INVERSE

(XIV)

A Counter-Volatility DeFi Protocol

By the SEFA foundation

INTRODUCTION

In this paper, we propose INVERSE, a non-custodial, counter-volatility, decentralized protocol that allows users to conveniently take advantage of the downward moves of select assets. INVERSE is powered by the XIV token, a free-floating, inverse-yielding, ERC-20 token.

WHAT IS INVERSE [XIV]?

INVERSE is a smart-contract enabled DeFi platform that allows users to gain yield, within a short duration of time, from the drop in value of select DeFi coins. Opportunities are available by utilizing ‘tracking vaults’ on the platform. Inverse tokens (XIV) are used to unlock these vaults, and then staked within these vaults for no more than 7 days. As their name implies, these vaults track the real-time price movements of select DeFi tokens (i.e. COMP, AAVE, UNI, YFI). After 7 days, if the value of the DeFi asset being tracked has dropped by a certain percentage, the user will gain a significant percentage yield on the amount of XIV held within the tracking vault. If the price of the DeFi asset does not drop in value beyond the predetermined percentage by the end of the 7-day staking period, the user will forfeit a portion of their staked XIV. Rewards will be automatically disbursed to the user’s web3 browser wallet at the end of the 7-day staking period. Ultimately, INVERSE allows users to hedge against and profit from the volatility of select crypto assets.

INVERSE: The Why

The crypto and DeFi space is fast moving and highly volatile. These assets are often subject to frequent and rapid dips in price which can result in profound losses for market participants. Thus, we set out to create a protocol that offers users the opportunity to take advantage of the frequent dips in their favorite DeFi coins without having to hold those assets. With the INVERSE protocol and its native XIV token, non-traders can profit from the volatility of select assets by gaining high yield during selloffs.

INVERSE: The How:

The Inverse protocol consists of:

A) FIXED VAULTS

- Individual tracking vaults
- An Index tracking vault

B) FLEXIBLE VAULTS

- Individual tracking vaults
- An Index tracking vault

C) DYNAMIC SWAPPING

FIXED VAULTS:

INDIVIDUAL TRACKING VAULTS

To access the platform, the user will connect a Web3 enabled browser extension or application, such as MetaMask to the INVERSE protocol. Following this, users may stake XIV tokens within the Fixed Individual Tracking Vaults. These vaults follow the real-time price movements of 10 top DeFi coins and provide users with a variety of choices to stake their XIV against. Each tracking vault is restricted to a 7-day lock-up, thus, XIV tokens are staked within these individual vaults for no more than 10080 minutes. Once XIV tokens are sent to the vault and the user decides to begin staking, the tracking vault will be locked for the aforementioned 7-days or 10,080 minutes. If the select asset (i.e. UNI, SNX, SUSHI) followed by the Fixed tracking vault falls in value by = or > 7.5% at the end of the inverse-staking period, the user will gain a 200% reward on the amount of XIV tokens staked within tracking vault. These additional XIV tokens will be released to the user's Web3 wallet at the end of the staking period. In addition, the full sum of XIV tokens that were staked at the beginning of the 7-day period will also be released. If, however, the asset followed by the Fixed tracking vault does not drop by = or > 7.5% upon completion of the 7-day (or 10,080 minutes) staking period, the User will forfeit all the XIV tokens held within the vault. All rewards will be paid in XIV tokens.

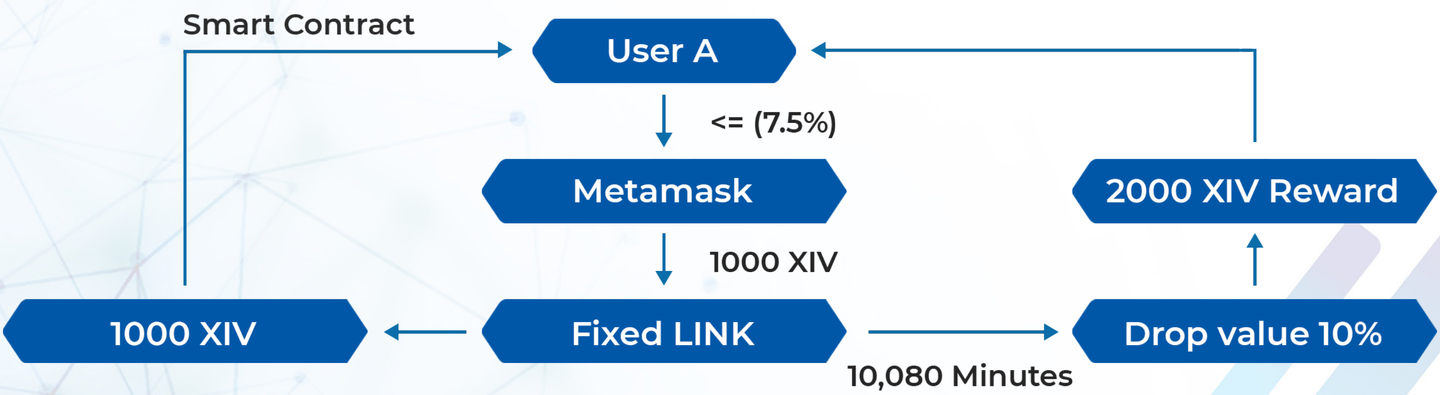
— DeFi — All (exclude DeFi Coins)

#		Coin		Price	1h	24h	7d	24h Volume	Market Capitalization	Fully Diluted Market Cap
☆	1	Chainlink	LINK	$12.96	-1.0%	8.6%	-1.5%	$788,077,027	$5,143,255,608	$12,971,328,244
☆	2	Wrapped Bitcoin	WBTC	$19,262.39	-0.5%	4.3%	0.7%	$70,607,539	$2,217,350,164	$2,217,350,164
☆	3	Dai	DAI	$0.997678	-0.1%	-0.4%	-0.2%	$127,706,745	$1,090,546,851	$788,205,870
☆	4	Aave	AAVE	$84.23	0.5%	10.9%	-8.4%	$285,589,928	$1,008,983,655	$1,347,719,539
☆	5	yearn.finance	YFI	$26,873.97	0.1%	8.4%	-8.4%	$364,574,614	$806,219,034	$806,219,034
☆	6	Uniswap	UNI	$3.33	-0.4%	9.5%	-9.5%	$140,937,222	$717,015,361	$3,334,056,978
☆	7	Synthetix Network Token	SNX	$4.70	-1.1%	7.1%	-10.5%	$27,170,218	$648,840,680	$994,358,498
☆	8	Compound	COMP	$150.54	-1.2%	4.1%	5.5%	$49,885,290	$609,072,794	$1,505,379,357
☆	9	Maker	MKR	$528.60	-0.0%	3.3%	-0.9%	$31,202,971	$478,610,068	$531,588,643
☆	10	UMA	UMA	$7.54	-0.0%	6.8%	-3.6%	Screenshot	$418,332,821	$762,188,465

Above is a list of the top DeFi coins and their 7-Day price volatility as of 13:00 EST on 12/13/2020

