui Tokens

[5] http://pages.stern.nyu.edu/~lpederse/papers/LiquidityAssetPricing.pdf

What is a Liqui Token?

The Liqui Token could be considered as a portion of the CLPS representing the stake each liquidity provider has in the community as a whole - technically speaking, it is an ERC-20 token that will be created on blockchain. Whenever an investor decides to participate in the CLPS project, the investor will receive these tokens. The CLPS will have a mechanism to increase the valuation of the Liqui token creating returns to the token holders.

The same token will also be used to determine the stake of each investor in the governance of the protocol rules once the DAO is fully implemented.

Automated Market Makers

Just like regular automated market makers, the CLPS is an agent that provides liquidity in electronic markets by algorithmically calculating prices. But the main difference is that the CLPS will be built by using blockchain Smart Contracts. The set of protocols that compose the CLPS will allow investors to take advantage of the CLPS liquidity in order to perform instant trades and will also have the possibility to become liquidity providers of the Investoland trading platform and receive a passive income from the transactions processed in Investoland.

To become a liquidity provider users buy any given amount of Liqui Tokens (LQT), which determines their stake in the protocol and can later realize their investment by selling Liqui Tokens in the trading platform. They will also be able to provide redeemable liquidity also in exchange for Liqui to Tokens periodic fees.

During the first half of 2020, we have seen some improvement opportunities by closely following up on the evolution of some of the most important DeFi projects, specifically within the fully automated continuous liquidity protocols space. This has helped us design the CLPS to leverage liquidity protocols in a different way to most players in the space. In Investoland, we will take into consideration the experiences from every other DeFi project.

Network of Project Tokens

Investoland's network will provide a global, decentralized, crowd investments platform that will pave the way for businesses and entrepreneurs to leverage all the benefits of decentralized technologies without the need of having any technical skills.

We have already presented how the Investoland platform will allow projects to use the Inve Coin to perform investments operations. The projects will also be able to automatically engage with a secondary market of individual investors within a trading platform that will use the liquidity provided by the CLPS Protocol.

The Smart Contract's project tokens will be based on the ERC-20 standard. Once the CLPS is fully active the investors will be able to trade their tokens for any other token in the network, such as project-specific tokens, Liqui Tokens, Inve Coins, or iUSD (which is a digital representation of the US Dollar).

Digital Assets under within Investoland

It is important to understand what the assets within the Investoland platform are, as these are the basis to calculate the Inve Coin target price. The different assets can be divided into two main categories: digital assets and stable coins.

- **Digital assets:**
  Digital assets in the Investoland platform include every digital asset that users acquire through the platform and do not export to their private wallets. These include BTC, ETH, DAI and others. For a full list, please check the following link: https://pwa.sesocio.com/exchange_rates.

- **Stable coins:**
  Stable coins in the Investoland platform include stable coins pegged to the US Dollars and stable coins pegged to each fiat currency supported such as Argentinian Pesos, Peruvian Soles, or Euros that investors deposit in order to make any trade.

Expected returns to investors

The expected return to investors will have two different components. In the following section, we present each one of them.

The way to distribute these returns to investors is to relocate Inve tokens within the Liqui Protocol (presented below), this will increase the Liqui Token price in Inves; in this way the investors are compensated in a linear manner based on the stake each one of them have by increasing the Liqui Token value.

CLPS trading fees returns

The CLPS will provide continuous liquidity to the investoland exchange, the investors funding the CLPS will receive 30% of the trading fees of the exchange rates.

CLPS Arbitrage returns

There will also be returns to the CLPS holders that will be distributed as the result of the Inve token relocations that will be performed by the CLPS in the arbitrage between the

projects and the Pater Protocol. This mechanism is presented in the Arbitrage opportunities in the CLPS section.

Liqui tokens issuing

How are Liquid Tokens minted?

During the funding period, the liquid tokens will be minted with different vesting periods. The investors will be able to check the number of tokens they own but they will not be able to trade them if they are in the vesting period.

Investors are able to fund the liquidity protocol during the investment phase. At the time an investor makes an investment, the CLPS will mint new Liqui Tokens, and the investor will receive those Liqui Tokens; due to the vesting, they will be stored in a specific vesting smart contract. Whenever an investor provides liquidity to this project, during the funding phase, the development company will receive 15% of the total USD investment, made in fiat currencies, during the funding process. These funds will be used to support all the Business Development and Marketing efforts. The remaining will be allocated to the different protocols within the CLPS. We describe the tokens flow in the scenarios section later in this document; it is important to emphasize that the emission of every Liqui token is backed with a real investment that will be reflected in the assets in Investoland (see Assets in Investoland section), thus, the Liqui Tokens emission will not be inflationary.

Redeemable *Liquidity providers is being analyzed*

The investors that decide to invest after the CLPS beta protocol is released will have the opportunity to invest any specific amount of money at a discount from market price, but they will have a vesting schedule.

Investment [USD]	Vesting 12-18 Months	Vesting 18-36 Months	Vesting 24-36 Months
< 20,000	30%	40%	
20,001 - 50,000	35%	45%	
50,001 - 200,000	45%	55%	
200,001 - 500,000	55%	65%	
500,001 - 1,000,000		70%	
> 1,000,001			80%

Minimum viable product

The MVP is a Beta testing activation of the protocols that occurred on May 31st, 2020; this Beta CLPS protocol will not be fully implemented in blockchain to allow the development

team to optimize the algorithms and stabilize the product. We plan to deploy the CLPS on a public blockchain in H2 2021.

During the Beta testing period the whole solution will be running off-chain, once the algorithms are tested the development team will start working on the smart contracts development in order to deploy the solution on-chain. During this period the team might introduce changes to the proposal presented in this paper, those changes will be clearly presented to the community.

Liqui Token initial value

The price of the Liqui Token was established at USD 1 for each token after the launch of the CLPS beta phase (Jun 1st, 2020), from that point on it will only be possible to invest in the Liqui Token at market prices or with a discount with a vesting period.

The Liqui Tokens are now available as a tradeable asset (with no vesting period) on the Investoland trading platform when traded in the CLPS. Its price is adjusted by the offer and demand, and governed by the continuous liquidity pair called Liqui Protocol; which is presented in the Liquid Protocol section below. Investors who own vested Liqui tokens will be able to trade them once the vesting period is completed.

Smart contracts security audits

To ensure the robustness of the solution, every smart contract in the proposed solution will be audited by a leading Audit Company in the blockchain space. These reports outline potential problems in the code and provide actionable recommendations to guard against potential attack vectors, together with a general analysis of the system dynamics, reflecting both state-of-the-art security patterns and opportunities for improvement regarding the project's overall quality and maturity.

Inve as a connector

As it was presented in the investoland paper, the Inve coin is the investment token within Investoland. To implement the continuous liquidity for each token in Investoland the Inve will act as a connector, as we will see later in this paper, each token will have a continuous liquidity protocol with the Inve coin, enabling instant trades between each token and the Inve. This will allow every investor to connect different liquidity pairs using the Inve, and by doing it it will be possible to trade any token to any token.

3. Pricing Algorithm

In this section, we present how the pricing algorithm for the automated liquidity protocol works. In the subsequent sections, we present the major components of the proposed solution, and how they interact with each other.

ERC20 - ERC20 Pairs

A liquidity pair is a mechanism that uses smart contract technology to allow the price determination between two assets (by using offer and demand equations) and has the ability to instantly trade at that specific price in real-time. In order to be able to automatically trade those tokens, the smart contract must have the required tokens under reserve.

Every token within Investoland will be implemented using the ERC20 standard while the CLPS will rely on smart contracts to provide continuous liquidity, and there will be some specific pairs that are particularly important. In the following sections, we will describe the most relevant pairs and how they interact both with each other and with the existing and future project tokens.

Price formula for the different pairs

Projects within Investoland will have an integrated continuous liquidity mechanism, using a liquidity pair between the specific token and the Inve coin. These continuous liquidity pairs will be used by the CLPS to act as an automated market maker, effectively allowing users to always buy and sell project tokens through the exchange at a price that constantly adjusts to reflect supply and demand.

$$Tp = \frac{Pb}{PT}$$

$Tp: \ Token\ Price$

$Pb: \ INV\ \ Pool\ balance$

$Pt: \ Project\ Token\ Pool\ balance$

Pricing example

As an example, we take a Project with a liquidity pool that currently has a balance of 200 Inve and 250 Project tokens. This Project Tokens can be converted into Inve at the following price:

$$Token\ price = \frac{200}{250} = 0.8\ \text{INV}$$

Now, let's suppose that after some trades have been performed, the project tokens balance changed to 125, and the Inve balance to 400. (These were trades that exchanged project tokens and took Inves, the most scarce is an asset the most expensive it gets).

$$Token\ price = \frac{400}{125} = 3.2\ \text{INV}$$

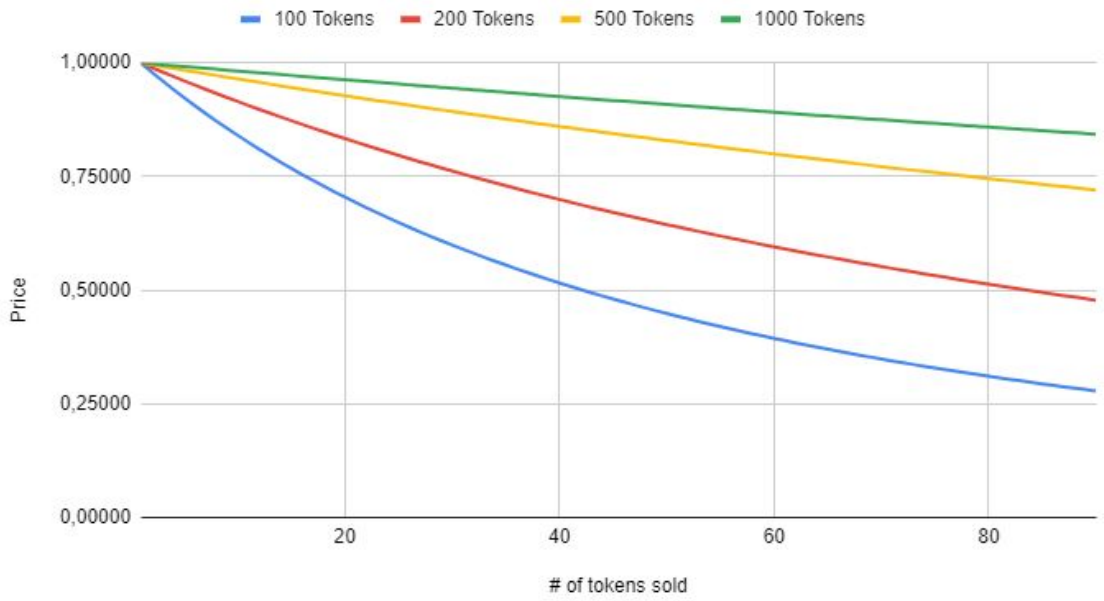
Price slippage

The equation above determines the price of a Token at any given point in time. In this example, it is possible to see a significant variation in the price of an overbought token that impacts the price. Whenever someone is trading Project Tokens (thus increasing or decreasing the balance in the pair), the token's price moves. Even the tiniest transaction moves the price

of a Project Token to a new level. This variation in the price is the price slippage, and the size of the pair will determine the impact that the slippage will have on any specific trade.

