#Chrysus DeFi Platform#

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Abstract

Project Chrysus aims to be a fully decentralized ecosystem revolving around Chrysus Coin. Chrysus Coin (Chrysus) is an ERC20 token, deployed on the Ethereum network which is pegged to the price of gold (XAU/USD) using Decentralized Finance (DeFi) best practices. The ecosystem around Chrysus will involve a SWAP solution, a lending solution and an eCommerce integration solution allowing for the use of Chrysus outside of the DeFi ecosystem. One of the main goals of Chrysus is to not just closely follow the price of gold, but also to be a cash flow generating token. This is achieved through the Chrysus Governance Token (CGT) which will serve both as a decentralization tool for the system and as a reward tool for Chrysus token minters. Fees collected through the different components of the Project Chrysus ecosystem will be re-distributed to CGT token holders who actively participate in the stability mechanisms of the platform

Mission and Vision

We envision an open, borderless world. A world in which people and machines collaborate and exchange value globally and freely, without gatekeepers or intermediaries. A world in which communities thrive, unconstrained by artificial borders and archaic regulations.

We will strive to empower everyone to effortlessly join this new, better world.

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The entire scope of the project (carried out in phases) includes:

- *Phase 1 (Genesis):*
  - Creation of the Chrysus token
  - Creation of the CGT token ○ Setup of the interactions between Chrysus and CGT
- *Phase 2 (Integration):*
  - Integration with existing DeFi solutions for token swaps
  - Integration with existing DeFi solutions for lending
- *Phase 3 (Expansion):*
  - Integration of Chrysus with payment solutions outside of the crypto world

- *Phase 4 (Independence):*
    - Creation of own DeFi solutions for token swaps
    - Creation of own DeFi solutions for lending

Introduction

Decentralized networks - a network that is distributed worldwide for computers that share normal open source software Agreements - have enabled billions of people to connect then share information quickly, securely and with zero consumer costs. What the world means they were deep, and they continue. As HTTPS, SMTP and SIP are allowed for free information sharing and communication, crypto assets and blockchain technologies will allow people to know the value of the exchange and transactions with each other in the same way: quickly, globally, safely and at low cost. The open internet exchange rate can change and we have covered the earth deeply, finally eliminating economic barriers to installation and empowerment of a better and more inclusive global market connecting everyone in the world. The world economy is open, shared, inclusive, far and wide, evenly distributed, and powerful not only few are the gatekeepers chosen, but for all who will connect.

Some of the main advantages of cryptocurrencies are: low transaction costs, unlimited countries, transfer and flexibility, Anonymous ownership and transaction, pseudo--anonymity, real time transparency, and protection from the problems of the banking system.

Current definitions
Common limited uses of cryptocurrencies include: price fluctuations, inadequate marketing understanding of technology, as well as adequate easofuse for non-technical users.

Project Chrysus (PC) is a Decentralized Finance (DeFi) ecosystem, revolving around the Chrysus Coin (a synthetic asset tracking the price of gold) and the Chrysus Governance Token (CGT). Stablecoins are a staple in the crypto world. It is hard to imagine mass crypto adoption without stablecoins, since merchants and non-crypto-maximalists are unlikely to accept the risk of huge price volatility. That being said almost all stablecoins share two properties:

- They are pegged to a FIAT currency (in most cases USD)
- They are passive (e.g. they do not generate cash flow)

Then, there is a third issue - the US Dollar itself is not really stable (albeit, being a world reserve currency and the most stable of all currencies)! It's no secret that $1 now will get you less than it would 100 years ago, but just how much has the purchasing power of the U.S. Dollar decreased over the years? To illustrate this, howmuch.net have created a visualization that demonstrates the rise and fall of the dollar since 1913. Using this graphic, we can see how inflation and changes in the Consumer Price Index have decreased the dollar's purchasing power over the last century.

Project Chrysus (PC) aims to address the above issues by creating a fully decentralized gold-backed (the second best thing to FIAT in terms of volatility) crypto token which enables its users to generate cash flows via the project's governance token.

