Setheum & Slixon - Powering halal DeFi Solutions..

Secure Evergreen Truthful Heterogeneous Economically Unbiased Market - SETHEUM
Setheum's Little Internal-eXternal Observation Network - SLIXON

White Paper

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Abstract

We see a lot of cryptocurrencies coming up everyday, but what we don't see is a cryptocurrency that is decentralised, secure, scalable and having the option for price stability at the same time, especially one without interest-based debt or having to be centralised by a physical reserve in a corporate bank, and one that is also properly governed.

Setheum gives us the properties of both Fiat and Crypto with InterUSD (USDI) using a novel revolutionary Collateralised Debt Position (CDP) mechanism I call **"ZIT-CDP" (Zero-Interest Timed Collateralised Debt Position)** without compromising decentralisation or economic stability. A cryptocurrency that has scalable value and trust, setheum provides just that, backed by crypto assets with efficient zero-interest loans.

The intent of Setheum is to improve upon the concepts of the Stablecoin decentralisation, scalability, mass adoption, diversity, interoperability and most importantly inclusivity.

So, Setheum provides ten (10) major solutions listed as follows:

- Powering Halal Multi-Protocol DeFi Solutions in an Optimised environment.
- Providing Humanitarian Aid on-chain via Quadratic Crowdfunding.
- Powering Global Decentralised Stablecoin Payment Solutions.
- Inventing Zero-Interest Timed Collateralised Debt Position (ZIT-CDP) Stablecoin Standard.
- Providing Ethereum smart-contract layer (EVM) for developers and NFT enthusiasts.
- Enabling projects and teams to raise funds from the crowd via Launchpad Crowdsales.
- Providing Decentralised Multi-currency Heterogeneous Payment Gateway infrastructure.
- Bringing Ethics into DeFi as a core governance principle.
- Providing Cross-Chain and Interoperable DeFi solutions.
- Providing built-in native Decentralised Exchange (DEX) with Halal Liquidity Incentives.

Setheum is the Mainnet and Slixon is the Canarynet, like a canary in a coal mine.

Table of Contents

Brief History

It all started in 1976, when cryptographers Whitfield Diffie & Martin E. Hellman published their paper “New directions in cryptography”. David Chaum first proposed a protocol similar to Bitcoin in his thesis "Computer Systems Established, Maintained, and Trusted by Mutually Suspicious Groups.” in the year 1982. Then S. Even, O. Goldreich, and Y. Yacobi published “Electronic wallet” later in 1983. Furthermore, since then we’ve seen inventions in this field being introduced by some of the most brilliant minds around, this gradually builds up and leads to what we know today as the “Blockchain” In 1998 yet again, Nick Szabo introduced the design of a mechanism for a decentralised digital currency he called "Bit Gold". Though Bit Gold was never implemented, it has however been dubbed "the direct precursor to the Bitcoin architecture.” In Nick Szabo’s Bit Gold, a participant would dedicate computing power to solve cryptographic challenges (like puzzles). In the Bit Gold network, solved cryptographic hashes would go through a BFT (Byzantine Fault-Tolerant) public registry and be assigned to the public key of the participant/solver. Each solution would become part of the next challenge, creating a growing chain of new challenges. This provided the Bit Gold network with a method to verify and time-stamp new Bit Golds, because unless a majority of the validation participants agree to accept new hash solutions, they couldn’t start on the next challenge.

When attempting to design a digital currency, challenges like the "double-spending" problem arise. Once data has been created, reproducing it would simply be a matter of copy and paste. Most digital currencies would solve the problem by advocating some control over to a central authority, which keeps track of the account balances. This was clearly an unacceptable solution for Nick Szabo, "I was trying to mimic as closely as possible in cyberspace the security and trust characteristics of gold, and chief among those is that it doesn’t depend on a trusted central authority,"said Szabo. The phrase and concept of "smart contracts" was also developed by Nick Szabo, with the goal of bringing what he calls the "highly evolved" practises of contract law to the design of trustless e-commerce protocols on the Internet. More papers were published to achieve fairly the same objective, a peer-to-peer trustless and secure electronic monetary equivalent.

All these inventions were neglected and almost forgotten until when we needed them the most in the 2007-2008 financial crisis, what a crash, I had wish we saw the black swan coming earlier and took all preventive measures, but we just simply didn’t trust crypto, and now it’s proven us totally wrong, though it hurts to be wrong we have to admit we must transition to a better economic stability strategy. On the 7th of April 2008, MICHAEL NÜSKEN published “WORKSHOP e€ (ELECTRONIC MONEY).” Then in the same catastrophic 2008, Blockchain was invented by a person under the alias of “Satoshi Nakamoto”, to serve as the public transaction ledger of the cryptocurrency “Bitcoin”. The identity of Satoshi Nakamoto remains unknown till date. The invention of the blockchain for the bitcoin network, made it the first digital currency to solve the “double-spending” (where one could spend a unit of exchange more than once) problem without the need for a trusted centralised authority. The bitcoin design has inspired many other applications, and blockchains that are public, transparent and widely used by cryptocurrencies. The blockchain is considered as a type of payment rail. Then late in the catastrophic 2019, I proposed Setheum to serve the underserved in this industry and introduce an ethical shari’ah compliant Blockchain and a group of protocols including a Zero-Interest Timed Collateralised Debt Position Stablecoin System.

Understanding The Blockchain

The blockchain is a decentralised, electronic ledger made up of **blocks** used to record transactions across distributed nodes such that any recorded block cannot be altered retroactively, without the alteration of all the subsequent blocks. This enables the participants to verify and audit transactions independently. A blockchain's database is managed autonomously using a peer-to-peer network and a distributed timestamping server. They are authenticated collectively by participants with similar self-interests. The blockchain does away with having to trust a central authority or server, making it trustless and it is transparent to support auditing and ensuring readability.

- 1st Generation - Bitcoin (Cryptocurrency)

The 1st generation of the blockchain aimed at Cryptocurrency is the first implementation of distributed ledger technology (DLT). This allows financial transactions based on blockchain technology or DLT (for the sake of simplicity often seen as synonyms) to be executed with Bitcoin being the most prominent example in this segment. It is being used as "cash for the Internet", a digital payment system and can be seen as the enabler of an "Internet of Money".

- 2nd Generation - Ethereum (Smart Contracts)

Ethereum blockchain aims to execute 'Smart Contracts' to reduce the cost of verification, execution and fraud prevention. They are independent computer programs that automatically execute predefined conditions. A DApp can have frontend code and user interfaces written in any language that can make calls to its backend, like a traditional App. But a Dapp can have its frontend hosted on decentralised storages such as Ethereums Swarm. *[DApp = frontend + contracts* **(**running i.e. on Ethereum**)]**

- 3rd Generation and Web3.0 (leapfrog)

The first generation of the Blockchain aims at solving the issue of double-spending and providing a decentralised and secure monetary system on the internet, and this is where Bitcoin lands as the first successful implementation of decentralised finance. The Second generation focuses on the programmability of the blockchain layer, to support a diverse range of application development on the blockchain, and that is when Ethereum was introduced that supports an EVM (Ethereum Virtual Machine) which is a programmable layer on the blockchain that allows the deployment of smart-contracts that can interact with each other on top of the blockchain.

