

Alvara Protocol

[Problem/Solution & Background White Paper — Final —

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Abstract

This paper presents the Alvara Protocol. An industry first, Alvara provides key infrastructure facilitating the creation of fully decentralised, meritocratic, tokenised cryptocurrency investment funds. The protocol decentralises traditional investment fund processes through the establishment of a network of tokenised investment funds (ERC-BTSs) and fund managers. Alvara will support the creation of both centralised and decentralised funds, giving fund deployers the ability to initiate a DAO (decentralised autonomous organisation) which will undertake a role in decentralised fund management. The protocol provides built-in fee sharing structures to incentivise fund managers to design, develop and deploy ERC-BTSs, competing against other fund managers on Alvara's leaderboard. Management rights can be traded via Alvara's ERC-BTS marketplace, enabling fund creators to sell both the rights to management as well as their fund's valuable revenue stream. Central to the protocol is the Alvara DAO, powered by the veALVA governance token. As well as using veALVA to vote on proposed changes to the protocol, veALVA holders can also nominate their balance to a fund of their choice every 7 days, directing the ALVA reward flow to the most popular funds.

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1. Overview

1.1 Introduction

'Alvara' / al-VUH-ra / - derived from the Latin "alvarium", meaning 'beehive'; also Gothic, meaning 'guard of all'.

The Alvara Protocol facilitates the deployment of decentralised, meritocratic, tokenised and on-chain investment collectives. Put simply, Alvara will enable the creation and management of tokenised investment funds.

The protocol will be populated by an innovative new token standard known as the Basket Token Standard (ERC-BTS, or BTS for short). Alvara's built-in leaderboard will auto-populate and rank every ERC-BTS minted on-chain.

Alvara will provide the critical infrastructure for mass user interaction with the new BTS technology. It achieves this through the provision of an automatic BTS minting factory contract which combines and encrypts tokenised assets, producing a single 'fund-token', the Basket Token Standard. The protocol has its home on the Ethereum blockchain, but will also be made available on several other major EVM-compatible chains.

Alvara will operate as a decentralised application, or dApp. Fund managers will be able to create and mint their own "Basket of Tokens" by contributing an initial investment of 1 ETH (which can be paid in any currency via a router).

The HiveX, Alvara's orderbook DEX, will give BTS managers and/or their DAOs the ability to transform their investment funds into tokenised ETFs (exchange-traded funds), offering the major advantages of increased liquidity, passive earnings and arbitrage opportunities. The HiveX will use decentralised liquidity pools, incentivising both the fund manager and liquidity providers with a percentage share of the trading fees.

The protocol consists of four separate arms:

1. ERC-BTS Factory
2. The Alvara DAO (governance and reward flow)
3. The HiveX (the orderbook exchange)
4. The ERC-BTS Marketplace (fund manager marketplace)

Alvara's vision is to accelerate the decentralisation of the global economy by delivering the world's most popular financial products - mutual funds and ETFs - to blockchain.

The traditional financial systems provide a diverse range of investment vehicles. Before the rise of blockchain technology, these bespoke services had been provided primarily by centralised financial institutions. The most widely used of these services are funds. Whether these be "passive" funds which track an index or sector, exchange traded funds (ETFs) or hedge funds, they all work on the fundamental premise of diversifying capital allocation across numerous individual assets within the same wrapper, a basket. As of the time of writing, tokenised investment funds have not made any significant inroads into blockchain or decentralised finance.

1.2 Defining the Challenges

Alvara is breeding the next generation of digital asset managers, redesigning the investment markets, and solving several of the major problems prevalent in both the traditional finance and cryptocurrency landscapes:

High Risk Sector:

Cryptocurrency's volatility discourages new investors. **The Alvara protocol will provide key infrastructure that will help users manage this volatility through diversified investment funds, thereby decreasing investors' exposure to individual high-risk crypto assets.**

Spoilt for Choice:

Investors entering crypto are overwhelmed by a huge range of options - *"It's everything you don't understand about money combined with everything you don't understand about computers,"* - John Oliver, describing cryptocurrency.¹ **Alvara solves this problem with its network of verifiable fund managers. Users can check the performance history of each**

¹ (Dillet, 2018)

manager and make a decision based on their profitability. This simplifies investment decisions for less experienced traders, or those who simply do not have the time to follow a multitude of assets. Alvara strives to help traders invest their time, and capital, wisely.

Slow Adoption:

The vast majority of global assets under management (AUM) remains in centralised TradFi markets. In an increasingly digitised and tokenised economy, **Alvara attracts investment from traditional markets, facilitating the mass adoption of cryptocurrency.**

Lack of Verification:

Lack of verification and accountability cultivates a poor and untrusting sentiment within the landscape, and is a major inhibitor to mass adoption. **Alvara provides a platform where fund managers can clearly and precisely demonstrate their skills with full transparency, and platform users can verify a fund manager's performance history directly within the protocol, leaving no ambiguity as to the validity of their claims. Alvara will separate the skilled from the unskilled in an exciting, gamified setting, breeding a new generation of fund managers and influencers.**

2. Ecosystem

2.1 ERC-BTS (Ethereum Basket-Token Standard)

Alvara's protocol is heavily structured around bringing utility to the novel ERC-BTS token standard, created by Alvara's developers.

The ERC-BTS is a new token standard that facilitates the construction of investment funds on blockchain. An ERC-BTS can hold any number of underlying assets within it, providing they are tokenised and available on a supported EVM blockchain or via an integration with Wormhole (see [section 2.2.4](#))

The BTS will become the go-to standard for on-chain fund management. Funds that contain anything from REITs, FX, synthetics, derivatives, cryptocurrencies and any other tokenised asset can all be powered by the BTS.

2.2 Blockchains

2.2.1 Ethereum

As the undisputed home of decentralised finance, Ethereum will be home to the ALVA token and protocol. ALVA will initially launch as an ERC-20 token on the Ethereum blockchain. Mirrored ALVA tokens will also be deployed on BNB Chain, Fantom and Avalanche C-Chain. In addition to Ethereum, the protocol will run on several major EVM compatible chains.

2.2.2 BNB Chain

BNB Chain was formed in early 2022 after Binance Chain and Binance Smart Chain (BSC) merged. BNB Chain now provides all the advantages of both previous chains, namely - fully decentralised governance and an EVM with multi-chain compatibility.

2.2.3 Avalanche

Avalanche C-Chain's EVM also supports the deployment of all Ethereum smart contracts, affording users all the benefits of building on Ethereum, but with the advantage of Avalanche's sub-second transaction speeds (measured by time-to-finality), and very low transaction fees. Avalanche and its founding company, AVA Labs, also have strong ties to traditional finance. Its unique consensus protocol that allows for high speed, low cost and high scalability offers an institutional-grade environment for the development of DeFi products.

2.2.4 Cross-Chain Capability

Through an integration with Wormhole (<https://wormhole.com/>), assets across any Wormhole compatible chain can be included in any BTS minted on Alvara's protocol. This means that asset managers can create baskets containing tokens hosted across ten different blockchains, enabling crypto fund constructions that were never before possible. Wormhole integration provides access to the following blockchains: Ethereum, Solana, BNB Chain, Polygon, Avalanche, Algorand, Fantom, Karura, Celo, Acala, Aptos and Arbitrum.