The white paper described how anyone could generate Chrysus using that system by leveraging Ethereum (ETH) and DAI as collateral through unique smart contracts known as Collateralized Debt Positions (CDPs). Given that ETH and Dai was the only collateral asset accepted by the system, the Chrysus generated was called Single-Collateral Chrysus (SCC).

Chrysus project intends to develop 2 different crypto token for Utility purposes and Native purposes:-

- **Chrysus generates (conditional) cash flows in CGT**
- **CGT generates (conditional) cash flows in other cryptocurrency**

Chrysus Native Token

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Project Chrysus was born out of a desire to realize this vision. Chrysus has CDP backed crypto assets, price, network agreements, and business rules applied for the first time, where existing technology supports significant daily trading volume. THE INSTITUTION plans to create a creative network management system, the redemption, and movement of these goods under the new independent organization. In addition to the management and auditing network membership, Chrysus plans to provide technology to address price volatility and transaction scalability challenges on top of existing public blockchain infrastructure. Specifically, #Chrysus plans to provide:

- How to remove members from mint and burn / rescue fiat-backed tokens, to deal with price fluctuations;
- Agreements to enable global solidcoin transactions interaction on social blockchains using context flow and growth stations;
- Network and smart membership rules management contracts, auditing and administration licensed network participants say transact, and redeem stable coins.

Chrysus Coin (Chrysus) will be a de-facto stable coin pegged to the price of gold. The pegging mechanism will be fully decentralized and will be a hybrid between the solutions developed by Maker and Synthetix . It borrows the best aspect from both systems where it has:

- A lot lower collateral requirement than Synthetix
- Better reward structure for opening of positions compared to Maker
- Non-inflationary stability mechanisms for the recapitalization of the system
- 1:1 profit with the actual tracked asset

Token Economics

Network - Ethereum
Pegging - Gold
Deposits- ETH/DAI
Oracle - Chainlink (Fiat price Ratio)
Liquidation Ratio- 110%
Minting - 10% (Every new)

Token Minting

Chrysus is created by following the following steps:

1. User has either ETH or DAI (accepted collateral tokens, as the project matures more and more tokens will be used as collateral) and wishes to open a Chrysus position.
2. The user deposits his/her collateral to the Chrysus contract.
3. A ChainLink6 Oracle is queried to obtain the prices of ETH/USD and XAU/USD along with DAI/USD and XAU/USD to build reference points for the amount of Chrysus minted.
4. The contract issues Chrysus tokens to the user based on the asset collateralization ratios (each asset will have its own ratio).

Collateralization ratios

When a Chrysus position is created, it is done so using a certain collateralization ratio. This ratio is determined by the current deviation of the asset (Chrysus) from its target (XAU).

If Chrysus is traded below its peg (XAU) then the collateralization ratio increases, making it harder for new Chrysus to be created until the peg is restored. It also requires existing Chrysus positions to increase their collateral in order to maximize their CGT gain. Essentially when Chrysus is undercollateralized, the amount of CGT awarded to the undercollateralized positions is reduced. This increases the scarcity of the asset, contracts its expansion and might even prompt certain users to close their Chrysus positions.

Inversely, if Chrysus is traded above its peg (XAU) then the collateralization ratio decreases, making it easier to create Chrysus and enabling people who hold Chrysus positions to mint new Chrysus. Then they can opt to sell it on the open market, and once the price restores back to normal, buy it back in order to re-collateralize their position, making profit from the price difference in the meanwhile.

Lastly, the system also has a liquidation ratio which is fixed at 110%. If at any point in time, the value of the value of the underlying collateral, drops below 110%, the collateral will get liquidated, following a set priority order:

1. Try and liquidate the position on Project Chrysus's swap solution, for the portion where it can be liquidated above the Peg value. THEN
2. Try and liquidate the position on UniSwap and other DEX providers, for the portion where it can be liquidated above the Peg value. THEN
3. Auction off the remaining collateral

Collateralization ratio balance point

The above begs the question - what is the collateralization ratio balance point (e.g. the collateralization ratio when the asset follows the peg perfectly) and also the collateralization ratio at which the position is opened.