The 3rd generation blockchain revolves around the idea of interoperability and the 3 Ss namely sustainability, scalability, and security. This is where we see Proof of Stake implementations that are environmentally friendly and an alternative to the legacy "Proof of Work" for long-term environmental sustainability with works like Polkadot and Setheum. Here we see decentralised storage like Filecoin, IPFS, and Chia that use Storage Consensus mechanisms. Here we see state upgradability without forking like in Polkadot and Setheum, we see on-chain built-in DeFi systems like in the case of Setheum. We also see layer 0 solutions like Polkadot and layer 2 solutions alongside many innovations in the blockchain and crypto space.

But, we haven't seen specific significant contributions to the Islamic Finance market in this space, little to no DeFi presence of the muslim community and those Christians alike that seek out for halal (permitted) zero-interest theologically acceptable DeFi protocols and modes of making money apart from trading speculation on exchanges, staking on PoS and hodling tokens. This is why Setheum was completely rectified into the conclusive go-to DeFi network for people and communities alike that share my enthusiasm as well as those that share my concerns.

Inspiration & Motivation

- The **Inspiration** behind Setheum was initially to provide an alternative payment system to the current FinTech atmosphere. To create a system that is bipartisan and open to the public providing an easy to use remittance network that is also easy to onboard, attractive for day-to-day spending and transparent. Something I could build an ecommerce platform on and use as the main payment option and a bridge between traditional finance and cryptocurrency in both low-level and high-level endpoints, especially in the less developed and developing parts of the world. Then I built the system on the foundation and principles of Islamic Finance in the Shari'ah to make it halal (permissible) to all muslims and beneficial to all muslims and non-muslims alike.

- The **motivation** is to make it easier for the free-flow of capital internationally and intersystematically (interoperability between distinct systems/networks), to maximise capitalization and economic growth under the umbrella of the Shari'ah, realising that this is the solution for many of the problems challenging communities around the world, inequality in capital distribution and discrepancies in the free flow of capital between equality of opportunities and systematic fairness in capital distribution and financial regulations. Equality of opportunities cannot be achieved without the free-flow of capital, while there is no systematic fairness in the distribution of capital there can be no free-flow of capital in the hands of the public. In Setheum, the capital will be directed to the public for the public utility in the Setheum economy through various mechanisms including staking, liquidity incentives, Setheum Treasury, Grants and Bounty Program, SetLaunch and Al-Ethaar Quadratic Altruism Protocol. Setheum has a set of Principles and core values that shall not change or get corrupted in its underlying governance. Setheum is following the Islamic Finance principles and core values in compliance to the Shari'ah in respect to Economics, Monetary and Financial affairs.

The Setheum System

As we already know, price-stable cryptocurrencies combine the best of both worlds, both fiat currencies and cryptocurrencies like Bitcoin, but not many have a clear plan for the usability let alone the adoption of such a currency. Cryptocurrencies and stablecoins in particular, were designed as a direct result of shortcomings in financial markets and in the global economy – lack of capacity for cross-border payments, high transaction fees, opacity on banking systems, investor risks, market hours and exchange limitations, etc. And since the value of a currency is driven by its network effects, a successfully progressive new digital currency needs to maximise adoption in order to be useful. Creating just another stablecoin is not enough, the "use case" is what matters more. Are there any practical use cases apart from trading in exchanges, airdrops and staking? There is high demand for decentralised, price-stable currencies that should be both fiat-pegged and absolutely cryptonomic in nature, eliminating fiat's inflational fracas and bitcoin's volatile nature.

And when it succeeds, then it will have a significant impact as one of the best use cases for cryptocurrencies and a dam of market liquidity. Setheum Finance Protocol makes that balance of truthful trustless equilibrium between fiat currencies and cryptocurrencies.

Setheum is building a novel concept we call **"ZIT-CDP" (Zero-Interest Timed Collateralised Debt Position)** to issue a USD-pegged stablecoin with multi-collateral cryptocurrency backing, and also maintains its decentralised nature while also avoiding extreme price volatility and hyperinflation. Setheum Finance has combined Bitcoin, Ethereum (discussing the S-EVM further down the pages), Fiat and Stablecoin features that maximise the better of all concepts. The price-volatility of cryptocurrencies is a well-studied problem by both academics and market observers (see for instance, Liu and Tsyvinski, 2018, Makarov and Schoar, 2018).

Most cryptocurrencies, including Bitcoin, have a predetermined issuance schedule that, together with a strong speculative demand, contributes to wild fluctuations in price. Bitcoin's extreme price volatility is a major roadblock towards its adoption as a medium of exchange or store of value. Intuitively, nobody wants to pay with a currency that has the potential to double in value in a few days, or wants to be paid in a currency if its value can significantly decline before the transaction is settled. But other cryptocurrencies that have infinite supply also have speculations as to how they can sustain hyperinflation in the long run, what happens to their PPP (Purchasing Power Parity) when their always infinitely increasing supply is a matter of concern. So we need a balance right in the middle, and a mechanism to curb both volatility and inflation, in order to harness the economic stability of cryptocurrencies - their best day to day use cases hide behind the curtains of economic stability.. Setheum gets rid of that curtain, for God says let there be light, so then why do we prevent it from reaching us even though we're in the dark.

The problems of high volatility are aggravated when the transaction requires more time, i.e; for deferred payments such as mortgages or employment contracts, as volatility would severely disadvantage one side of the contract, making the usage of existing digital currencies in these settings prohibitively expensive.

At the core of how the Setheum Protocol solves these issues is the idea that a cryptocurrency with a collateral backed supply would maintain a stable price, retaining all the censorship resistance of Bitcoin, and making it viable for use in everyday transactions just like the fiat. However, price-stability is not sufficient for the wide adoption of a currency.

Currencies inherently have strong network effects: a customer is unlikely to switch over to a new currency unless a critical mass of merchants are ready to accept it, but at the same time, merchants have no reason to invest resources and educate staff to accept a new currency unless there is significant customer demand for it. For this reason, Bitcoin's adoption in the payments space has been limited to small businesses whose owners are personally invested in cryptocurrencies. That is, the Setheum Protocol with its equanimity in fostering stability and propping adoption in the Setheum Finance Protocol, represents an eloquent complement to 'Fiat currencies' and 'Cryptocurrencies' as means of payment and stores of value.

