



LIQUIDITY AGGREGATOR PROTOCOL

WHITEPAPER



VERSION 1.1 2020

# ORION PROTOCOL

## The Liquidity Aggregator Protocol

Your universal gateway to the crypto markets.

The Orion Protocol enables cross chain trading, omni-exchange accessibility, and liquidity.

ORION is a new kind of blockchain investment platform that combines the best features of exchanges, brokerages, and instant trading apps. The platform is built around a liquidity aggregator connected to all of the major crypto exchanges, as well as its own internal decentralized exchange, enabling users to gain the best price for their trades from a single portal. Along with powerful tools for portfolio management, ORION offers exceptional security, convenience, and flexibility. The platform is suitable for experienced traders, institutional investors, and newcomers alike.

The ORION platform is powered by the ORN token, an ERC-20 token that will be converted to a token native for the Holochain platform.

The ORION Protocol will be an open source repository for dApps, making all of the platform's functionality available to developers and businesses, enabling anyone to build powerful financial tools.

<https://orionprotocol.io>

## Contents

<b>Disclaimer</b>	<b>4</b>
<b>Overview</b>	<b>5</b>
What is the business?	5
Key features	5
What is the market?	6
Size and expected growth of the market	6
Exchanges	8
Crypto funds	8
Potential for the business	9
<b>ORION problem solving</b>	<b>9</b>
Background: the case for ORION	10
Security issues	11
Lack of liquidity	11
Lack of Price Uniformity, High trading fees	11
Price manipulation, wash trading	12
Transaction Delays	12
<b>Products and Services</b>	<b>13</b>
Products overview	13
Orion Trading Terminal	15
Best price execution across all exchanges from one account	16
Internal price matching engine.	16
Interfaces for professional and retail investors.	16
Direct IEO (Initial Exchange Offering) investments	16
High-Frequency Trading (HFT) Solution	17
As an aggregator of crypto exchanges and prices, ORION has the following advantages:	17
Portfolio management application	18
Arbitrage opportunities trading signals	18
Auto-rebalancing of holdings	19
Non-custodial portfolio management	19
Trading recommendations	19
Third party investment research and analytics	19
Cryptocurrency analytics	19
App Store	19
Enterprise trade	20
Liquidity boost plugin for exchanges	22

Blockchain DEX Kit	22
Safe deposits/withdrawals on multi-currency wallets	23
Decentralization	23
<b>Target customer segments</b>	<b>25</b>
Crypto hedge funds	25
Location of funds	25
Counterparty Risk	26
Accurate price discovery is complicated	26
Retail investors	26
Exchanges disabling new registrations	27
Coins stored at exchanges are at risk	28
Professional investors and high frequency traders	28
High fees	28
Limited trade-tracking tools	28
Entrepreneurs who seek to raise capital through IEO (initial exchange offering)	29
Direct ICO investments are banned	29
Competitors	<b>30</b>
<b>The ORION Protocol and Foundation</b>	<b>33</b>
Orion Protocol overview	33
Orion Protocol architecture	34
Orion Protocol: components and modules	35
Order Matching Engine	35
Centralized exchanges	38
Decentralized exchanges	38
Multi-currency wallet	38
Price discovery	38
Portfolio management module	39
Crypto index funds module	39
Staking shared liquidity pool	39
dApps marketplace	40
Example scenarios	41
Scenario 1	41
Scenario 2	41
Scenario 3	41
<b>ORN utility token</b>	<b>43</b>
Token functions and benefits	43
<b>Development Road Map</b>	<b>45</b>
<b>Conclusion</b>	<b>47</b>

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# Overview

## What is the business?

ORION is an interoperational blockchain platform that provides a set of products and services, that combine the most advanced solutions of the blockchain industry up to date, including the Decentralized Exchange (DEX) based on atomic swaps technology, Shared Liquidity Pool with staking mechanisms, Decentralized Finance (DeFi) platform, B2B services and more, and posing as powerful but user-friendly gateway to the cryptocurrency markets.

The key to ORION's value is its built-in liquidity aggregator, which automatically enables its users to multiple exchanges in order to obtain the best spot price for any supported cryptocurrency, embodying the best features of both centralized and decentralized exchanges. High order execution time and spread reduction coupled with straightforward user interface makes ORION an attractive investment for people both interested in brokerage with low fees, seamless interexchange trading, earning interest rates, using arbitrage and a lot of more.

The platform is fueled by the native utility token (ORN), which will be hosted on the Ethereum, Wanchain and Holochain platforms, enabling users to benefit from the technical advantages of these projects and also leverage the network effect of corresponding crypto communities. ORION token will be used to pay for trading fees and services such as premium features (e.g. margin trading), by brokers to stake in shared liquidity pool.

Rather than existing only in demo or MVP form, ORION's platform is in working beta and can already be used to buy and sell several major cryptocurrencies. The trading terminal can be accessed at <https://demo.orionprotocol.io>. A significant amount of money and developer hours have already been invested in the platform, and the team is strongly motivated to complete and enhance it further.

## Key features

**Unique liquidity aggregator finds the best spot price.** A custom-designed matching engine, which connects to dozens of different exchanges in real time, using their combined order books allows to trade cryptocurrencies at the most advantageous prices and pass the savings to users. In addition to unbeatable savings and convenience, ORION's engine is built into a traditional exchange interface and provides the largest list of supported currencies on the market.

**Internal price matching engine.** As the number of users increases, the platform will match orders effectively against each other on a peer-to-peer basis using our own internal DEX, further decreasing reliance on third-party exchanges. With the rise of user-friendly decentralized exchanges (DEXs), ORION will be connected to more and more of these peer-to-peer cryptocurrency marketplaces. Users will increasingly be able to enjoy near-instant executions of their orders without risk.