3. Alvara Tokens

3.1 ALVA Token

ALVA is the protocol's native token; an ERC-20 utility token that serves multiple functions within the platform, including access to governance, rewards and software portals. ALVA is also included in each ERC-BTS minted on the platform at a nominal 5% weighting. This inclusion puts deflationary pressure on the token supply, as with each additional ERC-BTS that is minted, more ALVA is removed from the liquid circulating supply. The included ALVA is market-bought, which increases buying pressure with every new ERC-BTS creation.

ALVA has a maximum total supply of 200 million tokens. The original ERC-20 version of the token can be both minted and burned but only within specific parameters set out in the smart contracts.

3.1.1 Token Utility

The ALVA token has five significant use cases within the Alvara Protocol.

1. Voting Power:

Users must stake their ALVA tokens on the staking platform to obtain veALVA. veALVA can be used within the Alvara DAO to vote on proposals. It can also be used during ‘The Dance’ - the weekly event of allocating veALVA to whichever BTS fund a user nominates to receive that week’s inflationary ALVA rewards flow.

2. Staking rewards:

The Alvara staking platform is discussed in detail in [section 5](#).

3. Inclusion in every ERC-BTS:

Every ERC-BTS minted on Alvara will contain the ALVA token at a minimum weighting of 5%. This ALVA will be purchased on the open market, rather than being fed from a reserve. This feature will put upwards pressure on ALVA’s market price each time a new ERC-BTS is launched, as well as each time additional ERC-BTS LPs are created by platform users. It also removes a percentage of the ALVA token’s supply from the circulating market.

3.1.2 Token Distribution

The ALVA token has been distributed proportionally within the ecosystem as follows:

Allocation	Percentage (%)	No. ALVA
Seed Round	5%	10,000,000 ALVA
Private Round	5%	10,000,000 ALVA
Public Round	4%	8,000,000 ALVA

Airdrop	2%	4,000,000 ALVA
Team & Contributors	15%	30,000,000 ALVA
Grants & Builders	5%	10,000,000 ALVA
Foundation	10%	20,000,000 ALVA
DEX/CEX Liquidity	5%	10,000,000 ALVA
Affiliates & Marketing	5%	10,000,000 ALVA
BTS Incentives	44%	88,000,000 ALVA
Total	100%	200,000,000 ALVA

3.2 veALVA

veALVA (voting-escrowed ALVA) is the Protocol's governance token. It is non-transferable and can only be obtained by locking up ALVA tokens on the staking platform. See [section 5.2](#) on locking periods.

veALVA is used to vote on all proposals within the Alvara DAO ([section 9.1](#)). It is also used on a weekly basis during The Dance ([section 10.1.2](#)).

A user's veALVA decays linearly over the duration of their ALVA lock. The only exception is when a user adds to their lock, in which case the decay period is reset, or when a user locks their ALVA forever, in which case there is no decay.

3.3 ERC-BTS

See [section 2.1](#).

3.4 ERC-BTS LP Tokens (BTS LPs)

When a user adds capital to any ERC-BTS on Alvara's platform, they receive BTS LP tokens in return which are representative of their stake in that BTS. BTS LP tokens are ERC-20 tokens, similar in structure and purpose to DEX LP tokens.

Utility:

- BTS LP tokens represent a user's stake in any given ERC-BTS. They can be used to redeem underlying assets (or the value of the underlying assets in ETH/AVAX/etc) from the ERC-BTS at any time.
- BTS LP tokens in any decentralised ERC-BTS can be used to vote and create governance proposals in that ERC-BTS's DAO.
- Liquidity can be added to any BTS LP tokens listed on Alvara's HiveX.

3.5 HiveX LP Tokens (HEX LPs)

HiveX LP tokens (HEX LPs) are received in exchange for contributing liquidity to any ERC-BTS liquidity pool on the HiveX, Alvara's decentralised order book exchange. They work in exactly the same way as UNI-LP tokens. A user can add liquidity in the form of their BTS LP token and the token in its trading pair (e.g. USDT, ETH).

3.6 Advanced Tokenomics

3.6.1 The Alvara Foundation Treasury

The treasury will hold a reserve of ALVA tokens and stable coins that will be used to cover expenses of the Protocol once the capital raised during the presale rounds has been exhausted. At TGE (token generation event), the treasury will comprise 10% of the total supply (20,000,000 ALVA), unlocked linearly over a 24 month period. The treasury will receive 85% of all the ERC-BTS Factory transaction fees, and 30% of all HiveX transaction fees. Refer to [section 7.1.1](#) for a platform fees summary.

3.6.2 ALVA holders

ALVA holders can earn rewards simply by staking their ALVA tokens. The Staking Rewards Vault (see [section 5.1](#)) is fed from a fee of 0.5% p.a. AUM of all ERC-BTSs minted on the Alvara platform. This is calculated and paid out on a monthly basis. The Vault is also fed with 5% of platform fees taken from Alvara's two key platforms - the ERC-BTS Factory (see [section 4](#)) and the HiveX (HEX) (see [section 6](#)).

3.6.3 The Bee-Have Charity

The Bee-Have Charity will be a UK registered charity, established to fight for our world's wild bee and pollinating insect populations. The charity will be registered prior to the launch of the Alvara Protocol, and 5% of all platform fees (BTS Factory & HiveX) will be paid into its treasury. The Bee-Have Charity's initial plans are to partner with and provide financial support to established organisations who are working to help support bee populations around the world.

3.6.4 ALVA Buy Back & Burn Program

Alvara's burn program is designed to decrease the total ALVA token supply over time, increasing the value of each ALVA token. A combined 0.5% p.a. AUM of all ERC-BTSs minted on the Alvara platform and 5% of all fees taken by the protocol will be used to purchase ALVA on the open market on a monthly basis (randomised intervals to prevent market manipulation). These ALVA tokens will then be burned, reducing the total ALVA supply and increasing the value of each ALVA token.

3.6.5 Summary of platform fees distribution

See [section 7.1.1](#).

3.6.6 Summary of deflationary mechanisms

- 0.5% AUM of all ERC-BTSs minted on Alvara's platform is used to buy back and burn ALVA.
- 5% of all platform fees (BTS Factory & HiveX) are used to buy back and burn ALVA.
- Users who lock their tokens forever (burn pool) in the staking platform to receive "no-decay" veALVA tokens and maximum percentage from Staking Rewards Vault. (see [section 5.2](#)).

4. Alvara's ERC-BTS Factory & ERC-BTS Mechanics

4.1 Introduction

At its core, Alvara's fundamental purpose is to provide key infrastructure for the creation of

decentralised, meritocratic, tokenised investment funds. It achieves this through its BTS Factory where users can design and mint their own ERC-BTS tokens.

4.2 ERC-BTS Factory

The BTS Factory is the primary architectural arm of the protocol, and the critical piece of infrastructure that allows for the mass adoption of the new ERC-BTS token technology. Here users can design and deploy brand new tokenised funds on the blockchain. Secondary users can utilise the BTS Factory to create and redeem BTS LP tokens in existing BTS funds.

4.2.1 ERC-BTS Deployment

To mint a new ERC-BTS, a user must first connect a compatible web3 wallet (metamask or trust wallet) to the platform. The user then adds the token contracts of the underlying assets that they wish to include in the fund. Every fund created on Alvara's platform automatically contains ALVA at a minimum weighting of 5%. This is populated when minting from the factory contract, with the remaining 95% available for the fund manager to populate. Tokens from any supported blockchains can be added, allowing cross-chain fund creation.