Staking, Randomness, Equality and Fairness in Setheum

The staking method in Setheum is an NPoS(Nominated Proof of Stake) and this mechanism advocates equality, randomness and fairness in the staking system in securing the network as well as earning staking rewards in the process. The problem with the staking algorithms today is that the rich get richer and the poor (well, you know what I mean), the NPoS system that Setheum uses was built as a part of the Substrate Blockchain Framework which Setheum uses built by the Web3 Foundation and Parity Technologies and is used on Polkadot today and a couple other good blockchains out there. It basically is the best solution out there to counter inequality in the block production of a Blockchain Network and block fees/rewards sharing/distribution methods on-chain. The randomness that Setheum uses is provided by the VRF, same as the one used in Polkadot. And the validators can earn the SETM tokens to pay for their service as validators that run and secure the network. Therefore, this qualifies as Halal. All protocols in Setheum are halal (permissible in Islam).
The NPoS (Nominated Proof of Stake) that Setheum and Polkadot use do not distribute block rewards to the so-called winning blocks or elite validators that have the highest stake or the most powerful mining rig. It is halal from my understanding and it's my opinion and we say that everything is Halal unless there is an evidence that it is haram from the Qur'an, Sunnah, Ijma' of the Sahaba or the Tabi'een, or the Atba' tabi'een, or ijma' of the Ulama, or from the logical deduction according to the principles of the purposes of Shari'ah, and Allah knows best. The Islamic Finance just happens to be the best option out there for best rewards and best long-term economic sustainability and reliability. Setheum just happens to implement just that for you and I.

Setheum Network

Setheum is a DeFi optimised operating system, liquidity exchange provider, and financial system that resolves around the issues of interest, liquidity and stablecoin reliability issues mostly raised by centralised stablecoins by creating over-collateralised zero-interest stablecoin backed by pristine crypto assets and managed by the network's Shari'ah backed governance Council that helps provide zero-interest loans for all muslims and non-muslims alike. Setheum is built with the Substrate modular interoperable blockchain framework and is based on the Nominated Proof of Stake (NPoS) consensus algorithm. In Setheum, one can pay for transaction fees in any token currency without having to hold Setheum's native token. Setheum implements a free and fair economic system that pursues equality of opportunity and the maximisation of public utility in the crypto-economy.

Slixon Network

Setheum's Little Internal-eXternal Observation Network

Slixon is Setheum's older sister blockchain used as its canary network (not a testnet). Slixon is set to launch early and unaudited, Slixon is wild and fast moving, it is the Wild West of the Setheum ecosystem and it is a highly experimental version of Setheum that represents real economic conditions. It is not economically centralised and there will be no central kill switch. Setheum will exist as long as its community maintains it and we envision it will cater to new, early, high-risk functionality and projects preparing to develop and deploy on Setheum.

Setheum will serve as a proving ground, allowing teams and developers to build and deploy smart-contracts or try out Setheum's governance, staking, and DeFi protocols functionalities in a real environment. It is an experimental community R&D network built from the same codebase as Setheum but cater to newer and early unaudited functionalities and projects preparing to deploy on Setheum. ***Before any protocol or functionality is released on Setheum, it is first released on the Setheum's Newrome Testnet and well tested, then it is released on Slixon Canarynet and observed internally and externally in a real value environment, then it is released on Setheum if all is Setheum-ready in a conservative Setheum way.***

Slixon is powered by its own native token "SLIX " (Slixon). Governance in Slixon is twice as fast as Setheum and bonding period is also twice as fast as Slixon. EVM smart contract deployment deposit is cheaper in Slixon and some of the functionalities and protocols in Slixon might never be implemented in Setheum as Setheum is the more conservative network while Slixon is the wilder version that will be faster and cheaper and make faster decisions, faster transactions, higher throughput, and bleeding-edge functionalities. Slixon will still stick to its roots of conforming to the Islamic Finance rules and regulations in its protocols and governance. Slixon will have its own community and its own economy, and its own USD stablecoin in the form of "USDW" (WestUSD) similar to Setheum's "USDI" (InterUSD). Setheum-Slixon are compared below:

Name	Slixon	Setheum
Native Coin	SLIX	SETM
Stablecoin	USDW (WestUSD)	USDI (InterUSD)
ZIT-CDP Stablecoin Protocol	WestUSD Protocol	InterUSD Protocol
Coin Initial Supply	2,580,000,000 SLIX	258,000,000 SETM
Coin Initial Price	$0.002	$0.1
Coin Initial Market Cap	$5,160,000	$25,800,000
Built-in DEX	SlixSwap	SetSwap
Launchpad Crowdsales	SlixLaunch	SetLaunch
Al-Ethaar Quadratic Funding	SlixEthaar	SetEthaar
Payment Gateway	SlixPay	SetPay
Smart Contracts EVM	SlixEVM	SetEVM
EVM Chain ID	313	258
BlockTime	6 Secs.	6 Secs.
BlockSize	1.25 MB to 3.75 MB	1.25 MB to 3.75 MB
BlockHashCount	2,400 (4 Hours)	2,400 (4 Hours)
Governance Voting Period	7 days	14 days

Token Allocations

The SLIX tokens for the Slixon canarynet will be endowed to early buyers of SETM, partners, and through community growth airdrops for the public. The allocations are listed below and categorised into Setheum & Slixon:

Allocations	**SETM**	**SLIX**
Pre-Seed (Accelerator)	4% (10,320,000) ($1,032,000)	4% (103,200,000) ($206,400)
Seed Funding	6% (15,480,000) ($1,548,000)	6% (154,800,000) ($309,600)
Strategic Funding	10% (25,800,000) ($2,580,000)	10% (258,000,000) ($516,000)
Public Sale	10% (25,800,000) ($2,580,000)	-
Liquidity Program	5% (12,900,000) ($1,290,000)	2.5% (64,500,000) ($129,000)
Liquidity Incentives	7.5% (19,350,000) ($1,935,000)	10% (258,000,000) ($516,000)
Treasury	7.5% (19,350,000) ($1,935,000)	7.5% (193,500,000) ($387,000)
Foundation	7.5% (19,350,000) ($1,935,000)	7.5% (193,500,000) ($387,000)
Advisors & Partners	5% (12,900,000) ($1,290,000)	5% (129,000,000) ($258,000)
Team	10% (25,800,000) ($2,580,000)	10% (258,000,000) ($516,000)
Ambassadors	5% (12,900,000) ($1,290,000)	5% (129,000,000) ($258,000)
Grants & Bounties	5% (12,900,000) ($1,290,000)	7.5% (193,500,000) ($387,000)
Vested Airdrop & Giveaways	-	10% (258,000,000) ($516,000)
Ecosystem Investment Fund	15% (38,700,000) ($3,870,000)	15% (387,000,000) ($774,000)

SETM Sales & Pricing Plan

Funding Round	Pricing	Allocation	Raise (U$D)
Pre-Seed (Accelerator)	$0.019	4% (10,320,000)	$200,000
Seed Round	$0.05	6% (15,480,000)	$774,000
Strategic Round	$0.07	10% (25,800,000)	$1,806,000
Public Sale	$0.1	10% (25,800,000)	$2,580,000
Total	-	30% (77,400,000)	$5,360,000