Those ratios are defined by taking the 95th percentile of the price deviations between the two assets over a 52 week period, but no less than 2 times the liquidation ratio safety net (e.g. minimum is 120% collateralization ratio).

The top end of the collateralization ratio curve is defined as:

(the balance point) - (the liquidation ratio) + (the balance point). *###[different for both ETH and DAI]###*

What happens if Chrysus is trading below or above peg? How does the token return to its balance point? We will examine both of those scenarios below: Chrysus is traded below peg:

- Collateralization ratio increases making it harder for Chrysus to be created and requiring existing positions to increase their collateral.
- The liquidation ratio guarantees that eventually Chrysus will be restored to its peg (e.g. if in extreme conditions all Chrysus positions are liquidated, this will be done at a price near its peg point).
- This creates arbitrage conditions, where users can purchase Chrysus off exchanges and sell it for a profit once the price stabilizes.
- The insurance module of the system will cover part of the losses in a black swan event (explained further down in the document). Chrysus is traded above its peg:
- Collateralization ratio decreases making it easier to create new Chrysus and enabling holders of existing Chrysus positions to mint Chrysus for free. Supply increases which pushes the price down.
- Creates arbitrage conditions, where Chrysus can be created, sold and later on repurchased at a lower price in order to close the created Chrysus position.

On top of the above, governance token distribution to Chrysus position holders is maximised, when the Chrysus token's price is as close as possible to its peg (explained further in the Governance token section).

Fees

Unlike other projects Chrysus positions do not incur an ongoing fee, quite the contrary they generate cash flows in the long run. Chrysus positions have a single origination fee of 10%, which is paid every time when new Chrysus is minted. For comparison purposes, DAI incurs a stability fee of 8.5% per annum (currently). The origination fee is then re-distributed as follows:

- 30% to the project treasury for development
- 20% to for Chrysus and CGT liquidity (used to provide the counter asset on Chrysus/CGT pairs on the SWAP solution).
- 50% to stakers in the stability module (essentially meaning that only CGT holders who participate in the stability of the system will be eligible to receive cash flows in currencies other than CGT.)

CGT Governance Token

A simple ERC-20 compatible token will be created to serve as the key internal incentive mechanism to bind the mutual together. A continuous token model will be used so that tokens can be purchased at any time but at a variable price. This contrasts to more common ICO type approaches where there is a fixed
purchase period with set price change points, followed by a speculation-driven market on exchanges. The token price will vary based on
1) funding level of the Capital Pool and
2) the minimum amount of capital required to support existing covers (which provides a link to business growth):

Issued as Reward for minting CHC
Providing Liquidity to CHC
CHC borrowing and lending
people staking CGT will receive a % allocation of all fees collected throughout

Chrysus Governance Token (CGT) is the governance token issued as a reward for participants in the ecosystem. CGT will be a perpetually inflationary token, which will be rewarded for:

- Minting Chrysus
- Providing liquidity to Chrysus
- Chrysus borrowing and lending

The CGT token's main purpose is to be used for governance via voting on the system's parameters.

An additional use of the CGT token will be the stability system, where people who stake CGT will receive a % allocation of all fees collected throughout the Chrysus Ecosystem.

The above setup ensures both the stability of Chrysus versus its peg and well providing multiple cash flow streams. For example:

1. User deposits ETH or DAI and mints Chrysus, based on this he will be eligible for part of the daily CGT allocation
2. The user can then use the Chrysus in the borrowing lending module, enabling him to receive additional CGT
3. The user than stakes CGT in the stability module, enabling him to receive % of all fees collected on the platform

Allocation:

Gold project team: 72 000 000 CGT upon project creation

Proceeded by 100 000 CGT daily

Distribution:

30% of the daily mint for CHC creators

30% of the daily mint for CHC liquidity providers on the SWAP solution

30% of the daily mint for CHC borrowers and lenders on the Lending solution

Allocations and issuance

The goal of the Project Chrysus is to be fully decentralized, this however cannot be achieved from day one, as there are likely many tweaks and improvements due for the project over time.