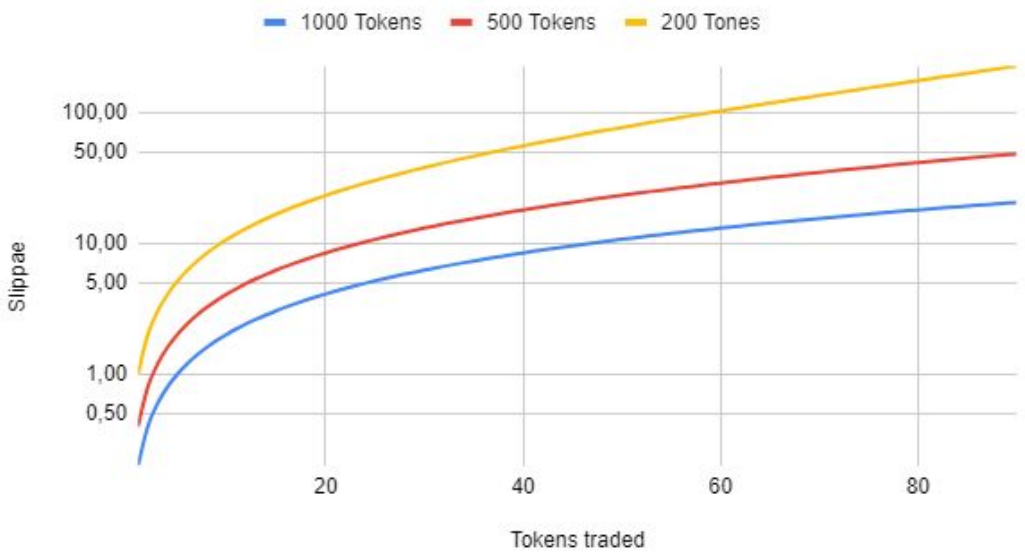
It is important to understand that whenever a token is being bought it will become more costly within the pair, and when it is being sold it will become cheaper. It is replicating the offer and demand model in real economies.

In the following graph, we present the impact that the pool size has on the price slippage, based on the price determination formula that we propose.



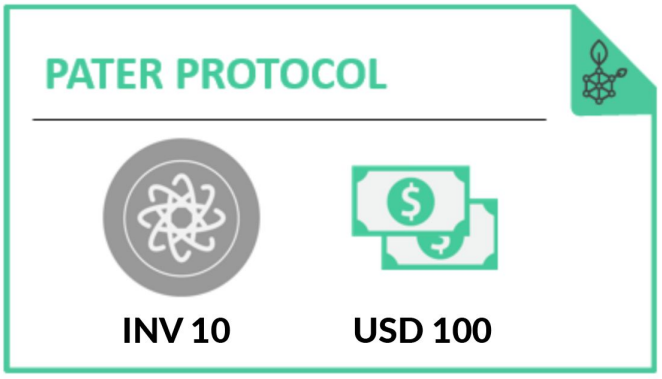
The graph presents the price curves for different size pools and how they change when a specific number of tokens are sold to the protocol. Each one of the curves represent pools with 100, 200, 500, and 1000 Tokens deposited at the beginning and the corresponding counterpart to start with an initial price of 1; it is important to consider that the x-axis represents the # of the tokens sold considering the initial balance. This graph shows the importance that the pool size has in the price slippage of each liquidity pool. It will be important to consider this balance in the initial configuration for each one of the liquidity protocols.

In the next graph we present the price slippage of three different liquidity pools (each one of them with 1000, 500 and 200 tokens respectively) considering the amount of traded tokens in the pool (these trades are consecutive trades of the same type sale/buy), it is important to consider that the slippage scale is logarithmic.



The Pater protocol

The Pater protocol is a special pair since it is the one that provides continuous liquidity between the Inve Coin and the IUSD, allowing users to invest in any of the projects within the Investoland platform with fiat currencies by buying IUSD. The initial balance of the Pater protocol was determined by using the target price of the Inve Coin, but after the protocol began running in the beta version of the CLPS, the price for each Inve in USD started to be determined by the Pater Protocol liquidity pair.



Once the solution is implemented, there will be some rules set in place to govern this liquidity protocol, increasing the size of the trades that can be automatically performed. These rules will be defined during the design phase. Nonetheless, it will be possible to trade any amount of Inves using Limit Orders in the exchange.

Additional Liquidity benefits

As the Pater protocol is a special protocol, every user that has Inves may have an additional liquidity benefit that allows them to use it. Considering the Pater protocol depth and automatically adjusting its formula from Zero to Infinity, every user may participate in the Pater protocol with these benefits despite not giving liquidity to it.

Minimum Depth

The Pater Protocol needs a minimum quantity of IUSD and INV to work in a safe mode. In case any of the assets gets below a minimum threshold, the Pater Protocol may be emergency shut down until liquidity is guaranteed again.

The Liqui Protocol

The Liqui Protocol is the one that provides continuous liquidity between the Liqui Token and the Inve Coin, allowing users to trade their Liqui Tokens for any of the projects within the Investoland platform using Inve as a connector.

Every return to investors performed in the CLPS, involving project protocols, will add Inves in this particular protocol, changing the Liqui price in Inves, thus increasing the price of the Liqui Token.

Funding Flow

The investors will fund the projects using the Inve coin, as was stated in the Investoland paper. Whenever an investor wants to invest with IUSD in the exchange, the exchange will automatically trade those IUSD to Inves and then place the investment in the specific project. Depending on the depth of the Pater Protocol (the amount of IUSD within it), these trades could have an impact on the Inve-USD price. To guarantee that the funds allocated to a specific project are received by the entrepreneurs, those funds will be locked, not allowing any other investor to get liquidity out of those funds. As a consequence of the funding flow, the higher the percentage of funding flow compared to the total reserves, the greater the slippage the pater protocol will have.

Liquidity openings

The CLPS may have instances called liquidity openings, during which community members will have the opportunity to become liquidity providers getting Liqui Tokens at a discount to the market price.

The objective of the liquidity openings will be to provide more liquidity to or rebalance any Protocol. The openings may be made via OTC or via different types of mechanisms that will be communicated through the CLPS project page in the SeSocio investment community portal, such as the auctions that have been held previously to create the project´s liquidity pairs in the initial setup.

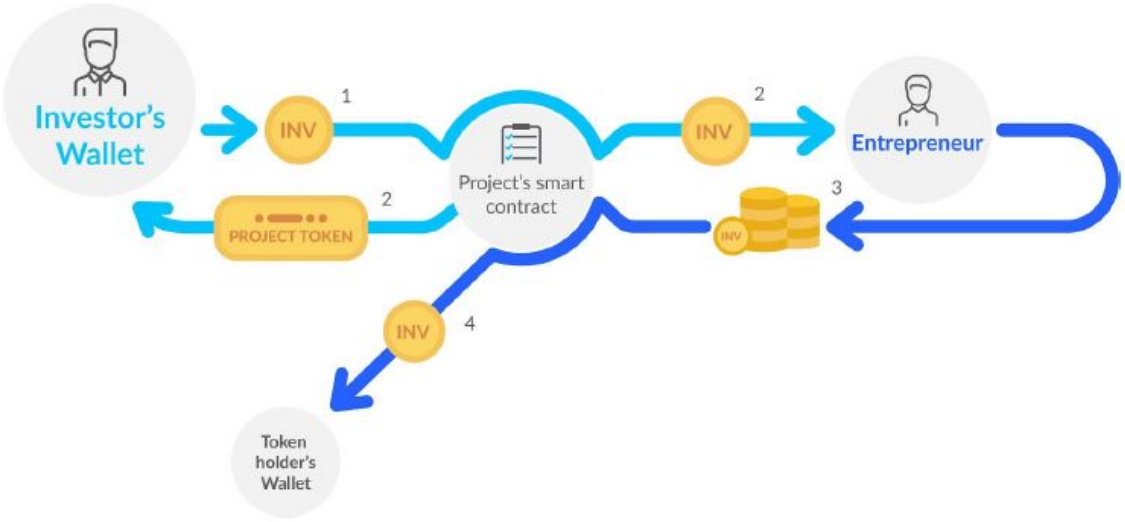
Through the investments made on the trading platform plus the liquidity opening instances that may present themselves in the future, the Liqui Protocol liquidity pair could reach a depth of 20% or more, representing 20% or more of the total Liqui tokens circulating supply. If this happens, the CLPS would be able to relocate some of the Inve Coins, along with their dollar entry counterpart coming from liquidity providers, into the Pater Protocol. Whenever this relocation happens, the surplus of Liqui Tokens in the Liqui Protocol corresponding to the relocated Inves will be burned.

By doing this, the relocation will not affect either of the two prices (Inve or Liqui Token) and more depth will be given to the Pater Protocol, which is the CLPS' most important Liquidity pair, creating a healthier, more robust and sustainable system for the community.

