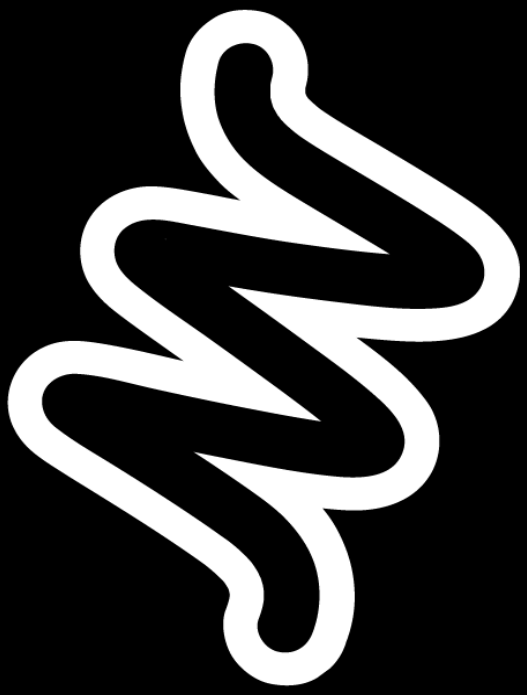


HELIX©

LITEPAPER

Table of Contents

Problems

Marketplaces

Online marketplaces have always had the looming presence of a central authority behind them, or no regulation at all. Regulated digital marketplaces such as Ebay, Depop, and Craigslist pose strict limitations on both privacy and content of transactions between the buyer and seller. Additionally, these marketplace themselves can hide multitudes of fees from its users and can change terms without input from the users that the platform exists to serve in the first place.

Although users may be able to use completely deregulated marketplaces to make their transactions, these still pose several obvious security, and legal concerns for users. Users have no assurance that they are purchasing legitimate physical products within these marketplaces. Moreover, illegal goods are rampantly traded on these markets. Once said markets are compromised by government authorities, all users are considered conspirators. Even in applications where proof can not be produced, as in the case of MegaUpload, users are still in extreme jeopardy.

Consecutively, completely clear markets are often run and overseen by powers that dethrone the voice of its users. They do offer a large degree of assurance and legitimacy, but at the tradeoffs of many freedoms. Ebay, Depop, Grailed: ones that connect user to user, still have the middle man - the platform itself - holding all the power. Overseeing the transactions and incomes is the tax man. In these markets, users give up their power in privacy and authority just to participate.

Rebase Reward Structure DAOs

Many reward based DAOs have emerged recently with Web3's mass adoption. The cryptocurrency community has progressed far from Satoshi's whitepaper, to everyday laymen having access to wallets, light clients, and a plethora of web3 platforms. On top of said infrastructure, there have been a plethora of applications built. Reward based DAO's (Decentralized Autonomous Organizations) was arguably pioneered by OlympusDAO.

Capital (In)Efficiency

In the web3 space there are new opportunities to generate revenue every day. Most existing DAOs fail to capture available profit opportunity while holding treasuries of substantial value. Large treasuries open doors to a multitude of different revenue generation strategies, strategies that these organizations fail to capsize on.

Utility

Vanilla Rebase DAOs provide little utility to their end users who cannot directly benefit or utilize the product they offer. Majority of the revenue comes from existing value sources like DEXs. Long term rewards will start to look like LP APYs as there is no unique value/utility being generated by OHM itself, it is simply a proxy for users and DEX LPs to interact.

Introduction

Helix is a decentralized autonomous organization that seeks to build an extensible and sustainable platform for its token holders. The core goal of the organization is to reward its users through multiple stable revenue streams. The pilot platform will be a decentralized, private, peer-to-peer marketplace where fees will be funneled to community members.

Excess capital in the reserve will be used as capital to diversify into other projects, assets, and streams. As the marketplace and underlying member count grows, the treasury will accrue an excess of capital to expend. Blockchain DApps are a class in themself, but during times of turmoil in market or platform, the entire ecosystem is dragged along. Inspired by previous funds, Helix seeks to diversify its streams of revenue to provide users with a stable, positive APY. Real estate development, arbitrage in traditional and crypto markets, as well as allocating funds to develop more projects are not out of the question.

We hope that long term, the marketplace will grow as a replacement for traditional governed and ungoverned internet marketplaces. However, it is also only the first planned project for Helix. Web3 does not lack talented developers, coming from backgrounds of machine learning, security, networking, and finance. We know that as the core team grows, alongside the skill sets: herculean projects will become possible. Helix seeks to add a basket of promising internal and external projects to provide users with as much ROI as possible.