**A non-custodial platform.** Users don't give up control of their money. ORION will allow users to transfer cryptocurrencies or IEO tokens directly to an external wallet immediately after they have been purchased, meaning that no funds need to be held on the platform. Cold storage and user-controlled wallets vastly reduce the risks of hacking, theft, and downtime that is common in centralized crypto exchanges.

### **ORION tokens [ORN]**

Users will interact with the platform via the ORION token (ORN), which will be hosted on the Ethereum blockchain and will be used to pay for trading fees and services such as premium features (e.g. margin trading), by brokers to stake in shared liquidity pool.

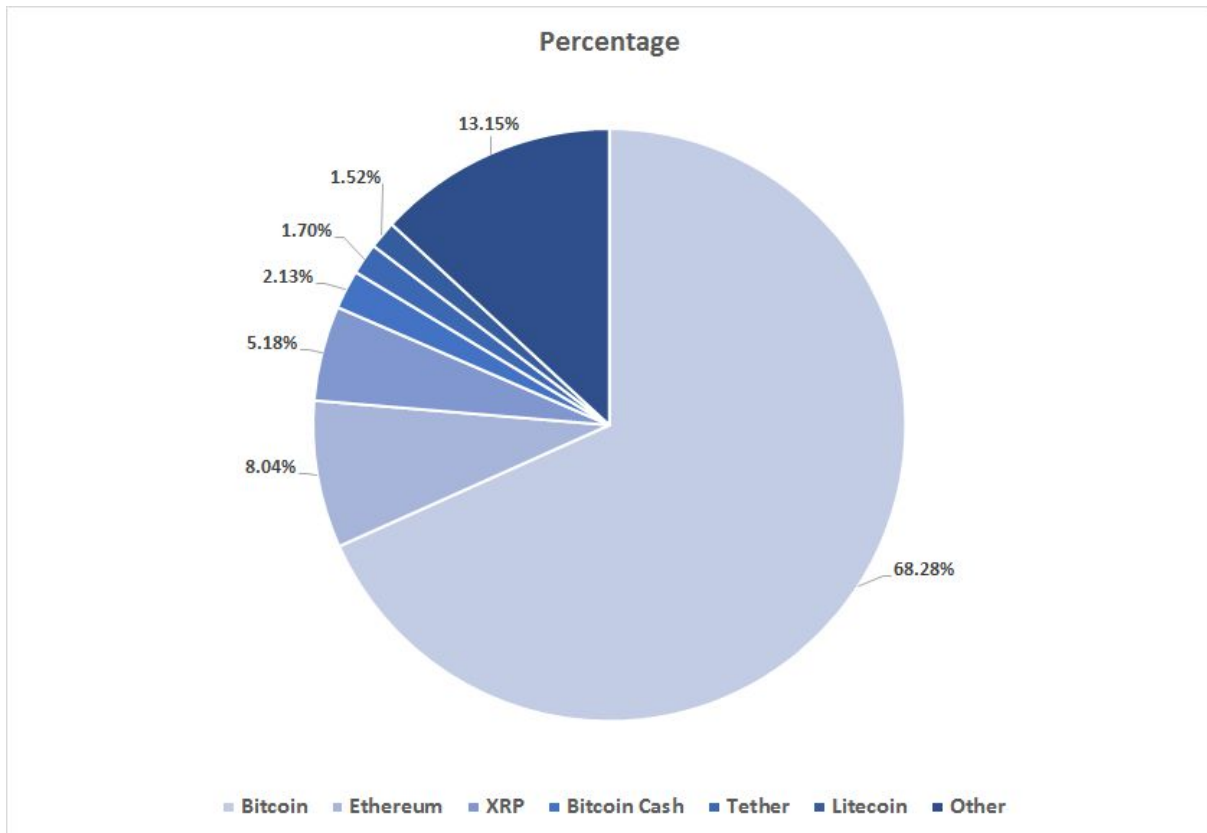
## **What is the market?**

### **Size and expected growth of the market**

Blockchain based assets is a rapidly growing market with current total market capitalization of approximately \$243 billion<sup>1</sup>, where 86% of which is divided between 5 major crypto assets (Bitcoin, Ethereum, Ripple, Bitcoin cash, Tether, Litecoin).

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<sup>1</sup> As of November 2019 <https://cryptolization.com/>

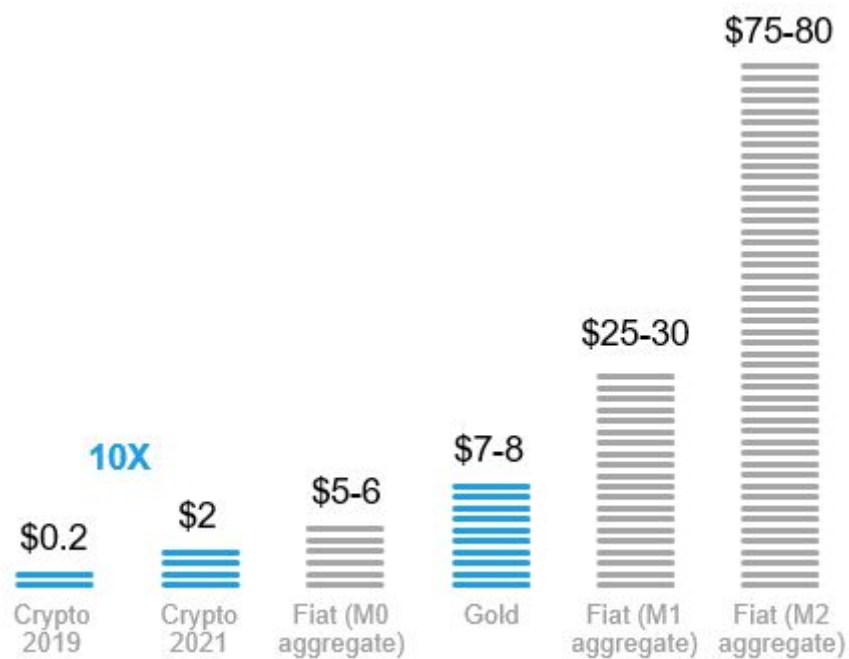


Further growth is expected by means of:

- Institutional Adoption
  - Proceeding inflow of institutional money driven by maturing regulation
  - Further development of investment vehicles (indexes, futures, ETFs, etc)
  - Increasing blockchain applications in finance industry
- Public Adoption
  - 27 million BTC wallets only at the moment (compared with nearly 4.5B banked population), that will grow substantially due to:
  - Lowering of entry barriers for newcomers
  - Inflationary pressure in fiat currencies
  - Exchanges (stocks, commodities, other goods) and payments industry will take the lead in tokenization tendency
  - Real industry (supply chains, retail industry) will follow up
  - Constant buzz from media

The total market cap of crypto assets is still very low in comparison with other kinds of assets. In 2 years the capitalization could grow to \$2TrIn, which will be equal to 25% of the Gold cap, which is morally obsolete in terms of store of value since more flexible competitors had arrived.





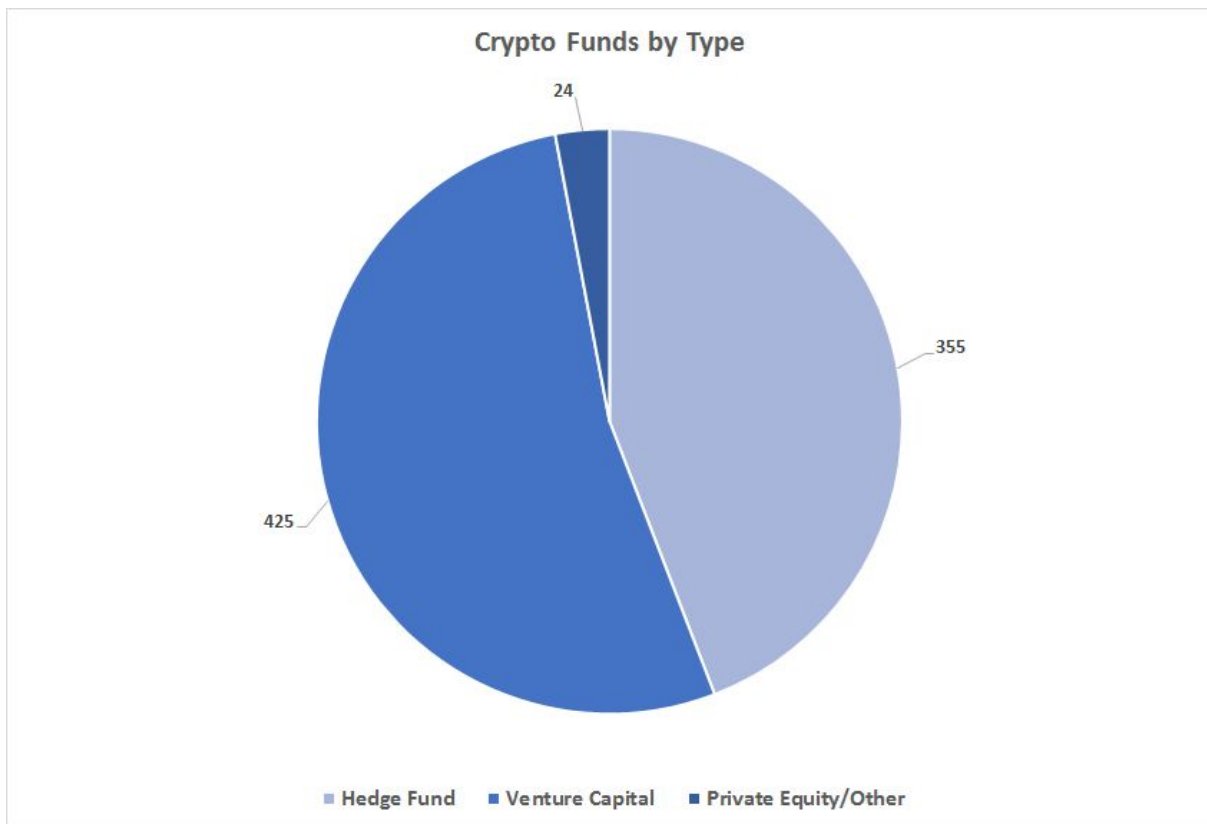
### Exchanges

Crypto assets are traded on Centralized and Decentralized exchanges. There are approximately 300 centralized exchanges (CEX), out of which 35 has more than 1 million daily users and 56 CEX has more than 500 thousands daily users.<sup>2</sup> Such a variety of exchanges made discrepancy in crypto-assets price a norm, created problems of best price discovery, and filled the market with arbitrage opportunities.

### Crypto funds

There are currently more than 800 cryptocurrency/blockchain investment funds. The majority are set up as venture capital funds, while a large number are hedge funds or hybrid funds. There are also a handful of crypto ETFs and crypto private equity funds.

<sup>2</sup> <https://www.coingecko.com/en/exchanges>



Almost half of all cryptocurrency investment funds are based in the United States. The United Kingdom, China/Hong Kong, Singapore, Switzerland, Canada, Australia, and Germany all have a significant number of funds.<sup>3</sup>

## Potential for the business

Ultimately, our intention is to create a combined protocol for connecting to both centralized and decentralized exchanges. This will enable secure trading across blockchains, accessing liquidity from across the entire sweep of the crypto markets.