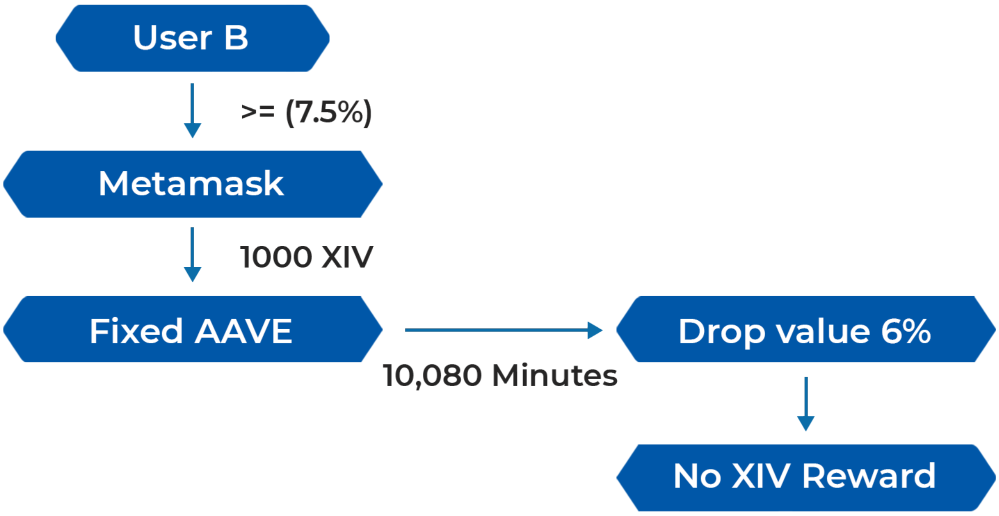
To unlock the individual tracking vaults and begin staking, the User must send a specified amount of XIV tokens into the desired vault of the asset they wish to track. XIV tokens may be purchased by swapping ETH or USDT directly on the platform. The platform's swapping feature will be explained further in this paper.

For example, User A believes that the price / value of LINK will drop by 7.5% or greater in the next 7 days. Then, connecting a MetaMask wallet to the INVERSE platform, User A swaps ETH for XIV. User A then sends 1000 XIV to the Fixed LINK tracking vault. Once this is done, the tracking vault is locked for the next 10,080 minutes. Throughout the 7-day inverse-staking period, User A will be able to track the price movements of LINK on the INVERSE platform. By day 7, LINK has dropped in value by 10% compared to the beginning of the staking period. Thus, 2000 XIV is rewarded to the user. In addition, the original 1000 XIV placed into the tracking vault is returned to the user. In total, 3000 XIV tokens is released to User A's MetaMask wallet by the smart-contract.



INVERSE

User B believes that AAVE will fall by = or > than 7.5% in the next 7-days. User B then swaps ETH for XIV. User B sends 1000 XIV into the Fixed AAVE tracking vault. However, by the end of the 7-day inverse-staking period, AAVE has fallen by only 6%. User B does not receive any XIV rewards and forfeits all the XIV within the tracking vault.

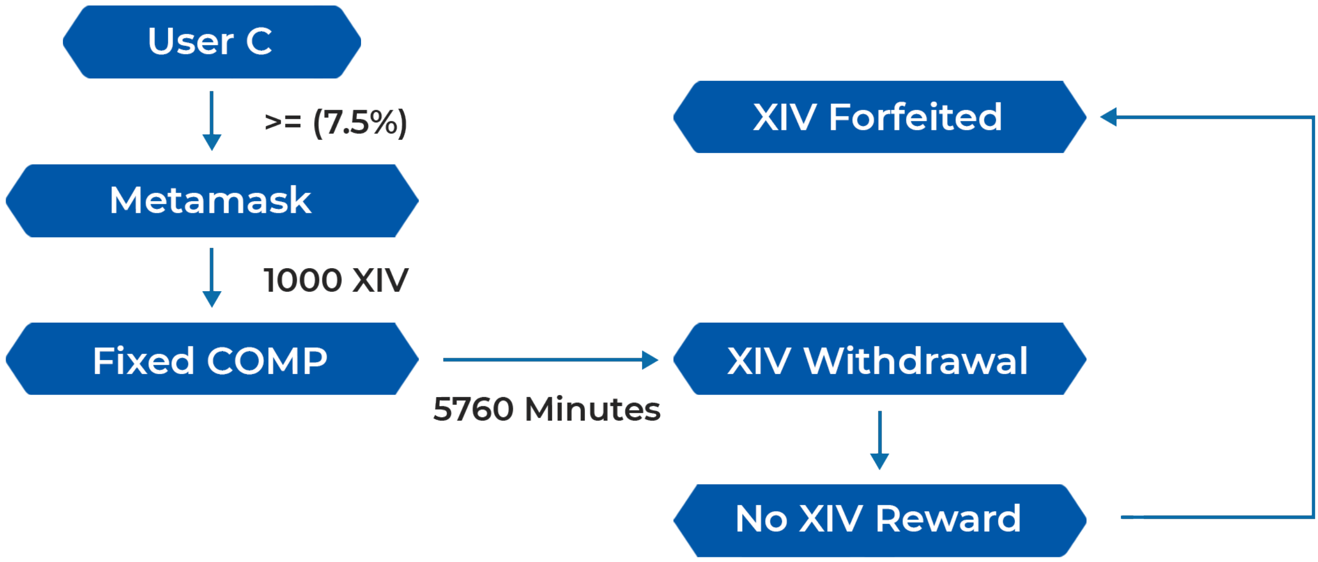


Please note that the list of the 10 DeFi coins followed by the Individual Tracking Vaults against which, users can stake is dynamic and will change periodically. Furthermore, users cannot claim any XIV rewards prior to the end of the inverse-staking period. If the user decides to withdraw their staked funds prematurely, before the end of the 10,080 minute block, no XIV rewards will be disbursed and the user will incur a premature withdrawal penalty. The penalty ranges from 50% to 100% of the staked XIV.

Early withdrawal penalty schedule:

Day 1	50% of staked XIV
Day 2	50% of staked XIV
Day 3	60% of staked XIV
Day 4	70% of staked XIV
Day 5	80% of staked XIV
Day 6	90% of staked XIV
Day 7	100% of staked XIV

In a third example, User C believes that COMP will drop by = or > than 7.5% in the next 7 days. After swapping USDT for XIV on the INVERSE platform, User C sends the XIV to the Fixed COMP tracking vault. However, after 4 days (or 5760 minutes) User C decides to prematurely withdraw their XIV from the tracking vault. As a result of this, User C will not gain any XIV yield and will forfeit 70% of the initial XIV tokens held within the tracking vault.

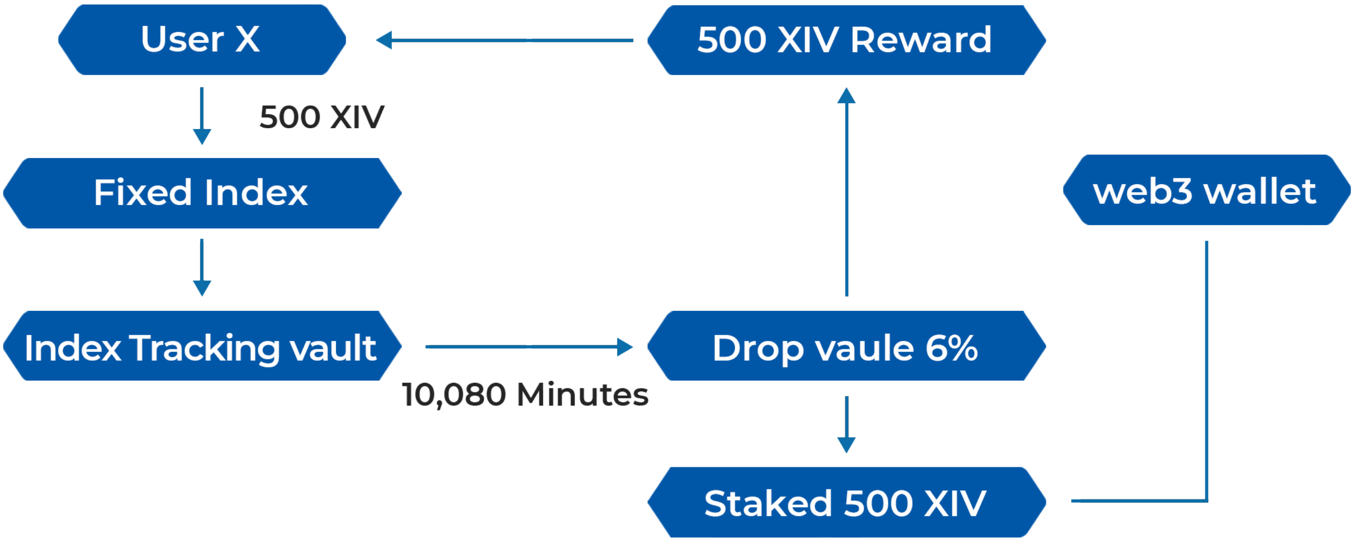


FIXED VAULTS:

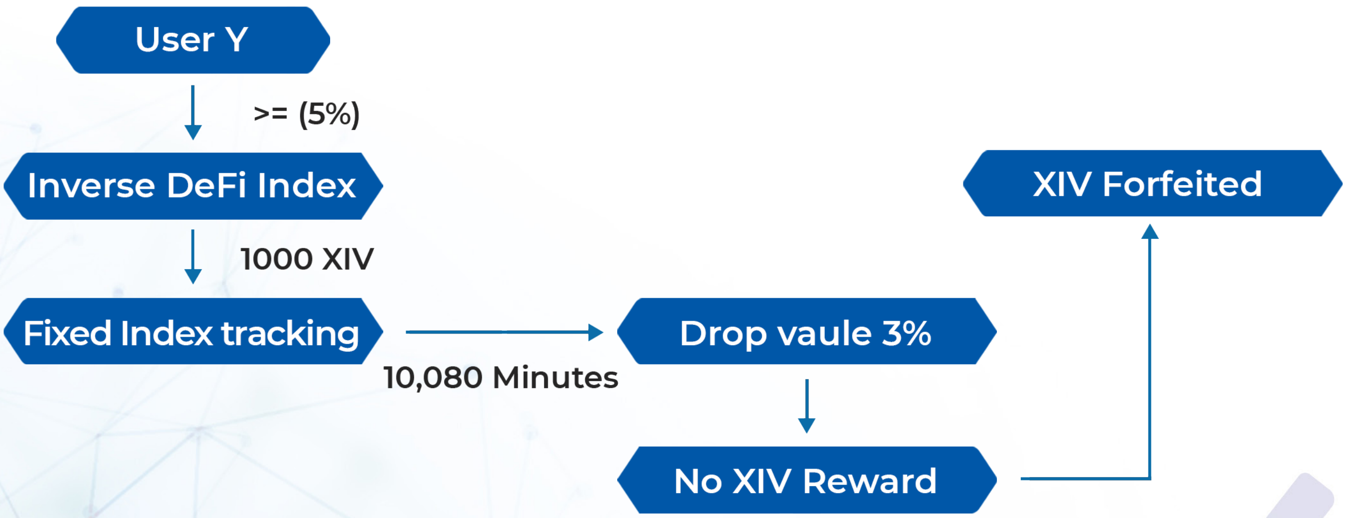
INDEX TRACKING VAULT

Users may also stake their XIV in a single vault known as the Fixed Index Tracking Vault. This vault will allow users to stake their XIV for 7-days (or 10,080 minutes) against a dynamic index of the top DeFi tokens. Users who stake their XIV in the Fixed Index Tracking vault will earn a 100% yield on the amount of their staked XIV if the total value of the DeFi Index has fallen by = or > 5% after 7-days. If the value of the DeFi Index has not dropped by 5% or > by the end of the inverse-staking period, the user will forfeit the full sum of their staked XIV. Early withdrawal penalties for tokens staked in the Index Tracking Vault will be identical to the penalty schedule for the singular tracking vault.

For example, User X decides to stake 500 XIV in the Fixed Index Tracking Vault. After swapping ETH for XIV, User X transfers the XIV into the Index tracking vault. After 7 days, the INVERSE DeFi Index falls by 6%. Thus, 500 XIV is rewarded to the user. In addition, the full sum of the initial staked XIV (500 XIV) will also be released to the user's web3 wallet.



In another example, User Y believes that the INVERSE DeFi Index will fall = or > 5%. User Y hopes to benefit by staking 1000 XIV in the Fixed Index tracking vault. However, after 7-days, the value of the Index has dropped by only 3%. Thus, User Y does not receive any XIV rewards and forfeits all the staked XIV within the vault.



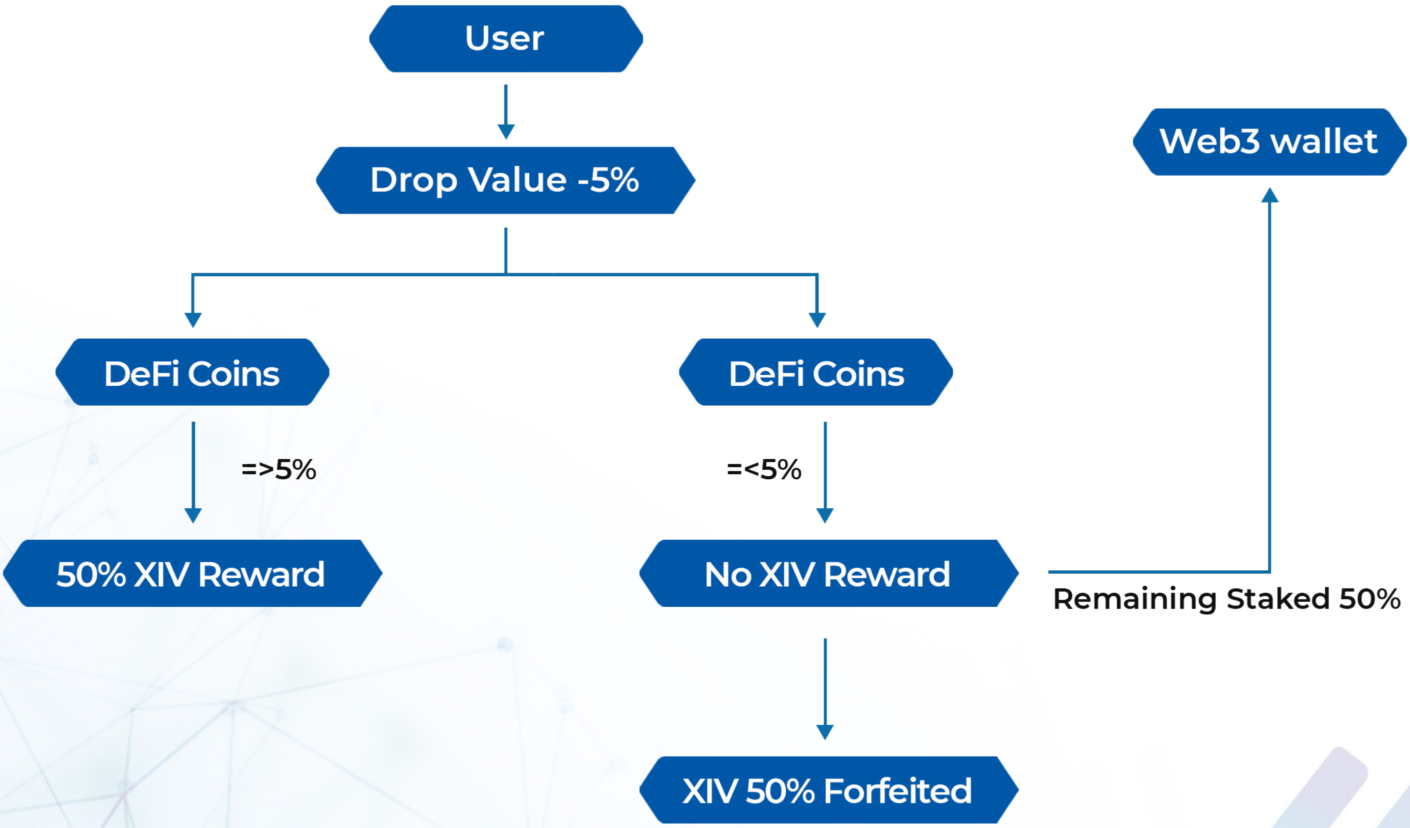
Early withdrawal penalties for tokens staked in the Fixed Index Tracking Vault will be identical to the penalty schedule for the individual tracking vaults.