The goal of the project is to become fully decentralized over the course of 2 years (accounting years, 720 days in total). This is achieved by virtue of the CGT token allocations, where the 2-year mark is the time when the daily token award allocations will overtake the team token allocation.

Voting

Voting is intended as the main governance mechanism of the system. Pretty much all system parameters and functionality can be put up for a vote (including the voting rules). The initial set of rules under which voting will be held are described below.

In order to participate in the ecosystem's governance, a user's tokens need to have been staked in the stability module for a minimum of 30 days and should be still staked in the voting module. In order to be considered for voting, staked tokens must have been staked within the last 3 months or the address which staked the tokens should have called the voting contract function at least once within the last 3 months (this is to prevent stalemates due to inactive users or lost keys).
All staked tokens which satisfy the above conditions form the voting pool. The following % pool participations are required in order to:

- Initiate a vote on a proposal - 10% pool backing
- Generate vote quorum - 75% of pool voted (including “abstained” votes)
- Proposal passes if 51% of the tokens which voted, voted for “Yes”

Stability module

The stability module is a bailer of last resort for the Chrysus token, in case other stabilization functions prove to not be sufficient. This module is triggered when the collateral provided for a Chrysus position is not sufficient to cover the whole position. In this eventually CGT is drawn from the stability module and sold in order to cover the difference.

The stability module is composed of platform users who wish to contribute to the system’s stability by staking their CGT tokens. The process of staking is instantaneous, while the process of unstaking takes 1 month to complete, during which time the staked tokens are still part of the stability mobile and still eligible for rewards.

Users who risk their tokens in such fashion, in order to ensure the system’s stability are rewarded by a % of all fees collected by the Chrysus Ecosystem. The exact fee allocation is detailed in this document, in each respective section.

Governance Mechanism

The DAO was a digital decentralized autonomous organization, and a form of investor-directed venture capital fund. It launched in April 2016 after a crowdfunding campaign. By September 2016, it was delisted from major cryptocurrency exchanges and had, in effect, become defunct. The DAO had an objective to provide a new decentralized business model for organizing both commercial and non-profit enterprises.

It was instantiated on the Ethereum blockchain, and had no conventional management structure or board of directors. The code of the DAO is open-source. The DAO was stateless, and not tied to any particular nation state. As a result, many questions of how government regulators would deal with a stateless fund were yet to be dealt with.

In June 2016, users exploited a vulnerability in The DAO code to enable them to siphon off one-third of The DAO's funds to a subsidiary account. On 20 July 2016 01:20:40 PM +UTC at Block 1920000, the Ethereum community decided to hard-fork the Ethereum blockchain to restore virtually all funds to the original contract. This was controversial, and led to a fork in Ethereum, where the original unforked blockchain was maintained as

Ethereum Classic, thus splitting the Ethereum blockchain into two branches, each with its own cryptocurrency.

Voting module based on staked currencies - A user's tokens need to have been staked in the stability module for a minimum of 30 days and should be still staked in the voting module. In order to be considered for voting, staked tokens must have been staked within the last 3 months or the address which staked the tokens should have called the voting contract function at least once within the last 3 months

Initiate a vote on a proposal - 10% pool backing
Generate vote quorum - 75% of pool voted (including "abstained" votes)
Proposal passes if 51% of the tokens which voted, voted for "Yes"

Liquidity Pools

In order to get the Chrysus tokens traded and make it easy for users to process their funds, we intend to utilize our Chrysus tokens against ETH over Uniswap. Tokens would be swapped over Uniswap and Swap ratio will be dependent on the initial liquidity added on the platform.

