2022

RESEARCH PAPER

Dexalot

By

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PRODUCT DIVE

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Decentralised Exchange (DEX)

A Decentralized Exchange (DEX) is a peer-to-peer (P2P) marketplace that connects supply and demand, cryptocurrency buyers and sellers. Smart contracts are utilized as a settlement layer, whereby a specific set of prerequisites are used to settle a contract. The self-executing nature of smart contracts allows an automatic settlement whenever the preconditions are met. Hence, the need for a trusted third party intermediary disappears (i.e. financial institution), which increases resource efficiency by decreasing overhead costs for users. The trustless nature of smart contracts allows for efficient and optimized trades, whereby only two parties are involved, a buyer and a seller. The transactions are recorded on the public blockchain, which acts as a data layer, allowing involved participants to verify their transactions (Zheng et al., 2020).

The current cryptocurrency landscape consists of Centralized Exchanges (CEXs) and DEXs. The user remains in control of their private keys while interacting with a DEX, meaning that DEXs are non-custodial. Thus, the user is the legitimate owner of their cryptocurrency holdings; therefore, only private-key holders can move funds from their wallets. In contrast, CEXs do hold the private keys of their consumers, transferring legitimate ownership from the consumer to the CEX. In the relatively occasional possibility that a CEX gets exploited, customers' funds in their hot wallets are at risk (Ebrahimi, et al., 2021). As an illustration, CEXs have lost over 2,66 billion USD of consumer funds to successful hacking attempts since 2012 (Groves, 2022). However, the vulnerability that involves losing your consumers' funds is not solely unique to CEXs.

Ecosystem Overview

General Overview

Project Name:	Dexalot
Ticker:	ALOT

Financial overview

IDO price:	0,6$
Initial Market capitalization:	$4,845,000
Circulating Supply:	8,075,000
Total supply:	100,000,000
Circulating/total ratio:	8,075%

Decentralized Finance protocols, an umbrella of financial instruments that do not depend on trusted third-party intermediaries, are exposed to operational risk. Smart contracts can be exploited by exploiting vulnerabilities with the underlying code. In 2021, over 4 billion USD worth of cryptocurrency was acquired by hackers through various smart contract exploits (Prathap, 2021). A DEX is a DeFi service, entirely reliant on smart contracts, and solves a few CEX issues but also has a few drawbacks.

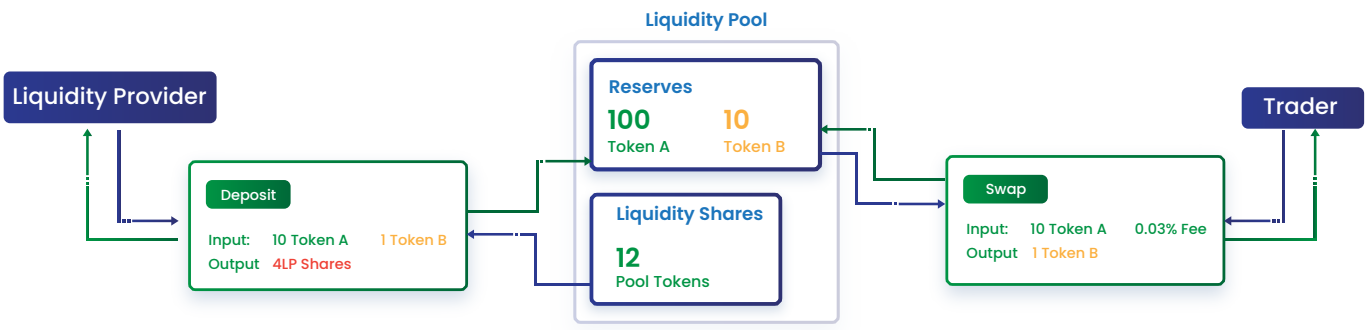
The main advantage of a DEX, in general, is the non-custodial design, decreasing the involved operational risk. Operational risk refers to the various risks involved with regular business activities (Smithson, 1998). Since the user owns their private keys, they are responsible for the security. A severe disadvantage of an inefficient DEX is the lack of liquidity for less-traded assets, creating a liquidity risk. Liquidity risk includes asset liquidity: the relative ease of assets being exchanged to cash, and operational funding liquidity risk: the required liquidity for the company to operate- in other words, the daily cash flow. (Smithson, 1998). The inefficiency of DEXs can be caused by a slow execution time, which depends on the underlying blockchain network, limited trading functionalities, and overall low liquidity due to opaqueness.

The following chapters will discuss different types of DEXs, their implications because of the fundamental differences in trading and user experience, and how Dexalot is taking preventive measures to ensure consumer funds safety, prevent liquidity risks, and to create an intuitive user experience.

Automated Market Maker (AMM) DEX

Most decentralized exchanges utilize a swap mechanism, whereby an Automated Market Maker (AMM) or Proactive Market Maker (PMM) optimizes the available liquidity and determines the price. An AMM is essentially an autonomous trading mechanism that utilizes smart contracts to define the cost of assets and provides liquidity. Therefore, users are not trading against counterparties but locked liquidity inside a smart contract. The price is based on a function on the available quantities of two or more assets; this is often referred to as liquidity. The underlying liquidity pool is used to allow users to swap their assets seamlessly (Figure 1). A couple of protocols utilize ring trades, which facilitates liquidity across borders. In general, this enhances the order time as liquidity is shared across asset pairs instead of a single pair.

Figure 1 Schematic process flow of AMMs



The Arrow-Debreu paradigm suggests that under certain economic assumptions (i.e. perfect demand, competition, independence), the market is efficient, and the liquidity is excellent (Arrow & Debreu, 1954). In practice, imperfections are present in all financial markets reducing the overall liquidity. Consequently, if the overall liquidity is insufficient, the probability of potential slippage increases. The involved traders have to settle on a different price than initially expected, resulting in either a better or worse rate than they originally intended. This phenomenon is called slippage. The order size affects the asset's value; therefore, slippage increases with large orders, making it costly to execute large orders when slippage is relatively high.

The cryptocurrency industry also has its imperfections and inefficiencies. Less-traded assets on AMM DEXs struggle to have sufficient liquidity, resulting in a high amount of slippage if a large order is executed. The other issue AMMs suffer from is that liquidity providers (LP) are generally uninformed market makers (Belyakov, 2021). A few AMMs do not utilize an oracle or any external feed for matching the price, the only variable that impacts the price is trades executed against it. Arbitrageurs will take advantage of this opportunity and therefore cause volatility.

Consequently, liquidity providers suffer losses (i.e. impermanent loss) when they withdraw their assets in unfavourable market circumstances (Topaze Blue, 2021). Several AMM designs have appeared to address this significant issue: Curve has enhanced the constant product function and primarily focuses on stable assets to restrict impermanent loss. The constant product function means that if a trade is executed, it must change the reserve in such a way that those reserves remain equal to the constant. A deeper understanding is needed to explain the different constant product function mechanisms.

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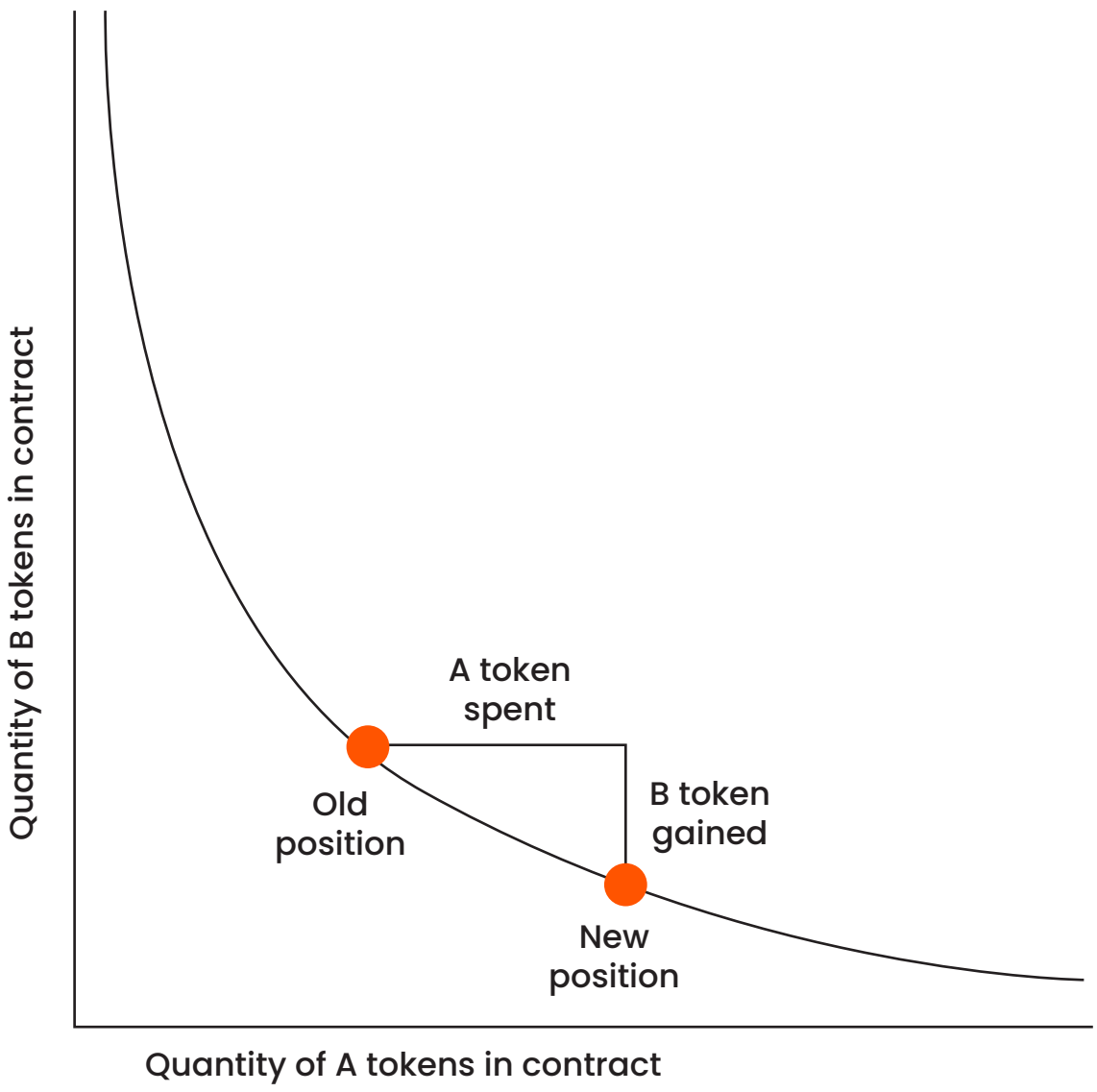
Constant Product Market Maker (CPMM)

The constant product market maker, first implemented by Uniswap, uses the following function (Angeris et al., 2020):

$$(R_a - \Delta_a)(R_b - \gamma\Delta_b) = K$$

Simplified notation (assuming no transaction fees): A*B=K

Figure 2 Constant Product Market Maker



R_α and R_b are the reserves of each individual asset, and γ is the transaction fee. K is a constant factor.