FLEXIBLE VAULTS:

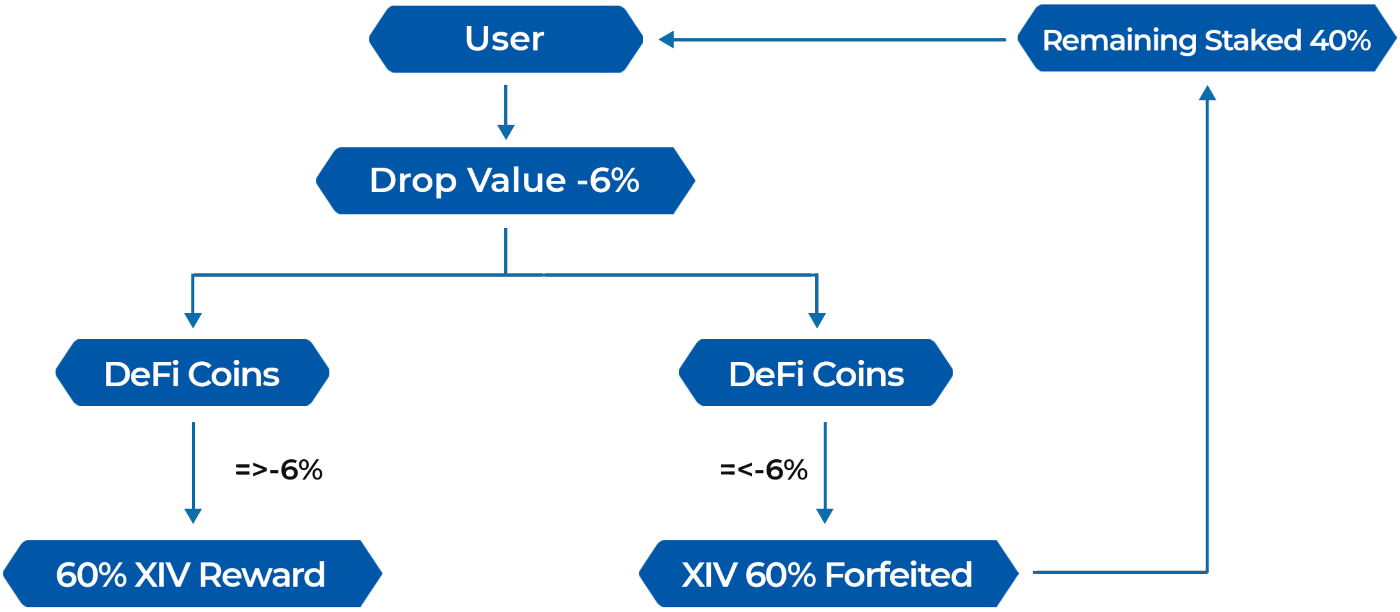
INDIVIDUAL TRACKING VAULTS

The Flexible individual tracking vaults allow users to set a drop-value of their own choice. The drop-values may be set in a range from -3% to -7%. The greater the drop-value set, the greater the reward if this drop-value is reached by the end of the 7-day staking period. The Flexible tracking vaults will track the same DeFi Coins as the Fixed tracking vaults, however, these vaults provide users with greater autonomy to determine the level of risk and potential reward. Similar to the Fixed individual tracking vaults, the staking period of the Flexible individual tracking vaults will not extend beyond 7-days. Moreover, the penalty schedule for premature withdrawal of staked XIV from the Flexible tracking vaults is identical to the Fixed tracking vaults.

If a user sets a drop-value of -5%, and the DeFi coin being followed by the tracking vault falls by a value of = or > 5%, the user will receive a 50% reward on the amount of their staked XIV. If, however, the DeFi coin does not fall by = or > 5% after the staking period, the user will not receive any rewards and will forfeit 50% of their staked XIV. The remaining 50% will be returned to their Web3 wallet.



Another user sets a drop-value of -6% for a particular DeFi coin. If this coin falls by = or > -6%, the user will receive a reward of 60% of the value of their staked XIV at the end of the 7-day staking period. This is in addition to the full sum of the staked XIV within the flexible tracking vault which will be returned to the user. If, however, the DeFi coin did not fall by = or > 6% after the staking period, the user would forfeit 60% of the staked XIV, and 40% will be returned to them.



Below is a table detailing the set drop-values, rewards and forfeitures that are possible with the flexible individual tracking vault.

DROP-VALUE (Set by user)	REWARDS (if drop-value met) (% of XIV rewarded to user)	FORFEITURES (if drop-value not met) (% of staked XIV forfeited by user)
-3	30%	30%
-4	40%	40%
-5	50%	50%
-6	60%	60%
-7	70%	70%

User 1 believes that BAL will fall by = or > 4% in the next 7 days. To limit her risk, User 1 chooses to stake 1000 XIV tokens in the Flexible BAL tracking vault, and sets the drop-value to -4%. After the 7-day (10080 minute) inverse-staking period, BAL has dropped in value by only 3%. Thus, User 1 does not receive any rewards from the protocol and forfeits 400 XIV or 40% of the initial staked XIV tokens. The remaining 60% (600 XIV) is automatically returned to her Web3 wallet.

In another example, User 2 expects the price of CRV to fall by = or > 7% in the next 7-days. To limit her risk, User 2 chooses to stake 1000 XIV in the Flexible CRV tracking vault and sets the drop-value to -7%. By the end of the 7-day (10080 minute) inverse-staking period, CRV has fallen by 7.3%. Subsequently, User 2 receives a 70% reward (700 XIV) on the amount of her initial staked XIV. Furthermore, 1000 XIV, the full sum of the initial XIV staked, is returned to User 2.

FLEXIBLE VAULTS:

INDEX TRACKING VAULTS

Among the flexible tracking vaults where users may stake their XIV is a single vault known as a Flexible Index Tracking Vault. This vault will allow users to stake their XIV for 7-days (or 10,080 minutes) against a dynamic index of the top 10 DeFi tokens. Users may set a drop-value between -3% to -7% prior to staking their XIV in this vault. The greater the drop-value set, the greater the reward if this drop-value is reached by the end of the 7-day staking period. The Flexible index tracking vault will track the same dynamic index of DeFi Coins that are aggregated in the Fixed index tracking vault, however, the flexible index vault provides users with greater autonomy to determine the level of risk and potential reward. Similar to the other tracking vaults, the inverse-staking period is limited to 7-days or 10080 minutes.