Once the user has added their tokens of choice with a combined weighting of 100%, the ERC-BTS is ready to be minted. To successfully mint the BTS, the user must make a minimum contribution of 1 ETH (or 1 ETH equivalent in any currency). The minimum contribution is designed to prevent the frivolous, excessive creation of numerous ERC-BTSs.

The creator can add an image for their ERC-BTS. This can be any artwork or image they like. It need not necessarily display the logos or names of the underlying tokens as these will pull through and be displayed under the fund's information.

Once minted, the ERC-BTS is held by the fund creator, and provides access to both the management rights and the management fees. The creator will also hold BTS LP tokens, like any other fund participant. These only represent their capital investment in the fund (minimum 1 ETH at launch) and as with all BTS LP tokens, can be traded on the HiveX, or redeemed at their NAV value via the ERC-BTS Factory.

Although the ERC-BTS token is held by the fund creator, the underlying assets themselves are non-custodial. The creator will only have access to the underlying assets that they have personally contributed (1 ETH minimum at time of deployment + any later contributions made by the creator), represented by the BTS LP tokens that they hold.

4.2.2 Creation Mechanism

The creation mechanism allows users to create (mint) new BTS LP tokens at the NAV of the underlying assets of any ERC-BTS created on Alvara's protocol.

User pays all gas fees associated. A 0.5% fee is also charged by the Alvara Foundation each time a user creates new BTS LP tokens in a fund.

Users will input their desired investment amount. Alvara algorithms then calculate the net quantity of BTS LP tokens the user can create with the input investment.

4.2.3 Redemption Mechanism

The redemption mechanism allows users to redeem (burn) BTS LP tokens in exchange for the value of the underlying assets.

User pays all associated gas fees. A 0.5% fee is charged by the Alvara Foundation each time a user redeems BTS LP tokens in a fund.

User inputs BTS LP redemption quantity. Alvara algorithms calculate the net value a user can redeem. Users have the option to either:

1. Redeem their BTS LP tokens in exchange for ETH (or equivalent)
2. Redeem their BTS LP tokens in exchange for the underlying tokens included in the fund

4.2.4 Factory Fees

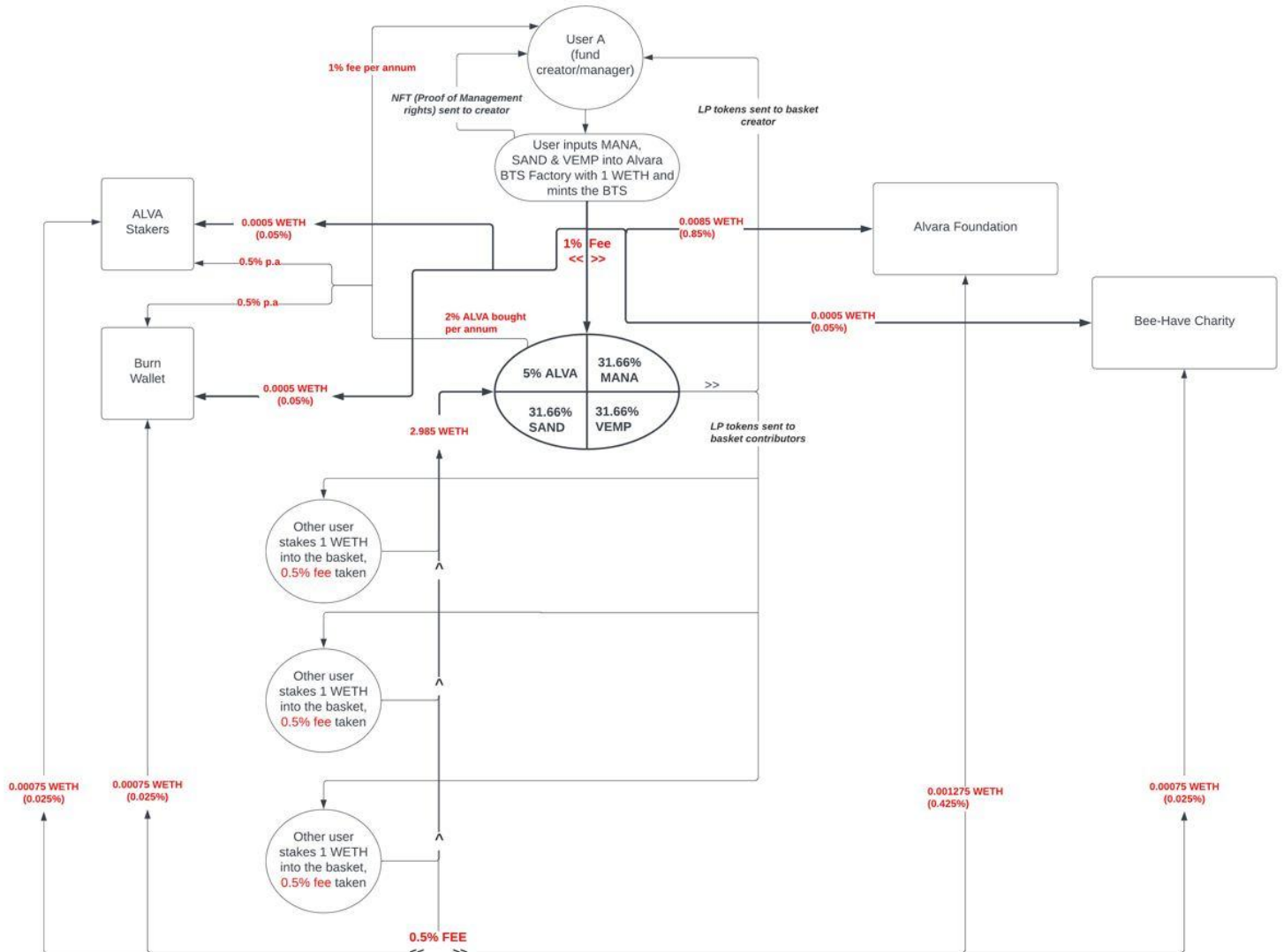
The total cost of initial creation of a new ERC-BTS is 1% + any associated gas fees. During the minting process, a 0.5% fee is charged by the Alvara Foundation, and an additional 0.5% is used to buy and burn ALVA.

During both the creation and redemption processes, a 0.5% fee is charged by the Alvara Foundation.

4.2.5 Management Fee Sharing Structure

Annually, 2% AUM of each ERC-BTS minted via Alvara's platform is converted to ETH. 1% goes to the ERC-BTS's manager, 0.5% is used to buy and burn ALVA and a further 0.5% is routed to the staking rewards pool. All fees and routing can be altered via successful proposals in the Alvara and BTS DAOs.

4.2.6 Deployment and Fee Routing Flowchart



4.3 Ethereum Basket Token Standard - ERC-BTS

ERC-BTS tokens are a brand new token standard developed by Alvara developers. They offer investors the world's most popular investment vehicle, but on the blockchain. Alvara ERC-BTSs have several distinct advantages when compared to traditional investment funds:

Build your own

Design and launch your own tokenised ERC-BTS via Alvara's creation portal. Access Alvara's proprietary backtesting analysis software (see [section 4.9](#)) to help design your fund.

Proof of Ownership

The ERC-BTS tokens deployed via Alvara provide managers with a key to their fund's management rights and rewards structure. Transferable at Alvara's marketplace (see [section 4.5](#)), fund managers can, for the first time, sell their business on the blockchain.