Project Smart Contracts

The project smart contract is the standard interface to deploy a project within Investoland. It governs how the investors are able to support a project, the vesting rules if applicable, the distribution of the project tokens, and any other project rules that may apply.

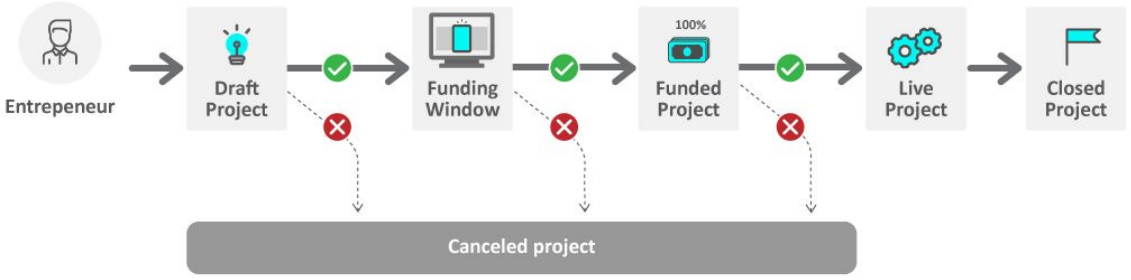
Each time an investor deposits Inves in a particular project, she receives a specific amount of tokens that determines the stake in the project. These tokens will be based on the ERC20 standard.



1. The investor send Inves to the project's smart contract
2. Once the investment is completed, the smart contract distributes the tokens between the investors, and releases the funds to the entrepreneur.
3. The entrepreneur pays back to the smart contract.
4. The smart contract distributes the payment to the token holders at the time the payment is performed.

Project lifecycle

Every project deployed within Investoland will have to go through the life cycle presented below.



Draft project

In this stage the project will not be available on the trading platform, and it will not be considered part of the Investoland´s total market cap, explained in the Inve Target Price Ponderation section. Whenever SeSocio posts a project, in this initial state, the entrepreneur will submit all the required project documentation to allow investors to evaluate the investment opportunity.

Funding window

In this stage the project will mint the tokens, collect the investments and distribute the tokens to the investors that support the project. It will be possible to trade the project tokens in a P2P market, but the Project Protocol will not yet be active. The project will not be considered part of count towards Investoland´s total market cap. The P2P market will be enabled using Limit Orders.

Funded Project

Once the Funding period ends, provided that the project receives the minimum amount of investment funds needed (Soft Cap), the project will be in condition to become an active project. In this phase the project tokens that are released can be traded, P2P, on the trading platform all the while respecting the rules presented in the Project Smart Contract.

In this stage, the Project Protocol will not be enabled for the projects. At the end of this stage the liquidity pair should be fully created, enabling the CLPS to start trading the project tokens.

Live Project

Once the projects' owners receive the funds, the project will transicion in this state. The projects in this stage will be fully tradable and the continuous liquidity Project Protocol will be active, thus the price determination will be performed by the Project Protocol liquidity pair.

Canceled project

When a project doesn't reach the soft cap, it will transition into the canceled project state. If a fully funded project is cancelled for any reason, the investors will receive the invested Inves back.

Closed project

Whenever a project completes the whole life cycle and pays investors back, the state of the project will be set to close. The closed project´s tokens will not be tradeable and they will be burned when the investors redeem their final payments from the project.

Project Protocol

Each one of the projects that is deployed using the continuous liquidity feature will have a corresponding project protocol. Each project protocol will have a pair between the project token and the Inve coin. These protocols will provide liquidity for the projects on the trading platform and all the traders will be able to fulfill their market orders without relying on

a counterparty. The price determination mechanism for these continuous liquidity protocols will be the one we presented in the Price formula for the different pairs section.

The Liquidity Benefit is created automatically while funding a project. Not only does it provide liquidity from the moment it's confirmed and the money is transferred to the project owner., but it can also allow an investor to obtain even greater profits than expected, whether the price of the Project tokens rises or if the price falls.

Every new project in Investoland will have this feature, allowing all projects to grant their investors the possibility of buying or selling their tokens without the need for a counterpart.

To achieve this the protocol creates a reserve that will provide liquidity to every new project created in Investoland. This reserve will be funded as part of the initial investments. Considering the amount requested and transferred to an entrepreneur, an additional 5% is established as a project objective for the creation of the aforementioned reserve. Here's an example on how the system works:

Example: Apartment Project in Manhattan

The numbers used in the following example are all arbitrary to ease the explanation. Extreme scenarios are used to simplify the analysis.

If the project soft cap is IUSD 100,000, this means that the project will be published at IUSD 105,000. Suppose the project in question is a loan at a rate of 10% APY, payable in a 1-year term.

Therefore, the full 105,000 IUSD funded will be distributed as follows:

- 100,000 IUSD will be transferred to the entrepreneur in Inves and will be the sum that appears in the contract.

- 5,000 IUSD will be used to buy Inves through the Pater Protocol and allocated to the new Project Protocol. The amount of investments will depend on the price of the same at the time of carrying out the operation.

On the other hand, the project will issue 110,000 Manhattan tokens, consisting of:

- 105,000 tokens held by investors corresponding to the 105,000 IUSD financed
- 5,000 Manhattan tokens issued to fund the project protocol liquidity pool.

These 5,000 extra issued tokens will be inactive to receive payments while they remain in the CLPS. At the end of a project, the project tokens that remain in the CLPS will be burned without receiving any payment, while the Inves will be sold through the Pater Protocol and the IUSD obtained will be distributed proportionally to the Manhattan Project token holders.

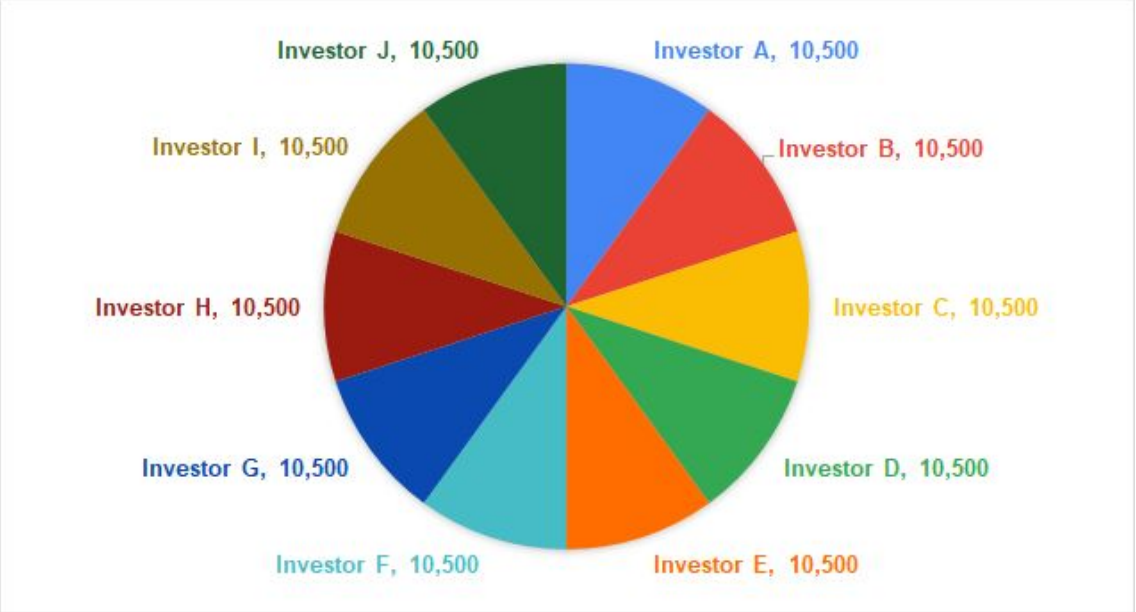
If there are no operations in the project protocol or changes in the value of the Inve, the expected profitability scenario of the project is **9.52%**, which is detailed below.

Example scenarios

Let's explore different project scenarios, assuming buy and sell operations against the project protocol and an Inve price of IUSD 10 at the time of funding the project.

Let’s suppose that 10 investors entered the funding stage of the "Manhattan Apartment" project and each owns 10% of the Manhattan Tokens.

Each investor invested IUSD 10,500 out of the total of IUSD 105,000.



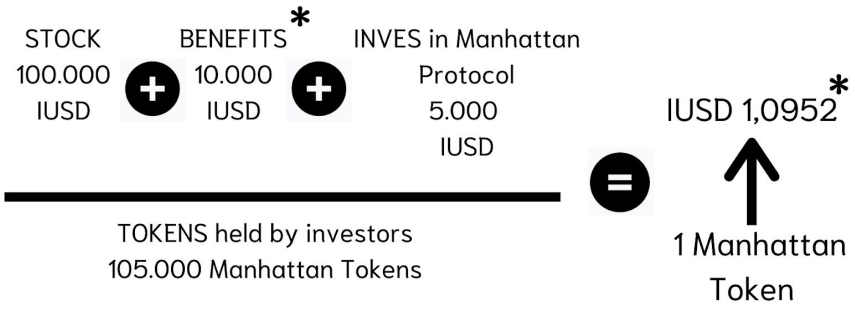
Scenario 1: Nobody buys or sells

At the time of payment, if no one has bought or sold any token, the capital and interest will be distributed among these 10 investors, who own the total 105,000 Manhattan Tokens. After the 1-year period, when the project pays the capital plus interest, if no variable was modified, the final distribution per token would be:

(Capital + interest + Sale Inves in the Manhattan Protocol) / tokens held by investors

(100,000 IUSD + 10,000 IUSD + 5,000 IUSD) / 105,000 Manhattan tokens =

IUSD 1,0952 / Manhattan token



*Value at the end of the project

The 5000 Manhattan Tokens issued to fund the liquidity pair in the project protocol, that were not traded by any investor, will be burnt without receiving any payment.

As mentioned in the beginning, this scenario will take place if no investor is buying or selling tokens against the project protocol. In conclusion, the project would end successfully with a 9.52% return distributed among all its original investors.