ORION is an ecosystem of community-based products that significantly contribute to emerging markets liquidity and blockchain adoption as a whole, while receiving interest rates and services based on the native ORN token.

## ORION problem solving

Orion Protocol is a combination of E\*TRADE and Bloomberg terminal for Blockchain world. A unique crypto specialized online brokerage platform which

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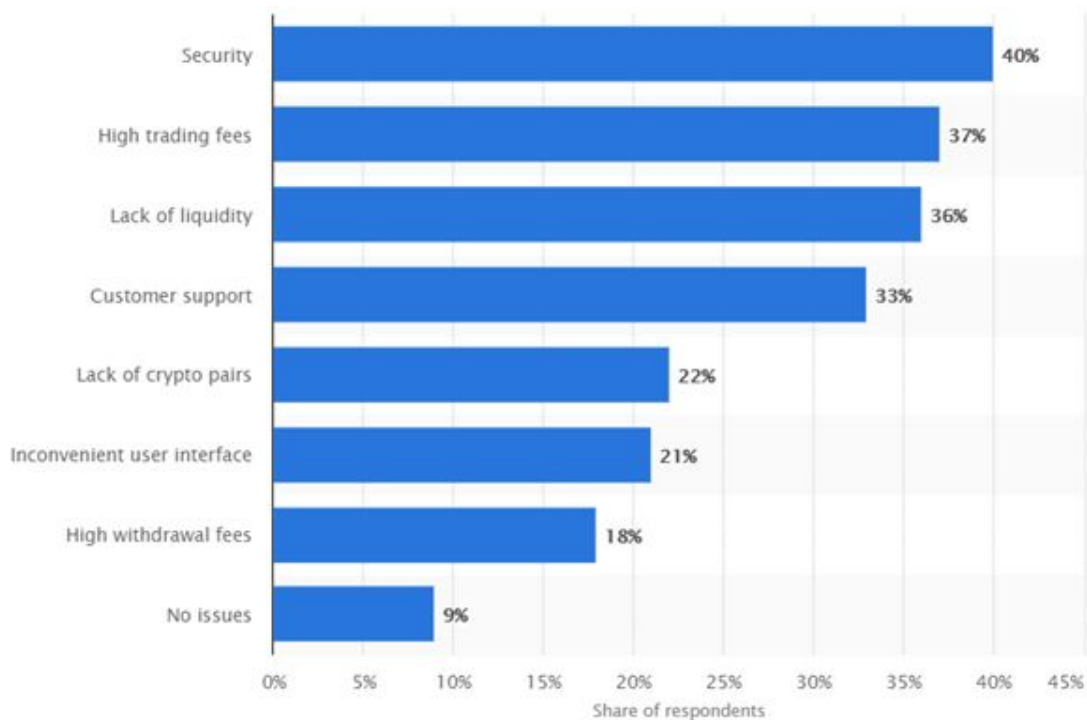
<sup>3</sup> Crypto Fund Research <https://cryptofundresearch.com/>

gives convenience for investors, flexibility for trade algorithm developers and resourcefulness for analysts all for one of the lowest trading fees on market.

Orion is based on peer-to-peer trading technologies and brings together those who want to trade easily and efficiently on every single exchange, and also brokers who want to receive guaranteed transaction fee revenue for fulfilling orders on a trader's behalf. Orion allows the fast, easy and efficient way to capitalize on arbitrage opportunities, maximize execution price, and earn money as market maker.

## Background: the case for ORION

Despite overcoming many challenges during its evolution, the blockchain ecosystem still suffers from some problems. According to the survey conducted by Encrybit<sup>4</sup>, 91% of cryptocurrency exchanges users run into problems while



trading the existing markets.

Let's take a closer look at these difficulties in more detail and then find out our approaches to tackle them.

<sup>4</sup> <https://www.statista.com/statistics/596462/biggest-problems-cryptoexchanges/>

## Security issues

The biggest problem in the cryptocurrency market right now is the lack of security. In the only 2019 the total volume of cryptocurrency-related fraud and theft resulted in losses worth astounding \$4.4 billion by now, according to CipherTrace's report<sup>5</sup>. It is important to remember that as technology becomes more sophisticated and mature, and hackers improve their fraud methods too.

The most vulnerable part of modern infrastructure today the cryptocurrency exchanges, that are still very centralized. Orders, deposits, withdrawals and transactions are all routed in a centralized or closed system. Big exchanges like Binance or Bitfinex save/route all orders within their own servers – and thus they are known as centralized exchanges.

However, many cryptocurrency analysts believe that DEX (decentralized exchanges) will be the leading form of cryptocurrency exchanges when their technology and capabilities are on par with their centralized counterparts. After all, the appeal of cryptocurrencies is the promise of 'decentralization'. Therefore, having good DEX with good liquidity is important for the future of cryptocurrencies.

## Lack of liquidity

Liquidity is a vital element for any of the market. A lack thereof creates an imbalanced environment, and things go out of control. Due to the decreased liquidity, orders are not placed/executed on time, and the doors are open for large holders to manipulate prices. Additionally, with a lack of liquidity, markets become more volatile and see more price slippages.

A secondary issue of reduced liquidity is that it puts the power into the hands of cryptocurrency exchanges with large liquidity. Some major exchanges now charge up to \$1 million to get tokens listed, essentially selling liquidity to the token projects.

## Lack of Price Uniformity, High trading fees

Price charting is an essential part of asset/commodity trading. It is often necessary to develop price charts in order to carry out investment analysis and develop trading strategies. The problem here is the price of a cryptocurrency can vary considerably on the different exchange platforms. With such extreme price differences for the same cryptocurrency, price charting becomes a difficult

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<sup>5</sup> <https://ciphertrace.com/q3-2019-cryptocurrency-anti-money-laundering-report/>

endeavor. In addition, the utter degree of volatility in the market makes the problem even more acute.