Yield Generation

Every ERC-BTS contains 100% collateralized underlying assets. These assets can be utilised in yield generation strategies via platform integrations with Aave, Compound and other partner platforms, with the yield generated fed back into the funds or distributed to BTS LP holders as dividends.

Advanced Leaderboard

Compete against fellow fund managers for top ranking positions on Alvara's leaderboard. Follow the most profitable fund managers to minimise risk exposure to the crypto markets.

Simplified Investing and Management

Underlying assets are purchased through a router linked to leading DEXs, making the costs of creating, redeeming and rebalancing much simpler and more efficient than manual alternatives.

4.4 Yield Generation

Alvara facilitates the utilisation of DeFi lending protocols by fund managers (eg. Compound, Aave, dYdX) to lend the underlying assets of the ERC-BTSs and generate revenue from the interest accrued. Interest for pools using lending protocols compound every block or immediately after fees are paid. They're also compounded automatically.

All underlying assets can be utilised within yield generation strategies, providing opportunities exist. Revenue generated will be distributed to the BTS LP holders on a monthly basis, or can simply be fed back into the fund, increasing the NAV of each BTS LP token. The direction flow of any yield generated will be at the discretion of either the fund manager, or the fund's DAO, depending on the governance structure.

At the initial creation of a ERC-BTS, the fund creator can opt for whether or not to utilise lending protocols to earn additional yield on their fund's underlying assets. As their fund grows and more participants join, the BTS's DAO will ultimately determine whether or not lending practices begin, continue or cease. They can also decide whether or not the interest earned is claimable by the BTS token holders, or whether it is fed back into the fund to increase the NAV, or some combination of the two. APYs for each fund will be displayed under the fund's information as well as on the leaderboard.

ERC-BTS managers and DAO members should take into consideration the liquidity of their fund's underlying assets when proposing yield generation activities to their shareholders via their fund's DAO. Alvara will provide educational materials to assist ERC-BTS managers in their decision-making and proposals regarding yield generation activities and liquidity requirements.

A sound default position on receipt of underlying assets is that they be held and not used for any staking, lending, yield enhancement or other function UNLESS the value of the token can be ensured and the liquidity of the token can be assured. If yield enhancement opportunities arise and the value of the token can be protected via insurance, collateral or other means, and the liquidity at short notice can be maintained, such an opportunity can then be taken advantage of.

4.5 ERC-BTS Marketplace

The ERC-BTS Marketplace is akin to an NFT auction platform. Any BTS creator (or holder) can list their ERC-BTS token on the marketplace. The advantage of buying an ERC-BTS token is that its holder receives both the management rights and revenue stream generated by the BTS token through receipt of management fees as well as a percentage of trading fees if their fund's BTS LP tokens are listed and trading on the HiveX.

The marketplace displays the following information for each fund listed for sale:

- Profit/Loss
- Decentralised (DAO)/Centralised
- Underlying assets
- Management annual revenue stream

ERC-BTS owners can set a starting price and reserve when listing their BTS for auction, as well as a “buy-it-now” price. Buyers can also use the “make-an-offer” button if they'd like to make an offer lower than the “buy-it-now” price. Sellers will set the duration of the auction and will be able to add a blurb describing their fund and any other information they would like to offer to try to secure a sale. All sales on the ERC-BTS marketplace will be final as settlement occurs on-chain.

4.6 NAV and Calculation

An Alvara ERC-BTS's NAV represents the net value of its BTS LP tokens and is calculated as the total value of the ERC-BTS's assets minus the total value of its liabilities, divided by the number of BTS LP tokens.

For all ERC-BTSs trading on the HiveX, the NAV will be used to determine whether or not the BTS LP tokens are trading at a premium or a discount.. If market price > NAV then the

BTS LPs are trading at a premium; if market price < NAV then the BTS LPs are trading at a discount.

Correct determination of the NAV is very important as it is the calculation drawn upon when users are utilising the creation and redemption features.

$${}^2NAV = \frac{\text{Total Value Underlying Assets} - \text{ERC-BTS Liabilities}}{\text{Total Number of Outstanding ERC-BTS Shares}}$$

4.7 ERC-BTS Liabilities and TER Calculation

ERC-BTS liabilities can be broken down into the following categories:

ERC-BTS operational expenses:

- Management fees
- Trading fees
- Legal fees (if required within a fund manager's jurisdiction)
- Government fees (if required within a fund manager's jurisdiction)
- Accounting fees (if required within a fund manager's jurisdiction)
- Auditor fees (if required within a fund manager's jurisdiction)
- Software subscription fees
- Custodial service fees
- Marketing
- Employee/staff
- DEX liquidity provision
- CEX listing and market-making fees

² (Net Asset Value – NAV Definition, n.d.)

Total Expense Ratio (TER) formula:

The total expense ratio (TER) describes a fund's operating costs relative to its assets.³ It is a measure of a fund's operational efficiency.

Investors pay attention to the expense ratio to determine if a fund is an appropriate investment for them after fees are considered.

TER is also known as the "net expense ratio" or "after reimbursement expense ratio."⁴

$$TER = \frac{\textit{Total Fund Costs}}{\textit{Total Fund Assets}}$$

4.8 ERC-BTS Asset Potential

Potential ERC-BTS structures are practically limitless. In fact the only limit is the speed at which real world assets are becoming digitised. Alvara fully anticipates the deployment of ERC-BTSs via the ERC-BTS Factory containing previously illiquid assets that have been made liquid through digitalisation. Examples include gold, real estate, infrastructure, bonds and carbon certificates, however the opportunities are limitless.

What makes the Alvara Protocol so revolutionary is that it will be expanding the scope in which tokenised funds can be made and managed directly on-chain. Basket funds will turn into fully fledged and governed decentralised funds that operate via a truly meritocratic system where performance is incentivised. This blows away the traditional fund model as the Alvara Protocol will obey the laws of democracy, transparency and fair investment management.

³ (Brown, n.d.)

⁴ (Brown, 2021)

The BTS will also become the go-to standard for on-chain fund management, meaning that funds that contain anything from REITs, FX, synthetics, derivatives, cryptocurrencies and any other tokenised asset can all be powered by the BTS.

4.9 Alvara Analysis Tool

The ERC-BTS analysis tool is Alvara's proprietary research tool for backtesting and evaluating the performances of custom built ERC-BTSs. This will be available to all ERC-BTS managers for a nominal subscription paid in ALVA tokens. The tool currently pulls data from a Coingecko API so can be used to backtest any fund construction providing its underlying assets' data is listed on Coingecko.

Input: Mapping (tokens -> weights), backtest period, rebalance interval in days. Output: Performances Table - Return and Risk KPIs; Graphs - Tokens' returns correlation matrix, portfolio value over time, volatility comparison for a selected period.

4.10 Rebalancing

Ultimately whether or not a fund is rebalanced will be at the discretion of either the fund manager or the fund's DAO, depending on the individual governance structure of each fund. The default position of the rebalancing of each ERC-BTS is chosen by the creator at the time of creation. If the creator opts to rebalance automatically then rebalancing will take place monthly to the "strategic asset allocation". These are the starting weights for the ERC-BTS's underlying assets: e.g. 30% BTC, 30% ETH, 35% ADA, 5% ALVA. "Actual allocation" will vary during the month based on price moves.