Investors who hold their project tokens benefit from buying or selling scenarios, as will be mentioned below.

Scenario 2: Investors sell

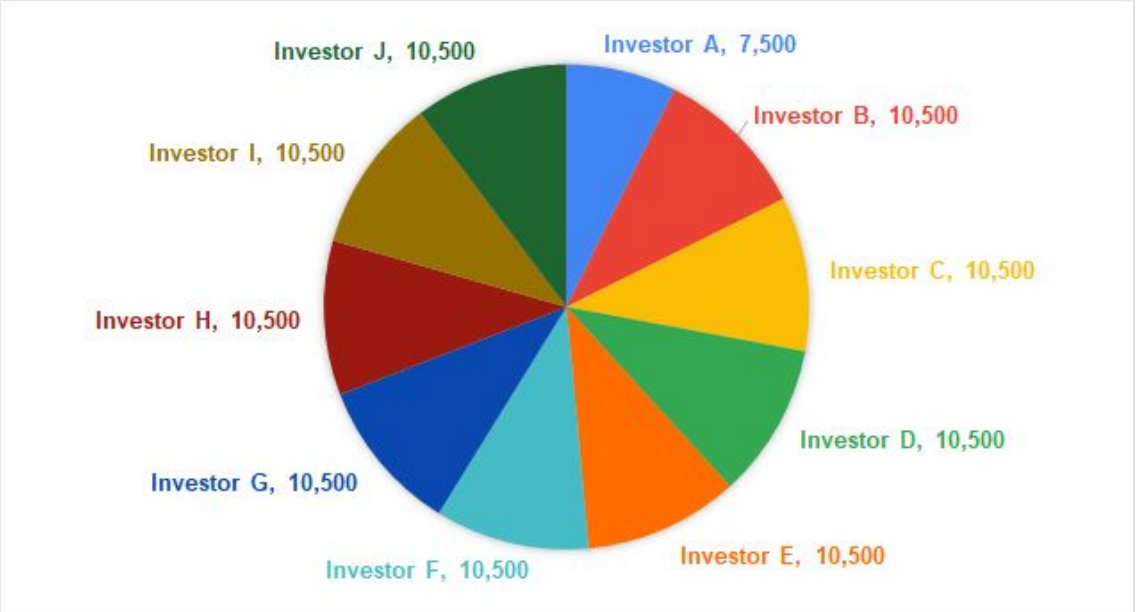
Let's assume a scenario where an investor sells project tokens against the protocol.

This is what's going to happen step-by-step:T

- The price of the token in the protocol would go down.
- The amount of project tokens in the protocol would go up.
- The amount of tokens in the hands of investors would decrease, so that each would receive a greater proportion of the payments.
- The number of investments in the protocol would decrease, so each investor will receive a lower amount for the sale of the same when the project ends.

Additionally, those who bought the tokens in the funding stage of the project could take advantage and capture the opportunity buying even more tokens at a lower price.

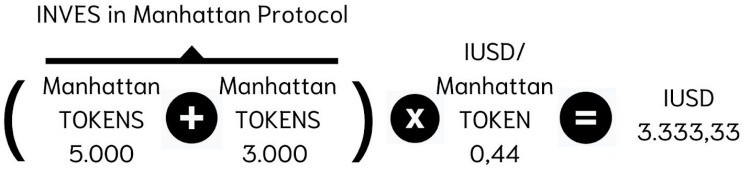
Suppose that investor A sold 3000 Manhattan Tokens to the Liquidity pool, then the reserve is going to have 7.35% of the tokens. The other investors, who originally owned 10% each, now own 10.29% of the circulating tokens of the project.



The 3,000 tokens sold by the investor A will be added to the initial 5,000 tokens, then the reserve will have 8,000 project tokens. When that happens the token/Inve relation changes, the protocol will have less Inves in reserve. The price of the token will be lower than the initial price in Inves. It is important to consider that the circulating supply of the token will decrease, meaning that the distribution of the payments will benefit the token holders.

The project token, which was initially valued at 1 IUSD, that is 0.1 inve, becomes worth less and less as more tokens are sold, as a result of the price slippage. This means that the additional token that the investor sells will be worth less than the previous one. The first Manhattan token sold by an investor in his portfolio will be worth very close to 1 IUSD. However, as more tokens are sold their value will decrease because there will be more tokens on the market ready to be bought by other investors. As a consequence, in this example where an investor sells 3000 Tokens, the Manhattan token would be undervalued in its protocol by IUSD 0.44.

If the Inve had exactly the same price as at the beginning:

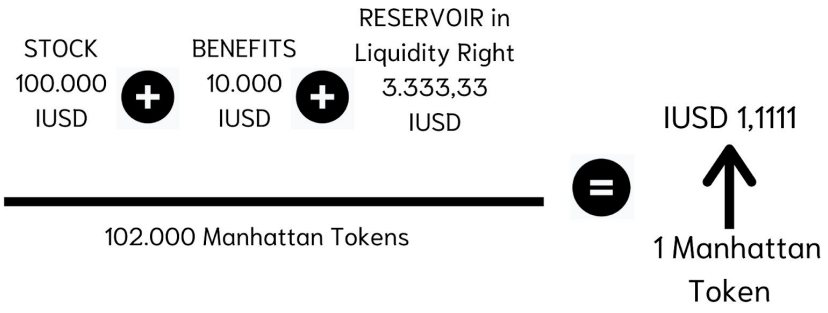


The payment of capital and interest for the project and the sale of the 333.33 Inves of the protocol (equivalent to IUSD 3,333.33) in the project will be distributed among 102,000

Manhattan Tokens. Therefore, each investor will receive a higher proportion for the payment of the project and a lower amount of IUSD for the sale of Inves.

If many people sell Manhattan Tokens, the price of the project drops in the CLPS. The sum of Manhattan tokens is larger in the protocol, therefore there are fewer Manhattan Tokens held by investors, which are those who receive the capital and the final interest.

The lower price of the Manhattan Token in the protocol makes it a buying opportunity. But if no one takes advantage of this opportunity, those who remain positioned in Manhattan Tokens will have a higher return than initially expected; since both capital and interest would be being distributed among fewer tokenholders.



Faced with a sales scenario, investors earned more than expected thanks to the liquidity protocol.

The token position held by investors decreased 2.9% (105,000 / 102,000)

The amount to be distributed among investors decreased 1.47%: (115,000 / 113,333.33)

Although the amount to be distributed decreased, the number of token holders decreased to a greater extent. This justifies the higher return in the sales scenario.

Scenario 3. Investors buy

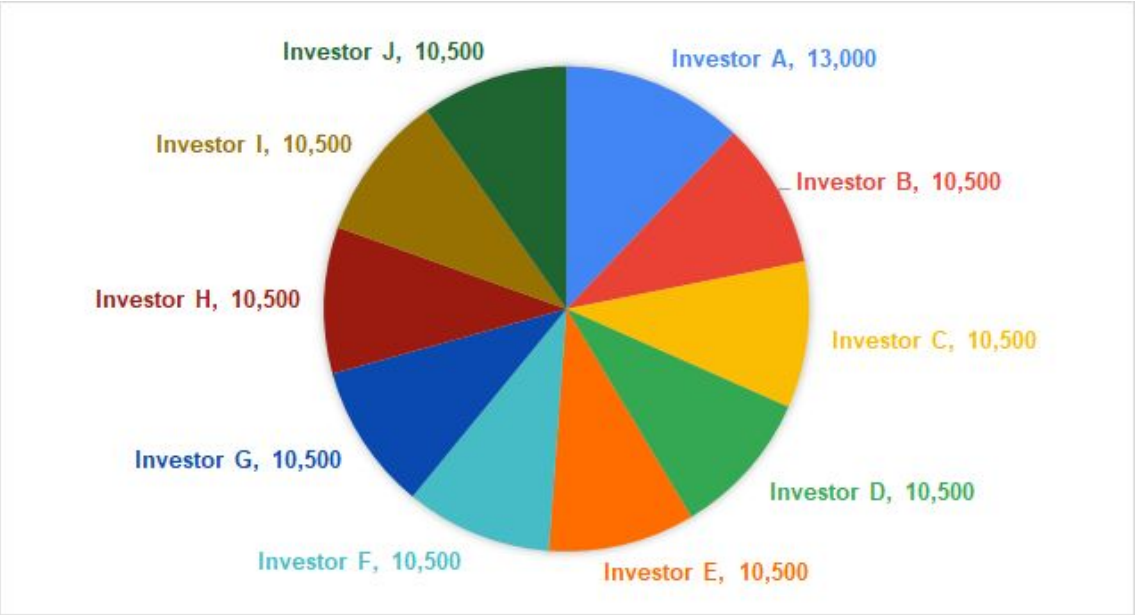
Let's assume a scenario where an investor buys project tokens against the protocol.

This is what's going to happen step-by-step:

.

- The price of the token in the protocol would go up.
- The amount of project tokens in the protocol would go down.
- The amount of tokens in the hands of investors would rise, so that each would receive a smaller proportion of the payments.
- The amount of Inves in the protocol would go up, so each investor will receive a higher amount for the sale of the same when the project ends.

Also, those who bought the tokens in the funding stage of the project could take the opportunity to sell at a high price.

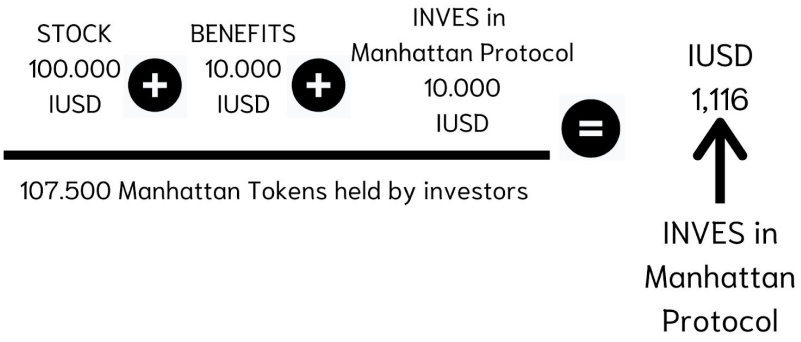


We can see that investor A acquired 2,500 Manhattan Tokens from the liquidity reserve in this scenario, having 12.09% of the Manhattan tokens. The other investors who originally owned 10% each, each now own 9.77%.