Helix, at its heart, is a decentralized organization. All members are encouraged and accepted as participants, and each is given a voice. Voting is a communal activity, and no change can be made without a vote. Helix's funds and actions must be board approved. Even in emergencies, a select few members will have to authorize transfers, transactions, withdrawals, and deposits: there is no singular actor in Helix.

We hope to combine cutting edge technology, programs, and investments to truly benefit all participants with everyone gaining something.

Architecture

Helix will launch with 3 major components; however, more components will be added as the organization grows. To achieve this, the team has focused on keeping composability in mind when designing the protocol. Helix has a similar structure to a tree where new branches may be added and strengthened. Each branch in the project and future additions to branches, have been designed with modularity and extensibility in mind so that adding new features or programs to Helix is plug and play.

Core

The core of Helix oversees the health of critical functionalities in order to keep the protocol running. It specifically tracks staked tokens across the user base and treasury balances. This allows the Multisig Board to evaluate reward rates, bonding incentives, and act should there be an absolute need to. The core is the program that keeps Helix's all important rewards distribution systems in check, it is the heart of the protocol.

Our philosophy with the core is to have it as a passive monitor, and an alarm in critical times. It tracks the income and outflow of assets and across users and should only be altered if the program itself breaks down.

Revenue

The revenue section of Helix is the DAO's stream of income. At launch, this facet will primarily focus on Helix's marketplace. Accompanying the marketplace in revenue generation during the early stages will be a Delta-Neutral arbitrage strategy. As Helix grows, this component will include a plethora of other revenue generating projects. As aforementioned, real estate, arbitrage strategies in traditional and exotic markets, as well as investing or developing new protocols are not out of the question.

The underlying philosophy of the Revenue branch is to not leave funds idling. A common weak point we have identified in other DAO's is low capital efficiency. What we mean is that most DAO's have a sizable treasury that could be used to generate income in various risk-on and risk-free methods alike. We seek not to just create an attractive initial product, but a sustainable, growable long term project.

For that, the Revenue aspect will receive the most attention, and upgrades.

Community

Community is critical to any organization. We feel that previous DAO's have implemented governance and multisig quite successfully on the Solana ecosystem. However, there is still a clear barrier between users and developers. Moreover, communication within the ecosystem is very slack, member participation is not emphasized, and we consider this a failure. The Helix team hopes to cultivate the idea and practice of full community participation within the organization.

We have implemented an extensible governance framework. All programs adopted by Helix, including the core and the governance program itself, will have their own government. Members can become parts of different governments through enough interaction as well as applying as a voter. The governance program allows users to request proposals, vote for changes, and can act as a vote in the multisig board. Thus, users do have a direct say, although a bit diluted, in the critical functions of Helix. It must be diluted, so that users can not vote to shut down Helix on the first day or vote to drain all the money out of another targeted user's account as examples. The dilution is more of a buffer than a barrier to protect the integrity of the entire organization.

Helix intends to develop in favor of all its participants. For that, it needs all participants to voice and report on Helix. Interacting with events, forums, talks will allow users to earn Helix as well. We hope to cultivate, through events, actions, and incentives: an active community, with no divide between authority and users. Already planned are articles, podcasts, and direct AMA's. We will use different social media channels, as well as direct communication, to fade the divide previously instated by other DAO's.

Marketplace

The marketplace is Helix's pilot project. It is a decentralized, E2E encrypted, self-governed platform connecting buyers and sellers for the exchange of physical and digital goods. Here we will outline physical and digital goods as two separate entities, and an addendum of features that are pervasive but not necessarily unique to the marketplace.

Physical Goods

Physical trade is how humanity grew to where it is. With the digital era, physical trade has been expedited, from connecting buyers and sellers to optimizing the supply chain and transportation. Commerce has grown substantially from a shift to a new digital paradigm. However, online marketplaces suffer from the issues aforementioned. Helix aims to provide a middle ground for the trade of physical goods.

Public blockchains enable a higher level of social cooperation than ever through novel consensus methods. However, most blockchains keep a publicly visible record of all transactions and data. This allows not one central authority, but all participants, to view trades our users make. Not ideal for the product we wish to build. However, Helix's marketplace leverages public data to verify and secure transfer of assets and encrypts data to ensure the privacy of both the buyer and seller despite the information being public.