The reserves are pegged to each other; therefore, the reserve must change accordingly for K to remain constant (Figure 2).

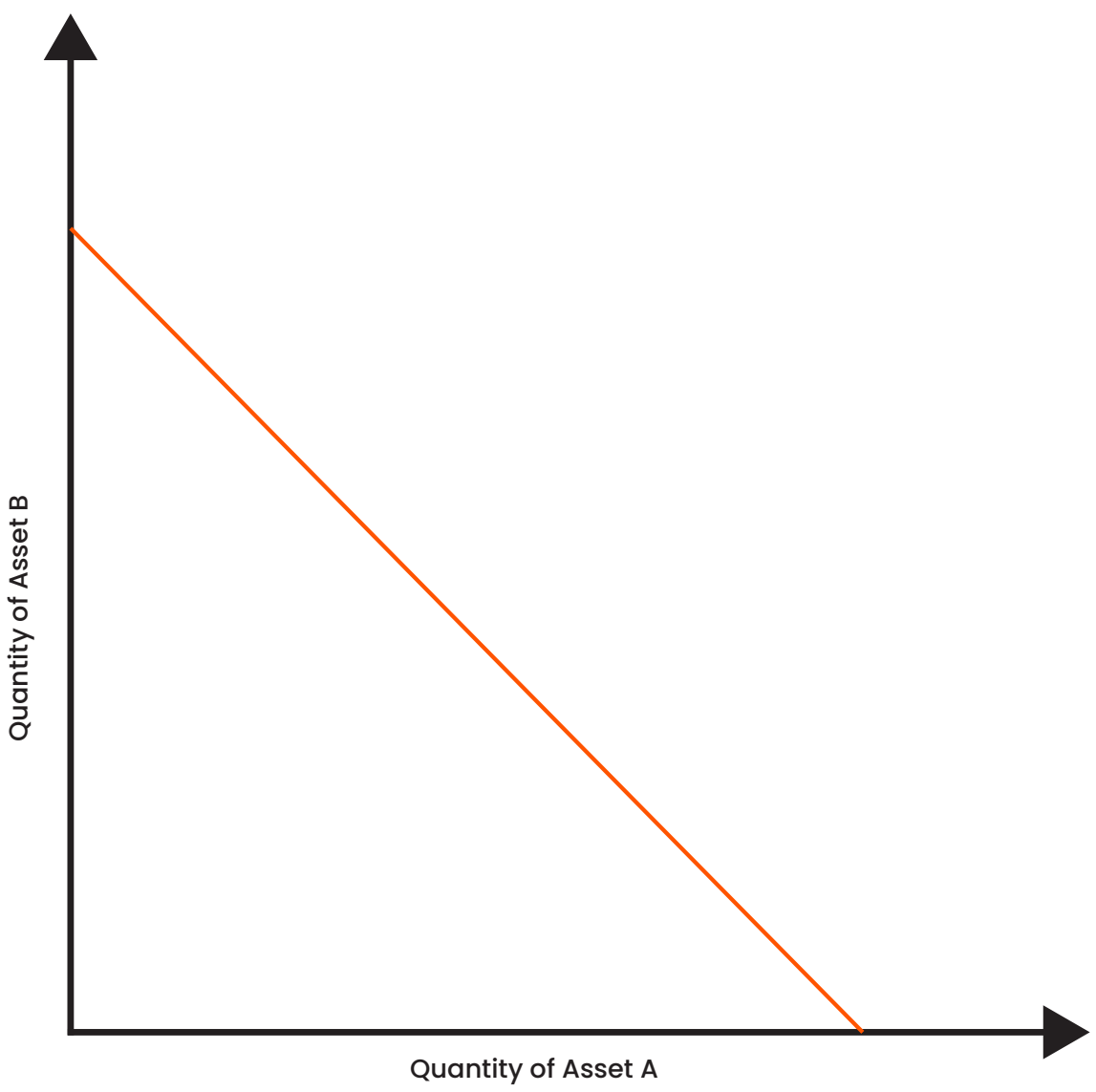
Constant Sum Market Makers (CSMM)

A CSMM is a function of the sum of the asset reserves of each token that equals to the constant (KPMG, 2021) (i.e. linear variant), satisfying the equation:

$$\sum_{i=1}^{n} R_i = K$$

Simplified notation: X+Y=K

Figure 3 Constant Sum Market Makers



R_i (i.e. X + Y) are the reserves of each asset, and K is a constant (Figure 3). The benefit of this function is the benefit of having zero slippage; however, this does not equal infinite liquidity. The main drawback is that arbitrageurs can drain the reserves of the liquidity pool if the reference price of the reserve tokens does not equal one (Berenzon, 2021). Therefore, the liquidity pool gets shattered, liquidity providers are forced to take their losses, and liquidity dries up. The CSSM model is not often used by DEXs, due to this significant drawback.

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Constant Mean Market Maker(CMMM)

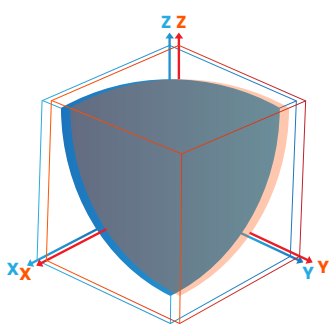
The Constant Mean Market is based on the CPMM model and supports multi-asset pools and therefore weighs outside the standard 50/50 distribution (Figure 4). Balancer first introduced the model to prevent impairment losses. The CMMM model satisfies the following equation:

$$\prod_{i=1}^{n} R_i^{w_i} = K$$

Simplified notation = $(X * Y * Z)^{(\frac{1}{3})} = K$

The R is the reserves of each asset, the W is the weight of an asset, and the K is a constant. Assuming zero trading fees, the CMMM model ensures that the weighted geometric mean remains constant. This allows for variable exposure to different pool assets and enables swaps between pool's assets (Angeris & Chitra, 2020).

Figure 4 Constant Mean Market Maker



Hybrid CFMMs

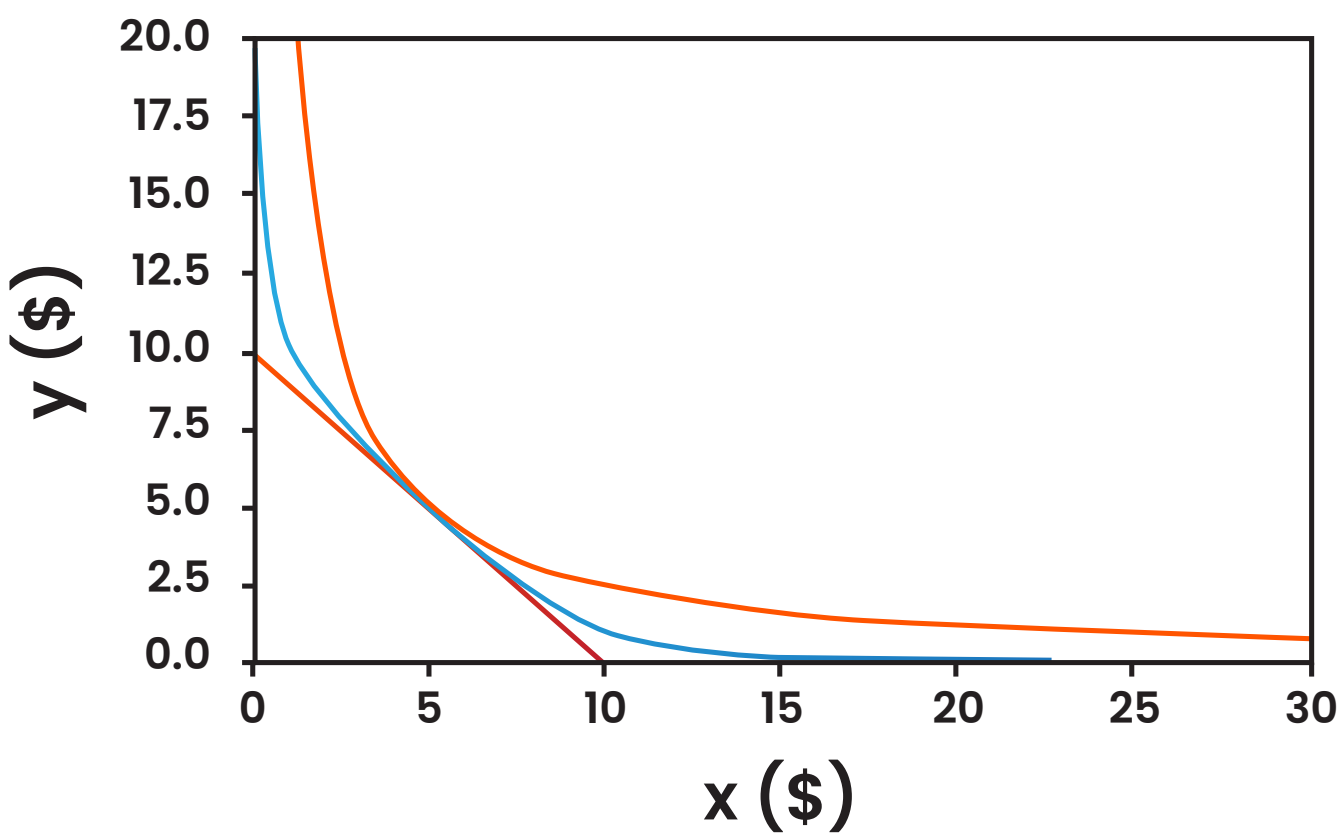
The last constant product function mechanism is a hybrid, which combines multiple functions and parameters to achieve particular behaviour (i.e. adjusted risk exposure for liquidity providers, reduced slippage for traders) (Figure 5). A typical example of a hybrid CFMM is the Curve AMMs model. Curve combines CPMM and CSMM and primarily focuses its activities on stable assets to restrict the probability of an impermanent loss. The Curve AMM model (i.e. Stableswap) satisfies the following equation (Curve, 2019):

$$An^n \sum x_i + D = ADn^n + \frac{D^{n+1}}{n^n \prod x_i}$$

x_i is the reserves of each asset; N is the total number of assets, and the D is a constant representing the value of the total amount of stablecoins assuming the price is the same. The A is an amplification coefficient, an adjustable constant that provides an effect comparable to leverage; it conditions the range of profitable asset prices for liquidity providers (i.e. the lower the asset volatility, the lower should be the value of A).

As highlighted earlier, the CSMM model is imperfect because the liquidity pool can be misused by arbitrageurs but has no slippage. The CPMM model is self-regulating, but bringing the liquidity pool out of balance is costly. Therefore, the StableSwap model capitalizes on the advantages of a CSMM model while reinforcing the vulnerabilities. The model's primary drawback is that the reserves of the assets can only change if the asset pools are sufficiently balanced and the price of the underlying assets is stable at 1 USD. If the asset pools are unbalanced, then the invariant (i.e. A) becomes a product invariant instead of a sum variant; subsequently, swapping becomes more expensive similar to a CPMM model exchange (e.g. Uniswap).