Rebalancing tool:

All ERC-BTS managers will have access to a rebalancing tool that can help them with

rebalancing events. This will be available to any ERC-BTS managers for a nominal subscription paid in ALVA tokens. The tool will focus on helping managers assess the eligible universe according to certain adjustable parameters. The tool will function as described below:

Eligible universe:

The eligible universe of tokens can be filtered using two primary criteria:

- Market cap
- Liquidity (average daily traded volume ADTV)

A 50% weighting is recommended to be applied to each of the primary criteria to ensure that they are given equal prominence in determining the universe, however the tool user can set weightings as desired.

There is no need to look at available supply in relation to total supply of token since liquidity can account for this.

The following secondary criteria can be applied if deemed necessary, and will be input manually by the user:

- recognised exchange listings
- publicly visible management teams

In this way it is ensured that the primary criteria are market cap and liquidity. “Eligible Market” could be divided into segments by market cap e.g. Large caps which are > \$1bn, Mid-caps which are >\$250m and small caps which are > \$100m etc. (>\$100m is currently top 400 tokens with about 85% of the market value). The recommended ADTV for large caps: >\$25m; mid caps: >\$10m; small caps: >\$5m.

At the end of the month the “eligible market” is recalculated to check that all the tokens still

adhere to the market cap and liquidity criteria.

If assets remain eligible then rebalancing is simply the buying and selling of the existing underlying assets in the ERC-BTS to rebalance to the “Strategic Asset Allocation”.

If during the month, the market cap or liquidity elements of a token change to result in them NOT qualifying for the “eligible market”, the token will be flagged and an intra-month buffer of 20% (recommended) can be applied to the token’s market cap and liquidity requirements i.e. if market threshold was \$100m and the tokens dips below that, then the token is flagged and monitored and a buffer is applied to it resulting in the threshold being \$80m. This is to allow for extreme volatility intra-month of crypto markets. If the threshold plus buffer is breached for 5 consecutive days then the token can be replaced with the next eligible token from the “Eligible Market” for an equivalent value.

The same 20% buffer will also apply to ADTV.

“Eligible Market” monitoring will be carried out by an oracle integration with Chainlink.

5. Staking Platform

Alvara’s staking platform is a critical piece of infrastructure within Alvara’s protocol. As well as rewarding ALVA stakers from the Staking Rewards Vault (SRV), the ALVA staking platform is the faucet from which veALVA is distributed to the community.

In addition to these primary functions, users can also stake their BTS LPs to receive a percentage of the weekly ALVA rewards allocated to their ERC-BTS.

5.1 Staking Rewards Vault (SRV)

All users who stake their ALVA on Alvara's staking platform will be able to claim from the SRV on a weekly basis. The vault will be fed from a percentage (5%) of all fees collected by the platform.

The amount each staker can claim will depend on the ratio of their staked ALVA as a percentage of the total staked, segmented by locking periods. For example: all users who have locked their tokens for 4 years will take from the same pool each week (20% of the total rewards vault). The rewards the user can claim will be the total rewards for their pool divided by the total ALVA staked across all pools multiplied by their staked ALVA balance. An individual user's weekly claimable rewards (CR) is based on the following equation:

$$CR = ((TR * PP) / TST) * UST$$

CR = Claimable rewards

TR = Total rewards

PP = Pool percentage

TST = Total staked tokens

UST = User staked tokens

User's will pay all gas fees associated. A user does not need to claim every week, any unclaimed balance will accrue and be available for the user to claim at a later date.

The user can also choose to compound their rewards. In this event, their rewards will be used to purchase and then stake ALVA. This will give the user a larger percentage of the total pool, and therefore a larger percentage of the fee rewards at the following distribution.

Compounding rewards is the only way a user can add more ALVA to their staked balance

without resetting their locking period. Compounding will not replenish the user's veALVA balance.

5.2 Locking Periods

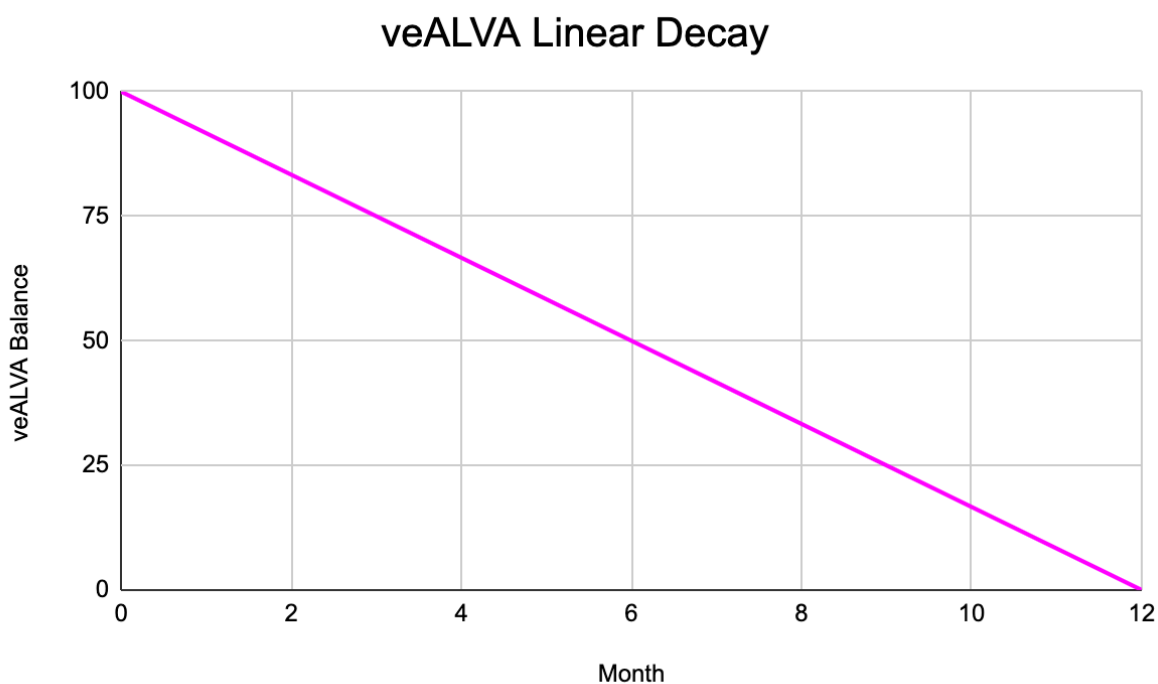
The duration of a lock determines which vault pool they will claim from, and the number of veALVA a user receives. The longer a user locks their ALVA tokens, the more voting weight the user receives within the DAO, and the more weight they have with influencing the routing of rewards into the BTS pool of their choice.

Locking periods and the corresponding rewards can be seen in the table below, using 100 ALVA as an example:

Locking Period	ALVA	veALVA	Staking Rewards sent to pool (% of total)
1 week	100	1	0%
1 month	100	5	0%
3 months	100	20	0.5%
6 months	100	50	1.25%
12 months	100	100	2.75%
18 months	100	200	4.5%
24 months	100	400	8.5%
36 months	100	800	12.5%
48 months	100	1000	20%
Forever	100	200 (no decay)	50%

5.3 veALVA Linear Decay

With the exception of veALVA obtained by locking ALVA tokens forever which do not decay, a user's veALVA balance will decay linearly over the duration of the locking period. E.g. if a user locks 100 ALVA for 1 year and receives 100 veALVA, then at the end of day 1, their balance will automatically reduce to $(100/365.25 * 364.25)$ veALVA. At the end of day 2, their balance will reduce to $(100/365.25 * 363.25)$ veALVA. This will continue until their lock expiry date when their veALVA balance will be 0.