Buyers and sellers will be connected on a P2P network. From the moment they find each other's listings and decide to initiate a trade, all personal information will be encrypted. Addresses, names, identities: anything extraneous to the transaction itself will be kept private. Only leaving the fact that there are two parties, who wish to begin a trade.

This intention of trade is sent to the blockchain. If any authority, be it a government, or the private parties themselves have an issue, they can intervene in the transaction. For a government, it may look like stopping the order from shipping. For private parties, it may look like an outbid on a product, or the cancellation of the transaction. When details are finalized, only the desired target or escrow address will be released to the seller. The exchange of funds exists on the blockchain, where anyone can see it happen, but no one will know who was behind it.

As mentioned above, physical addresses can be obfuscated using Helix marketplace escrow providers. Members of HelixDAO can provide escrow services for compensation as long as they have enough collateral to cover the value of the transaction. Buyers are able to choose zero or more escrow providers to obfuscate their address, of course keeping in mind each escrow hired for a transaction takes a small fee as payment. Buyers can feel free to use their own escrow services, if they prefer to, as well.

Digital Goods

Digital good marketplaces have only featured basic transactional features and are unfit for ensuring the delivery of private, proprietary, or otherwise sensitive information. The Helix team imagines a marketplace where this kind of information can be freely transacted.

The Helix team aims to provide a secure and trustworthy way to transact with sensitive information such as audio, code, and many other mediums. The DAO seeks to provide a space where one time use information can be freely and securely traded on open markets.

Imagine a marketplace where you are able to exchange such information but also assured of the authenticity of your purchase. A marketplace offering digital goods exchange, but protecting all parties including the buyer, seller, and products. Previously, this would have been an unattainable feat. The moment a person tells another a secret, it is no longer a secret. For example, if a seller is paid to complete a piece of code, they complete it, and send it to the buyer. **Here are two possible scenarios:**

1. *The code is to the buyer's desired spec*. However, the buyer must have access to the information being sold. Although the code meets the standards specified by the buyer, they can still claim faultiness and be offered a refund. Afterwards, the funds are returned, but their knowledge of the code cannot be retracted. The buyer has seen the characters on their screen, and nothing inhibits them from recreating the code. The seller has no protection here.

2. *The code is not to the buyer's desired spec*. The seller could have copied a paragraph of Shakespeare, threw it in a file, and sold it to the buyer. The buyer, however, can not know this until after the transaction. If a refund policy is not available, the buyer is scammed. The buyer has no protection here.

A possible solution is to have a middle man authenticate the product being sold. So that before the buyer commits to the transaction, they have assurance on the product being sold. The seller has insurance knowing that, if they did provide the proper solution, then they are entitled to the funds unquestionably. The buyer is also insured because they know what they are paying for is indeed what they wanted to pay for. **However,** the middle man being the third party, is able to see confidential information. They act as the buyer for no cost, and nothing inhibits them from stealing the information being sold.

Although these scenarios make it seem fruitless to protect both buyers and sellers, ZK-proofs have allowed such a world to exist. ZK-proofs are grounded in elliptic curves and pairing functions, which seem quite removed from selling an audio file. However, the thought experiments that birthed ZK-proofs are no stranger to the problem at hand. Take Alice and Bob. Alice wants to prove she has the password to a door (it's "open sesame") without revealing what the password is. We can have Bob observe Alice enter the room where the door is. Then Bob moves to the exit, and sees Alice emerge from there. Bob is not in close enough proximity to hear Alice whisper the code, or be able to lip read

her. However, he does see her enter the room, and emerge from the locked door. She is able to prove to him she knows the password, without revealing the password.

One may pick up on the fact that Alice could have “cheated”, if the door was already unlocked, or it was not Alice but her friend who unlocked it for her to elude Bob. ZK-proofs are interesting in that sense: they increase an observer’s confidence, up to a very high amount, but never give certainty. We take that philosophy and apply it to our marketplace, hoping to provide a solution where buyer’s can be extremely confident in the product, and seller’s extremely confident in their transaction. As with any system, the extreme margins may arise, but if the chances are as slim as private key collisions, we can safely say it won't happen anytime near our lifetimes, or even the lifetime of the solar system.

We at Helix hope to employ the idea behind ZK-proofs for digital goods. Buyer’s should be able to specify tests or criteria that their product should be able to pass. Furthermore, buyer’s will be able to catch snippets and glimpses of their digital product, without ever seeing the whole thing. They are offered as many viewings until they are confident in their purchase, giving them protection. For sellers, all data uploaded will be encrypted properly. There will be fuzzing and noise, so that each snippet of their viewing is enough to garner more confidence, but not enough to recreate the underlying product. We hope this can create the first marketplace for digital goods, ensuring trust and security for both buyers and sellers.