Vesting Schedule on Allocations

Allocations	**Vesting Schedules**
Pre-Seed (Accelerator)	24 months bimonthly linear vesting after a 2 month cliff from genesis
Seed Investors	24 months bimonthly linear vesting after a 2 month cliff from genesis
Strategic Investors	24 months bimonthly linear vesting after a 2 month cliff from genesis
Ambassadors	24 months bimonthly linear vesting after a 2 month cliff from genesis
Advisors & Partners	24 months bimonthly linear vesting after a 2 month cliff from genesis
Team	84 months bimonthly linear vesting after a 2 month cliff from genesis

Setheum Monetary Policy

Retaining purchasing power is the primary objective of a stable currency. Given that most of the goods and services produced are being consumed domestically, It is important to create cryptocurrencies that peg to the value of localised fiat currencies. And given that the US Dollar is the most recognisable and acceptable international yet localised fiat currency, we recognise the strong importance and activity of the US Dollar, and we provide **USDI (pegged to $1)**. For number details on the currencies, read further below.

The USDI is maintained by a **“ZIT-CDP” (Zero-Interest Timed Collateralised Debt Position)** System whereby the users of the ZIT-CDP maintain the value just like MakerDAO (without the interest rates or stability fees or liquidation penalty), and unlike fiat the USDI is fully backed (in fact over-backer), and Setheum does not compute high-powered money (HPM) into its USDI, which is basically the multiplication of the Monetary Base (MB or M0) with Fractional Reserve Banking. Since the InterUSD is zero-interest, the Setheum Financial Council manages and updates the collateral ratio to manage risk and avoid using interest rates.

Setheum EVM (SetEVM)

The Setheum EVM (**SetEVM**) enables Solidity smart contracts to be deployed on the Setheum blockchain with minimum changes. It also offers many distinct features such as "**multicurrency gas**" (paying fees in any tokens other than Setheum’s native token), smart-contract access to All the built-in DeFi protocols (SetSwap, Setheum Oracles, InterUSD Protocol, SetLaunch et al.) and an **on-chain automatic scheduler** that enables use cases like subscription and recurring payments, **microgas** (paying very miniscule gas fees) et al.

Cross-Chain Bridge

Setheum will build a **Filecoin-Setheum** bridge to enable the storage of Setheum's native **NFTs on Filecoin and other functionalities in the future** based on prior work called "**Filecoindot**". Setheum will also build a cross-chain multi-chain bridge to enable cross-chain transfers and arbitrary messages such as oracle data feed, token transfers, NFTs **to-and-fro Setheum, Slixon, BSC, Ethereum, Polygon, Solana, Avalanche, Moonbeam, Astar, Filecoin** to name a few.

We are considering **Wormhole** or ChainSafe's **ChainBridge** or preferably both to build both the **Setheum and Slixon Bridges**. The bridge will enable the free flow of cross-chain assets between Slixon and Setheum as well as the chains listed above and more later on.

The Cross-Chain bridge will enable interoperability in the future for not just token transfers and oracle feeds, but also for cross-chain inter-protocol communication to enable a highly optimised cross-chain interoperability environment for DApps in the Slixon-Setheum ecosystem.

SetPay & SlixPay Payments

Multi-Currency DeFi Payment Gateway Infrastructure

Setheum introduces a DeFi optimised blockchain with a variety of use cases and functionalities, some of which is a decentralised payment infrastructure, this is where Setheum Payments or SetPay comes in. The Setheum payment Gateway Protocol powers the following Payment Solutions built-in as part of the native protocol, these protocols could be accessible to smart-contracts in the EVM layer:

- **Multi-Currency Payouts:** This functionality enables the payer to securely pay the payee in a different currency than the accepted payout currency of the payee. For example, the payee accepts only USDI payouts but the payer only has BTC, then the payee could still get paid in USDI while the payer pays in BTC. The protocol used the built-in DEX in Setheum to swap the paying currency for the receiving currency.
- **Subscription/Recurring Payments:** Subscription payments enable users securely to subscribe to a service and pay based on a subscription schedule that periodically pays the prescribed amount. For example, one could use this to subscribe to Netflix on a monthly basis or to a trading bot service et al.
- **Reversible/Refundable Payments:** This lets users create secure reversible/refundable payments that keep funds locked with escrow in a merchant's account until the off-chain goods are confirmed to be received. Each payment gets assigned its own *judge* that can help resolve any disputes between the two parties. Payments in SetPay can be tagged with remark, cancelled, disputed, requested, and refunded.
- **Invoice Payments and Management:** This lets users create, pay and manage cryptocurrency multi-currency invoices on Setheum. This will play a critical role in the future of DeFi, even Setheum Foundation will be using these invoices to payout grants to teams, individuals and projects developing on Setheum.
- **Coupon/Voucher Management System:** This enables users to generate, manage and distribute multi-currency crypto coupons/vouchers.

The InterUSD Protocol

Inspired by MakerDAO Protocol, the CDP (Collateralized Debt Position) protocol on Ethereum, the Setheum's **"ZIT-CDP" (Zero-Interest Timed Collateralised Debt Position)** has zero interest rates, zero stability fees, and zero-liquidation-penalty, and is fully halal and collateralized. This differentiates InterUSD from any other CDP Protocol, making it by far the only halal loan protocol in the entire industry. And it is ***Multi-Collateral.*** Just reserve some collateral to mint some **USDI**, when returning the loan just return exactly what was loaned and unreserve the collateral with no fees and no interest.

This lets the muslim world also participate in the industry and take part in trading and yield making strategies that are within their dome of principles, for me this is a gamechanger that I wished was there for me, therefore I am building it for people like me who need it but haven't been given the chance to be pleased by it, and also non-muslims that want to break-free from the interest-based alternatives to a more efficient system based on truth, fairness and equality. Every **USDI** issued through the InterUSD Protocol is backed in excess by a cryptocurrency and is stabilised against the USD through the **InterUSD** Protocol - a flexible dynamic system of **"ZIT-CDPs" (Zero-Interest Timed Collateralised Debt Positions)**, on-chain governance and incentivized key actors. The ZIT-CDP loans system design in Setheum is inspired by the first decentralised stablecoin MakerDAO project, which has become the DeFi building block in the Ethereum ecosystem.Unlike in Ethereum, where an external liquidator is required to monitor and close dangerous positions, which is by and large due to limitations in Ethereum, the **InterUSD** Protocol is able to use the substrate Off-chain Worker (an automatic scheduler unique to parity's Substrate) to automate the process and inherently increases the security and stability of the stable currency.