The capital and interest payment of the project will be distributed among 107,500 Manhattan tokens.

From the original 5,000 Manhattan Tokens of the liquidity reserve, the 2,500 tokens acquired from the protocol by investor A are subtracted. In this case, as the Manhattan token is being highly demanded, its price rises and in this case it will be valued at IUSD 4.

Manhattan token returns:



Faced with a scenario of buying investors, they earned more than expected, and more than if the liquidity protocol had not existed.

Scenario 4. The Manhattan Token ends at the same price in IUSD but the Inve price fluctuates

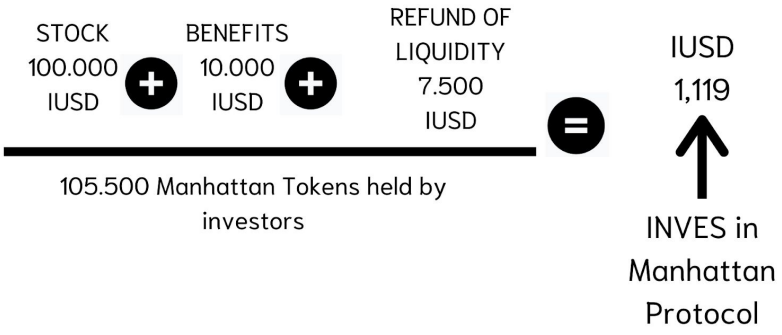
If there are no movements, the investor earns what is expected.

The Manhattan tokens maintain a parity with the Inve, what does this mean?

The price variation of the Inve will have as a consequence a directly proportional variation in the price of the Manhattan Token. The market will take charge after bringing the tokens to their fair price.

If the Inve price rises, at least momentarily the Manhattan token rises, since it maintains the same parity with the inve. In an efficient market, agents would sell Manhattan Tokens to bring it back to its initial value in IUSD.

Continuing with our example, suppose that the Inve goes up to IUSD 15, that is to say that it went up 50%; Manhattan Tokens, following the token / Inve parity, consequently rise 50% compared to the iIUSD. This would result in a 50% increase in the value of the tokens in the liquidity pool. In conclusion, each Manhattan Token is worth IUSD 1.5 and IUSD 7500 would be obtained for the sale of Inves.



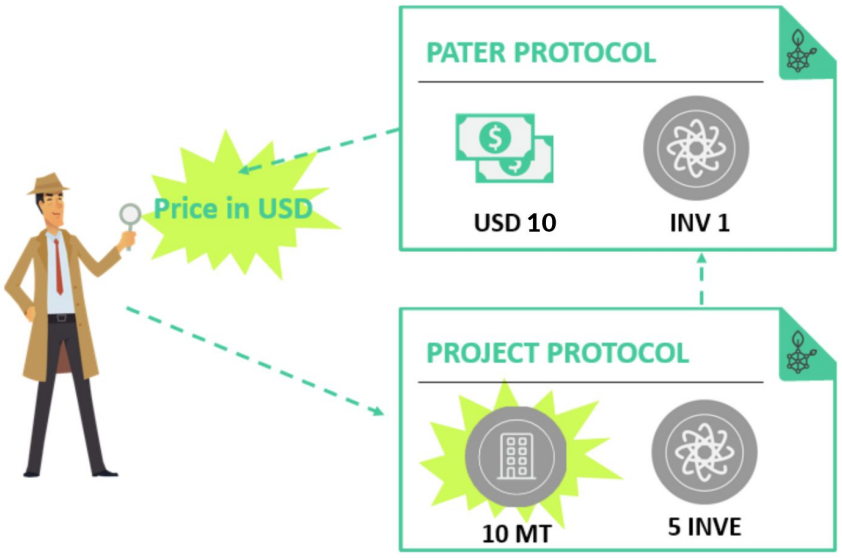
If the Inve price goes down, the price of the Manhattan token goes down automatically, as it is tied to the value of the Inve. Therefore, it would be an excellent opportunity to purchase tokens in the Pater Protocol since once the project is completed, those last Manhattan Tokens purchased will be redeemed with the initial conditions of the project, originally offered by the entrepreneur.

Project Pricing example

Each one of the projects that uses the continuous liquidity feature will have a specific amount of tokens and the corresponding amount of Inves under the project protocol's reserve, constituting a native trading pair, as described above. To determine the price of each token in IUSD, the exchange will combine the price determination formulas of the Project Protocol and the Pater Procol.

Since all of the liquidity pairs will have Inve coins, it is possible to consider this situation as a composition of functions in which the Inve is the connector. So, whenever a trader wants to trade assets that do not have a corresponding liquidity pair, the trading platform is able to perform the trade by combining other liquidity pairs within Investoland.

Let's suppose someone would like to know what the price in IUSD for a specific project token is, the exchange could combine the project protocol and the Pater protocol.



Considering that the project protocol has 10 project tokens and 5 INV, the price in INV for the project token will be 0,5 INV; considering that the Pater protocol has a balance of 1 INV and 10 USD, price determination of the project token will be 5 USD.

Continuous Liquidity Protocol System Overview

Until now we have been presenting the different components that will be combined to create the Continuous Liquidity Protocol System. In this section, we will present the main components and how they interact with each other.

The Inve target price ponderation

If we consider Investoland as a whole, its market cap can be defined by the sum of the market price of all the projects and the total amount of the assets in Investoland within Investoland. Since the native currency within Investoland is the Inve coin, we can define the total supply of Inve coins to be equal to the total market cap defined previously.

$$Total\ project\ market\ cap = Inve\ \ Market\ Cap$$

Based on what we have presented, we define the "target price" of the Inve as the price that is determined by the network's tradable assets and the total amount of assets within Investoland. The formula for the target price is the following:

$$Itp = \frac{Ma + TAc}{Itc}$$

Itp : Inve Target Price

Ma : Market Value of all the tradable projects [USD]

TAc : Total Assets in Investoland not included in *Ma* [USD]

Itc : Tokens circulating supply of INV

In a wise market, the price per token would not go below this number, however, and for various reasons, the price may fluctuate above this target price. And if the price of the Inve in the Pater protocol goes below this price it could create interesting investment opportunities.

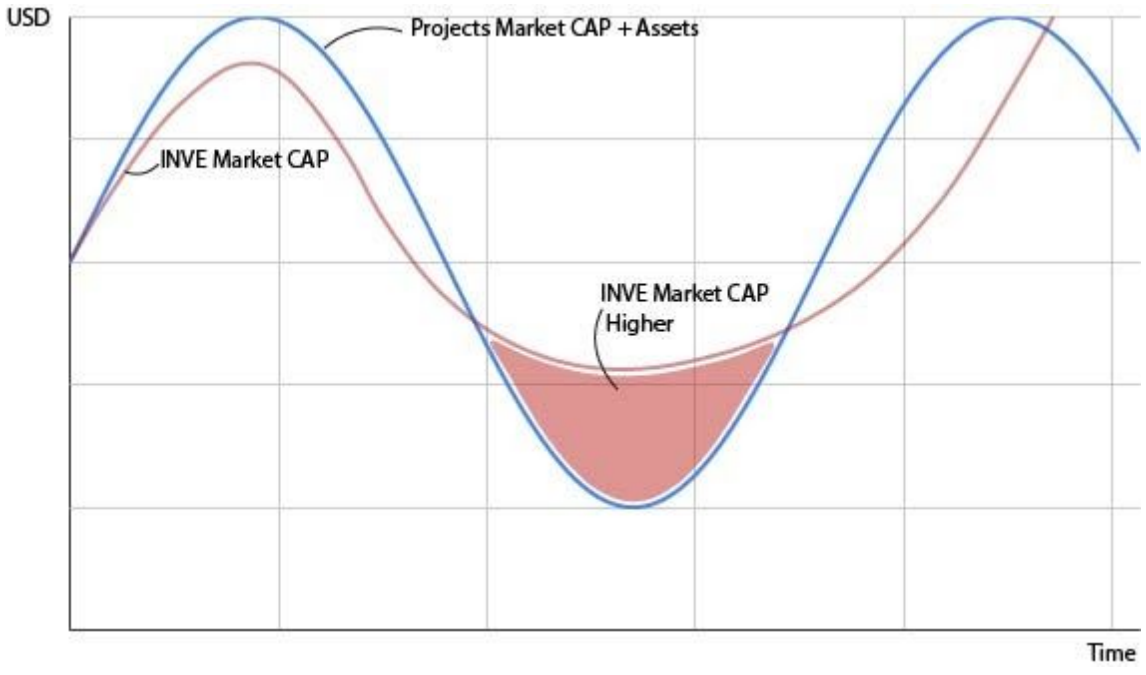
In other words, the minimum Inve price could be estimated by taking into consideration the underlying tradable assets in the network. In an ever-expanding catalog of assets, and with a limited supply of tokens, the logical next step is for the coin's minimum price to grow and match the assets being traded on the network.

For example: If a project offers the funding of trucks on the network, and each truck has a real-world market price of USD 100.000, but the truck is being offered for 25.000 Inve when the Inve is priced at 0.9 USD in the market, this presents a price discrepancy. This situation is not likely to last very long, as it presents a clear opportunity for investors to make a profit off this and return the markets to a balance.

Arbitrage opportunities in the CLPS

To fully understand how the arbitrage opportunities in the CLPS work, let's not forget that the Inve coin has a fixed supply of 33,949,353 and that it is the main investment instrument within the Investoland platform, as presented in the Investoland paper. Also, please take into consideration the way whereby the Inve theoretical price is calculated.

Taking under consideration that the CLPS will provide continuous liquidity to the Investoland exchange, it is important to analyze the deviation between the Total Value of Active Projects and the Assets and the Inve Market Cap, as presented in the following graph.