In lieu of our example, Helix’s ZK-proof system acts as a trustworthy automatic middleman, so that both parties are guaranteed that the middleman will not cheat. We assume the role of the escrow, and guarantee no foul play will happen on our end.

Features

- Helix market will have an end-to-end encrypted chat function. We do not want to track nor keep user’s information. Their identities are theirs alone and are not needed for a marketplace to function. In the event of compromise or intervention from legal authorities, Helix does not want to compromise the identities of said parties either. This can only be ensured if Helix does not have the data to produce to said authorities. Because of this, messages between buyers and sellers will be encrypted, and the large majority will be kept locally. In the future, we hope to make it completely peer to peer as well. We understand at the beginning, onboarding volunteers to act as cache servers, address resolvers, and relayers may be difficult, so it will be on the cloud for the time being. The code will be open sourced, and when enough interest and volunteers sign up, migration from the cloud (a distributed system) to an entire network (a distributed system) will be as simple as changing a few URL strings.

- Helix market will also have a dispute function for physical goods. We understand that there will be too many disputes, even for a dedicated board, to handle. Thus, our solution is to invite members of the marketplace to resolve disputes. When a buyer and seller intend to open a dispute, they both must agree to put up a portion of the amount as a reward for the settler. Settlers are random market participants who have enough activity on the chain to be deemed trustworthy. This is so that neither party can create a new account and settle their own dispute via pretending to be the third party. Disputes will often have more than one settler, to further prevent incorrect judgements. Arbiters for

disputes will receive a small donation from the transaction. This gives members incentives for settling disputes, and gives buyers and sellers protection over their issue, by involving a non-biased third party.

We know that Escrow providers can be the perpetrator of a dispute. Similar to an Uber Eats order, the driver can steal the food: a problem does not uniquely arise from the vendor or buyer's side. Thus, resolving disputes consists of identifying a perpetrator. Through this manner, all innocent parties receive their funds back because escrow providers have put up money for the collateral of the transaction.

Token

The HELIX token is the native cryptographically secured fungible token of Helix. It is a representation of governance and utility specified in the protocol of Helix. It is designed as an interoperable utility token within the Helix ecosystem.

The HELIX token also provides economic incentives that will be distributed to encourage users to contribute and participate in the organization. The token is integral and indispensable, because without a native token, users would not have an incentive to expend resources nor partake in activity in Helix. The tokenomics of Helix are designed so that only those who actively participate through the ecosystem, or contribute their tokens, will receive rewards. Whereas passive holders of native HELIX tokens will not be compensated.

Rewards are only given when a user stakes their HELIX. There is actually strong incentive in doing so, because HELIX is a naturally inflationary asset. Meaning, compared to other assets, it naturally accrues value. However, it loses power against itself given time. One HELIX token in the future holds more value than one HELIX token right now, so if one does nothing with their HELIX currently, it will be worth less than the future HELIX. Likewise, if a user stakes the HELIX token, they will receive the rewards associated with staking. HELIX does not inflate with no cap: new tokens are minted with bond redemptions, unstaking, and in rare occasions that the Core program notices an imbalance, the Multisig Board may mint more to close the imbalance.

Staked HELIX is also what allows a user to vote. A member must contribute a certain amount to be deemed an eligible voter. Users are encouraged to partake in as many affairs as they can in the Helix ecosystem and are rewarded for doing so. Idly holding onto tokens does not penalize them, but definitely does not offer them any natural benefits.

Governance

Governance and authority has been a debate point: it is one of the contributing factors for the inception of Web3. Helix seeks to continue the ethos that prompted Web3, by keeping governance and authority decentralized. Thus, all changes taken and enacted by Helix must first be proposed and accepted by the community: the community being eligible voters for a specific program. There also exists the Multisig Board, a cabinet of a select few who have escalated privileges, but may only exercise such privileges in special circumstances.

The governance program is a custom program written specifically adapted for Helix DAO. Helix's principles of modularity are showcased here, with the governance being scalable for "tiers", but also adaptable across the programs offered. Thus, both vertical and horizontal scaling are features of the governance program.