One method that can be used to reset the linear decay of a user's veALVA is to relock or add more to the lock. Additions to staked balance and duration of locking periods can be extended at any time, however users cannot stake balances with multiple expiration dates, i.e. if a user is staking 100 ALVA for 1 month, they cannot stake an additional 100 ALVA from the same wallet address for only 1 week. Any additional balance increase will also reset the starting point for the lock as well as the linear expiry, e.g. if a user stakes 100 ALVA for 1 month, and stakes a further 100 ALVA after 10 days, the total balance of 200 ALVA will be locked for 1

month from the date of the second deposit. Any veALVA that has expired linearly during the 10 days will be reinstated at the time of the second lock. This feature is to ensure voting cannot be manipulated by large deposits shortly before the expiration date.

The linear expiration of a user’s veALVA balance will not impact proposals that have already been voted on and are awaiting decision, nor will it impact the numbers allocated during The Dance. E.g. if a user allocates 100 veALVA towards a specific BTS pool on a Wednesday in week 1, those 100 votes will remain in place until the following Wednesday, regardless of the users balance throughout the week.

5.4 ERC-BTS LP Staking

Users can also stake their ERC-BTS LP tokens on the staking platform, in exchange for a percentage of the weekly ALVA inflationary reward supply, providing that their BTS LP tokens belong to an ERC-BTS that has an open pool on the platform. In order for a fund to have its own staking pool, a proposal must be made within the Alvara DAO and approved by the community. Once approved, veALVA holders can then allocate their tokens on a weekly basis during “The Dance” (see [section 10.1.2](#)). Only staked BTS LP tokens will be eligible to receive a percentage of the reward supply. The rewards a user can claim are based on reward supply, user balance and locking period.

Locking Periods	% Rewards
No Lock	5%
1 Month	15%
3 Months	30%
6 Months	50%

6. HiveX

Section needs rewriting for orderbook DEX.

6.1 Yield Farming

When a user adds capital to an ERC-BTS on Alvara's platform, they receive in return BTS LP tokens which are representative of their stake in the BTS. BTS LP holders are able to then deposit these tokens into the fund's HiveX liquidity pool, either on its own, or along with its paired asset (eth/usdt/avax/bnb). In return, the liquidity provider receives HiveX LP tokens, representing their share in the liquidity pool. In exchange for providing liquidity, LP holders receive 30% of transaction fees. Each individual LP holder will receive a share of the fees charged on transactions within the pools they are providing liquidity to, proportionate to their LP holdings.

6.2 Fees

See [section 7.1.1](#).

7. Alvara Foundation

7.1 Business Model

Alvara's business model is based on income derived from charging users platform fees. There are fees for the deployment of a new ERC-BTS, fees for the creation and redemption of BTS

LP tokens, and transaction fees on Alvara’s decentralised order book exchange, the HiveX.

7.1.1 Table of Platform Fees

Platform	Function	Total Fee	Foundation	Bee-Have Charity	BTS Manager	ALVA Stakers	HiveX LP holders	HiveX Liquidity Pool	Burn
ERC- BTS Factory	Deployment	1%	0.85%	0.05%	0%	0.05%	N/A	N/A	0.05%
	Creation	0.5%	0.425%	0.025%	0%	0.025%	N/A	N/A	0.025%
	Redemption	0.5%	0.425%	0.025%	0%	0.025%	N/A	N/A	0.025%
	Management	2% AUM p.a	0%	0%	1%	0.5%	N/A	N/A	0.5%
HiveX	Transaction	0.3%	0.09%	0.015%	0.015%	0.015%	0.09%	0.06%	0.015%

8. Security

Leading cybersecurity consultancy firm Hacken is Alvara’s appointed security auditor. They will carry out in-depth security audits on all ecosystem smart contracts and will also be carrying out full pentesting of the protocol’s website and platform.

9. Governance

9.1 Alvara DAO

Alvara is itself a decentralised autonomous organisation (DAO), governed by ALVA holders who have staked their ALVA tokens in exchange for veALVA (see [section 5](#)). The DAO will make decisions regarding the management and development of the protocol, as well as which fund receives the highest percentage of ALVA rewards during “The Dance” - a weekly weighting event where users can allocate their veALVA balance towards any decentralised BTS of their choice that has been deployed via Alvara’s platform.

Once a user has obtained veALVA they can participate in voting and governing of the platform. Any visitors to the platform can view the proposals boards, however only holders of veALVA will have the opportunity to vote on the proposals. Proposals can be made by any user who holds a minimum of 2000 veALVA.

9.1.1 Alvara DAO Voting

Who can vote?

Anyone holding veALVA can vote on a proposal.

Who can make a proposal?

Users holding more than 2000 veALVA can make proposals to be voted on.

Who can view proposals?

Anyone.

Quorum

The quorum for the Alvara DAO is 20%. The quorum can only be altered via proposals made to the DAO.