## Price manipulation, wash trading

Currently, the majority of crypto exchanges are only lightly regulated, leaving room for sometimes shady or abusive manoeuvres. It is reported that crypto exchanges use bots to manipulate the prices of coins.

In May 2019 BitWise analysts have published a report<sup>6</sup> about trading volume, arbitrage transactions and exchanges where fake BTC trading takes place. This document demonstrates that approximately 95% of the declared BTC trading volume is fictitious or non-economic in nature and shows why the fictitious volume does not affect quotes on the real BTC spot market. It also shows that the real BTC spot market is much smaller than stated and it is more regulated and efficient.

## Transaction Delays

While cryptocurrency transactions are known for being fast, delays can happen and can be a way to protect users from hackings or fraudulent transactions. Exchanges sometimes delay transactions if they suspect the user did not authorize the transactions.

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<https://www.sec.gov/comments/sr-nysearca-2019-01/srnysearca201901-5574233-185408.pdf>

# Products and Services

Orion's platform and technology addresses these widespread issues, lowering the barrier to cryptocurrency adoption and providing a valuable service for existing traders and investors.

Orion targets multiple customer segments and will have diverse revenue stream sources. Users will need ORN utility tokens to use the platform and pay commissions and trading fees.

Orion is much more than a good trading tool, but a final destination for retail and institutional clients who seek convenience, speed, security, and attractive pricing all in one place working together.

## Products overview

Platforms key product offerings include:

1. **Orion Trading Terminal** - platform where traders and investors will be able to search for the best spot prices and submit trades.

**Key features:**

- **Best price execution across all exchanges from one account.** Users do not need separate accounts for different cryptocurrency exchanges, neither do they need to be familiar with the quirks and nuances of each one. ORION enables them to buy and sell popular cryptocurrencies for the best price and for the lowest fees.
- **Interfaces for professional and retail investors.** A clean, intuitive interface that provides a low-friction user-experience suitable for new and experienced investors alike. Accessing different cryptocurrency markets can be achieved just in one click. More active investors will appreciate the interactive charts, online analytics, and mobile apps for on-the-go portfolio management.
- **Direct IEO (Initial Exchange Offering) investments.** Users will be able to invest in new blockchain projects and participate in token sales for new initiatives, directly from ORION platform. New token listings, IEO ratings, and token distributions will take place via the users' accounts.
- **High Frequency trade.** Orion allows fast trade among multiple exchanges using just one API. This will reduce the time needed to maintain working trading algorithm for high frequency traders.

**Revenue is generated through:**

- Transaction fees
- Internal matching of orders

2. **Portfolio management application** - tool for tactical investors which will make tracking, rebalancing and investment of assets fast and easy regardless of where funds are held.

**Key features:**

- **Investment tracking tool** will give an easy way to monitor and record user's trading activity across multiple exchanges.
- **Arbitrage opportunities trading signals** - users can subscribe to receive signals about arbitrage opportunities which arise on the market to take advantage of inefficiencies in the crypto markets.
- **Auto-rebalancing of holdings** - investors can select asset mix they would like to maintain in their portfolio and set criteria which will trigger rebalancing of assets.
- **Non-custodial portfolio management** - users will be able to give third party their assets to manage, without having to give up custody of funds.
- **Third party investment research and analytics** users will be able to filter third party researchers and analysts, group them according to selected criteria and purchase on one platform.

**Revenue is generated through:**

- Subscription fees
- Arbitrage trading fees
- Sales of analytics, investment research and trading signals

3. **App store** - dApp marketplace where users can buy ORION based applications and trading signals from independent developers.

**Key features:**

- **Organized and overseen marketplace** where users can buy:
  - i. Arbitrage apps
  - ii. Algorithmic trading bots
  - iii. Investment funds
  - iv. Payment integration systems
- **High liquidity for trading apps** across the network and new exchanges based on ORION protocol.

**Revenue is generated through:**

- Commission for purchases at App store

4. **Enterprise trade** - extension which will allow partnering firms and big traders integrate functionality of platform into their applications and/or access lower trading fees.

**Key features:**

- **Large order split** - Trades from enterprise clients will be executed across various exchanges to get the best price available and for the lowest fees.
- **Non-custodial liquidity provider** - enterprise client won't have to give away control or transfer their funds to get high liquidity from various exchanges and
- **Short selling** - enterprise clients will have the ability to sell their investments short.
- **Margin trade** - enterprise clients will be able to double their buying power by utilizing margin available either internally or through partnership.

**Revenue is generated through:**

- Annual fee for access to the platform

5. **Liquidity boost plugin for exchanges** plug-in for centralized and decentralized exchanges which will increase liquidity on their marketplace and bring them market-makers for competitive fee.

**Key features:**

- **High liquidity** through a custom-designed matching engine, which connects to dozens of different exchanges in real time
- **Largest list of supported currencies** on the market through plugin built in exchanges interface.

**Revenue is generated through:**

- Transaction fees.
- One-time fee, which covers set-up costs. Fee will be waived for exchanges with certain daily transaction volume.

6. **DEX launcher** - a platform for entrepreneurs to launch their own decentralized crypto exchanges and get instant liquidity on them through connection to ORION ecosystem.

**Key features:**

- Fast and easy way to launch decentralized exchange [DEX]
- Instant liquidity on new DEX

**Revenue is generated through:**

- Annual fees

## Orion Trading Terminal

Platform where traders and investors will be able to search for the best spot prices and submit trades.

Users do not need separate accounts for different cryptocurrency exchanges, neither do they need to be familiar with the quirks and nuances of each one. ORION enables them to buy and sell popular cryptocurrencies for the best price and for the lowest fees.