For example, User I believes that the INVERSE DeFi index will fall by = or > 4% in the next 7-days. However, to limit his risk, he decides to stake his XIV in the Flexible index tracking vault. After setting the drop-value to -4%, User I sends 1000 XIV into the Flexible index tracking vault. At the end of the 7-day inverse-staking period, the value of the INVERSE DeFi index has dropped by 5%. Thus, User I will be rewarded with 400 XIV. In addition, the full sum of all staked XIV (1000 XIV) in the flexible index tracking vault will be returned to the user.

In another example, User II expects that the INVERSE DeFi index will fall by = or > 3%. To limit his risk, User II sets the drop-value for the vault to -3% before staking 1000 XIV in the vault. However, after day 7, the INVERSE DeFi index has actually risen in value by 2%. Thus, User II forfeits 30% of the staked XIV in the Flexible index vault. The remaining 700 XIV is returned to the user's Web3 wallet

Prior to the initial coin offering of the XIV token, a total supply of *90 Million tokens in the standard ERC-20 token format will be minted. Of this supply, *36 Million XIV (or 40%) will immediately be put into circulation through the token sale. XIV sold during token launch will be offered at an average price of $0.045 (or 4.5 cents) per XIV. A further 40% will be held for *Staking Reserves & Token Management, and the remaining 20% will be allocated to team members and advisors to be held for single-year lockups.

Below is a table detailing the set drop-values, rewards and forfeitures that are possible with the flexible index tracking vault

DROP-VALUE (Set by user)	REWARDS (if drop-value met) (% of XIV rewarded to user)	FORFEITURES (if drop-value not met) (% of staked XIV forfeited by user)
-3	30%	30%
-4	40%	40%
-5	50%	50%
-6	60%	60%
-7	70%	70%

Early withdrawal penalties for tokens staked in the **Flexible** Index Tracking Vault will be identical to the penalty schedule for the individual tracking vaults.

DYNAMIC TOKEN SWAPPING:

Once the INVERSE protocol is connected to a Web3 browser such as MetaMask, users can swap ETH or USDT for XIV and vice-versa. An equal sum of XIV:ETH and XIV:USDT will be maintained at all times in the INVERSE liquidity pool. The LP will help facilitate the protocol's swapping and staking functions. Maintaining adequate supply of XIV & ETH in the LP will ensure continued function of the protocol.

TOKEN MINTING & XIV UTILITY

XiV, the INVERSE token, is essential for unlocking the protocol tracking vaults and acts as a proxy for the DeFi tokens being tracked. XIV also serves as a medium through which all the major functions of the platform like staking, swapping, and disbursing yeild, are carried out.

TOKEN OFFERING & POLICY

Prior to the initial coin offering of the XIV token, a total supply of *90 Million tokens in the standard ERC-20 token format will be minted. Of this supply, 36 Million XIV (or 40%) will be put into circulation through the token sale. XIV sold during token launch will be offered at an average price of $0.045 (or 4.5 cents) per XIV. A further 40% will be held for *Staking Reserves & Token Management. The remaining 20% will be allocated to team members and advisors to be held for a single-year lockup.

(Note: In calculating the token metrics of 36 Million XIV, with a token price of 4.5 cents for the crowd sale, we anticipate we will give a discount of 40% (or $0.027) for 20% of supply for the seed round, and a discount of 20% (or $0.036) for another 20% of supply for the private sale. The final 60% will be sold in the public crowd sale for $0.045. This will give us a total raise of $1.425 Million.)

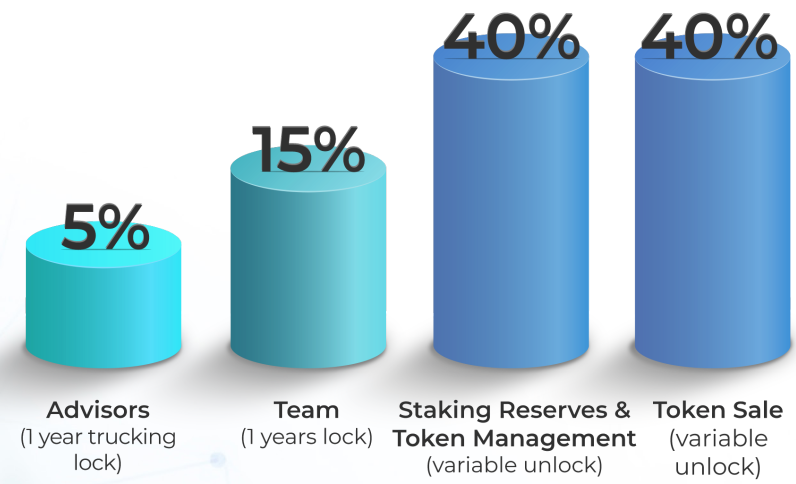
We propose a counter-volatile DeFi protocol that allows users to earn gains from the volatility of the Global crypto market, and the volatility intrinsic to select assets. Users may choose to inverse-stake their tokens in the Global Vault which tracks the movement of the broader crypto market, or in the 'Intrinsic' Vault which tracks the movement of XIV and other select crypto assets.

Use cases for XIV token include; a yield-accruing value-storing vehicle, a hedge against currency devaluations, a facilitator of transactions on our multi-fiat gated, custodial exchange **(First Kudi Pro)**, a collateral instrument for borrowing and lending, a platform for broader financial applications, a medium of exchange for E-commerce transactions.

The Global and Intrinsic Vaults for inverse-staking will be fully automated smart-contract protocols housed within a decentralized wallet. Known as the **INVERSE WALLET,** this platform will be linked seamlessly to our custodial exchange, **First Kudi Pro.** This will simplify the order of operations for those who wish to withdraw their funds and rewards in fiat currency.

In the development of the **INVERSE** platform, we fully appreciate the inherent risks of such an ambitious project. However, these challenges will only compel us to work harder to introduce financially marginalized populations across the world to the uses and benefits of digital assets. We are confident that **INVERSE**, and other projects from the SEFA Foundation, will help drive financial inclusion for many who are outside the traditional Global financial system. Despite the risks and challenges, we truly believe in the potential of this project to bring opportunity and prosperity to millions across the world.

Breakdown of allocation of **90 Million** token supply is as follows:

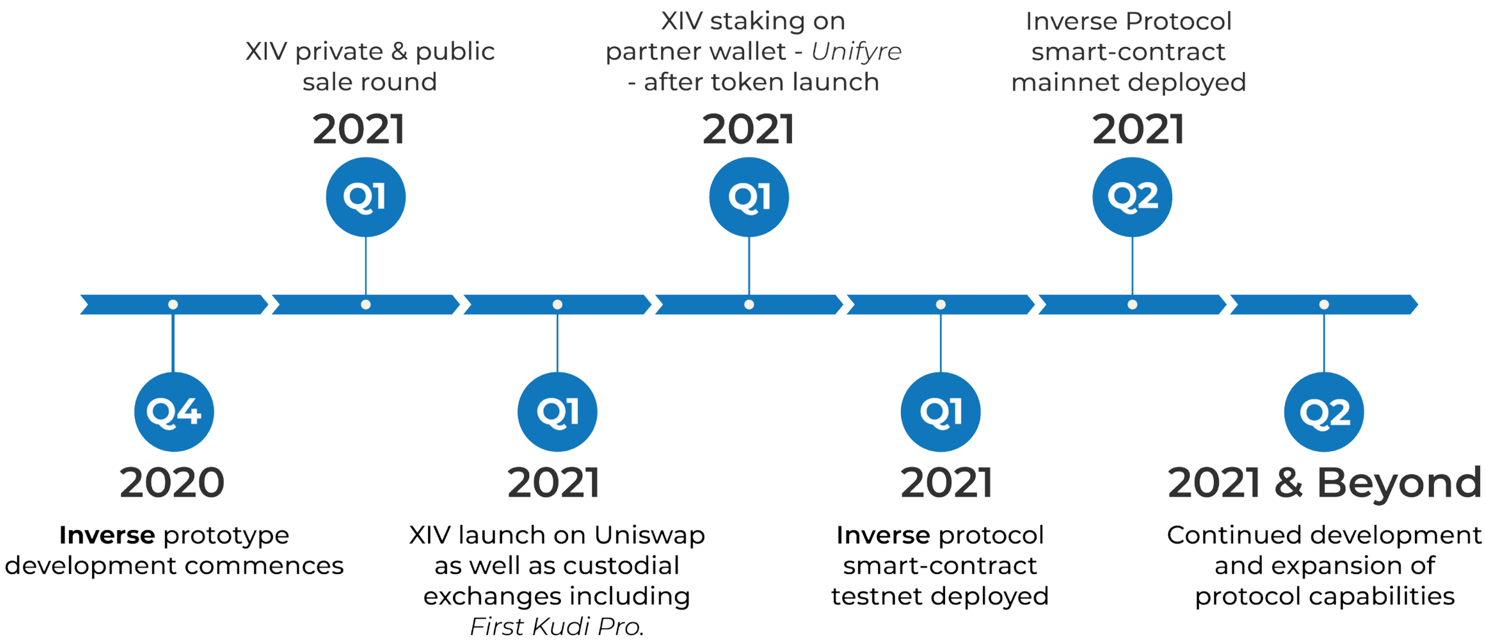


Token Management:

- Marketing
- Market Making
- Exchange Liquidity

ROADMAP: CHALLENGES & OPPORTUNITIES

Potential challenges we may face in the development of the INVERSE protocol include; possible disruptions in the ethereum blockchain, protocol and vault security, extreme token price fluctuation, and limited funding for marketing to gain new users. Among all these challenges, the platform and protocol security will be our highest priority (please review section on **Protocol Security** in the technical paper below). We will spare no expense to protect the safety and integrity of the platform and user assets.



CONCLUSION

We propose the INVERSE platform, a fully automated smart-contract protocol that allows users to benefit from the downward moves of other select Crypto / DeFi assets. Broader use cases for the XIV token include; facilitating the functions of the INVERSE protocol, serving as a hedge against select crypto asset devaluations, and facilitating transactions on our multi-fiat gated, custodial exchange (First Kudi Pro). Despite the risks and challenges, we truly believe in the unique potential of this project.

WHO WE ARE

We are a group of scientists, financial experts, blockchain developers, futurists, tech entrepreneurs, and crypto enthusiasts from all across the globe. Despite our diversity, we all believe in the power of decentralized digital assets to change the world. For more information about the team members involved in this project, please visit www.projectinverse.com/team

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ABSTRACT

INVERSE is a counter-volatility **DeFi protocol. INVERSE** allows users to benefit from the volatility of select **DeFi** assets. Users gain rewards when these assets drop in value. **INVERSE** is powered by a proprietary smart-contract and is built on the **Ethereum Blockchain.**

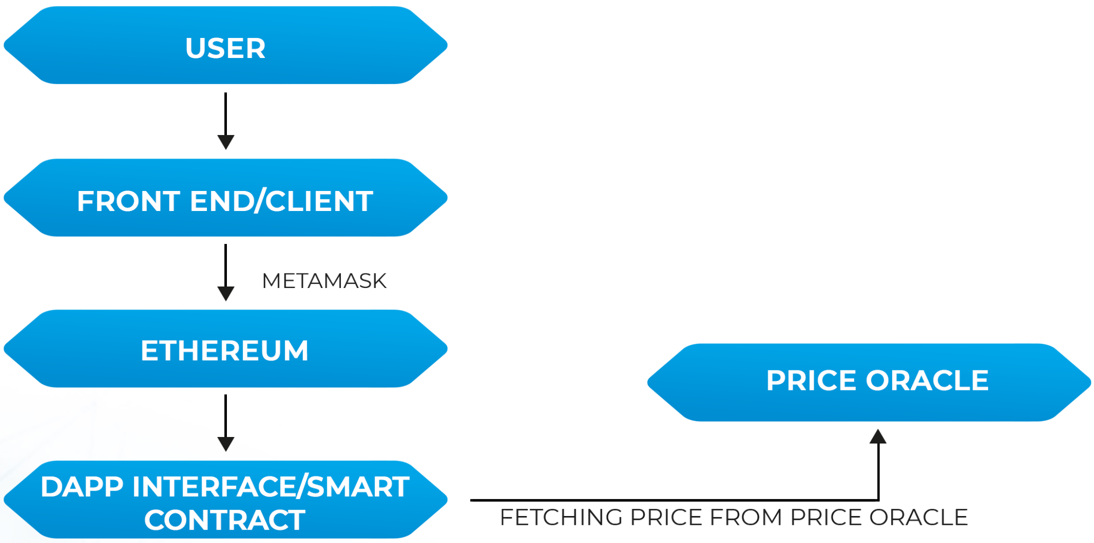
DEFI VOLATILITY

At the dawn of the third decade of the 21st century, digital assets continue to proliferate around the world with a user base that grows steadily each and every day. In certain emerging and frontier economies, digital assets and cryptocurrencies are beginning to compete with native fiat as means of payment, Moreover, traditional financial institutions have begun integrating digital assets into their platforms. Most recently, we have also witnessed the explosion of "DeFi" (decentralized finance) and "yield farming" platforms. In the simplest terms, yield farming allows users to gain yield from smart-contract enabled decentralized platforms by locking up these assets for a specific period of time. According to a recent Fortune magazine article, over $10 Billion in digital asset value is currently locked up in these DeFi protocols. But what about volatility? Few if any of these instruments allow users to seek gains when asset prices drop. INVERSE, however, is different. This protocol offers users the opportunity to gain rewards, in a short time-span, when select assets, or the broader DeFi index, drop in value.

PROPRIETARY STAKING CONTRACT

The INVERSE smart-contract will be coded from the ground up, after which, subsequent industry level auditing will be performed in order to guarantee the safety and security of all user assets.

STAKING PLATFORM (WEB BASED)



Design architecture for the Inverse Smart Contract

The protocol will be a web based platform and will require the user to connect a Web3 enabled browser (i.e.MetaMask) in order to access it. We will utilize Chainlink as an oracle to access external data sources and to sync the latest market prices with the smart-contract.