The program itself allows the community to propose changes. These proposals have an expiration date, and prior to that date, all eligible voters within the same government can vote on the change. If the proposal exists in a government with a higher tier, then the vote will count towards the lower governing body, which then collectively contributes one vote towards the higher body.

Almost anything conceivable can be a proposal. Support is added so that execution of code on chain can be appended to a proposal. If the motion passes, the code will execute. This includes transfers, so that funds may be allocated for a new project. Another possibility is escalating a user's voting power, so that they may act as a representative for a governing body.

Aside from the government program is a multisig program, overseen by the Multisig Board. The board consists of select members from the community, who must be chosen via proposals. The core developers, as well as other significant contributors to Helix's development will also be part of the multisig board. The board holds escalated privileges but will execute them with caution. In practice, the board will only create and approve proposals in times of crisis or absolute need. An example would be a severe imbalance in token supply, the board may vote to mint more or burn a certain amount. Another may be a rigged proposal, or a corrupted government, in which the multisig may nullify the government and reinstate it.

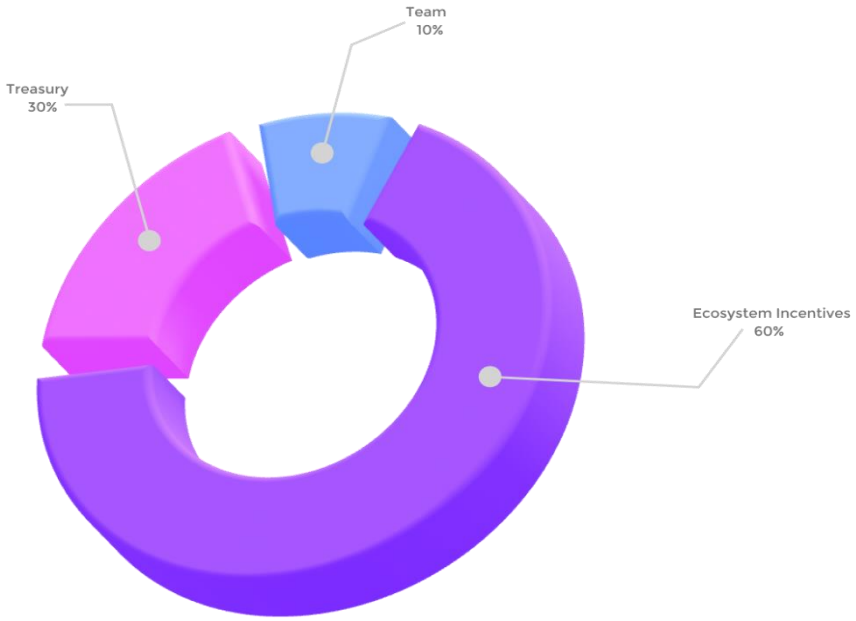
Doxxed users are not a requirement for joining the multisig board. However, simply winning a proposal is not enough, in the extreme edge case a very wealthy person joins the ecosystem, creates many accounts that vote for themself to grant himself power. Interactions of that account must be organic, and in the event of foul play, they will be removed immediately.

The government program itself will also hold a seat in the multisig. It may seem convoluted, but in practice, it is an easily implemented feature. What this translates to is that users can directly vote to remove certain board members, or make critical changes to Helix if necessary. Because the entire government counts as only one seat, breaking changes will not be allowed to pass on its own. However, they will be brought to the board's notice expeditiously and addressed.

The government structure sought to address two prevalent issues in DAO governances that have not been answered yet: nepotism and plutocracy. In many projects, the ones governing are chosen by

favoritism, rather than democratically. Moreover, the voting structure favors plutocracy, with the rich having a final larger say than the majority. Plutocracy will always remain an issue in economy-based democracies, but Helix hopes to alleviate this stressor by enabling representatives with greater voting power, as well as adjusting voting weights as the organization develops.

Token Distribution



Each partition as well as usage is broken down as follows:

- **Team**

  These are the tokens held by the team. The portion held should give users and the developers incentive to stay as members of Helix.

- **Protocol Treasury**

  The Protocol Treasury houses funds for withdrawal by users. This collateral is the reserve requirement for everyday user deposits and withdrawal. In more tumultuous times, Helix will have a larger treasury share of tokens, withdrawn from ecosystem incentives so that there is enough liquidity to support such volatile times.

- **Ecosystem Incentives**

  The Ecosystem Incentives holds the funds to reward users and for developing future protocols. To stand by Helix's ideals of employing as much capital as possible for revenue, this portion gets the largest partition.