The InterUSD ZIT-CDP Process

- **Depositing Collateral:** The user creates a ZIT-CDP by depositing one of the accepted collaterals.
- **Borrowing InterUSD and Opening ZIT-CDP:** The user requests and borrows the desired **USDI** (InterUSD) according to the collateral parameters set by governance based on the chosen collateral
- **Paying back USDI:** To close a ZIT-CDP, the user pays back the borrowed **USDI**, with no-interest of course, and no stability fees, they need to deposit enough InterUSD (**USDI**) to pay back the outstanding debt in the ZIT-CDP, with no-interest policy, there is no need to pay a stability fee or any accumulated interest whatsoever, this is unique to Setheum.
- **Closing the ZIT-CDP:** After the protocol receives the outstanding InterUSD (**USDI**) debt, the ZIT-CDP becomes debt-free, and then the ZIT-CDP holder can retrieve their collateral, the ZIT-CDP can/is then closed by the **USDI** protocol.

Risk Management in the InterUSD

The Financial Council has governance rights and responsibilities for managing risks of the InterUSD on the Setheum Network, including authorising risk parameters adjustments (manual and/or scheduled). Multiple asset types with distinct risk profiles are accepted as collaterals for ZIT-CDPs, therefore, all risk parameters of the ZIT-CDPs and liquidation parameters are separately set up across various collaterals and are to be adjusted by the **USDI** Protocol through on-chain governance by the Financial Council. More collaterals could be added through runtime upgrades by system governance.

ZIT-CDP Risk Management Parameters

- **Minimum Collateral Ratio:** The minimum ratio of collateral to debt needed to issue debt.
- **Liquidation Ratio:** The collateral to debt ratio at which the debt is unsafe and liquidated.
- **Debt Ceiling:** The maximum total amount of debt issuance under a specific collateral type.
- **Maturity Period:** The amount of time before the debt expires. A vault is liquidated after its debt maturity period expires. One is required to pay back their debt before it matures/expires.

The below is an example, market conditions affect the state of these parameters, therefore the params can be updated as per collateral volatility, stablecoin demand & supply, they can be set to low or high thresholds to fit market needs and collaterals can be removed and added all by on-chain Governance.

#	Collateral	Min. Collateral Ratio	Liquidation Ratio	Debt Ceiling	Maturity Period
1	SETM	220%	120%	$25,000,000	12 week
2	DOT	200%	125%	$12,000,000	4 weeks
3	BTC	150%	110%	$30,000,000	8 weeks
4	ETH	175%	115%	$21,000,000	1 weeks
5	BNB	185%	130%	$3,000,000	6 weeks

Price Stability Mechanisms in the InterUSD's ZIT-CDP

The **USDI** is designed to peg to the US Dollar at a ratio of 1:1 that the Network aims to maintain the value of one InterUSD approximately to one US Dollar at all times.
Our strong peg to US Dollar is achieved through a risk management mechanism in the **InterUSD** Protocol, together with council governance, the DEX and the Price oracle.

- **When InterUSD > $1:**
    1. Council would **increase the Maturity Period**, this in turn results in more debt issuance which increases supply which brings down demand therefore pulling back the price to its $1 peg.
    2. Council would also **increase the Debt Ceiling** to enable more debt issuance which results in more supply which brings down demand, therefore pulling back the price to its $1 peg.
    3. **Arbitrageurs** would use the opportunity to move the price back to its peg.

- **When InterUSD < $1:**
    1. Council would **decrease the Maturity Period**, this in turn results in less debt issuance as some expired debt is paid back which lessens supply which props up demand, therefore pushing the price back to its $1 peg.
    2. Council would also **decrease the Debt Ceiling** to disallow more debt issuance which results in more buying which in turn props up demand, therefore pushing the price back to its $1 peg.
    3. **Arbitrageurs** would use the opportunity to move the price back to its peg.

Built-In Exchange (DEX)

Inspired by Uniswap V2, Setheum has a built-in Decentralised Exchange called "**SetSwap**" and Slixon's native DEX is called, you guessed it right, "**SlixSwap**". The exchange fees in these DEXes are both 0.3% which could be updated via governance;

DEX Liquidity Incentives

The SetSwap has an incentive layer that rewards LPs who lock their LP tokens, these incentives are multi-pool, multi-currency, and a special reward is designated for InterUSD (USDI) pools that lock their LP tokens. There is initially 7.5% of Setheum's native token SETM that is allocated to these liquidity Incentives on the Setheum Network's native DEX, and 10% of Slixon's native token SLIX is allocated to these liquidity Incentives on the Slixon Network's native DEX too.

SetLaunch Launchpad Crowdsales Protocol

Crowdfunding on SetLaunch

Teams and projects that are building smart contracts and dapps on the SetEVM would need to raise funds and even bootstrap their tokens on the SetSwap. They need community backing by liquidity providers and the crowd so that they could have a strong start and a high-end launch by creating a crowdfunding campaign that ends with their ERC20 Tokens getting sold to the public and bootstrapped on the DEX through a crowdfunding IDO. I happen to be working on that in Setheum, providing the Setheum LaunchPad (SetLaunch) Protocol to do just that for the projects building/deploying their tokens on Setheum's SetEVM as ERC20 start contracts.

The SetLaunch uses the SETM which serves as the utility token for the High-End Protocol. The token is used as a "Submission Deposit " which will be locked in the protocol by the Campaign creator to propose a LaunchPad Campaign until the Campaign is closed, then the SETM tokens are returned to the creator after the project is closed (successful or not).

There are four participants in a High-End LaunchPad, the Campaign Creator, the LaunchPool Liquidity Providers, the Crowdfunding Contributors, and the Launchpad Council.

- **Launchpad Council:** Approves or Rejects a Campaign;
- **LaunchPool Liquidity Providers:** Provide Liquidity that is used to Bootstrap the Campaign tokens liquidity pool on the SetSwap DEX, making it tradable on the SetSwap.
- **Campaign Creator:** The person/team that creates/proposes a new Crowdfunding Campaign, the beneficiary of the raise.

How the Setheum LaunchPad (SetLaunch) Works

The Setheum LaunchPad (SetLaunch) Protocol lets teams/projects/campaigns achieve two (2) goals at once, it raises money via crowdfunding, and if the crowdfunding campaign is successful then the protocol bootstraps the campaign's ERC20 token into the SetSwap DEX for the public to trade.

The protocol lets the Campaign Creator choose which currency to pair their tokens to for the bootstrap listing which is also the currency that is to be raised in the crowdfunding campaign. Campaign Creators could choose between the Setheum Currencies (**SETM or USDI**).

There is a minimum raise that must be made and that is the softcap, it is required by the protocol and set by the Launchpad Council. The HardCap (Goal) is then set by the Campaign Creator, and the Period (campaign period - amount of blocks a campaign should stay active) is also set by the Campaign Creator.