## **Best price execution across all exchanges from one account**

A price discovery module comprises a pluggable architecture that offers a feed of live prices from exchanges in real time. A new plugin can easily be written by creating a simple interface and presenting exchange information within it. The module displays the last price but also analyzes exchange order books to show volumes and depths. Whenever possible, it attempts to update and push results to the user, connecting to the exchange via web socket. When not available, it falls back to using a pull-based mechanism, constantly checking the exchange's REST API.

The price discovery module also aggregates and interprets historical prices, giving a feed to connected clients and a UI with prices for plotting charts by different time-frames and periods.

Providing price data will be charged in ORN tokens from the client. Developers can run their services with 99.9% uptime, receiving a fee for providing that data.

## **Internal price matching engine.**

Orion platform allows to match orders internally without having to execute them on third party exchanges. This will dramatically reduce costs and will reduce trading fees for users and increase profit margins for the company. With an increase in the number of users more and more orders will be matched internally.

## **Interfaces for professional and retail investors.**

Orion has already developed a beta version with user friendly interface. By the time trading terminal officially launches, users will have access to both a simple intuitive interface for novice users and highly adjustable complex platform for professional traders. Both platforms will make trading fast, easy and simple.

## **Direct IEO (Initial Exchange Offering) investments**

If the primary application for blockchain technology has been peer-to-peer online cash and value transfer, its second major use case has been crowdfunding. Token sales or initial coin offerings (ICOs) have proven to be an extremely popular way of raising money for a new business or initiative. Recent regulatory interest has largely clarified the compliance frameworks within which such ventures need to operate, and as a result we expect interest only to increase in the coming years. Both the number and average size of ICOs are likely to grow, with fully compliant token sales attracting enormous sums of money from investors.

With this in mind, ORION will both support participation in major token sales of interest to its community, and provide users with the secure and user-friendly infrastructure to hold their own IEO (Initial Exchange Offering) – serving both sides of the emerging IEO phenomenon.

Participation in a broad range of third party IEOs conducted on different exchanges will be available to users from one portal. ORION will be the only tool required to access initial investments in blockchain projects and cryptocurrencies.

Convenient search engine, notifications about key dates and events, such as start and end dates, bonus tiers, referrals, and other marketing campaigns for upcoming IEOs will be available at no additional cost.

A liquid secondary market in the early days after a token sale ends will be available to IEO projects. ORION will provide a guaranteed marketplace for all connected IEOs and in certain cases may provide assistance to IEO teams through secure listing with collaborating exchanges. This will be particularly valuable for Ethereum tokens, since there is no built-in DEX, and third-party decentralized exchanges such as EtherDelta<sup>7</sup> tend to be difficult for regular users to access, with implications for liquidity.

A decentralized rating mechanism that will help others conduct due diligence on different projects will be based on user's ability to rate and give feedback on IEOs.

## High-Frequency Trading (HFT) Solution

Continuous development and constant optimization of the aggregator mechanism will provide the necessary speed and performance to meet the requirements of high-frequency trading (HFT). Algorithmic traders and other trading bots will be able to connect using unified API, allowing execution of trades at the most advantageous prices across a wide range of exchanges, all from a single platform.

For large and high-frequency traders, special payment structures will be applied, which makes ORION very attractive compared to other exchanges.

## As an aggregator of crypto exchanges and prices, ORION has the following advantages:

- Increasing liquidity and market depth by combining order books from multiple exchanges
- Acquiring the best possible price at any time from a potentially unlimited number of marketplaces
- Accessing the best fee rates on each exchange due to ORION's status as a large trader that brings significant volumes from its broad user base
- Single, unified fee for trades; no separate deposit/withdrawal fees
- Easy online management with one account via different channels (web, mobile)

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<sup>7</sup> <http://crypto.marketwiki.com/index.php?title=EtherDelta>

- Comprehensive and sophisticated analytics when required, clear accounting and trades tracking
- Comprehensive and sophisticated analytics when required

## Portfolio management application

ORION provides easy-to-use tools to track cryptocurrency investments via web portal and mobile app, including giving analytics for trades, comparing different portfolio management strategies, and informing future trading and investment decisions.

The portfolio management module supports a range of functions for smart portfolio use, including trading history, current balance, and profit/loss. It also allows users to compare different trading strategies.

Investment tracking tools will give an easy way to monitor and record user's trading activity across multiple exchanges. ORION's interface features an at-a-glance overview of users' portfolios, listing individual crypto holdings and profits as well as total portfolio value. All trades conducted on the platform are available to search and can be displayed graphically on interactive charts. This helps users to analyze their histories by visually representing buy/sell, profit/loss, and overall success rates.

## Arbitrage opportunities trading signals

Due to the nature of its core technology and its operations as a liquidity aggregator, ORION is in a unique position to take advantage of inefficiencies in the crypto markets.

Since the platform searches for the best price across many different exchanges, it is often the case that the minimum ask price on one exchange will be higher than the maximum bid price on another. It is therefore possible to buy coins on the first exchange and simultaneously sell them on the second, profiting from the difference. Executing such trades is known as arbitrage, and is common in mainstream financial markets. While it is practiced on the crypto markets – particularly the deeper and more liquid/active Bitcoin markets – there are limits to the degree to which it is practical for many altcoins, due to the requirements of holding funds on all relevant exchanges and monitoring all markets constantly in order to be able to take split-second advantages of the opportunities as soon as they arise.

ORION will make such trades available on its platform for premium users, based on their ORN token holdings. Premium users will receive signals about arbitrage opportunities, which will be sent automatically across different channels (email,

browser notifications, push notifications for mobile). ORION will execute the trades for them if they indicate their interest, allowing them to generate guaranteed profits with practically zero risk. The fees for this service will be paid in ORN tokens.