Figure 5 Hybrid CFMMs



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Uninformed Market Markers

Front running is a long-standing issue in the financial industry (Dell'Ariccia, 2001). The problem is asymmetric information within the pool of involved parties, meaning that parties do not have access to the same information flow (Akerlof 1970). A particular set of actors can leverage their position to capitalize and make risk-free profits at the expense of their counterparty. The liquidity providers that pool their assets in an AMM-based exchange are market makers. However, these market makers are uninformed because they are continually trading against the prices set by the AMMs pricing algorithm. Unlike a central limit order book where participants can adjust their orders, the market makers cannot immediately act upon information by changing outstanding orders.

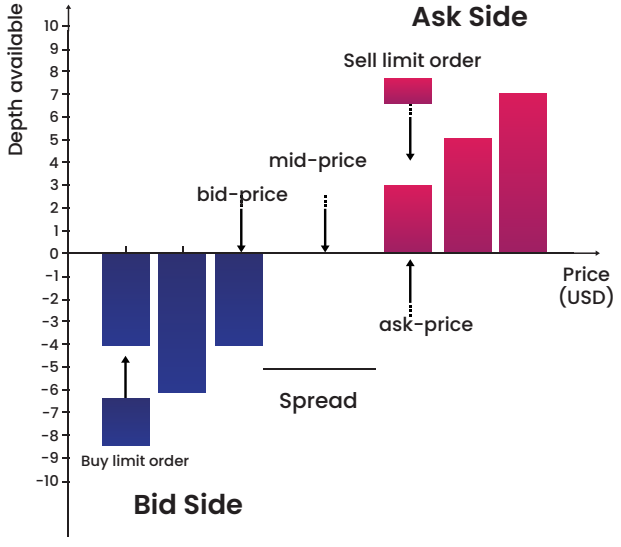
Furthermore, AMM exchanges will not change prices based on available public information. Fama's Efficient Market Hypothesis suggests asset prices reflect all the available information, assuming that the financial market is efficient (Fama, 1970). Subsequently, suppose the asset price does not reflect all the available information. In that case, arbitrageurs can capitalize on the opportunity and thereby move the price until the price reflects all the available information. Therefore, arbitrageurs can front-run the DEX and change the token allocation in liquidity pools to adjust the market price. The liquidity providers are indirectly paying the arbitrageurs and impermanent loss incurs in the process.

Central Limit Order book (CLOB) DEX

In contrast to the Swap mechanism, centralized cryptocurrency exchanges and traditional equity and derivative exchanges utilize a CLOB, whereby market participants set their limit orders. Therefore, a CLOB collects limit orders created by market participants (Figure 6). The participants determine the market price based on supply and demand. The practical advantage of CLOB dynamics includes market visibility (Harris and Hasbrouck 1996); optimal order execution strategies (Obizhaeva and Wang 2013); minimizing slippage (Eisler et al. 2012); designing sophisticated trading algorithms (Engle et al. 2006), and assessing market stability (Kirilenko et al. 2011).

A CLOB allows investors to gain information on the depth of the order book, potential slippage if a large order goes through, and additional visual mechanisms (e.g. advanced charting). The market visibility drastically increases for the user through a CLOB, allowing the user to make informed decisions based on the data. Additionally, the investor has a set of tools to manage their risk accordingly. A CLOB DEX allows for various orders, allowing investors to manage risk properly and increasing flexibility. A limit order will enable buyers and sellers to bid (buy) or ask (sell) an asset at a specified price. A stop-limit order is a conditional trade that combines the feature of a stop loss with a limit order to mitigate risk (e.g. front-running), enabling traders to have control over the order when it should be filled and to either sell or buy if the price surpasses a specified value.

Figure 6 Hypothetical visualization of a Limit Order Book



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Simplicity

Order books are being used in more than half of the world's financial markets (Rosu, 2010). Many stock exchanges (i.e. Hong Kong, Shenzhen, Tokyo, Euronext, Toronto) operate as pure CLOBs (Luckock 2001, Gu et al. 2008). The main challenges for cryptocurrency systems that prevent broad adoption are: user interfaces that suffer from complexity (Baur et al., 2015, Eskandari et al., 2015, Fröhlich et al., 2020), fundamental trust issues (Auinger and Riedl, 2018., Gaggioli et al., 2019) cryptocurrencies are perceived as complex to comprehend (Eskandari et al., 2015, Elsden et al., 2018) and have a high barrier for users with less technical knowledge (Glomann et al., 2020). According to a recent study by Froehlich, most complexity thresholds can be solved by making systems more transparent and less complex (Froehlich et al., 2021).

The widespread usage of CLOBs is a significant advantage for usability; additionally, CLOB DEXs are not exposed to complicated financial risks. Therefore, the probability of the user adapting to a CLOB, based on previous investing experiences, is reasonable. Additionally, a CLOB allows the user to gain accurate information about the potential fees, slippage and involved risk. The user will pay maker or taker fees, depending on the order. The user will pay taker fees if an order immediately gets filled before going on the order book. An example of such an order is a market order, considering market orders will never go on the order book. The user will pay maker fees if the order goes partially or fully in the order book, such as a limit order. Dexalot will have no fees at launch for maker or taker orders, neither for deposits, withdrawals, or cancelling orders; however, this might change in the future.

The significant drawback of an AMM DEX is the complexity that comes with slippages and providing liquidity, as highlighted in the previous chapter. The involved risk for providing liquidity is often not recognized by liquidity providers, therefore putting them at risk. Investors are, in general, not aware of the risk due to the complexity of quantifying that underlying risk. The amount of risk differs with each liquidity pool, and in most cases providing liquidity for non-stable coins is not as profitable as holding a mixed cryptocurrency portfolio (Heimbach et al., 2021). However, active liquidity providers perform different strategies across various pools to decrease the total perceived risk and remain profitable (e.g. providing liquidity in stablecoin pools).

Matching Algorithm

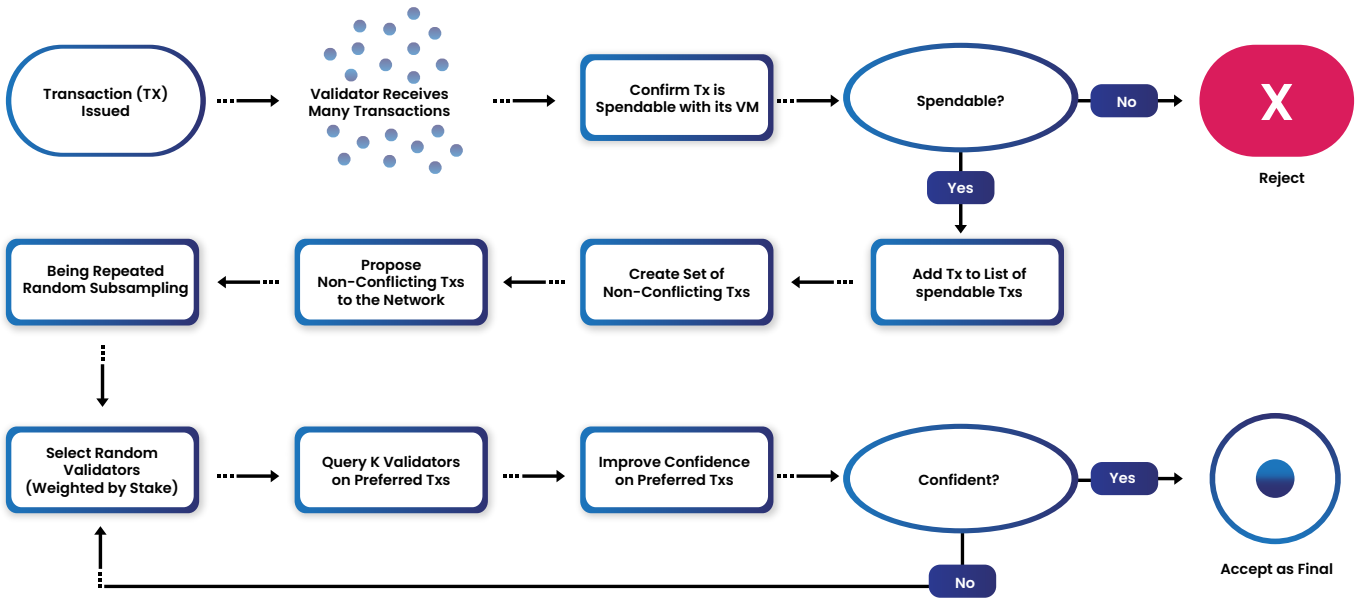
The matching algorithm is a transparent system that matches market participants (e.g. bids and asks) on a price-time priority basis. The orders are prioritized by price; orders with the same price are ranked by time. Dexalot allows users to make Limit and market orders; however, a few variables control the size of the order. A market order is meant to execute as quickly as possible at the current market price. In contrast, a limit order allows market participants to place an order at a maximum or minimum price depending on if they are selling or buying.

Firstly, sizable market orders that clear all orders on an order book, assuming that there is enough gas for transaction fees that remain partially filled, will be cancelled for the remaining unfilled quantity. Additionally, if the execution price of a market order does breach the allowed slippage of 20%, the market order will get cancelled. Therefore, Dexalot enables trading pairs with enough liquidity to have the market order capability. Furthermore, Dexalot will implement a stop-limit order allowing users to perform risk management against potential volatility. However, this function will become available when Dexalot launches its Subnet on Avalanche. This will be further in the upcoming chapter.

Avalanche

Dexalot is being launched on the Avalanche ecosystem. Avalanche is an open-source Dag-optimized high throughput smart contract protocol, capable of reaching 5000+ transactions per second (TPS) (Sekniqi et al., 2020). Furthermore, the finality of Avalanche is close to one second, allowing for near-instant transactions. The ecosystem is fully EVM compliant, allowing users to utilize ERC-20 based decentralized applications (dApps). The Avalanche ecosystem has over 1000 validators that are validating transactions on the ecosystem, enhancing the ecosystem's decentralization (Avalanche, n.d.). The ecosystem utilizes a unique consensus method, Snow. The idea is to have a robust, highly decentralized and scalable consensus method as Nakamoto consensus protocol (e.g. Bitcoin). Still, it remains lightweight, having low latency, high throughput and sustainable as a Classical consensus method (e.g. Practical Byzantine Fault Tolerance). The Snow consensus method utilizes a repeated random subsampling process to determine if a transaction is valid (Figure 7). Whenever a transaction is broadcast to the network, validators are independently surveying other validators to determine if that particular transaction is correct. The process is repeated until there is enough data to determine that the confidence of that particular transaction is sufficient (Sirer et al., 2020). Subsequently, the number of validators is significant for the health of the ecosystem. Due to that, if the number of validators is low, the risk of centralization and malicious intent increases.