The Lifecycle of a SetLaunch Campaign

A Setheum LaunchPad (SetLaunch) Campaign has three stages in its lifecycle, they are as follows:

1. **Proposal stage:** The first stage is the Proposal stage where a Campaign Creator creates a proposal that proposes to the Setheum Council to start a launchpad Campaign. At this stage, the creator submits a proposal with a ***SubmissionDeposit*** that is locked/reserved from the creator's free-balance (account) into the creator's reserved-balance whereby they cannot touch/transfer these funds.

   This will be unlocked immediately if the proposal is rejected, if the proposal passes this will stay locked until the Campaign closes (successful end or not). And in this stage the ERC20 token allocations provided by the creator for the LaunchPool (Bootstrap initial DEX Liquidity) and for the Crowdsales are also locked/reserved in the creator's reserved account, reserved until when the Campaign Closes.

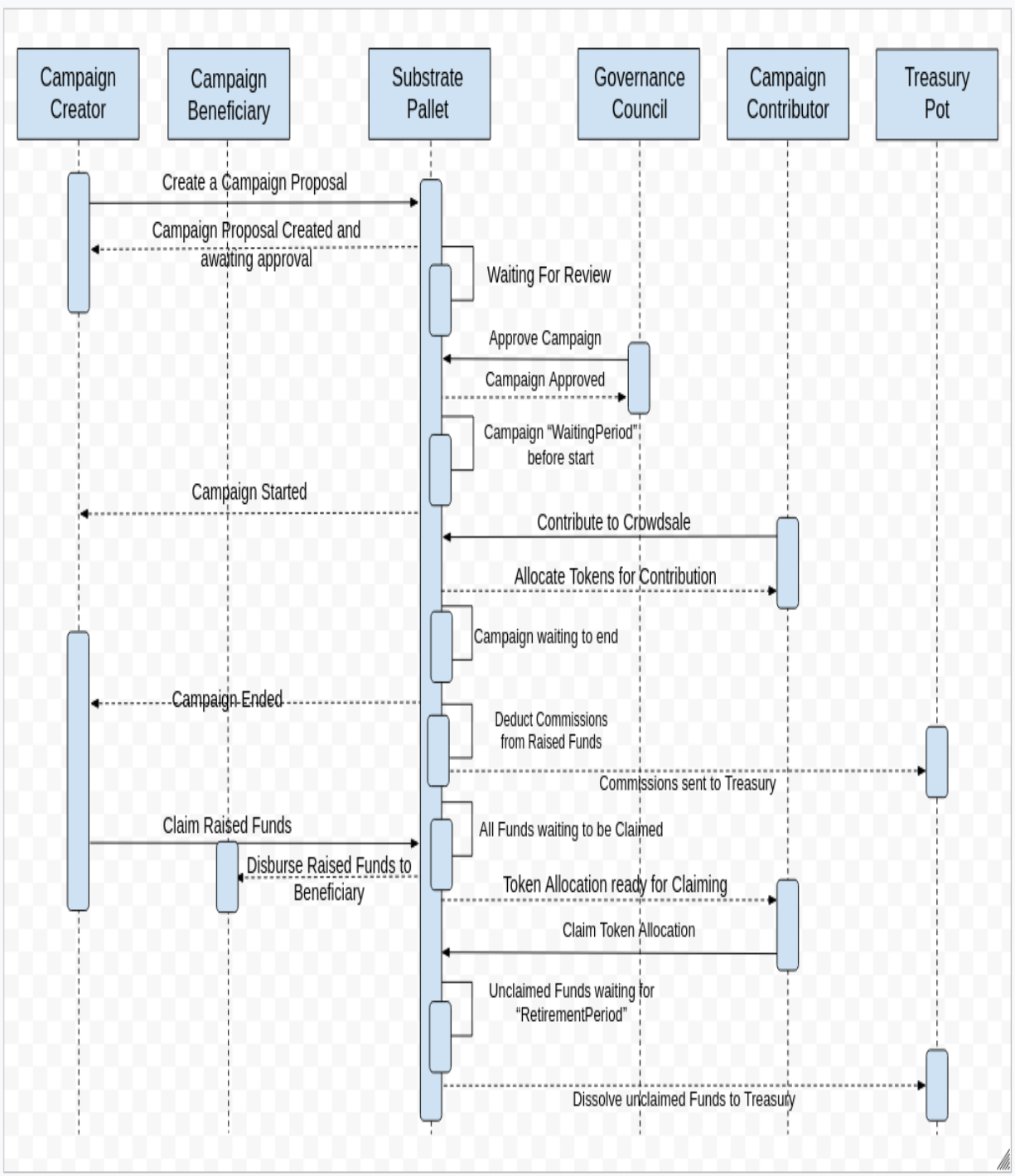
2. **Waiting stage:** The second stage is the Waiting stage where every Approved Campaign is set to wait for a specified period of time before it is automatically started.

3. **Active Stage:** The third and final stage is the Active stage where every Approved Campaign that has finished its WaitingPeriod is set to go active and start the crowdfunding/crowdsales event. At this stage, if a campaign fails, it is closed and raised funds are refunded to contributors as well as the Campaign allocated ERC20 tokens are also unlocked from the account of the creator.

   If the campaign closes successfully then the reserved ERC20 Funds are slashed from the reserved account of the creator and distributed/transferred to the beneficiaries (crowdsales contributors, and LaunchPool for DEX Bootstrap liquidity).

   After a successful Campaign, the Commissions are all taken from the Raised amount and the `LaunchPoolCommission` is transferred to the `LaunchPool` that sponsors the Bootstrap of the Campaign. All Unclaimed funds (either raised or allocated) will be dissolved to the Setheum Treasury.

A Sample Sequence Diagram of the LaunchPad Crowdsale pallet (initial framework design)



[SetLaunch Crowdsales Sequence Diagram]

SetEthaar (Al-Ethaar) Protocol

Quadratic Altruism on Setheum

Setheum is made for altruism, for the public, for helping the poor and the needy, for securing the planet and funding causes we care about. Some of those causes include feeding the hungry, quenching the thirsty, clothing the unclothed, housing the unsheltered, medicating to the sick, protecting the unprotected, financing the poor, voicing the unvoiced, helping the afflicted, warming the freezing, and cooling the hot.

To do just the purpose of Setheum, we have to empowr the unempowered and support the unsupported by funding the unfunded through transparently governed algorithmic crowdfunding mechanisms that radically raises funds for only this purpose, for Al-Ethaar—an arabic word meaning Radical Altruism. The main purpose of Setheum is Al-Ethaar, to essentially, thoroughly, radically and altruistically be a gift from me to all of the entirety of Creation, both human and non-human, both animate and inanimate, both celestial and earthly.

What is Quadratic Altruism?