### **Auto-rebalancing of holdings**

Investors can select asset mix they would like to maintain in their portfolio and set criteria which will trigger rebalancing of assets.

### **Non-custodial portfolio management**

Users will be able to give third parties their assets to manage, without having to give up custody of funds.

### **Trading recommendations**

Tips and analyses from well-known traders and professional agencies will be posted, with emails or push notifications informing users about key developments or favorable market conditions. Sources can be customized and more trusted sources prioritized for each user.

### **Third party investment research and analytics**

Users will be able to filter third party researchers and analysts, group them according to selected criteria and purchase on one platform.

### **Cryptocurrency analytics**

ORION provides detailed information for each cryptocurrency or token, including interactive charts, trading history, and indicators/analytics to help traders gauge the potential of each investment and market movements. News feeds from major cryptocurrency sources and channels such as Bitcointalk, Twitter, and Reddit will be provided.

## **App Store**

A wide variety of applications can be created for the Orion Protocol, including apps for investment, trading bots, and payment gateways. The Protocol will be used extensively for every decentralized application in the marketplace. The first dApp running on the Orion Protocol will be Orion itself, the reference implementation that will provide a liquidity aggregator, portfolio management and an ICO platform. Within Orion's dApps, ORN will function as a utility token, being used to pay for all services, including for commission fees and within its lending model.

Orion will create a marketplace for dApps built on top of its protocol.

The network of components that comprise Orion's marketplace can be developed and enhanced by third parties, ensuring greater quality and availability of functionality. Developers can earn an income when others use their modules. For example, anyone can create a Price Discovery Module for a new exchange and join the Orion network. They will be rewarded for providing this service with ORN tokens. Participation in the Orion ecosystem also has the benefit of sharing liquidity across the network and new exchanges.

Some examples of dApps that might be built include:

- Arbitrage apps
- Algorithmic trading bots
- Investment funds
- Payment integration systems

## Enterprise trade

Extension which will allow partnering firms and big traders integrate functionality of platform into their applications and/or access lower trading fees.

Trades from enterprise clients will be executed across various exchanges to get the best price available and for the lowest fees. Enterprise client won't have to give away control or transfer their funds to get high liquidity from various exchanges and will have the ability to sell their investments short.

The Orion Protocol enables a wide range of decentralized applications to buy and sell crypto assets from many different exchanges, simply and efficiently.

dApps with enterprise clients and institutional investors may require the execution of high-value orders on exchanges. Token issuers that have enterprise clients are typically forced to choose between catering to either ICO investors or enterprise clients, when structuring the utility token purchase mechanics.

If a project encourages enterprise clients to purchase tokens on the secondary market:

1. High demand combined with thin order books can dramatically increase prices – making it a bad deal for the end users.
2. The complexity and risk of using crypto exchanges deter many large clients.

A project may address these issues by working directly with enterprise clients, selling them tokens from a dedicated reserve. However:

1. This has no impact on market prices – offering no benefit to ICO investors.
2. In unfavorable market conditions, a token price can fall even when large amounts are being sold.

Until now, there has been no easy solution to this conflict of interests.

To solve these issues, Orion provides a middle layer between crypto utility projects and all available liquidity on the markets, enabling enterprise clients to purchase tokens directly from the project's platform, returning purchased tokens to the client for immediate use.

Orion's core functionality includes order splitting and smart routing modules. Large orders are algorithmically separated into smaller pieces, and the software submits these to the exchanges with the optimal price and liquidity for each at that moment.

Depending on current market conditions, order book depth and limits, these orders can be automatically weighted towards different exchanges, deferred, amended, or re-routed.

Orion collects feedback from all completed trades, updating the client until the original order is fully filled or cancelled.

Furthermore, Orion allows users to control different execution parameters:

- Start/End Time
- Delay
- Spread
- Price deviation
- Weights
- Capital cost
- Market/Limit
- Choose the optimal order-splitting strategy

Popular algorithmic trading strategies are provided out of the box:

- POV
- VWAP
- TWAP
- Basket
- and more

Custom algorithms can also be implemented on Orion and distributed via the dApps marketplace.

This seamless process accesses all available liquidity – resulting in an efficiently distributed market impulse that reflects organic demand and balances the interests of ICO investors and enterprise clients. OET helps to stabilize token price and increase liquidity on multiple markets, without the need to have accounts on every exchange. Ultimately, Orion provides one simple, unified API for executing highly complex trades, quickly and efficiently.

**Revenue is generated through:**

Annual fee for access to the platform.

In the interests of catering to enterprise clients, Orion will not charge fees to utility token projects for using OET. Instead, any project can enjoy unlimited use of OET if they stake a predetermined USD equivalent of ORION tokens.

OET will revolutionize the way utility tokens are purchased by enterprise clients, and will become the pre-eminent solution for resolving the tensions that token issuers face between catering to ICO investors and large buyers.

## Liquidity boost plugin for exchanges

ORION's unique matching engine analyzes dozens of cryptocurrency exchanges and organizes the best price for trades which are executed on the platform. This means finding the lowest prices for buyers – splitting orders and spreading purchases across several exchanges if need be, in order to access the full liquidity of the whole crypto market – and conversely, ensuring the highest prices for sellers. Furthermore, trading fees are factored into the prices so there are not any unexpected charges: just a single, straightforward, and attractive price for each trade.

Additionally, there is no need for users to create dozens of different crypto wallets or register on multiple exchanges. All that is required is a single account on ORION, and it is possible to buy or sell any cryptocurrency with one click. Accounts are protected by two-factor authentication (already implemented) and the liquidity aggregator's operation across many different exchanges means that risk is not only decreased by ORION, but very widely diversified.