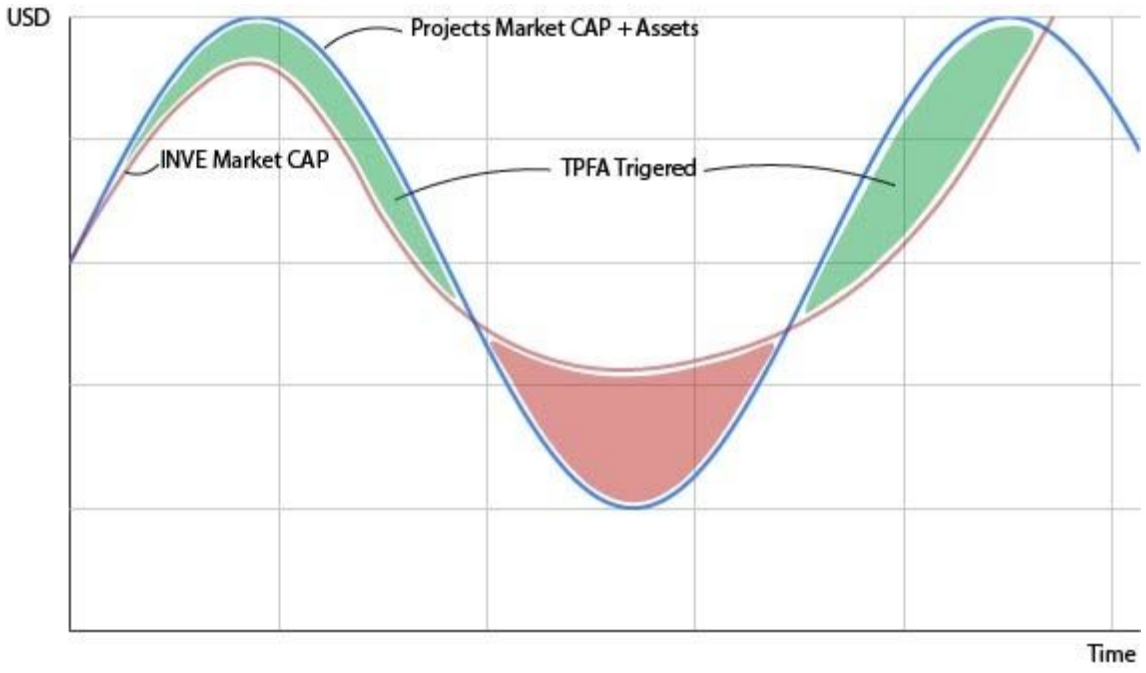


Whenever the projects' market cap grows (i.e. new projects or assets are deployed in Investoland), the price of the Inve coin does not automatically appreciate, since it has its own liquidity pair (the Pater Protocol, presented previously in the Pater Protocol section). In such a case the Inve coin is undervalued. In other cases, where the projects' market cap falls below the Inve market cap, the value of the Inve coin could be Higher than the Projects and the Assets.

These market cap variations may occur due to the creation or finalization of projects, the increment in the total assets in Investoland, or the change in the valuation of the projects or the assets. In this situation the CLPS will arbitrate and take profit of this market opportunity, and this will take the Inve to its fair price again.

CLPS Target Price Feedback Algorithm

One of the most significant components of the CLPS is the Inve Target Price Feedback (TPFA). The TPFA arbitrates the variation of the prices between the Inve coin market cap and the assets according to the theoretical price presented previously.



Arbitrage opportunities in the CLPS

Whenever the price of the projects and the assets increase compared to the Inve market cap, the TPFA is triggered, taking advantage of the arbitrage opportunities that impact the Inve valuation in the Pater protocol by pulling the required quantity of Inve coins. Then those Inve coins are deposited in the Liqui Protocol and appreciate the value of the Liqui tokens in relation to the Inve. The TPFA also modifies the liquidity protocols of the projects maintaining the market cap of each project stable to IUSD, according to the price determination in the Pater Protocol. This algorithm will be activated randomly in time to avoid speculative usage of the arbitrage by the investors.

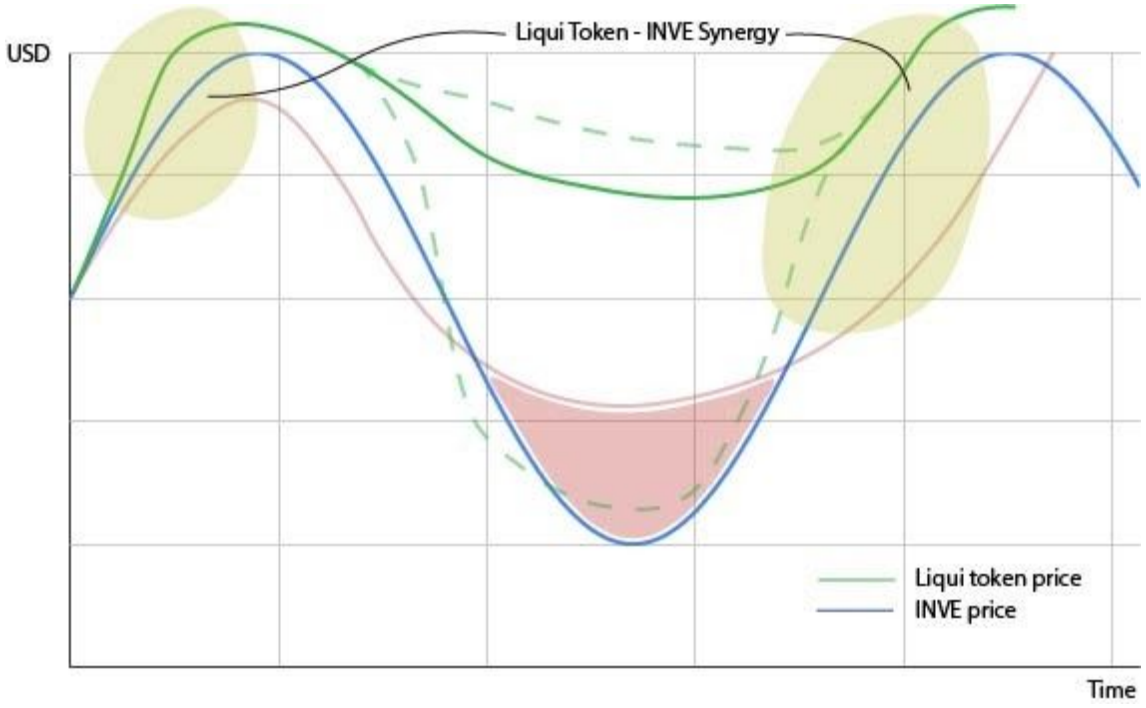
If for any reason the price of the projects decreases below the Inve market cap this algorithm will not perform any movements, allowing the investors to act as arbitrageurs.

INV and Liqui Token relationship

As we presented previously, the Pater Protocol is used to determine the price in IUSD of the Inve coin. By combining the price determined by the Liqui Protocol it is possible to get the price in IUSD for each Liqui Token.

As we presented earlier, when the Target Price Feedback Algorithm gets triggered, it takes advantage of the arbitrage opportunities, impacting the valuation of the Inve with an increment in its price, relocating Inve Coins from the Pater Protocol into the Liqui Protocol. By doing this, the value of the Inve increases (in USD), and the value of the Liqui Token increases (in Inves). This is represented in the left part of the graph below, showing how the Liqui token price increases faster than the Inve.

It is important to note that, whenever the Inve is overvalued, the TPFA is not triggered, and the price variation of the Liqui Token will depend strictly on the trades performed in the Liqui Protocol, which determines its price in Inves.



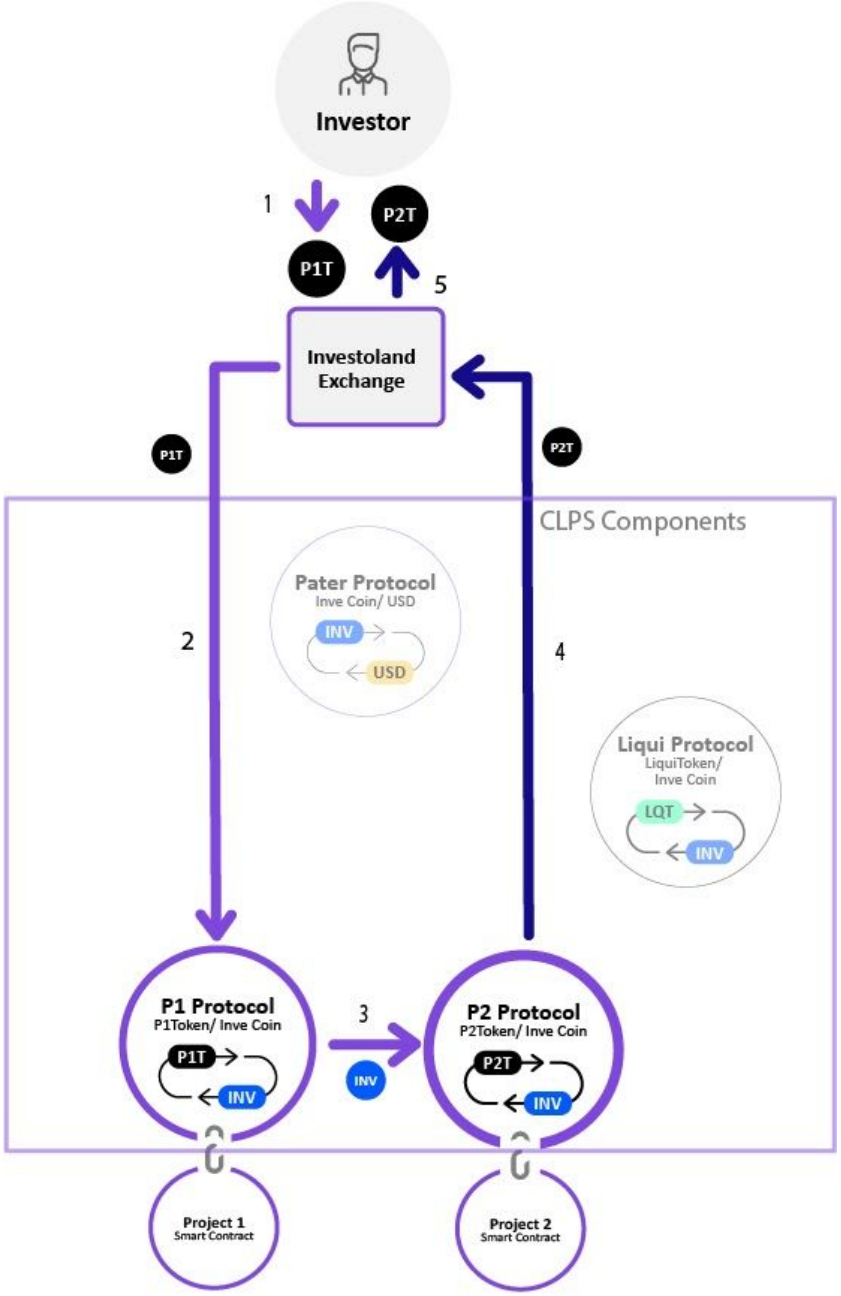
4. Token Flow scenarios

In this section, we will introduce some examples of the most common token flows to ease the understanding of the CLPS. We will also present the implications of the movements in each liquidity pair and the price slippage in each one of them.