Figure 7 Avalanche Consensus sequel



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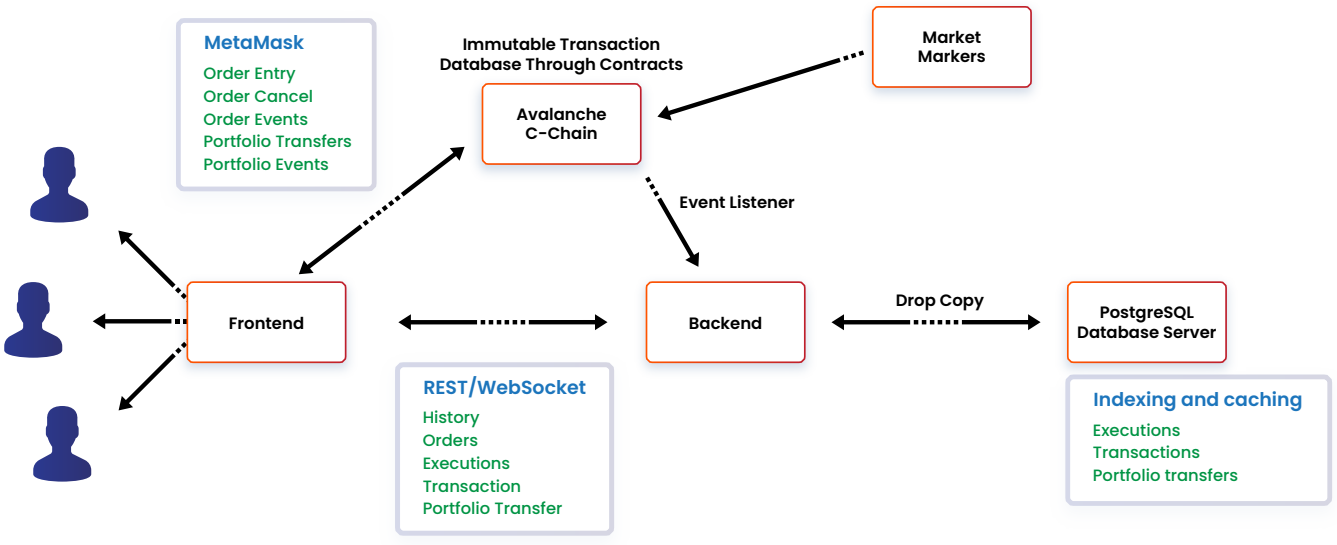
Dexalot

The Dexalot DEX is coded in solidity, the most used global smart contract programming language. It utilizes the OpenZeppelin framework, a leading organization providing secure smart contracts and audits for deploying and upgrading smart contracts. Dexalot is fully open-source on GitHub, gearing through the thriving Dexalot community to improve and support solutions. Dexalot is fully on-chain to ensure transparency and accountability.

The infrastructure of Dexalot is built on Amazon Web Services (AWS); however, in case AWS or the Dexalot applications fail, Dexalot can remain semi-operational because the front-end is directly interfacing with the Avalanche C-Chain (Figure 8). Users will still be able to send and cancel new orders, and orders can get filled; however, trading charts and books and order history will not be available. The Avalanche C-Chain is connected with the backend of Dexalot through Event Listeners. Essentially, event listeners are passive services waiting until an event happens to execute a particular task. An example would be a new order event picked up by the backend and inserted into the PostGresSQL database (i.e. Redis). In that case, a 'writer' will write it to the relational database. Therefore, the database can send specific utility data to the front-end; a typical example is order history or chart data. Subsequently, the data (e.g. order book) will be sent from the backend to the front-end by WebSocket, allowing users to engage with it. WebSockets are, in general, allowing for a higher amount of efficiency in compared with REST, due to that they do not require an HTTP request/response overhead message sent and received (Windows, 2016). Additionally, if a client wants ongoing updates about the state of the resource, but is unable to anticipate when these updates do occur, then WebSockets are considered as a good fit. In the case of Dexalot, trading books should get updated continuously to reflect the value of an asset; however, it is unclear when users do execute trades. Subsequently, Dexalot is utilizing WebSockets. Dexalot uses REST for several other functions due to a few favourable characteristics. The main benefit of utilizing a relational database is that it allows the user to get the utility data without querying the blockchain, preventing performance and bandwidth issues. Additionally, it strengthens the user experience; due to that, all data is passively given instead of having to query data themselves.

The Dexalot infrastructure is built for traders; hence, the ecosystem will allow traders to interact with smart contracts without interacting with the front-end. Therefore, traders can connect with smart contracts with a small code base and deploy trading algorithms. Thus, allowing professional traders to utilize a DEX without compromising on fundamental trading features. The smart contracts of Dexalot have been independently audited by two different entities: Ava Labs and Hacken OU. The Ava Labs audit has shown no significant issues identified in the smart contracts. Additionally, Hacken OU audited Dexalot three times and awarded Dexalot the highest security grade, "Well-Secured".

Figure 8 Dexalot Infrastructure visualization



Privacy

As online platforms increasingly collect substantial amounts of consumer data, the public's growing concern about privacy around data extracting, collecting, and sharing increases. Several controversies around unethical practices often highlight online platforms' negative attitudes towards privacy (Fiesler & Hallinan, 2018). Consumers have expressed their privacy concerns, particularly regarding monetization or data sharing with unknown third parties (Phelps et al., 2000; Graeff & Harmon., 2002).

The common public outrages about privacy violations are about sharing data to third parties without the consumer's consent or misuse and monetization of personal data (Fiesler & Hallinan, 2018). A typical example of consumer data misuse is the case of Cambridge Analytica in 2018, whereby identifiable personal data of 87 million unsuspecting Facebook users was used to influence voting behaviour in several elections (Isaak & Hanna., 2018). The digital landscape creates a complex interaction design problem, whereby consumers express their attitude towards privacy that is not reflected in their online behaviour (Acquisiti & Gross, 2006). The issue is that consumers are not exactly aware of the information they are sharing and are unaware of the consequences of the shared data; therefore, consumers cannot always make a well-informed decision (Acquisti et al., 2015). There are rare instances that consumers have full knowledge of the consequences of sharing data but are uncertain about their preferences, making them vulnerable to being influenced by external forces (Acquisti et al., 2015). A policy that protects users with minimal requirements and rational decision-making policies is required to protect consumers against themselves and data-hungry online platforms adequately.

recognizes these privacy issues and minimizes the extraction of consumer data. The ecosystem does not utilize cookies or any beacons to track its users. The extracted consumer data is anonymized, non-private data and will only be used for security audits and performance optimizations. The information is logged for 14 days and afterwards wiped from the server. Dexalot values the users' privacy and will not sell any data to third-party services.

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Security

The rise in interest by the public in the cryptocurrency industry has brought many new innovative and ambitious projects; however, it has also led to strengthening the financial incentives of malicious actors. According to Corbet et al. (2020), hackers utilize multiple exploits and phishing attacks to steal credentials, private keys or confidential corporate information to access cryptocurrency wallets. The impact of these hacks can expose the cryptocurrency market to extreme stress and reputational damage. In a recent turn of events, Wormhole, a token bridge between Ethereum and Solana, lost over 300 million in Ethereum through an exploit in the underlying smart contract (Newar, 2022). However, hackers are not only targeting DeFi products; Bitmart, a CEX, lost over 190 million in a recent hack (Sigalos, 2021). The hacker could access two hot wallets by obtaining the private key. A hot wallet is an internet connect wallet that allows cryptocurrency owners to access and trade their coins easily. The major drawback of a hot wallet is that everything related to the internet can be engaged with and exploited by malicious actors.

Dexalot has taken various precautionary measures to prevent exploits and potential hacks. Dexalot utilizes a multisig wallet to perform any maintenance task. The main advantage of a multisig wallet is that the signer needs multiple private keys to access the wallet. This drastically decreases the possibility of a hacker accessing a wallet by obtaining one private key, assuming that the signers are appropriately separating the private keys from each other. The private keys of the multisig are held by fundamental and trusted entities on the Avalanche ecosystem; one of the four keys is owned by the Dexalot team with a threshold of 3 private keys. As highlighted earlier in this research paper, the Dexalot ecosystem utilizes OpenZeppelin framework for smart contracts and upgrades. The OpenZeppelin smart contracts are extensively audited and tested, significantly decreasing the possibility of a smart contract exploit. Additionally, the Dexalot ecosystem got audited by two leading smart contract auditors, as highlighted in previous chapters.

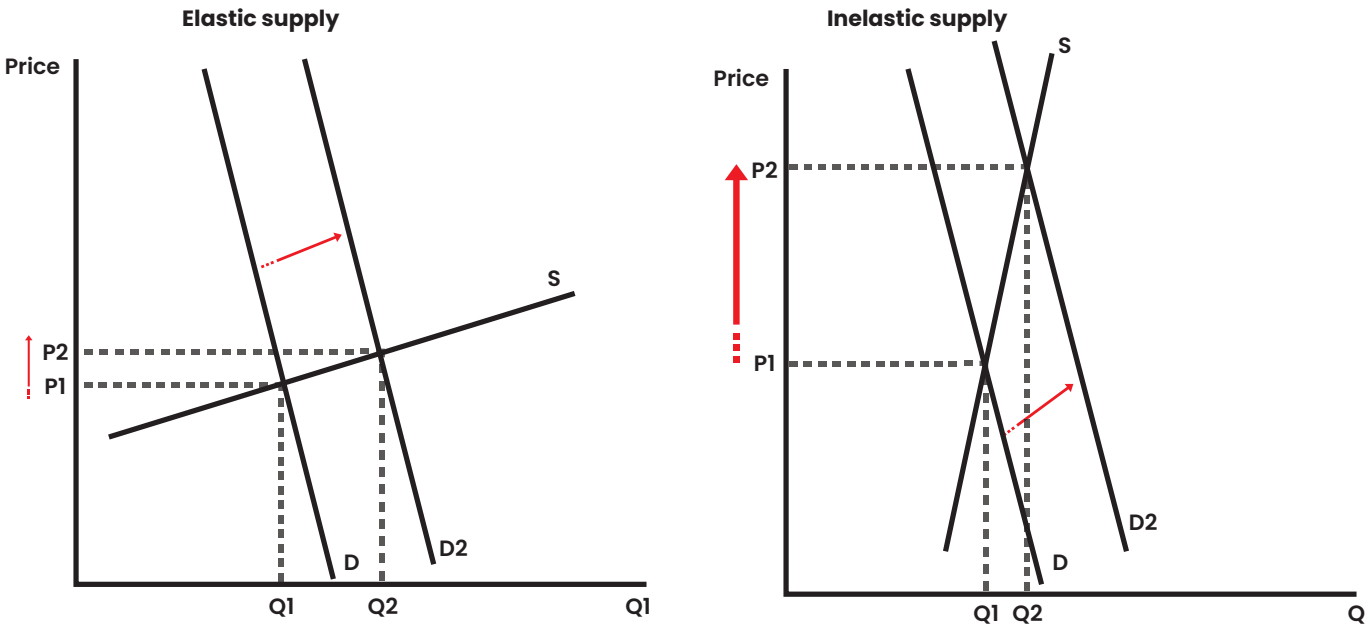
Subnet

A unique aspect of the Avalanche ecosystem is the ability to create subnets. A subnet is a dynamic set of validators that cooperate to achieve consensus on the state of a group of blockchains. The concept allows applications to create their Subnet, either public or permissioned. Essentially, a subnet is a layer 1 blockchain (i.e. DAG) within the Avalanche ecosystem. The default subnets are the Avalanche base layer, and these include the P-Chain, which manages subnetwork topology, the X-chain, which is the UTXO-exchange chain, and the C-Chain is the EVM-compliant smart contract chain (Avalanche, n.d.-b). The advantages of a subnet are that it allows for customizability, performance isolation, and compliance. A DEX might need different gas fee structures (i.e. gas limits, gas fees) as a GameFi or NFT project, or a financial institution would like to set participation requirements for validators or utilize a unique virtual machine- the customization possibilities for subnets are virtually endless.