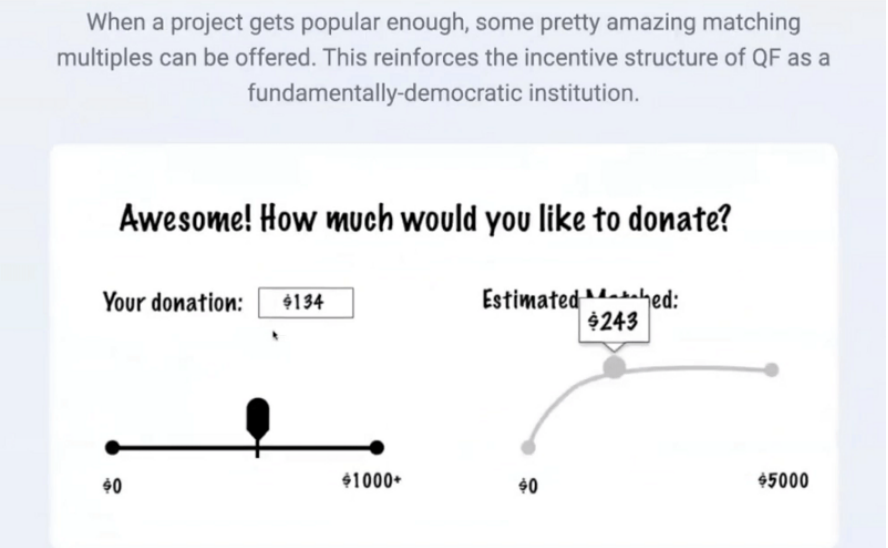
$$v_i^p \left(\left(\sum_j \sqrt{c_j^p} \right)^2 \right) - c_i^p.$$

[Quadratic Funding Formula.]

First and foremost, what is Altruism or Al-Ethaar (in Ara bic).. Altruism is derived from the French altruisme, and its etymology can be traced back to the Italian and earlier Latin alter, meaning other, others. Altruism is a selfless act of thinking about the welfare of others. In moral judgement, the happiness of others is more important than one's own. Altruism is a virtue in many ideas and cultures. In evolutionary genetics, altruistic behaviour is defined as increasing the survival of others and decreasing the survival of one's own.
From the term “Quadratic Funding”, the term “Quadratic Altruism” is Quadratic Funding that focuses on Humanitarian Altruistic missions and campaigns that support altruistic causes like those mentioned above. The concept of Quadratic Funding extends ideas from Quadratic Voting to a funding mechanism for endogenous community formation as exemplified by Vitalik Buterin, Glen Weyl and Zoe Hitzig in their paper on Quadratic Funding.

Design and Analysis of Quadratic Altruism

Referred to as the "Liberal Radical" (LR) mechanism by Vitalik Buterin, Glen Weyl and Zoe Hitzig in their paper on Quadratic Funding.



The Liberal Radical Mechanism $\Phi^{LR}(c_i^p)$ generates funding F^P for each good $p \in P$ such that $F^p = \left(\sum_i \sqrt{c_i^p}\right)^2$.

Any positive contribution must satisfy

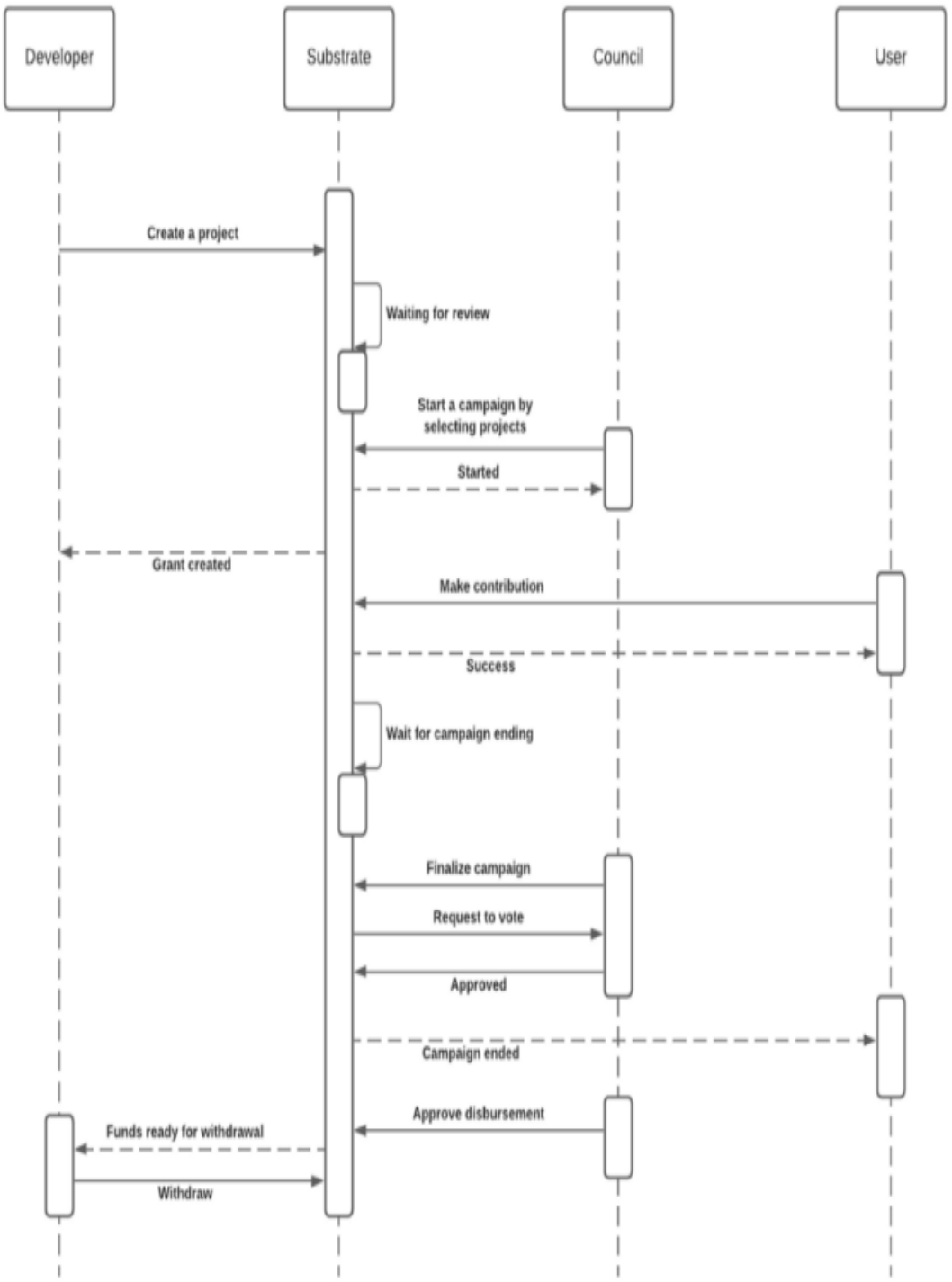
$$\frac{2V_i^{p\prime}(F^p)\left(\sum_j \sqrt{c_j^p}\right)}{2\sqrt{c_i^p}} = 1 \leftrightarrow V_i^{p\prime}(F^p) = \frac{\sqrt{c_i^p}}{\sum_j \sqrt{c_j^p}}$$

by differentiation. To alternatively vocalise the maths, the matched_amounts (amounts each funding_campaign/project gets from a matching_pool/round) are calculated by the CLR formula

$$V_i^p\left(\left(\sum_j \sqrt{c_j^p}\right)^2\right) - c_i^p.$$

[Quadratic Funding Algorithm—Constrained Liberal Radicalism algorithm | CLR Formula] where, the total amount received by a project (matched_amount) is proportional to the square of the sum of the square-roots of the contributions that are received.