Trading **different project tokens**

An Investor with a position in a specific project is able to trade those tokens for other project tokens. When the investor places the order in the Exchange, it will combine the two Project Protocols (using the Inve coin as a connector). In this case, the Project 1 token will decrease its value in relation to the Inve and the Project 2 token will increase it.

It is important to consider that this transaction combines two different liquidity pairs, and the price slippage, explained in the Price Slippage section, will be the combination of the slippage in each one of the liquidity pairs involved.



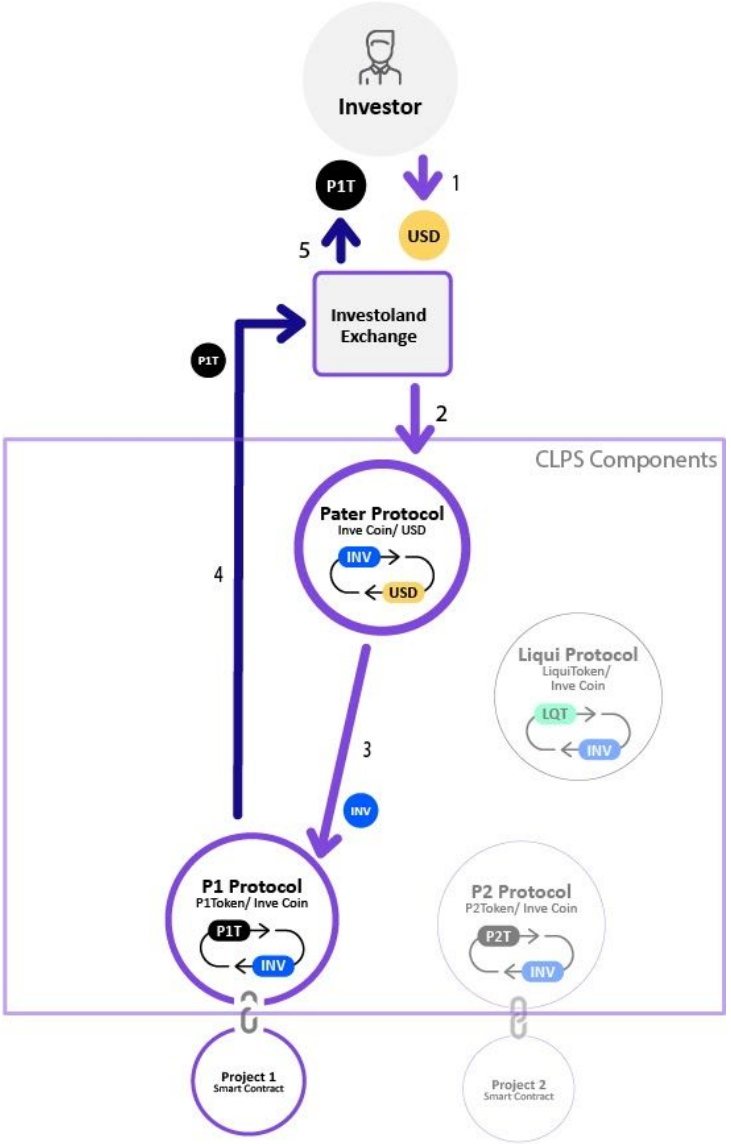
1. The investor sends the Project 1 Tokens to the Exchange
2. The Exchange sends the Project 1 Tokens to the Project Protocol
3. The Exchange sends the Inves to the Project 2 Protocol
4. The Exchange receives the Project 2 Tokens

5. The Exchange sends the Project 2 Tokes to the Investor

Buying **Project tokens with IUSD**

If the investor wants to buy any specific project token in the exchange they are able to place the order, and combining the Pater Protocol and the specific Project Protocol the exchange will perform the order. It's important to consider that each transaction will affect the balance within each one of the liquidity pairs. In this specific case, the transaction is allocating IUSD into the Pater Protocol and getting Inves in return, slightly increasing the Inve to IUSD ratio. After obtaining the required Inves, the CLPS places them into the project protocol and obtains the Project Tokens. This transaction will also increase the Project token to Inve ratio, and the project token price in IUSD.

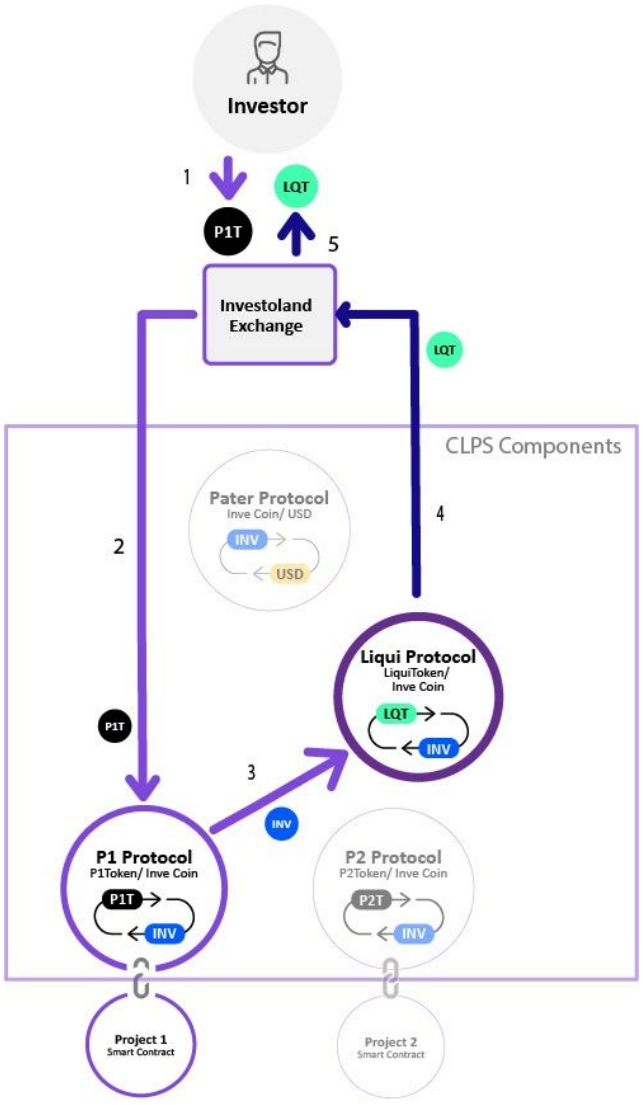
It is important to consider that this transaction combines two different liquidity pairs, and is affected by the price slippage, as explained in the Price Slippage section, the price will be affected by the combination of the slippage in each one of the liquidity pairs involved.



1. The Investor sends IUSD to the Exchange
2. The Exchange sens IUSD to the Pater Protocol
3. The Exchange send Inves to the Project 1 Protocol
4. The Exchange receives Project 1 Tokens
5. The Exchange sends the Project 1 Tokens to the Investor

Trading **Project tokens for Liqui tokens**

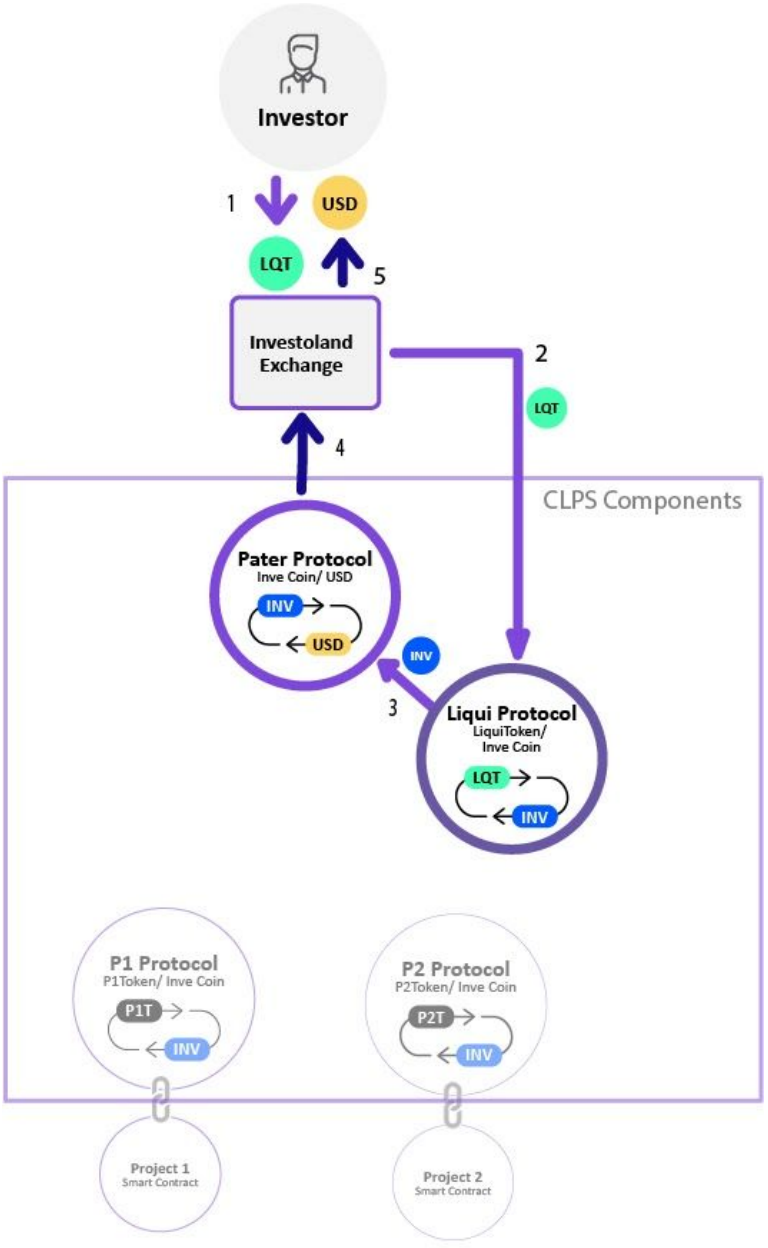
If an investor is willing to trade project tokens for Liqui Tokens they can place an order on the Exchange that will then combine the Project Protocol with the Liqui Protocol to perform the trade. By performing this transaction the price of the project token/Inve ratio will decrease and the Liqui Token/Inve ratio will increase.