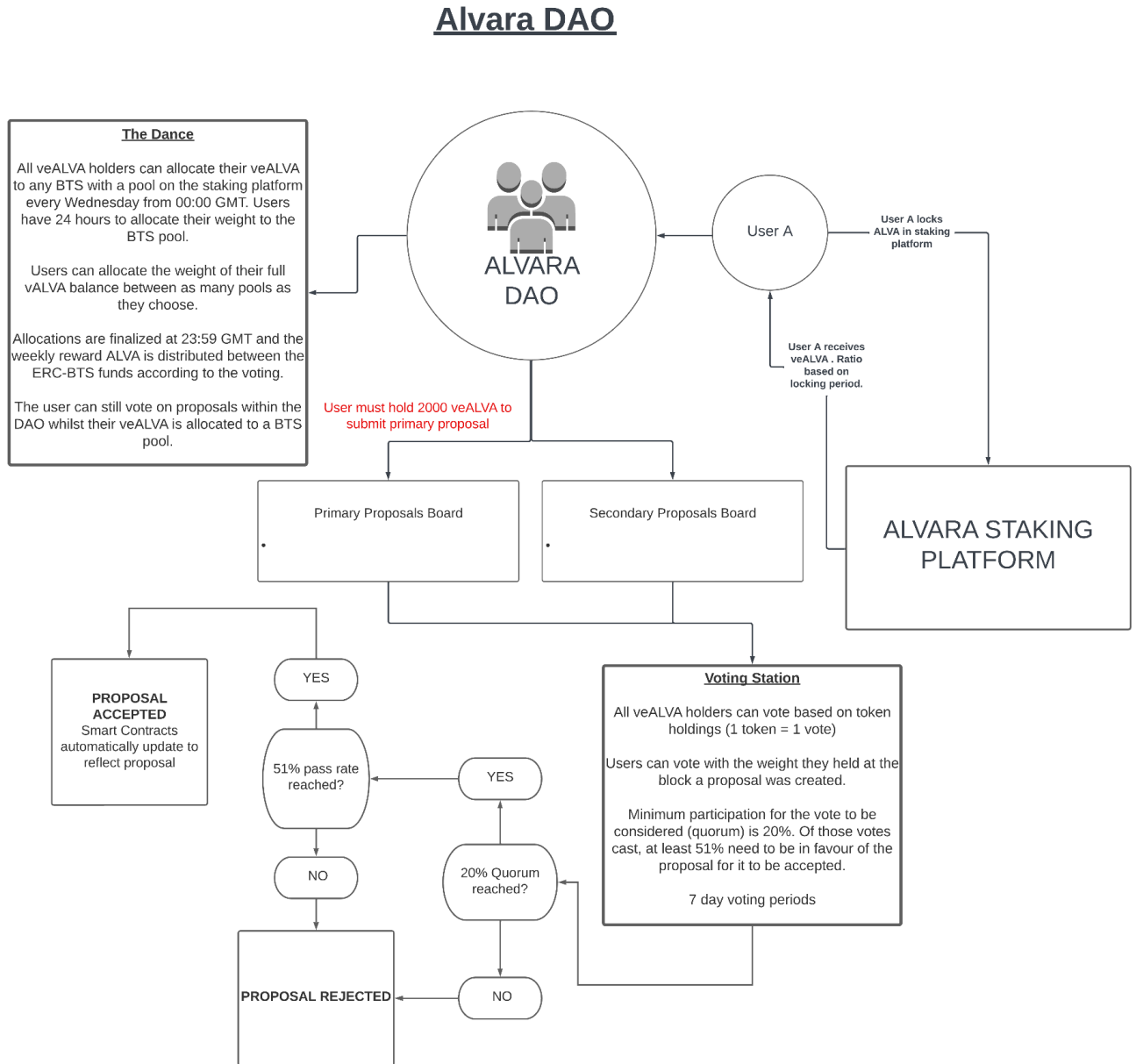
Pass rate

The pass rate (percentage of votes required for a proposal to be successful) for the Alvara DAO is 51%. The pass rate can only be altered via proposals to the DAO.

Reversals

Any enacted changes can be reversed by way of another proposal to reverse the change. This requires the same pass rate and quorum as any other proposal.

9.1.2 Alvara DAO Flowchart



9.2 BTS DAOs

As well as providing a factory through which BTS tokens can be minted, Alvara also offers BTS creators the ability to set up their own DAO and manage it within the protocol.

9.2.1 BTS DAO Voting

Who can vote?

Anyone holding the BTS LP tokens can vote on a proposal. BTS LP tokens are received in exchange for contributing to a BTS's pool.

Who can make a proposal?

Only the BTS creator (fund manager) can make primary proposals. Any BTS LP token holder can make secondary proposals.

Who can view proposals?

The BTS creator and connected BTS LP token holders only.

Quorum

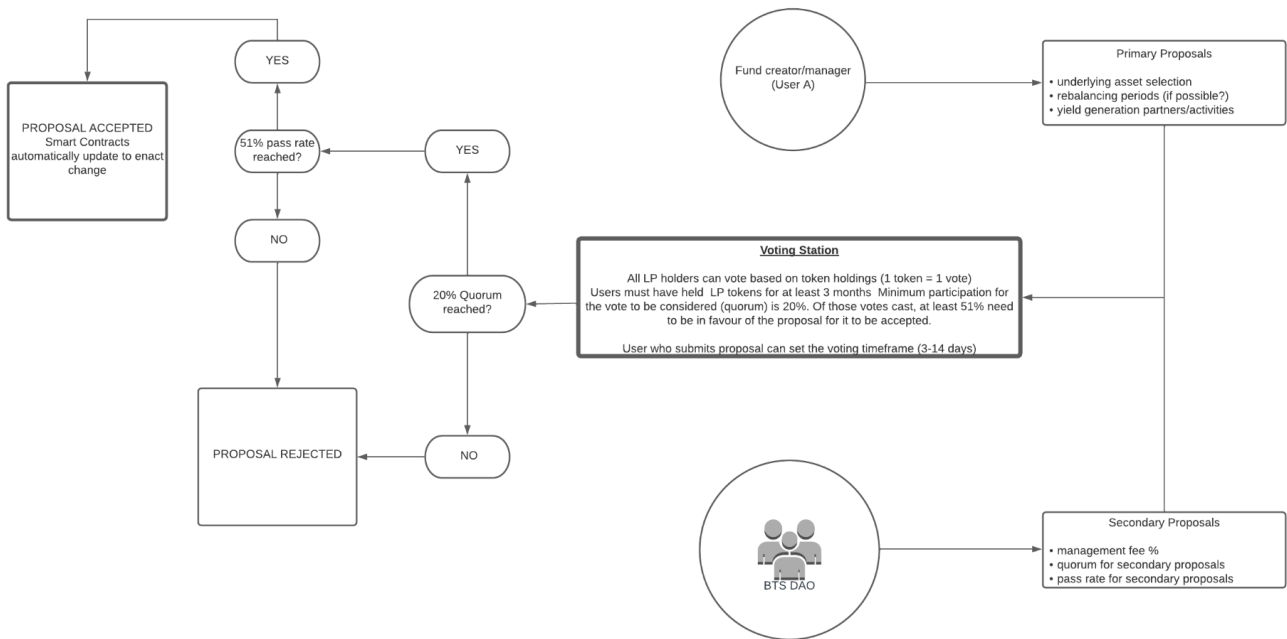
The quorum for BTS DAOs is initially set by the BTS creator whilst setting up the DAO. After this the quorum can only be altered via proposals to the DAO.

Pass rate

The pass rate (percentage of votes required for a proposal to be successful) for BTS DAOs is initially set by the BTS creator when setting up the DAO. After this the pass rate can only be altered via proposals to the DAO.

9.2.2 BTS DAO Flowchart

BTS DAO



10. Alvara Core Behavior

10.1 Reward Distribution

10.1.1 BTS Incentivisation

Forty-four (44%) of ALVA's total supply has been designated to incentivise participation in platform-minted BTS tokens, and to foster a competitive sentiment within the protocol in order to drive progress. A total of eighty-eight million (88,000,000) ALVA will be awarded to the BTS pools.