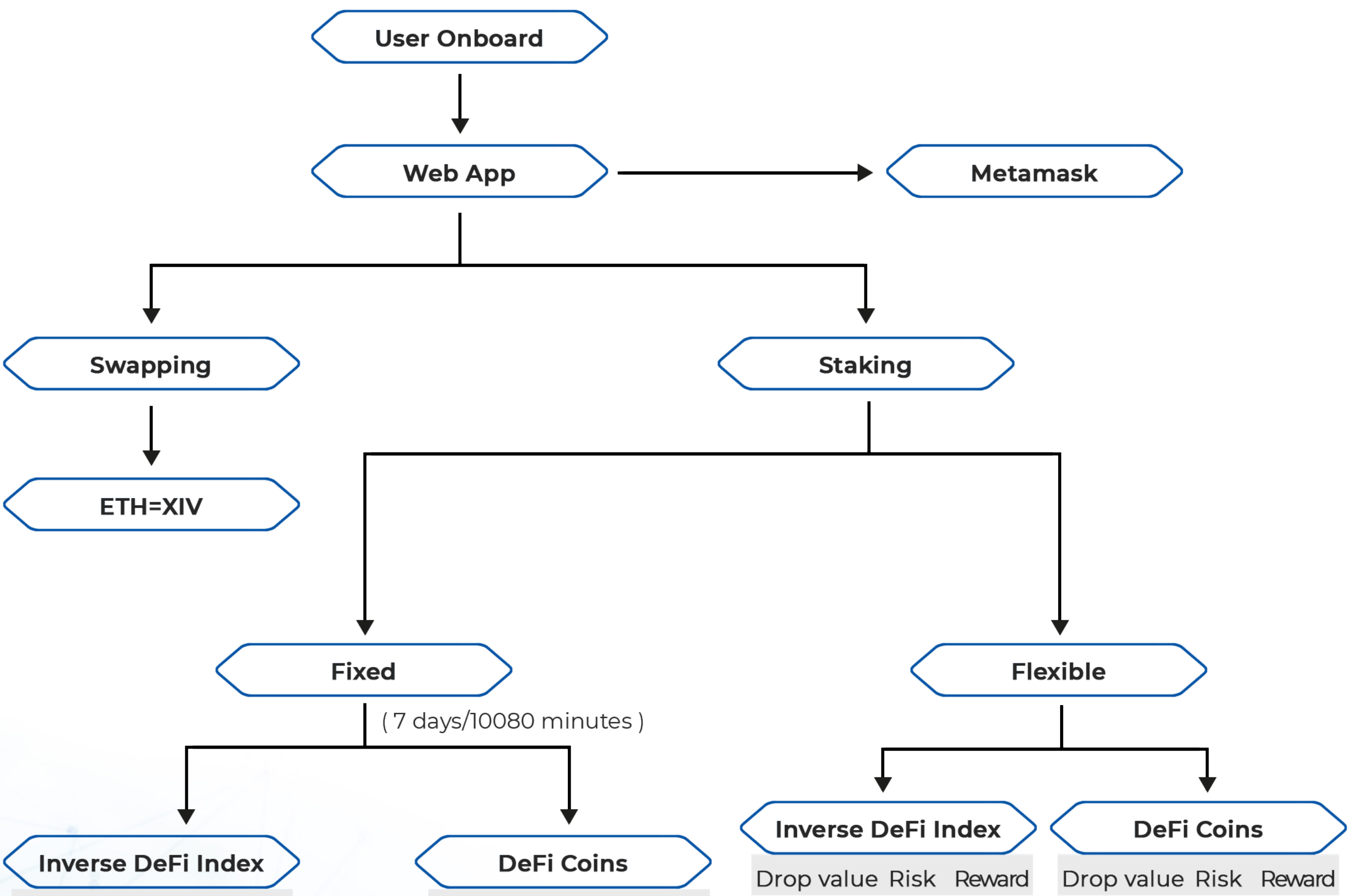
XIV Token: Required token to be used for staking against DeFi coins and swapping on the INVERSE platform.

Swapping: The Swap function allows users to easily swap Ethereum or USDT for XIV Tokens. This happens via a smart contract.

Staking Function: The smart-contract's staking function will be executed on a rolling basis. This means that staking can occur at all times, and different users can have different positions at different times. The smart contract will make a time stamp whenever a position is created. At the end of the staking period, the contract will either release rewards to the user or send forfeited XIV to the Liquidity Pool as per the conditions met.

PLATFORM FLOW CHART AND PROCESS

INVERSE PROTOCOL FLOW CHART



Fixed – Inverse DeFi Index

Drop Valvue (-5)
Reward (1x)
Risk (staked coins)

Fixed – DeFi Coins

Drop Valvue (-7.5%)
Reward (2x)
Risk (staked coins)

Flexible – Inverse DeFi Index

Drop value	Risk	Reward
-3	30%	30%+
-4	40%	40%+
-5	50%	50%+
-6	60%	60%+
-7	70%	70%+

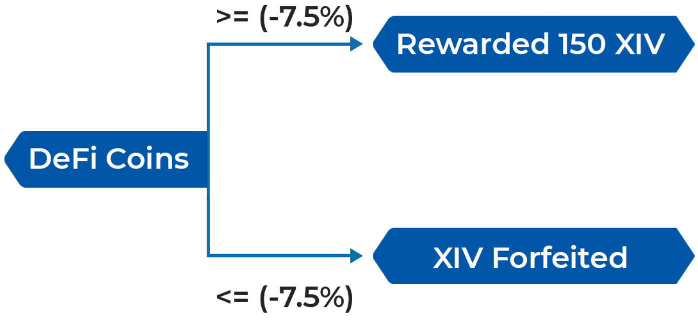
Flexible – DeFi Coins

Drop value	Risk	Reward
-3	30%	30%+
-4	40%	40%+
-5	50%	50%+
-6	60%	60%+
-7	70%	70%+

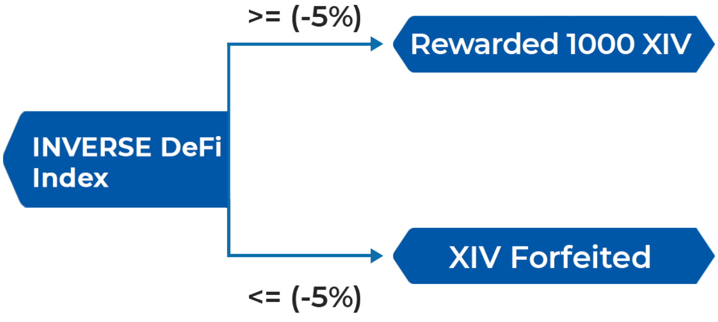
- Step 1: Transfer ETH to the platform and swap for XIV
- Step 2: Select method of Staking (Fixed or Flexible / DeFi coins or DeFi Index)
- Step 3: Select drop-value if Flexible vaults chosen
- Step 4: Select XIV amount to be staked and begin staking.

INVERSE-STAKING: FIXED VAULTS

STAKING 500 XIV IN THE FIXED INDIVIDUAL TRACKING VAULTS



STAKING 500 XIV IN THE FIXED INDEX TRACKING VAULTS



DeFi coins: Ten different DeFi coins will be followed by the Fixed tracking vaults. Each tracking vault will follow a single DeFi coin for a total of 10 individual tracking vaults. The list of 10 DeFi coins followed by the tracking vaults will vary periodically. Coins will be introduced, removed, and then reintroduced to the list. This process will be repeated periodically.

- DeFi coins – Ten Fixed Individual Vaults
  Price fluctuation limit: -7.5%
  Risk: Staked coins (100%)
  Incentive: Principal Amount + 2x Principal Amount
  Time period: 10080 minutes (7 days)

- Users who stake their XIV in the fixed individual staking vaults expect the price of the tracked DeFi coins to fall by = or > 7.5%. If this occurs, the user will be awarded 2x their staked XIV. If this fails to occur, all staked XIV will be forfeited.

INVERSE DeFi Index: The Fixed DeFi Index value will be a weighted price average of 10 popular DeFi coins. This dynamic number will be used as a base value against which to stake XIV using smart contracts.