The long-standing issue with the current state of the Ethereum network is congestion. The ecosystem utilizes a supply and demand mechanism to determine the gas price levels, whereby the demand side is elastic while the supply side is relatively inelastic. The issue that arises is that whenever the demand increases, the supply cannot scale as fast due to ecosystem constraints; therefore, the transaction gas fees increase accordingly (figure 9). The Avalanche ecosystem allows subnets to have their validators, thus isolating application performance. This will enable validators to pick the blockchains besides the Avalanche mainnet they want to support. Furthermore, allowing validators a choice creates a social contract between the validator and the project. The validators will support projects that align with their moral obligations, creating a solid bond between the project and the validator.

The Avalanche subnet architecture allows for a broad array of regulatory compliance integrations, therefore, allowing the project to set a particular set of rules for validators. A typical example would be that validators have to pass a KYC/AML test or restrict certain geographical areas. Consequently, an Avalanche subnet allows for permissioned blockchains, which are ideal for organizations that deem confidentiality of their information significant.

Figure 9 Visualization of (in)elastic supply



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Dexalot Subnet

Dexalot will have its Subnet in the near future; initially, the project will utilize the Avalanche C-Chain instead. The switch to a subnet has a couple of reasons: gas pricing, competitiveness, and compliance. The gas pricing is significant for Dexalot due to the competitiveness of the current DEX industry. The industry is relatively competitive and therefore, minimal edges can significantly influence user adoption. As highlighted earlier in this paper, liquidity is significant for DEXs and makes low-slippage trading possible; therefore, low transaction fees can substantially impact the amount of liquidity. The concept is that traders are efficient and are always looking for the most efficient trade (i.e. the perfect balance of involved costs and trading speed). Currently, it is estimated by Ava Labs that the speed and throughput can improve by tenfold in comparison with the C-Chain. The current C-Chain TPS is 4500, with a finality of approximately 1 second.

Consequently, if the transaction fee is negligible and the speed is high, it creates a financial incentive for a trader to utilize that particular platform. Therefore, increasing the liquidity, decreasing bid-ask spread and overall creating a network effect. The ecosystem will further enhance speed and gas costs by native precompiled functions. The additional reason to switch over to a subnet is customizable compliance. The global regulatory framework for cryptocurrencies is relatively thin. Most sovereign states do not have a legal framework regarding cryptocurrencies yet (Adrian et al., 2021). Consequently, due to the lack of a legal framework, DeFi projects, including Dexalot, are vigilant about the fAvalaunch

uture and take preventive measures to be able to adjust to a global regulatory framework and potential Financial Action Task Force guidelines (FATF) regarding AML/KYC and TF. The Dexalot ecosystem will create a financial incentive for C-chain validators to validate transactions on the Dexalot subnet; this will be further highlighted in the "Token Overview" chapter.

Dexalot Discovery

The cryptocurrency industry is constantly innovating with new ambitious projects, which require funding. The industry has gone through many funding phases; Initial Coin Offerings used to be very popular and raised over 70 billion USD from 2012 to 2016 (Adhami et al., 2018). The success rate on ICOs from 2014 to august 2017 was 81%, signalling a substantial interest in ICOs. The main issue with ICOs is that the investors were getting caught in many fraudulent projects that did not deliver on their promises. Therefore, according to Yahoo Finance and Decrypt (2018), SEC cracked down on hundreds of ICOS. Subsequently, the cryptocurrency fundraising industry evolved to Initial Exchange offerings (IEOs) and Initial decentralized offerings (IDOs). The main difference between ICOs and IDOs is the immediate liquidity and avoiding pre-mines. The current pre-market capital raise methods are relatively efficient; however, the issues arise when the project is listed on AMMs.

After an IDO, professional traders who utilize sophisticated trading bots can front-run AMM listings. The traders benefit from the design of a constant product function, whereby the price of a newly listed coin does depend on the underlying liquidity. Consequently, speed is an essential factor, considering if the frontrunner is the fastest, they will get the lowest possible public price. Furthermore, it creates a network effect, whereby professional traders try to be the fastest, significantly increasing the asset value. The retail investor who buys at a later stage is particularly exposed to risk and is generally used as exit liquidity for the frontrunners. Additionally, professional traders significantly increase the transaction costs by increasing transaction fees to ensure validators or miners prioritize their transactions. Moreover, the slippage of the AMM drastically increases because of the sudden influx of transactions, increasing the opaqueness for the retail investor. The second issue is the possibility of a Miner Extractable Value (MEV) attack, meaning that large nodes (e.g. validators) prioritize particular beneficial transactions. Avalanche utilizes a repeated random subsampling process; as highlighted earlier in this paper, more prominent nodes are more surveyed than smaller nodes to verify a particular transaction. Consequently, large nodes can prioritize certain transactions (i.e. own transactions) to benefit. The method is capital intensive, and however, if the reward exceeds the risk, malicious actors will misuse their nodes.

The Dexalot Discovery mechanism solves the issue of bots and large nodes front-running the market by eliminating speed benefits. The concept aims to create a fair process for all involved participants. The market can discover a reasonable price for an asset without a significant edge for a specific set of actors. Avalaunch, a prominent launchpad for new crypto startups on the Avalanche ecosystem, recently partnered with Dexalot and coordinates with Dexalot to integrate the Dexalot Discovery mechanism on listing partners. Initially, Dexalot allows Avalaunch users who purchased a project token through Avalaunch to deposit the listing partners' native token before they are claimable into Dexalot. Withdrawals will be disabled for the project token. The Dexalot Discovery order book starts in a "no-match" mode, whereby users who deposit a counter asset, like AVAX or USDT, can perform bid limit orders for the token and users who deposited the project token can place ask limit orders for a predefined period. Consequently, sellers can not spoof the order book by placing high bid limit orders to increase the value and vice versa. Users can cancel and replace orders throughout the predefined period; however, sellers and buyers must have enough liquidity to place their limited orders. During the predefined period, the free market will determine an opening price for the token. Dexalot Discoveryutilizes a randomized closing process, which starts after the predefined period, an unknown window whereby users can still place orders, but the predefined time is random. After the random closing process and the auction close, users cannot place new orders, and matched bid and ask limit orders are executed at the determined matched price. The randomized closing process defeats spoofing by sellers; due to that, they are unclear when the auction closes, significantly increasing the perceived risk.

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TOKEN OVERVIEW

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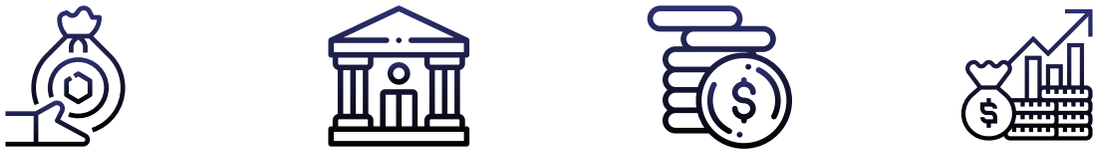
ALOT Token

The ALOT token is the native utility and governance token of the Dexalot ecosystem. The total supply of ALOT is 100,000,000 tokens, with an initial supply of 8,075,000 tokens (Figure 1 in the appendix). The initial market cap of the ALOT token is 4,845,000 USD. The token is funded through a private sale, the Avalanche Blizzard fund, and an IDO that will be offered by Avalaunch, a leading launchpad in the Avalanche eco system (Figure 2 in the appendix). The utility of the Dexalot is: Governance, Gas, Staking and marketing incentives (Figure 10).

Figure 10 ALOT Utility



Governance

The vision of the Dexalot governance system is to allow the community to participate and influence impactful integrations and events, to democratize the ecosystem. At the same time, participation is a fundamental goal for the project.

The ecosystem will utilize a conviction voting mechanism, which relies on signalling due to its continuous nature. Signalling is binary, considering whether you support or do not support a particular cause. Voters can change their vote anytime, but the longer they keep their preference, the stronger their conviction. Consequently, increasing the weight of the vote of long-standing community members with consistent choices. The ecosystem will utilize a voting quorum to prevent 'stealth' proposals from getting accepted; therefore, a minimum of 10% of the total circulating Dexalot token supply has to vote on a governance proposal. The voting period takes seven days.

The governance of Dexalot is relatively broad, allowing the token holders to propose new listings or a change in the operational parameters (i.e. min/max trade amounts, fee rates). If an operating parameter is changed through governance, there is a minimum of a two-day time lock delay on implementing the proposal. In the case of a new trade pair, this could go up to 30 days considering the necessary changes in the back- and front-end. As highlighted earlier, market orders are only available for trading pairs with sufficient liquidity, and the community can submit proposals to allow market orders on trading pairs.

Gas

The Dexalot token is planned to be the primary currency for gas payments when Dexalot moves to its Subnet. As highlighted earlier in this research paper, the Subnet will allow Dexalot various benefits and significantly enhance the Dexalot ecosystem's transaction fees. The interconnection between the product usage and the demand on the native token will allow for a positive correlation between these parameters. If the product usage increases, the demand for the native token rises linearly.

Staking

The Dexalot ecosystem plans to have a staking and delegating program, whereby validators and delegators can stake their tokens to secure the Subnet. The rewards will be paid from the Operational Rewards wallet, replenished through maker and taker fees on the Dexalot platform. The Operational Rewards Wallet can sustain a financial incentive for the validators and delegators for ten years, assuming that the reward emission rate is 100%.

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TEAM OVERVIEW

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Team Overview

The Dexalot team consists of veterans of the financial and chemical industry (Figure 11). The team has an impressive background with previous experiences at JPMorgan, Schlumberger, Citigroup, Bank of America, and Bluenet. The team has been highly influential in their fields of expertise, with significant roles within previous companies (e.g. CEO, COO). The team currently consists of approximately 15 people with over 80 years of combined experience in the financial industry.