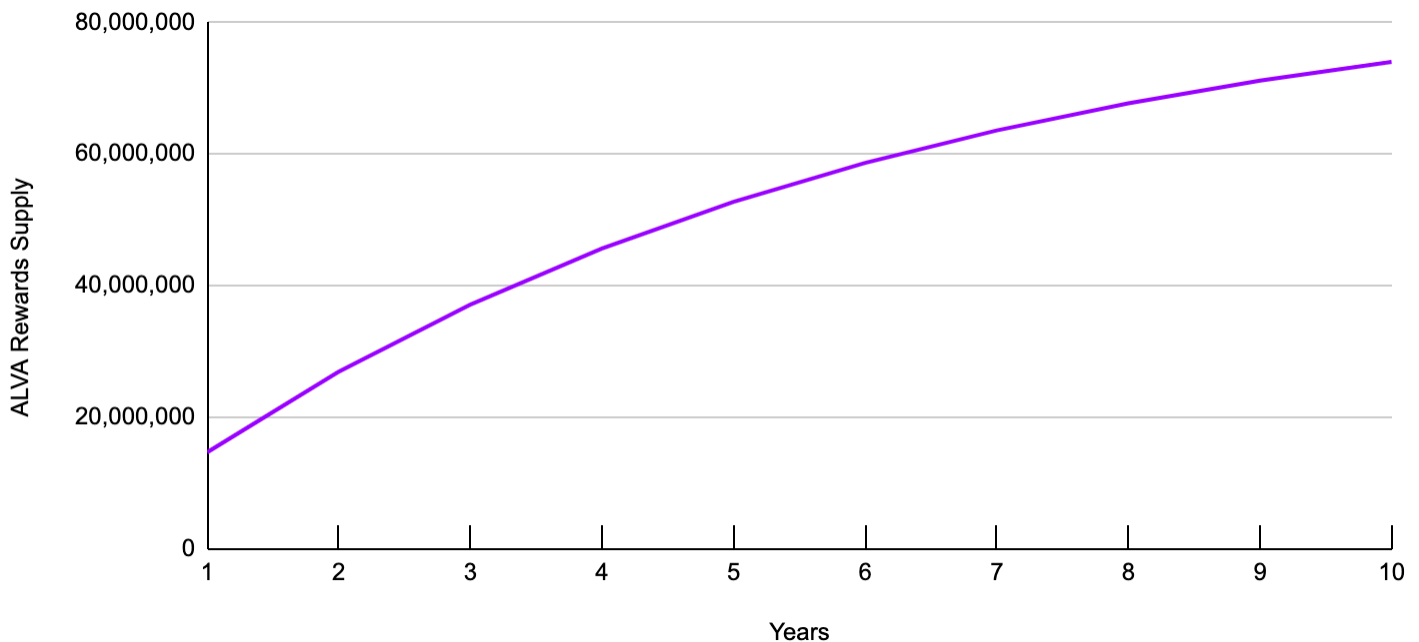
In year 1, a total of 40,163.17 ALVA will be distributed daily, split between the various pools according to the number of weekly votes given to each pool - this is known as 'The Dance' (see [section 10.1.2](#)).

Each year, on the anniversary of the first rewards distribution, the annual inflation rate will reduce by 16.6% of the previous year's total distribution. The reward supply will therefore be exhausted during the 31st year following platform launch, however according to the schedule over 50% will have vested by year 4, and over 80% by year 9. The distribution schedule is detailed in the table below:

Year	Daily Rewards (ALVA)	Yearly Rewards (ALVA)	Aggregate Rewards (ALVA)	Rewards (%)	Supply (%)
1	40,163.175906913	14,669,600.000000000	14,669,600.000000000	16.67%	7.33%
2	33,519.031232877	12,234,446.400000000	26,904,046.400000000	30.57%	13.45%
3	27,954.872048219	10,203,528.297600000	37,107,574.697600000	42.17%	18.55%
4	23,314.363288215	8,509,742.600198400	45,617,317.297798400	51.84%	22.81%
5	19,444.178982371	7,097,125.328565460	52,714,442.626363900	59.90%	26.36%
6	16,216.445271298	5,919,002.524023600	58,633,445.150387500	66.63%	29.32%
7	13,524.515356262	4,936,448.105035680	63,569,893.255423100	72.24%	31.78%

8	11,279.445807123	4,116,997.719599760	67,686,890.975022900	76.92%	33.84%
9	9,407.057803140	3,433,576.098146200	71,120,467.073169100	80.82%	35.56%
10	7,845.486207819	2,863,602.465853930	73,984,069.539023000	84.07%	36.99%
11	6,543.135497321	2,388,244.456522180	76,372,313.995545200	86.79%	38.19%
12	5,456.975004766	1,991,795.876739490	78,364,109.872284700	89.05%	39.18%
13	4,551.117153975	1,661,157.761200740	80,025,267.633485500	90.94%	40.01%
14	3,795.631706415	1,385,405.572841420	81,410,673.206326900	92.51%	40.71%
15	3,165.556843150	1,155,428.247749740	82,566,101.454076600	93.83%	41.28%
16	2,640.074407187	963,627.158623284	83,529,728.612699900	94.92%	41.76%
17	2,201.822055594	803,665.050291819	84,333,393.662991700	95.83%	42.17%
18	1,836.319594365	670,256.651943377	85,003,650.314935100	96.60%	42.50%
19	1,531.490541701	558,994.047720776	85,562,644.362655900	97.23%	42.78%
20	1,277.263111778	466,201.035799127	86,028,845.398455000	97.76%	43.01%
21	1,065.237435223	388,811.663856472	86,417,657.062311500	98.20%	43.21%
22	888.408020976	324,268.927656298	86,741,925.989967800	98.57%	43.37%
23	740.932289494	270,440.285665352	87,012,366.275633100	98.88%	43.51%
24	617.937529438	225,547.198244904	87,237,913.473878000	99.13%	43.62%
25	515.359899551	188,106.363336250	87,426,019.837214300	99.35%	43.71%
26	429.810156226	156,880.707022432	87,582,900.544236700	99.53%	43.79%
27	358.461670292	130,838.509656709	87,713,739.053893400	99.67%	43.86%
28	298.957033024	109,119.317053695	87,822,858.370947100	99.80%	43.91%
29	249.330165542	91,005.510422782	87,913,863.881369900	99.90%	43.96%
30	207.941358062	75,898.595692600	87,989,762.477062500	99.99%	43.99%
31	173.423092624	63,299.428807628	88,053,061.905870100	100.06%	44.03%

10 Year ALVA Rewards Inflation Chart:



This inflationary rewards model will distribute the ALVA token to the most active and involved members of the community. How the daily rewards sent to each ERC-BTS are used will be at the discretion of the fund manager or the ERC-BTS's DAO. Examples of how the rewards could be used include: distribution to the BTS LP token holders with a weighting based design; rewards added to the ERC-BTS's underlying assets, increasing the NAV of each BTS LP token; rewards sold to purchase other underlying assets; rewards staked to earn additional veALVA, in order to obtain more voting weight and in turn, receive more ALVA rewards at the next distribution; or, rewards sent to a burn address, to increase the value of the underlying ALVA and benefit the whole ecosystem. Other uses could also be considered by the fund manager and/or the DAOs in order to best put the ALVA rewards to use.

10.1.2 The Dance

All veALVA holders can allocate their veALVA to any BTS managed on the protocol every Wednesday from 00:00 GMT. Users have 24 hours to allocate their weight to the BTS pool. If they miss this period, they must wait until the following Wednesday before they can allocate their votes.

Users can allocate the weight of their full veALVA balance between as many pools as they choose.

Allocations are finalised at 23:59 GMT and the daily ALVA rewards will be distributed between the ERC-BTS funds each day from the Thursday following The Dance until the following Wednesday.

The user can still vote on proposals within the DAO whilst their veALVA is allocated to a BTS pool.

Why is it called “The Dance”?

In nature, bees communicate flower locations using special dances inside the hive. One bee dances, while the other bees watch to learn the directions to a specific flower patch. The dancing bee smells like the flower patch, and also gives the watching bees a taste of the nectar she gathered. Similarly, veALVA holders can communicate to others which BTS token gives the sweetest nectar!

10.2 Gamification

Alvara’s advanced leaderboard provides the platform with a native ranking system, allowing fund managers to compete against one another for top ranking positions.

10.2.1 Leaderboard

Alvara's leaderboard will rank all ERC-BTS tokens in existence, according to different metrics, allowing users to see every BTS fund on the blockchain and its fund manager's track record.

Each fund will provide the following data within the leaderboard: blockchain; underlying assets and their weightings; market cap; market price; share NAV; 24 hour volume; % change (1 hour, 24 hour, 7 days); cumulative return (1 month, 3 months, 6 months, YTD, Annualised); max drawdown (%).

11. Legal Disclaimer

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