Therefore no participating project campaign will exit with nothing, they all share the funds in the pool and come together for the good of each other, this essentially is al-ethaar (true altruism). Therefore, every contribution matters as well as every project matters, even the smallest of projects and the smallest of contributions. The inventors did a great thought here, kudos, and we shall implement it in Setheum Insha'Allah. To simplify the module, the user flow of the QF campaign based on the Constrained Liberal Radicalism algorithm(CLR) is demonstrated with the sequence diagram below.


Developer
Substrate
Council
User
Create a project
Waiting for review
Start a campaign by selecting projects
Started
Grant created
Make contribution
Success
Wait for campaign ending
Finalize campaign
Request to vote
Approved
Campaign ended
Approve disbursement
Funds ready for withdrawal
Withdraw

Governance

Governance is the way rules, norms and actions are structured, sustained, regulated and held accountable. Setheum has a multicameral governance system with several avenues/chambers to pass proposals. Decisions in Setheum are enacted on-chain and are autonomous & binding. Setheum has various on-chain, governance chambers. The primary chamber is "the Shura Council", it comprises a set of accounts. There is a Technical Committee for deciding on technical governance (e.g. runtime upgrades), and other councils explained below. There will be 5 Chambers / Councils of the Setheum Government, as follows:

1. **Shura Council:** General governance like approving runtime upgrades, it is basically the General Council.
2. **Technical Committee:** They will be in charge of the governance of the Technical aspects of the Network like bug fixes and maintaining open source projects for example.
3. **Financial Council:** They will be responsible for governing the Financial Sector of the Network, DEX financial governance, Multiple Oracle registrations, et al.
4. **Launchpad Council:** They will be responsible for governing the SetLaunch.
5. **Al-Ethaar Council:** They will be responsible for governing the SetEthaar.

Consensus and Staking Rewards

Setheum's finality protocol for consensus is the very healthy GRANDPA consensus mechanism. GRANDPA (GHOST-based Recursive Ancestor Deriving Prefix Agreement) finalises blocks based on availability and validity checks that are done as the proposed chain grows. The finality is expected to be very fast. Setheum uses BABE for block authoring and GRANDPA for finality. And Setheum uses the NPoS staking consensus protocol.

Setheum uses a Nominated Proof-of-Stake(NPoS) consensus mechanism to secure the network. Nominators nominate validators to be in the active set of chain validators by staking their Setheum (SETM) with a validator/validators. Validators produce new blocks, validate existing blocks, and also guarantee finality. It is important to note, validators only earn SETM rewards if they have enough staked SETM to qualify into the active validators set. The active validators set updates every Era, which is 2hrs on Setheum.

Therefore, Setheum uses NPoS to select validators from a small set, allowing even small token holders to nominate validators who run infrastructure while still claiming staking rewards without running their own node infrastructure. And so with Setheum able to stay alive even when most of the network goes offline, Setheum COULD be able to survive WWIII.

The "Setheum" Staking rewards range from a minimum of 2.58% to a maximum of 11% with an ideal stake of 75%. Deflation is done with 50% of network fees that are burned in SETM.

The "Slixon" Staking rewards range from a minimum of 3.13% to a maximum of 13% with an ideal stake of 75%. Deflation is done with 50% of network fees that are burned in SETM.

Roadmap

Launching of the Setheum Protocols will take a Phased approach, with **NewRome Testnet** launching in the **Phase-0, Slixon Genesis** launching in the **Phase-1** with core protocols, the **Setheum Genesis** Launching in the **Phase-S**, and the **DeFi protocols** launching in the **Phase-X, Phase-Y and Phase-Z.**

- [x] ~~Infrastructure Research and Design~~
- [x] ~~Token Economics Research and Design~~
- [x] ~~Whitepaper~~
- [x] ~~Project Website Development~~
- [x] ~~Initiate Documentation~~
- [x] ~~Initiate Community Social Media Accounts~~
- [x] ~~Setup the Infrastructure~~
- [x] ~~Build and test the Blockchain (Dev Testnet)~~
- [x] ~~Build Multi-Currency Native Support~~
- [x] ~~Build SetSwap native built-in DEX Protocol~~
- [x] ~~Build InterUSD ZIT-CDP Stablecoin Protocol~~
- [x] ~~Build SetEVM, an EVM layer for smart contracts~~
- [x] ~~Build native support for NFTs~~
- [x] ~~Build Setheum.JS APIs, SDKs & developer libraries~~
- [x] ~~Build Setters.JS APIs, SDKs & developer libraries for EVM~~
- [x] ~~Build Launchpad Crowdsales MVP~~
- [ ] Seed & Strategic Funding Rounds Close
- [ ] Launch Community Growth Events (Airdrop, Ambassador Program, Partnership Program)
- [ ] Phase-0 Launch NewRome Public Testnet
- [ ] Phase-1 Launch Slixon Canarynet and Distribute SLIX Allocations
- [ ] Phase-S Launch Setheum Mainnet
- [ ] Public Sale Event Closes
- [ ] Phase-X (Enable USDI, Oracle, DEX)
- [ ] Phase-Y (Enable SetPay Payment Gateway)
- [ ] Phase-Z (Enable Launchpad Crowdsales & Quadratic Funding)
- [ ] Remove Sudo and progressively decentralise.

Conclusion

Setheum has a unique approach to the problems facing the space and provides opportunities that incentivize adoption and usability and most importantly because it helps people with a means to survive, build & provide great humanitarian solutions, and thrive through its Quadratic Philanthropy platform “Al-Ethaar". Setheum has amazing investment opportunities with astonishing usability. Setheum is the brainchild of a cluster of ideas and challenges that inspire the founding of it. And so with the expected level of equilibrium, security, decentralisation, scalability, efficiency, diversity and adoption. Setheum is set to implement the neom of finance in the Web3 Ecosystem extending hands to the halal consumer market and the Islamic Finance and Ethical Finance community by developing a wide range of Islamically permissible Web3 products and services on the Setheum Network such as InterUSD (USDI) which is a zero-interest timed ZIT-CDP-based crypto-collateralised stablecoin protocol, Setheum also provides an Ethereum compatible smart-contracts layer (SetEVM), a launchpad crowdsales protocol (SetLaunch), an on-chain built-in Decentralised Exchange (SetSwap DEX), Liquidity Incentives et al.

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