1. The Investor sends Project 1 Tokens to the Exchange
2. The Exchange sends Project 1 Tokens to the Project Protocol
3. The Exchange sends Inves to the Liqui Protocol
4. The Exchange receives Liqui Tokens
5. The Exchange sends Liqui Tokens to the Investor

Trading **Liqui tokens for IUSD**

Whenever an Investor wants to trade Liquid tokens for IUSD, the Exchange will combine the Liquid Protocol with the Pater Protocol, decreasing the Liqui/Inve ratio and also decreasing the Inve/USD ratio.

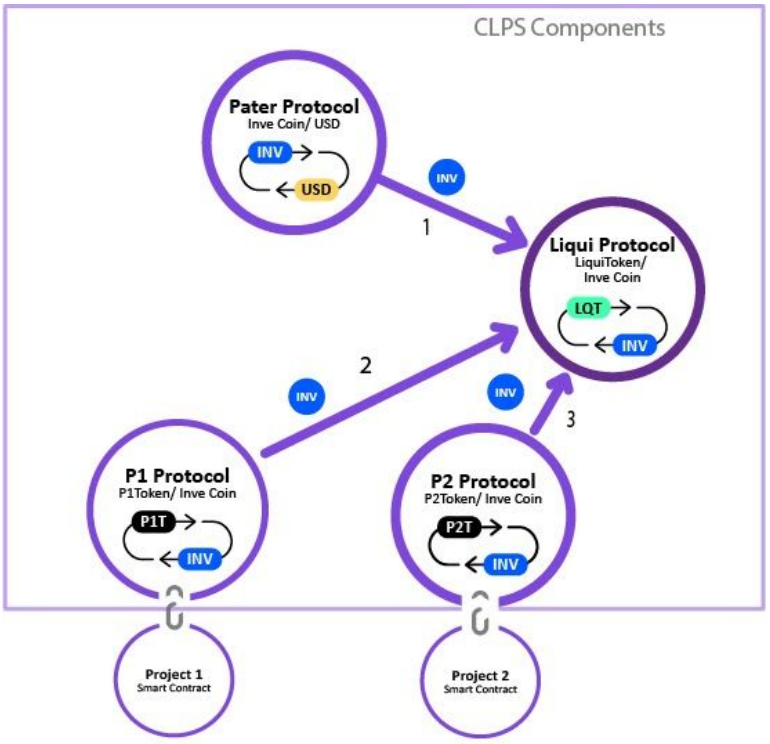


1. The Investor sends Liqui Tokens to the Exchange
2. The Exchange sends Liqui Tokens to the Liqui Protocol
3. The Exchange sends Inves to the Pater Protocol
4. The Exchange receives IUSD
5. The Exchange sends IUSD to the Investor

INV Target Price Feedback Algorithm

The CLPS triggers the TPFA to arbitrage between the projects' market price and the value of the assets (presented as Target Price) and the Pater Protocol, as described in the Target Price Feedback Algorithm section.

The arbitrage mechanism will ensure that the Inve market cap moves as presented before in the CLPS Target Price Feedback Algorithm section. To do that, it will balance the amount of Inve coins in the different liquidity pairs, as presented in the following graph:



1. The CLPS sends Inves from the Pater Protocol to the Liqui Protocol
2. The CLPS sends Inves from the Project 1 Protocol to the Liqui Protocol
3. The CLPS sends Inves from the Project 2 Protocol to the Liqui Protocol

To take advantage of arbitrage opportunities, the CLPS will move Inves from the Pater Protocol to the Liqui Protocol. In that same transaction it will also move Inve coins from the project protocols ensuring that the price of each one of the projects does not change in USD. By doing this, the price of the Inve coin will be paired with the projects market cap and the assets, and the profits (collected Inves from both the Pater Protocol and the Projects) will be deposited into the Liqui Protocol appreciating the value of the Liqui tokens in Inves.

5. Investoland Exchange

The interaction between investors and Investoland will be performed using the Investoland Exchange. This exchange will use the different liquidity pairs and determine the market price for each market transaction, and it will also have the ability to automatically combine the liquidity pairs to give the investors a better user experience.

In the beta version of the CLPS, the exchange will not be the final decentralized version. Once the solution is stable, and the different algorithms are tested and optimized, the development team will be able to start working on the decentralized version. Additionally, there could be some quotas in the orders that interact with the liquidity pools (amount of tokens) to ensure a healthy continuous liquidity solution with a reasonable price slippage. During the beta version of the CLPS new features will be implemented, which will be released gradually.

Market order

All the market orders that are placed by the investors will be fulfilled by the continuous liquidity protocols, with the price determined by the continuous liquidity protocols.

Limit orders

Limit orders are not going to be fulfilled by the liquidity protocols automatically. The exchange will allow investors to send limit orders and they will eventually be fulfilled by other investors with an order matching algorithm.

Liquidity Pairs

The liquidity pairs will be implemented with smart contracts as described previously in ERC20-ERC Pairs section. They will be used directly or in combination depending on the transaction that the investor is willing to perform.

Project Tokens

Each project token should be implemented respecting the ERC-20 smart contract standard, as mentioned before. In order to assure the compatibility of the smart contracts, the development team could release a specific Interface to use.

CLPS Arbitrageur

The main responsibility of the CLPS Arbitrageur is to run the arbitrage opportunities presented in CLPS Target Price Feedback Algorithm section. The Exchange could potentially delegate the price determination (direct or combined) to the connector; this will be defined during its development. It will be the entry point to interact with the liquidity pairs and initially it will only interact with the Exchange.

Trading APIs

There will be APIs available for trading. This will probably be the last component to be developed, once all the mechanisms are properly tested. The APIs will allow third parties to interact with the Exchange and perform trades in a programmatic way.

6. Governance of the CLPS

The Liquid token—the governance token of the Investoland—will allow those who hold it to vote on changes in the Liquidity Protocols.

Polling and Executive Voting

The CLPS Governance mechanism will include proposal polling and Executive Voting. Proposal polling is conducted to establish a rough consensus of community sentiment before any Executive Votes are casted. This helps to ensure that the governance decisions are considered thoroughly and reached by consensus prior to the voting process itself. Executive Voting is held to approve (or not) changes to the state of the system.

The governance model is still not fully defined, it will be defined later in the development, below we present the suggested schema at the time of writing this document.

Liqui Token holders will be able to propose upgrades to the system (it is yet to be defined what the exact rules for the upgrade proposals will be). Liqui token holders can then cast approval votes for the proposal that they want to elect as the Active Proposal. The Blockchain address that has the highest number of approval votes is elected as the Active Proposal. The Active Proposal is prioritized in the roadmap.

Liqui Token holders responsibilities

Each token holder could act as an active member of the protocol governance. There could be many changes, upgrades or improvements to the protocol itself, and below we present some of the proposals the voter could perform:

- Change parameters in the CLPS protocol.
- Adding external tokens to the exchange.
- Choose a set of oracle feeds (needed to add external tokens in the exchange).
- Trigger emergency shutdown.
- Upgrade the CLPS.
- Decide where to invest a percentage of the CLPS funds.

The governance mechanism of the CLPS Protocol will be designed to be as flexible as possible, and upgradeable. Should the system mature under the guidance of the community, more advanced forms of Proposals could be used. Nonetheless, those revisions will remain for CLPS holders to decide.

Risk and Mitigation Responsibilities of Governance

The successful operation of the CLPS Protocol depends on the Governance to take the necessary steps to mitigate risks. Until the DAO structure is fully implemented, the development team will take care if any of these situations should they arise.

Some of those risks are :

- A malicious attack on the smart contract infrastructure by a bad actor
- A black swan event

- Unforeseen pricing errors and market irrationality
- General Issues with Experimental Technology
- Price Stability Mechanisms

7. Summary

Considering the scenario we presented in this white paper, we are working really hard with blockchain technologies that will revolutionize the global economy, just as the Internet did to the information and communications. It will allow millions of innovative new projects to blossom, allowing entrepreneurs to re-think future economies. In SeSocio we have been working with these entrepreneurs since our beginnings and we understand how challenging it is to fund new projects, and the importance of liquidity in the market.

The proposed architecture of the CLPS will unlock the full potential of Investoland, allowing the investors to trade almost 300 real economy tokens without the risk of liquidity, while creating a network effect to the entire Investoland community.

To unleash the potential of continuous liquidity it is vital to have the highest total value locked possible in the protocol, to enable this we propose a reward mechanism for the liquidity providers and the challenge will be to bring new liquidity providers to the ecosystem.

Additionally we believe that the forthcoming growth of the DeFi ecosystem will be huge, and it is important to consider the interoperability of the protocols in which we are currently working; allowing all the participants to take advantage of it.

We believe that we are at the right moment, in the right place, with the best proven project, and the best proven team to take full advantage of this opportunity and boost Investoland to its global potential.

#Join The Investment Revolution