Swap Ratio

Farming Protocol

The farming protocol of this platform would be working to "create a perpetual deflation token, that allows a constant price pump with a sufficient burn mechanism." This is a big statement saying they can manufacture a constant price pump, and we recommend you do your research before making any financial investments. By leveraging automated market-making technology (AMM), Goose Finance creates seamless, decentralized, and permissionless token swaps. This, combined with low transaction fees and quick transaction times, makes Goose Finance the Defi app to watch right now. The smart contract would ensure Staking of LP tokens from Uni LP to earn Reward tokens (CGT). one can ape his/her money into a Staking pool with no rugpull, no dumping, no hidden pool.

Lending and Borrowing platform

Individuals with long-term investments in Ether and tokens ("HODLers") can use a money market as a source of additional returns on their investment. For example, a user that owns Chrysus can supply their tokens to our lending protocol, and earn interest (denominated in Chrysus) without having to manage their asset, fulfill loan requests or take speculative risks. dApps, machines, and exchanges with token balances can use the our protocol as a source of monetization and incremental returns by "sweeping" balances; this has the potential to unlock entirely new business models for the Ethereum ecosystem.

Ecommerce Implementation

With the ever increasing use of the internet and its popularity among all demographic segments, electronic commerce is by all means the way to go for virtually all businesses. Creating an online presence means that a business owner or company can reach potential customers and expand business operations, gaining a significant authority in the marketplace. It is almost impossible for a company to compete in today's very competitive business world if it lacks a strong online presence, which is the essence of e-commerce. A wide range of small and large companies have leveraged ecommerce to bolster sales by listing their services and products online, where consumers can check them and make enquiries, as well as place orders at the click of a computer button.

Empowering Customers

E-commerce has gone a long way in empowering consumers through the internet. Through their websites and online advertisements, businesses can communicate with their clients, provide information on new products and complete sales. Consumer forums and features which allow consumers to give feedback and comments regarding products and services have conferred on the customer more say, so that with ecommerce,

customers are able to contribute to the making of the right product for them and having a say on how services are delivered. This is not only good for the customer, but also for the producers as they are able to make goods and design services that suit their customers, avoiding wastages and enhancing customer satisfaction. Ecommerce also saves time for both businesses and consumers and enhances the customer's convenience.

Increased Efficiency

Ecommerce has helped businesses improve their efficiency through streamlining the production and service delivery process. Execution of online business transactions that are fast and cost effective has gone a long way in bolstering business efficiency. What is more, businesses leverage the information obtained through e-commerce channels such as online customer forums to improve the quality of their products, enhance customer satisfaction and make better corporate decisions. E-commerce has also simplified sales and marketing as salespeople can complete sales online, saving time, increasing revenue and enhancing efficiency.

Exploring New Businesses

E-commerce enables new and existing businesses to venture into the market and reach potential customer without the need for physical presence. This way, business organizations can create products, avail them on their websites and other electronic portals and make sales through online transactions, a move that is only possible through electronic commerce. All in all, the importance of electronic commerce in the marketplace cannot be overstated, as it has revolutionized the way of doing business.

In this case the Ecommerce solution would allow hodlers to utilize their CHC or CGC against purchase of the retail product via an official ecommerce platform of Chrysus in order to purchase certain jewellery items.

The Ecommerce platform is intended to help end users either to utilize their existing Chrysus tokens or fiat currencies in order to purchase the products via it's platform. The platform would be developed with a semi decentralized architecture.

Know hows for this solutions -

- Developed on top of LAMP Framework
- Oracles in place to fetch real world price value
- Trade data stored over Blockchain Layer for better user experiences
- Hodlers can connect their wallet and use their tokens for enhanced shopping experience

Borrowing Assets

Our platform allows users to frictionlessly borrow from the protocol, using Chrysus token as collateral, for

use anywhere in the Ethereum ecosystem. Unlike peer-to-peer protocols, borrowing from our platform simply requires a user to specify a desired asset; there are no terms to negotiate, maturity dates, or funding periods; borrowing is instant and predictable. Similar to supplying an asset, each money market has a floating interest rate, set by market forces, which determines the borrowing cost for each asset.