Figure 11 Dexalot Team overview

Nihat Gurmen

Co founder & CEO

- Former Simulation Engineering Manager at Schlumberger
- 15+ years' experience in the chemical industry

Cengiz Dincoglu

Co founder & CTO

- Former quant at Morgan Stanley
- 20+ years' experience in electronic trading infrastructure

Tim Shan

COO

- Former COO of Montrock48 Capital and Aladdin Capital Management
- 20+ years' experience as COO

Jonathan Ackerman

CMO

- Former Senior Marketing Manager at Redbull
- 15+ years' experience in marketing

Kiran Valdamudi

Product support lead

- Former Vice President Global Application Support at TD securities
- 15+ years' experience in Product and Application support

Efe Buken

Advisor

- Currently senior partner at Muhabbit Capital
- 5+ years' experience as community and marketing lead

Firestorm

Advisor

- Former CEO of a digital asset execution firm
- 10+ years' of experience in electronic trading

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INDUSTRY ANALYSIS

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DeFi Industry

For centuries, financial institutions have been in the centre in mediating and structuring economic transactions that would be otherwise burdensome to execute because of transaction costs (Benston and Smith, 1976). Financial institutions reduce transaction costs by providing trust and connecting market participants to each other (Shiller, 2012). As the financial industry has moved into a digital sector through financial innovation, FinTech has become a significant financial force with sizable companies (e.g. PayPal). The FinTech industry has driven the financial industry to a new level, reducing transaction fees, peer-to-peer transactions, and expanded transaction scopes (Chen et al., 2019). Admittedly, FinTech decreased the number of intermediaries; however, decentralization was not perceived as a possibility. Blockchain technology is trustless because transactions are recorded on an immutable and verifiable blockchain – they have been validated through distributed consensus and are protected through advanced cryptography (Narayanan et al., 2016). Blockchain technology allows for true decentralization and cost-efficiency, creating a new paradigm; Decentralized Finance (DeFi).

DeFi is an emerging decentralized financial technology based on secure distributed ledgers. The decentralized nature of DeFi eliminates the need for intermediaries, reducing overhead and transaction costs. DeFi is still in the early stages of innovation; however, financial opportunities exist. The innovative nature of DeFi could lead to new financial products or the operational efficiency of existing financial products by leveraging DeFi. A typical example of financial innovation is the DEX.

The DEX is well explained in this research paper; however, the growth perspective of the industry is not highlighted yet. To measure the industry's growth, the paper utilizes the following DEXs: UniSwap, 1Inch, Sushi, Serum, Bancor, Curve, Balance, PancakeSwap, 0x Native, Trader Joe (Table 1). The DEXs have been selected based on available data and monthly volume. Every DEX needed to have sufficient data to be chosen; additionally, the average monthly volume exceeded 500 million USD in the last three months.

Table 1 DEX performance of last 5 months

Name	Uniswap V3	PancakeSwap	Sushi	TraderJoe	Curve	Ox native	Serum	Balancer	Bancor	1inch
Average volume (billions)	71,56	31,81	12,94	12,14	6,83	3,53	3,49	2,49	1,49	0,73
Average growth	9%	31%	-3%	55%	1%	-4%	34%	16%	-6%	11%
Blockchain network	ERC-20	BSC	ERC-20	AVAX	Multi	ERC-20	SOL	Multi	ERC-20	ERC-20

Source: Coingecko.com

The average growth in monthly volume is 14% which is quite considerable. The growth number is slightly inflated considering the abnormal growth of Trader Joe and PancakeSwap. However, there are no data issues in the dataset; therefore, the weight of Trader Joe or PancakeSwap is not adjusted. TraderJoe grew the quickest with over 50% Month-over-Month (MoM) growth, signalling the overall interest of the cryptocurrency community in the Avalanche ecosystem. UniSwap is processing about 75% of the overall DEX volume, significantly impacting the DEX industry. The CEX industry is being utilized as a benchmark (Table 2).

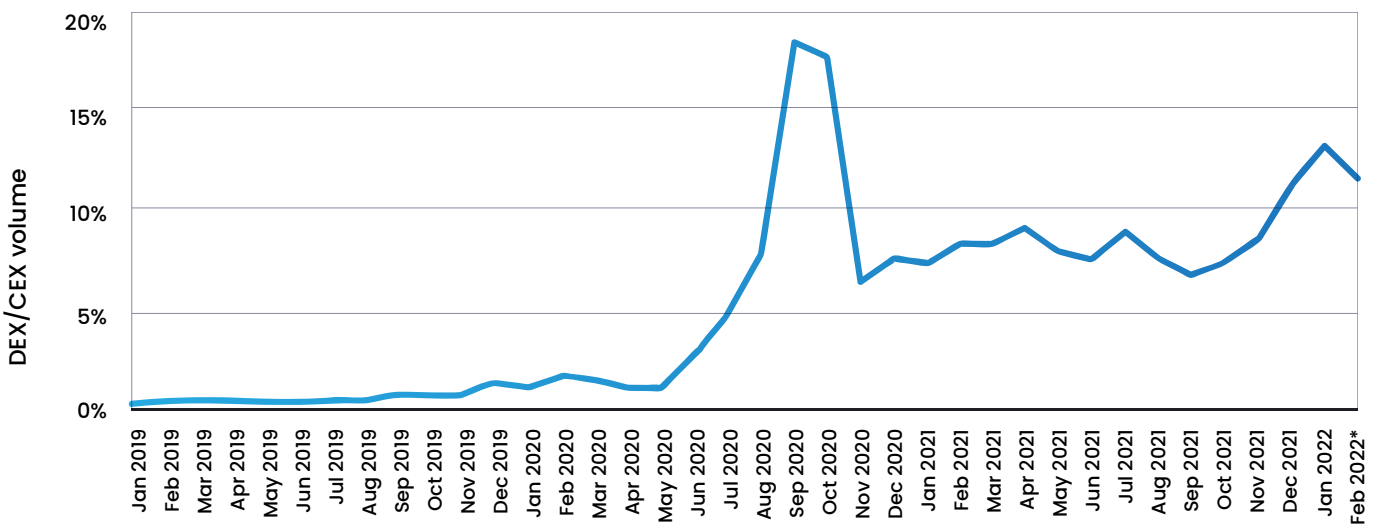
Table 2 CEX performance of last 5 months

Name	Binance	Coinbase	Huobi	Okcoin	Crypto.com	FTX	Kucoin	Gate.io	Kraken	Bitfinex
Average volume (billions)	785,27	163,85	141,01	124,1	108,79	84,72	84,48	50,99	40,40	34,17
Average growth	-10%	-3%	-23%	-1%	-1%	-6%	12%	20%	-5%	-2%

Source: Coingecko.com

The main difference between CEX and DEX is the amount of volume; Binance alone is processing more than five times the volume of all the highlighted DEXs in the Table 1. The average growth of CEXs is significantly lower in comparison with DEXs. The marginal effect of every volume point is lower because the total volume is considerably higher. The processed volume of DEXs is outgrowing the CEXs by over twelve percent, signalling that traders are embracing DEXs to execute trading strategies. Therefore, the assumption can be made that traders are not discouraged by the complexity of DEXs. This conclusion is further strengthened with significant growth in DEX to CEX Spot trade volume ratio going up from 0.0815 in November to over 0.167 in January (Figure 12)

Figure 12 CEX to DEX Spot Volume



Source: Coingecko

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DeFi Industry Forecast

The global financial and monetary system is complex and has many involved participants with different interests and levels of prosperity. However, the current global financial system inherently works better for advanced economies due to a more stable and favourable investment, political and currency climate (Prasad, 2020). Consequently, emerging countries cannot fulfil the number of private investments at a pace consistent with the transformational change (Hub, 2020). Micro-scale globalization is generating financial inclusion for the privileged at the cost of the poor, reducing the efficiency of financial institutions (Koku, 2015). Additionally, the wealth and opportunity gap between the elite and the poor significantly increases. As financial institutions focus on attracting desirable revenue-generating customers by offering them low or zero fees for financial services, the poor customers are left with costly and minimal services. Financial institutions compete globally for the privileged and are not as interested in other customers. For instance, eliminating cross-subsidies between elite and other customers, removing the subsidies to lower-balance or riskier clientele. Consequently, pushing non-privileged customers out of the financial system results in financial exclusion.

The world bank considers financial inclusion a key enabler to reduce extreme poverty and increase overall prosperity. However, close to one-third of adults (i.e. 1.7 billion) suffer from financial exclusion. There have been various global campaigns (e.g. World Bank Group's Universal Financial 2020 initiative) to increase financial inclusion, with varying levels of success (Worldbank, 2021). The rapidly rising global population is an imminent problem for generations to come (Roser, 2013).

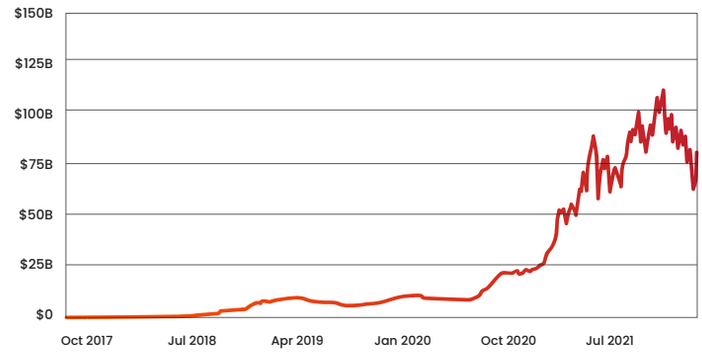
The innovative nature of the DeFi industry could increase financial inclusion due to relatively low compliance thresholds and a lack of intermediaries. The lack of required economic infrastructure (i.e. bank branches) combined with the cost of financial services increases the number of financially excluded citizens in emerging countries (Osei-Abbisey., 2009; Pal and Pal., 2012; Amaeshi., 2006). DeFi products do not rely on a brick-and-mortar presence or a central authority; therefore, prioritizing privileged clients above poor clients is impossible. Additionally, by removing intermediaries, DeFi could lower the costs of financial inclusion. Consequently, it is more probable that citizens of emerging countries can afford and access primary financial products through DeFi products (e.g. bank account, credit card).

Value Drivers

The DeFi industry is a new industry with approximately four years of existence (Figure 13). Therefore, the historical growth rates of the DeFi industry are incredibly high, as highlighted in the previous paragraph. The current industry is still tiny and does not even account for 1% of the global financial services industry. Due to the social impact of DeFi on increasing financial inclusion in combination with the financial innovation of DeFi, the assumption can be made that there is a sufficient allowance for growth. Cryptocurrency enthusiasts and speculators mainly drove the main driver for the past development. For various reasons, the expected driver for the next growth phase is non-crypto currency enthusiasts (e.g. financial inclusion).