- DeFi Index – One Fixed DeFi Index Vault
  Price fluctuation limit: -5%
  Risk: Staked coins (100%)
  Incentive: Principal Amount + 1x Principal Amount
  Time period: 10080 minutes (7 days)

- Users who stake XIV in the Fixed DeFi Index vault seek a 5% drop in price by day 7. If the price of the index moves down by = or > 5%, the user will be awarded 1x the amount of staked XIV. If not, the full sum of staked XIV will be forfeited and withdrawn to LP.

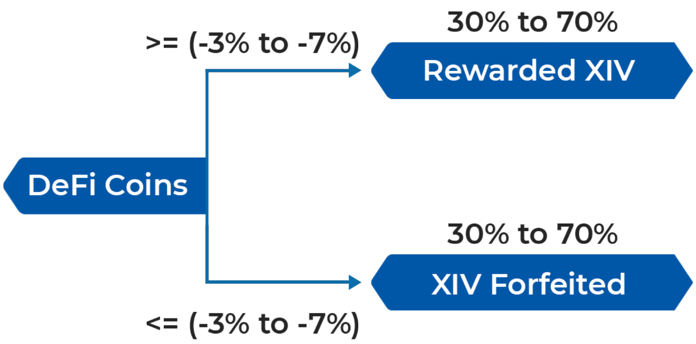
- The inverse-staking period for the Fixed Individual and Index tracking vaults will be restricted to 10080 minutes (7 days). If the user tries to withdraw staked funds prematurely, the user will incur a penalty as laid out in the penalty schedule below.

Time Penalty:

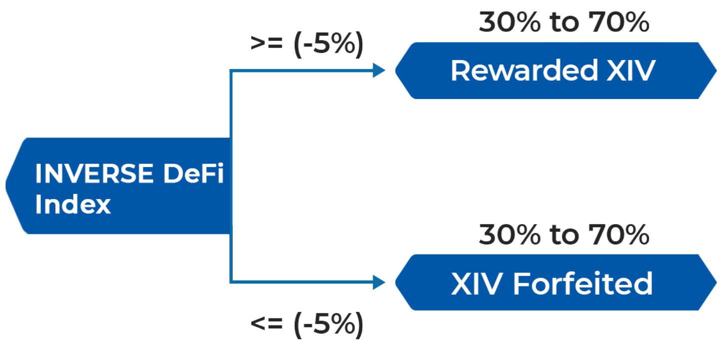
Fixed Individual & Index Vaults
On day 1: 50% of staked tokens
On day 2: 50% of staked coins
On day 3: 60% of staked coins
On day 4: 70% of staked coins
On day 5: 80% of staked coins
On day 6: 90% of staked coins
On day 7: 100% of staked coins

INVERSE-STAKING: FLEXIBLE VAULTS

STAKING XIV IN THE FLEXIBLE INDIVIDUAL TRACKING VAULTS



STAKING XIV IN THE FLEXIBLE INDEX TRACKING VAULTS



DeFi coins: Ten different DeFi coins will be followed by the Flexible individual tracking vaults. Each of these vaults will follow a single DeFi coin. The list of the 10 DeFi coins followed by the Flexible vaults will vary slightly periodically.

- DeFi coins – Ten Flexible Individual Vaults
  Set Drop-value: -3% to -7%
  Risk: Staked coins (30% to 70%)
  Incentive: 30% to 70% XIV Reward
  Time period: 10080 minutes (7 days)

- Users who seek to stake their XIV in the Flexible individual tracking vaults first set a drop-value from -3% to -7%. These users expect the price of the tracked DeFi coins to fall by = or > 3% to 7%. If this occurs, the user will receive an XIV reward of 30% to 70% on the amount of staked XIV depending on the set drop-value. If this fails to occur, the user will forfeit 30% to 70% of their staked XIV.

INVERSE DeFi Index: The Flexible DeFi Index will be identical to the Fixed DeFi Index. Thus, the value of the Flexible index will also be a weighted price average of the same DeFi assets as the Fixed DeFi Index.

- DeFi Index - One Flexible DeFi Index Vault
  Set Drop-value: -3% to -7%
  Risk: Staked coins (30% to 70%)
  Incentive: 30% to 70% XIV Reward
  Time period: 10080 minutes (7 days)

- Users who stake XIV in the Flexible DeFi Index vault seek a 3% to 7% drop in value / price of the index by day 7. Prior to staking, the user sets a drop-value of -3% to -7%. If the value of the index drops = or > the expected range, the user will receive an XIV reward of 30% to 70% of staked XIV depending on the set drop-value. If this fails to occur, the user will forfeit 30% to 70% of their staked XIV.

- For the Flexible Individual and Index Vaults, the inverse-staking period is also restricted to 10080 minutes (7 days). If the user tries to withdraw staked funds prematurely, the user will incur a penalty as laid out in the penalty schedule below.

Time Penalty:
Flexible Individual & Index Vaults
On day 1: 50% of staked tokens
On day 2: 50% of staked coins
On day 3: 60% of staked coins
On day 4: 70% of staked coins
On day 5: 80% of staked coins
On day 6: 90% of staked coins
On day 7: 100% of staked coins

SECURITY

Our Security protocol will be based on the industry standard best practices including Consensys guidelines.

- The platform will restrict users to one wallet address per vault per 7-day staking period. In order to limit gaming or malicious activity, one address can only stake in one vault at a time.

- We will verify breaking changes in the most recent version of Solidity so that our smart contracts are equipped with the most up to date security features in Solidity.

- Circuit Breakers and Speed Bumps will be employed in case of unexpected attacks directed at the contract. Circuit Breakers pause contract functionality, and Speed Bumps slow down actions, so that if malicious actions occur, there is time to recover.

- Contract Rate limiting will be applied on occasion, thus, users may require approval for certain requests.

- Smart Contract audit tools such as Mythril and Manticore will be employed for static and dynamic analysis of the smart contracts.
- To prevent overflow and underflow, we will use SafeMath library.
- To maintain Function Visibility we will ensure that all relevant functions are marked with the correct visibility.
- Compiler warnings will be fixed immediately.
- Every External Call will be checked in the smart contract.
- We will check routinely for reentrancy and ensure state committed before external call.
- Critical checks will be performed for “short circuits” (external contract calls that fail or are manipulated to fail, causing a denial of service of a function)
- Cross-function Reentrancy checks will be implemented.
- Regarding Dependencies, only audited and trustworthy dependencies will be utilized in order to ensure newly written code is minimized by using libraries.
- Rounding Error checks will be performed routinely to ensure that truncation does not produce unexpected functions such as incorrect results, or locked funds.
- The contract will not rely on pseudo-randomness for important mechanisms, and will employ functions like keccak with a deterministic seed like blockhash, blocknumber, etc.
- Inputs of external/public functions will be validated.
- Unbounded loops will be prevented.
- We will maintain appropriate use of push payments and will not use tx.origin as an authentication mechanism

FUTURE TECHNICAL UPGRADES

In the future, we aim to expand the options for staking periods by possibly adding a 14-day period and a 21-day period. We also plan to expand the swapping capability of the platform by including other assets beyond ETH and USDT. Another possible future update involves leveraging DeFi lending protocols for decentralized margin staking on the INVERSE platform.

Regarding platform upgrades, minor changes restricted to number and parameter alterations can be performed easily while utilizing the current base smart contracts. However, for updates pertaining to major functional changes, an upgradeable smart contract pattern will be deployed to store user balances eternally while allowing us to change the protocol functionality by deploying new smart contracts.

TECHNICAL PAPER REFERENCES

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