Collateral Value

Assets held by the protocol (represented by ownership of a Chrysus) are used as collateral to borrow from the protocol. Each market has a collateral factor, ranging from 0 to 1, that represents the portion of the underlying asset value that can be borrowed. Illiquid, small-cap assets have low collateral factors; they do not make good collateral, while liquid, high-cap assets have high collateral factors. The sum of the value of an account's underlying token balances, multiplied by the collateral factors, equals a user's borrowing capacity .

Users are able to borrow up to, but not exceeding, their borrowing capacity, and an account can take no action (e.g. borrow, transfer cToken collateral, or redeem cToken collateral) that would raise the total value of borrowed assets above their borrowing capacity; this protects the protocol from default risk.

Risk & Liquidation

If the value of an account's borrowing outstanding exceeds their borrowing capacity, a portion of the outstanding borrowing may be repaid in exchange for the user's Chrysus collateral, at the current market price minus a liquidation discount ; this incentives an ecosystem of arbitrageurs to quickly step in to reduce the borrower's exposure, and eliminate the protocol's risk.

The proportion eligible to be closed, a close factor , is the portion of the borrowed asset that can be repaid, and ranges from 0 to 1, such as 25%. The liquidation process may continue to be called until the user's borrowing is less than their borrowing capacity. Any Ethereum address that possesses the borrowed asset may invoke the liquidation function, exchanging their asset for the borrower's Chrysus collateral. As both users, both assets, and prices are all contained within our protocol, liquidation is frictionless and does not rely on any outside systems or order-books.

Interest Rate Model

Rather than individual suppliers or borrowers having to negotiate over terms and rates, our protocol utilizes an interest rate model that achieves an interest rate equilibrium, in each money market, based on supply and demand. Following economic theory, interest rates (the"price" of money) should increase as a function of demand; when demand is low, interest rates should be low, and vice versa when demand is high. The utilization ratio U for each market a unifies supply and demand into a single variable:

$$U = Borrows/(Cash + Borrows)$$

The demand curve is codified through governance and is expressed as a function of utilization. As an example, borrowing interest rates may resemble the following:

$$Borrow\ Interest\ Rate = 2.5\% + U * 20\%$$

The interest rate earned by suppliers is implicit , and is equal to the borrowing interest rate, multiplied by the utilization rate.

Liquidity Incentive Structure

The protocol does not guarantee liquidity; instead, it relies on the interest rate model to incentivize it. In periods of extreme demand for an asset, the liquidity of the protocol (the tokens available to withdraw or borrow) will decline; when this occurs, interest rates rise, incentivizing supply, and disincentivizing borrowing.

Interest Rate Mechanics

Compound money markets are defined by an interest rate, applied to all borrowers uniformly, which adjust over time as the relationship between supply and demand changes. The history of each interest rate, for each money market, is captured by an Interest Rate Index , which is calculated each time an interest rate changes, resulting from a user minting, redeeming, borrowing, repaying or liquidating the asset.

Technology Stack and Processes:

To be described in a detailed way with the next iteration while in the development stage for Native token development.

GLOSSARY

Digital currency: As defined by http://en.wikipedia.org/wiki/Digital_currency

Cryptocurrency or decentralized digital currency: any type of cryptocurrency that is open source, cryptographically secure, and uses a distributed ledger. See: http://en.wikipedia.org/wiki/Cryptocurrency
Real-world currency, or fiat currency, or national/sovereign currency: all types of currency that are not cryptocurrencies as defined above.

Cryptocurrency system: A collection of software and processes primarily created to enable the existence of a cryptocurrency.

Legacy financial system: any financial system that is not a cryptocurrency system.

Utility -backed digital tokens, a.k.a Dapps: A decentralized digital token whose value is derived from the
usefulness of its application rather than just being a value transfer system.

Asset-backed/pegged cryptocurrency: Any cryptocurrency whose price is pegged to a real-world asset, i.e. it's not a "utility backed" cryptocurrency.

#PROJECTNAME System: collectively refers to all process and technologies that enable tethers to exist
Proof of Reserves: The process by which the issuer of any asset- backed decentralized digital token, cryptographically/mathematically proves that all tokens that have been issued are fully reserved and backed by the underlying asset.

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