DeFi products are significantly cheaper than traditional financial services due to the removal of intermediaries. Secondly, in the last six months, there has been a crucial effort of the DeFi industry to simplify the user experience by intuitive user interfaces and overall removing unnecessary complexity thresholds. Lastly, DeFi products are far from perfect and are especially vulnerable to security risks. However, the industry is growing in user base and therefore, products are getting more robust. The assumption can be made that the increase of user base is positively correlated with the long-term security developments regarding DeFi products and protocols.

Figure 13 **DeFi industry Total Valued Locked**



Source: Defipulse.com

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COMPETITION ANALYSIS

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Threat For New Entrants

The DeFi industry is, as highlighted earlier, one of the most promising cryptocurrency industries. Consequently, the industry has grown impressively over the last few months. The overall user base has experienced a similar trend (Bourgi, 2021); it is expected that the growth will only increase over time. Due to the increasing user base, products and DEXs will grow linearly to meet that new demand.

The industry provides a wide array of financial products available to anyone, enhancing the probability of financial inclusion. Dexalot is active within the DeFi industry, while their main competitors are DEXs and CEXs due to the ecosystem design of Dexalot. DEXs and CEXs are different in ecosystem design and therefore differ in characteristics. It is relatively complex for DEXs to lock users in their ecosystem due to the decentralized nature; therefore, the switching costs for consumers and overall brand loyalty are low. While for a CEX, it is more accessible to lock-in users by effort. The KYC/AML procedures that new users have to provide are relatively burdensome and time-consuming, preventing users from switching platforms. CEXs have a loyalty system that decreases maker and taker fees and lock-in users through a fee decrease or exemption mechanism.

The profitability of DEXs and CEXs is significant; Binance generated over 20$ billion in 2021 (BusinessofApps, 2022). The revenue models of DEXs and CEXs rely on volume, considering a trading fee is charged on every transaction. The volume of the cryptocurrency industry has significantly increased in the last two years, increasing the overall profitability (Coinmarketcap.com, n.d.). Therefore, more entrants are entering the market that will eventually saturate the market if the supply becomes more significant than the demand.

Rivalry Among Existing Competitors

The current DEX landscape is relatively inefficient, due to that, DEXs are generally not interoperable and are operational on capital intensive blockchains (i.e. Ethereum). Therefore, the intensity of the competition is different for every blockchain. The biggest competitor of Dexalot is arguably Uniswap which processes 74,5% of total DEX volume; however, Uniswap is only available on the ERC-20 ecosystem. Dexalot is active on the Avalanche ecosystem, interoperable with the Ethereum ecosystem. However, due to the high costs of Ethereum, investors are looking for more cost-efficient alternatives. The intensity of the competition on the Avalanche ecosystem is high, with over 25 DEXs (Avax-projects, n.d.). Many of these competitors are similar in size, leading to a low degree of concentration within the industry and prolonged competition, with innovation as a unique selling point. Therefore, rivalry among competitors rises, leading to lower prices and better products. To further strengthen the high rivalry conclusion, DEXs do not have high-exit barriers; there are barely locked-in costs preventing competitors from switching industries. In theory, a DEX could change its operations to be similar to a CEX with relative ease.

Bargaining Power of Suppliers

The decentralized nature of the DeFi industry has a few unique characteristics. One of these is that DEXs are not as reliant on suppliers due to their decentralized nature. The few suppliers that DEXs rely on are mostly infrastructure suppliers (i.e. AWS) for the front-end of their products. Lastly, the primary supplier is the blockchain consensus contributors (i.e. miners, validators, delegators). However, the overall probability of a blockchain not being able to process transactions due to a lack of contributors is negligible in the case of Dexalot. Therefore, the bargaining power of suppliers is low.

Bargaining Power of Buyers

The consumer has a wide array of DEX choices, assuming that the consumer is interested in a popular smart contract platform. The overall switching costs of the consumer are low due to the lack of lock-in costs. Additionally, if users are willing to move from a capital-intensive smart contract layer to a high-output smart contract layer, there are many blockchain bridges and layer-2 possibilities. The differentiation of products is relatively low. The infrastructure of products might be different, and most products have a similar value proposition by not taking transaction fees into account.

The availability of information is relatively complex because every blockchain has its own set of unique characteristics (i.e. scalability, security, decentralization), leading to different transaction costs. However, a well-informed buyer should make a good cost-benefit trade-off considering the available information. Therefore, the conclusion can be made that the bargaining power of buyers is high.

Threat of Substitute Products

The demand on DEXs is relatively elastic, which means that if the price changes, the demand changes linearly with it. Due to that, if the transaction costs of the underlying blockchain ecosystems increase, consumers tend to switch over to CEXs or other DEXs on more scalable smart contract platforms. Therefore, the price-performance for the consumer changes based on the involved costs. However, the overall user base of DEXs is increasing, as highlighted earlier, exponentially increasing the transaction costs. Therefore, consumers could switch over to CEXs if the value proposition of DEXs decreases because of rising costs.

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GO-TO-MARKET STRATEGY

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Marketing strategy

The Dexalot marketing strategy is community-focused, whereby the community consists of two major groups: Avalanche enthusiasts and traders. The Dexalot marketing approach is be the most cost-efficient DEX for traders on Avalanche ecosystem by utilizing the subnet technology. The goal is to increase transaction speed at least tenfold, decrease transaction costs to a negligible level, and provide an intuitive user experience (UX). The ecosystem adds gamification elements to their product to increase the UX. By significantly decreasing transaction costs while increasing transaction speeds, traders will be attracted to the platform. Dexalot targets the Avalanche enthusiasts by adding gamification elements and providing an intuitive UI and UX.

The Dexalot Discovery concept aims to innovate the listing process for projects on AMMs, seeking to leverage the Avalaunch partnership to be the white-glove service regarding listing for Avalaunch projects. The ecosystem aims to keep its listing process relatively unique by initially allowing a select number of trading pairs and gradually increasing these over time. The concept to remain exclusive adds to the value proposition and ensures sufficient liquidity for the available trading pairs.

The last pillar of the Dexalot marketing strategy is brand awareness. The brand is one of the most valuable assets for any company and has widely been recognized as significantly influencing consumer purchasing behaviour (Sasmita et al., 2015). Brand equity is related to the consumers' trust perception of particular brands, affecting consumers' loyalty (Lassar et al., 1995). Companies with a high brand equity gain more competitive advantages and opportunities for successful extensions, increase elasticity against competitors and create competitive entry barriers (Ling, 2013).

Strategic Partners

The significance of strategic partners in a fast-shifting and volatile industry is crucial for creating network effects and long-term value. The Dexalot ecosystem has multiple influential partners, which will create long-term value by increasing the number of worthwhile funding and partnership opportunities through their networks and by adding their expertise to enhance the product of Dexalot (Figure 3 in the appendix). The project is currently being backed by prominent incubators and venture capitals such as: Avalanche Blizzard Fund, Republic Capital, Woodstock Fund, and Muhabbit Capital.

The Avalanche Blizzard Fund is a 200 million fund dedicated to accelerating development, growth and innovation across the Avalanche ecosystem (Avalanche, 2022-c). The fund comprises contributions from a few of the most influential venture capitals and private equity firms in the cryptocurrency industry (e.g. Three Arrows Capital, CMS Holdings, Polychain capital).

The Dexalot ecosystem also has multiple ecosystem partners that create value through their products, network, and digital presence. The project currently has ecosystem partnerships with Benqi, Colony, and Avascan. Benqi is an Algorithmic Liquidity Market Protocol (ALMP) allowing users to effortlessly lend, borrow, and earn interest with their cryptocurrency assets. Colony is a community-driven avalanche ecosystem accelerator, allowing users to invest in Avalanche ecosystem projects

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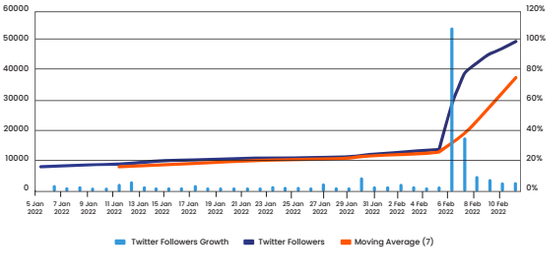
Digital Presence

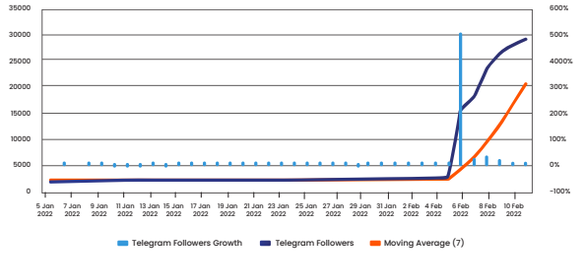
The digital presence of Dexalot has significantly increased in the second week of February. The Twitter digital presence increased by over 100% (Figure 14), while Telegram increased by over 500% (Figure 15). The current uptick in the growth of the digital presence is significant and is caused by the Dexalot Discovery Testnet Battle combined with the announcement of a Dexalot community event. The community event allows users to win ALOT tokens if they perform a particular set of social media steps (e.g., following Twitter and Telegram). Thus, the digital presence of Dexalot has drastically increased on both platforms. However, in general, the gained followers by giveaways and similar community events are considered 'low quality', meaning that they most likely will be temporarily active contributors to the ecosystem aiming to exploit a financial incentive. Thus, if the temporary incentive is dismissed, the overall social contribution of this particular group falls as well. However, it is expected that the Dexalot Discovery mechanism will create a social and financial incentive to attract new ecosystem contributors.

Figure 14 Digital Presence: Twitter



The Dexalot Discovery will allow Dexalot to partner with various listing partner communities while creating value by establishing a fair market price for the cryptocurrency asset. Therefore, communities will be introduced to the Dexalot ecosystem and its favourable characteristics. The Dexalot Subnet will create sustainable competitive advantages. Assuming that traders are resource-efficient, it is expected that they will utilize Dexalot to benefit from high transaction speeds while having negligible transaction costs. Thus, the assumption can be made that the Dexalot Discovery mechanism will create a sustainable growth incentive for the digital presence of Dexalot.

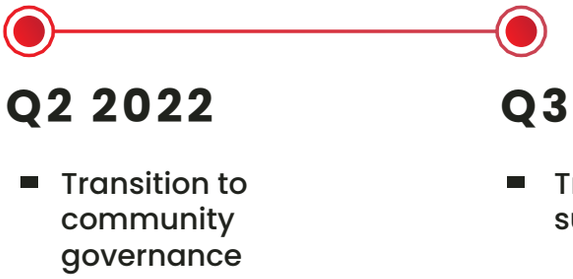
Figure 15 Digital Presence: Telegram



Roadmap Analysis

The roadmap of Dexalot is relatively small and provides milestones for the first half-year of 2022 (Figure 16). However, a few ongoing tasks are not being listed on the roadmap. The first milestone for Q1 2022 is the transition to community governance, allowing the community to have a voice within the ecosystem. As highlighted in the research paper, the governance system of Dexalot is relatively broad, whereby the community has a significant influence on the Dexalot ecosystem. The second milestone for the first half-year of 2022 is the transition to the Subnet. This milestone will be crucial for the ecosystem's transaction speeds and costs. As highlighted earlier in this paper, the goal is to increase the transaction speed tenfold while decreasing the transaction costs to a negligible level. Therefore, significantly expanding the resource-efficiency of the Dexalot ecosystem and creating a unique selling point to attract traders and Avalanche enthusiasts. Besides the listed milestones, there are ongoing optimization processes to enhance the operational activities of Dexalot. One of these is to make the underlying code of the DEX as modular as possible, therefore making debugging and adding new features more accessible.

Figure 16 Roadmap Dexalot



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MARKET OPPORTUNITY

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Not your keys, not your coins

CEX hacks and shutdowns plague the cryptocurrency from time to time. The most significant hack of a CEX was in 2014, when Mt. Gox declared bankruptcy after stating that 850,000 bitcoins were stolen, worth 34 billion USD today (McLannahan, 2014). Mt.Gox was handling over 70% of all global bitcoin traffic. WizSec, a Japanese security company, reported that most of the stolen Bitcoins were stolen out of the hot wallet (Nilsson, 2015). The argument can be made that Mt. Gox was hacked because of mismanagement, which is partially true; however, CEX hacks remain to occur. Binance was hacked of 7,000 bitcoin in 2019, about 2% of their total BTC holdings at the time (Binance, 2019) and recently, Crypto.com lost over 30 million USD through a security breach (Wong, 2022). The main issue is that CEXs have to utilize hot wallets to ensure a smooth exchange of consumer assets and trading; however, as highlighted earlier, the consumer assets are exposed to a significant operational risk. Hot wallets are connected to the internet and therefore vulnerable to hackers and technical susceptibilities.

The DeFi industry has its fair share of exploited smart contracts, which resulted in consumers losing significant capital. The biggest DeFi exploit was the PolyNetwork incident, whereby over 600 million USD was initially lost (Lucas, 2021). The non-custodial character of DeFi products exchanges the hot wallet operational risk to a smart contract operational risk. Therefore, the argument can be made that there is no significant difference in the perceived consumer risk down the line. However, it is expected that smart contract technology will mature over time. Subsequently, decreasing the amount and the impact of smart contract exploits, and therefore reducing the involved operational risk.

Resource-Efficient

A Distributed Digital Asset-Trading Exchange (DDAE) (i.e. DEX) provides four core functionalities: Asset custody, transaction interaction, transaction settlement, and capital withdrawal (Wang et al., 2018). A DEX is perceived as resource-efficient as the following features are sufficient: Security, Privacy and Supervision, Low cost, Delay and Throughput, and Scalability. The resource-efficiency of a DEX is crucial to provide a pleasant user experience, whereby users can benefit from low costs and low transaction times while being relatively secure.

The Dexalot DEX can be perceived as resource-efficient, considering the future implementation of the subnet and ecosystem design. The Subnet will drastically impact the transaction fee, time to finality, and speed. Users execute a transaction in seconds, with finality of below 1 second, while having nominal transaction fees. The preventive security measures of Dexalot are sufficient to ensure users' security; however, this is a continuous process. The ecosystem does not collect private personal data and solely utilizes the public data (i.e. on-chain data) for security and maintenance tasks; the data gets deleted after 14 days.

The governance portal will be launched in the second or third quarter of 2022. The low costs can attract users to join the platform, increase trading volume, and increase the liquidity of digital assets (Wang et al., 2018). Consequently, decreasing the possible bid-ask spread, reducing trading costs and increasing trading efficiency.

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RISKS

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Exclusivity

As highlighted earlier in this research paper, the importance of liquidity for asset-trading platforms is crucial for maintaining a tight bid-ask spread. The bid-ask spread is the de facto measure of asset market liquidity. Price takers demand liquidity, while market makers supply liquidity. Therefore, if the bid-ask spread widens, the perceived risk of offering a trade for a market maker increases. Hence, Dexalot needs to keep its trading pairs' liquidity high. Dexalot is currently only supporting a few trading pairs and will be relatively cautious about increasing this amount. Consequently, it might be easier to offer higher liquidity by only listing an exclusive number of pairs. However, it might limit the growth of the ecosystem.

The Dexalot revenue model correlates with product usage, meaning that the increase of revenue is highly correlated with number of transactions. Therefore, attracting new users is significant for the stability and growth of the ecosystem. The current maker and taker fees are zero; thus, these will not replenish the operational wallet. However, it is expected that this will change in the future, through a governance proposal, due to that, the operational wallet has a finite number of tokens. The current narrative of Dexalot is that allowing an exclusive number of tokens increases their value proposition, which is valid. However, by limiting the number of trading pairs, Dexalot cannot serve all consumers due to that, there is a realistic probability that their favourite cryptocurrency assets are not available. Therefore, these consumers will utilize competitors instead, leading to revenue loss.

Lack of Derivatives

A derivative is a financial instrument whose payoffs depend on the underlying asset. The use of derivative instruments in risk management has been a standard procedure in traditional finance, allowing professional traders to separate, value, and transfer market risks (Fender, 2000). According to a study by Fok, Carrol and Chiou (1997), hedging reduces the probability of distress, reduces the agency costs of debt and reduces some agency costs of equity.

In the current cryptocurrency industry, the number of complex hedging products is relatively limited compared to the traditional world. Despite the restricted number of products, a few hedging strategies can reduce the perceived risk (e.g. short selling, futures, perpetual swaps, options). However, derivatives are not supported yet on Dexalot, thus hedging strategies that involve derivatives are not possible. Considering that professional traders require certain derivatives in sophisticated trading strategies, this could lead to the disinterest of this particular group.

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Appendix

Figure 1 ALOT Tokenomics

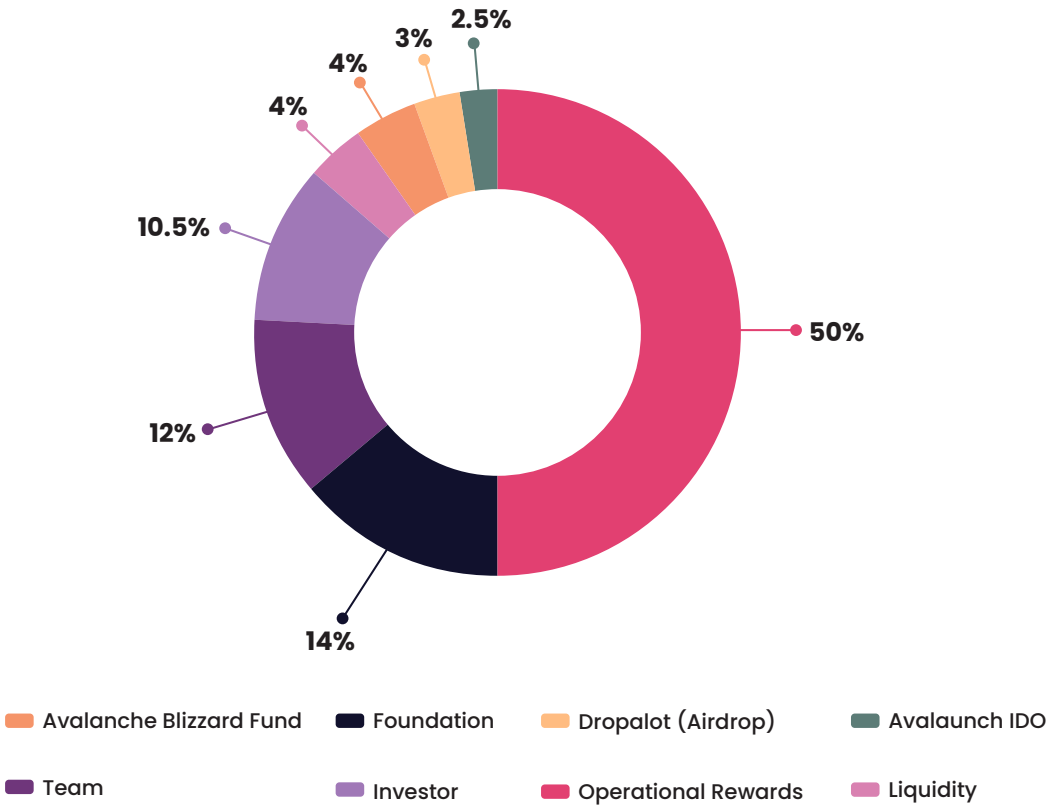

Figure 2 ALOT Unlock distribution

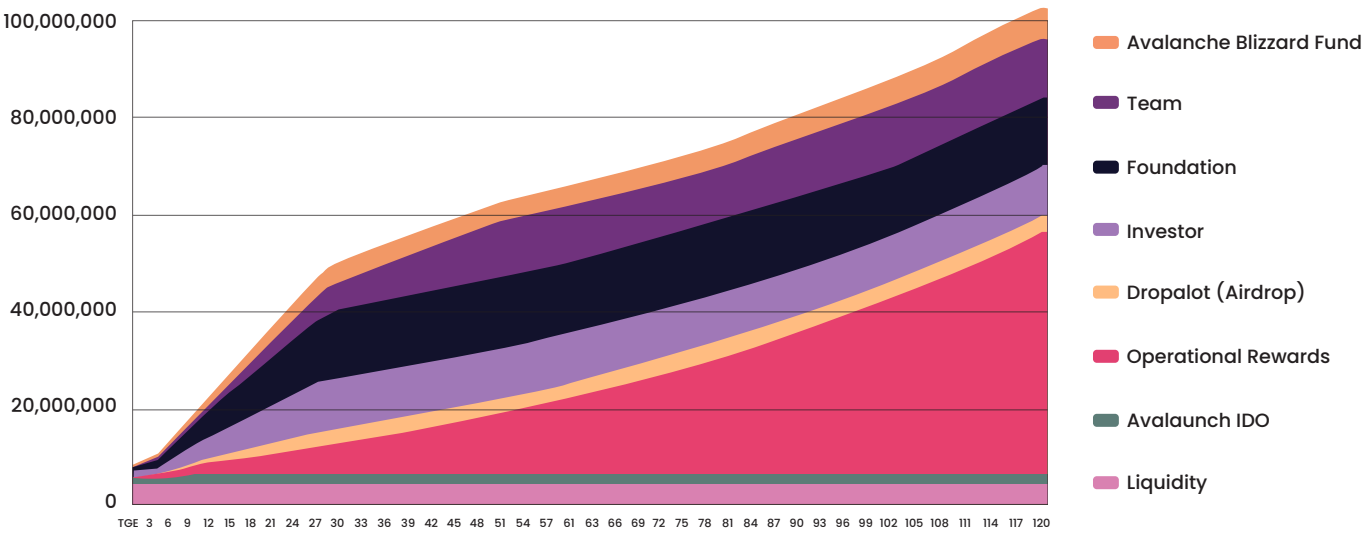

Figure 3 Strategic partners of Dexalot

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