Adding new exchanges to ORION's liquidity aggregator engine is straightforward, since it has been designed with multiple connection formats and APIs in mind. As new exchanges are launched and are proven to be secure and reliable, they will be connected to the order engine with ease.

## Blockchain DEX Kit

As well as enabling users to access popular IEOs directly from their accounts, ORION will make it straightforward for anyone to launch their own IEO projects.

The IEO Founder includes the option to create and issue tokens on the most popular blockchains for ICO initiatives: Ethereum, Holochain, Stellar, Waves etc.

- Holochain features scalable crypto-accounting to build new generations of asset-backed and value-stable cryptocurrencies.
- Waves features straightforward and low-cost token creation, fast transactions and an automatic market on the built-in decentralized exchange.

- Ethereum features Turing-complete smart contracts and is the market leader for smart contract applications. As the second-largest crypto by market cap, Ethereum has a very large community of developers and supporters.

The IEO Founder tool will make the process of token creation and distribution on either network painless, entirely removing the technical overheads associated with holding an IEO. All that will be required to start an IEO on ORION will be to register on the platform, create the IEO campaign by filling in a form with the required parameters (token supply, funding targets/caps, etc), and to pay the commission fee in ORN tokens. Different IEO structures will be supported, including various pricing models, duration of campaigns, bonuses and discounts, and other parameters.

ORION's own IEO will be held on the platform, proving the stability and reliability of the software.

## Safe deposits/withdrawals on multi-currency wallets

A multi-currency wallet comprises a set of tools that is stored securely on the client's computer or mobile phone, and that supports different cryptographic functions and connectivity for many blockchains. Support for new currencies will be added gradually with the help of the Orion development community.

A set of easy and user-friendly tools will be integrated with the Orion Protocol, such as functionality for depositing and withdrawing currencies, sending ORN tokens to the escrow smart account, signing DEX orders for exchange executors, and integration with a portfolio management module to provide a history of operations and calculate the cost and profit of trades; amongst others.

ORION users can deposit major cryptocurrencies into their accounts, including BTC, ETH, BCH, LTC, DASH and WAVES, with many other currencies that will be added after the ICO ends.

All trades placed on ORION are passed through to exchanges and executed as real trades in the marketplace, so all balances are fully backed at all times and funds can be withdrawn to a user's external wallet whenever they want.

## Decentralization

Decentralization is fundamental to blockchain and cryptocurrencies. Removing the costs, risks, and abuse inherent in centralized currencies and systems is the reason Bitcoin was created. However, whilst the core Bitcoin protocol is secure and has never been compromised, numerous exchange hacks have proven that weaker links in the chain will always be susceptible to exploitation. For both ideological and practical reasons, ORION is committed to decentralization.



Viable decentralized exchanges (DEXs) have only just started to gain a degree of popularity in the cryptocurrency world, and have some way to go before they will replace centralized services. The liquidity and speed of these DEXs must compare favorably with traditional crypto exchanges before they see a high degree of adoption. ORION's long-term strategy is to integrate DEXs as they arise, helping to add liquidity to them and bootstrapping their popularity while benefiting from their superior security.

There will be 2 stages of this implementation process:

- 1. Integrating cold wallet functionality**

Having an external (ideally cold-storage) wallet is vital for users' confidence and security. The first stage will be to enable users to withdraw funds to their own private wallets, while still making all of ORION's services available to them. This step will involve the creation of a protocol that signs transactions offline to maintain the air gap between the cold wallet and exchange platform, thereby combining unbeatable security with ORION's full suite of portfolio management functionality. Funds will, of course, need to confirm on the blockchain before they can be deployed within ORION.

- 2. Execution of trades on DEXs by submitting orders signed from cold wallets**

The increasing sophistication of this system and its integration with new and existing DEXs will provide instant executions of trades without sacrificing the 100% security of users' funds. There will be no reason to transfer money to a centralized service, no matter what security measures it has in place.

Over time, we anticipate that a growing number of trades will be met directly from our own user base, with ORION fulfilling orders directly between them on a peer-to-peer basis using its internal matching engine. This will further decrease the reliance on third-party and centralized exchanges. The creation of a full-blown decentralized exchange is the natural development and goal of this strategy.

## Target customer segments

There are a variety of players on the crypto market. In the first year the company is expected to generate the majority of its revenue from brokerage activities, thus we will focus on three target groups:

- Crypto funds
- Retail investors
- Professional investors and high frequency traders

Once platforms gains popular, we expect income stream to diversify with revenues from:

- Entrepreneurs who seek to raise capital through IEO (initial exchange offering)
- Entrepreneurs who want to create their own DEX (decentralized exchange)
- Developers of trading applications

## Crypto hedge funds

Out of 150 active crypto hedge funds with \$1bln AuM (excluding crypto index funds and crypto venture capital funds) 36% of funds can use leverage and 74% can take short positions

- SHORTING Many fund managers who can take short positions have never taken short positions. In many cases, these funds have not built the infrastructure and Over-The-Counter (OTC) relationships in order to borrow cryptocurrencies and put on short positions.
- COUNTERPARTY RISK Most crypto fund trading strategy requires leaving substantial assets at exchanges, having a proper counterparty risk framework with constant monitoring is key. This may involve strategies such as using numerous exchanges and limiting the maximum exposure to one exchange at any point.
- PRICE DISCOVERY Altcoin order books are thin and fragmented across many different exchanges, making establishment of the best price very difficult. On top of that accessing such opportunities requires having an open balance on multiple exchanges.<sup>8</sup>

## Location of funds

Funds tend to be domiciled in the same jurisdiction as traditional hedge funds,

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<sup>8</sup>PwC report

<https://www.pwc.com/gx/en/financial-services/fintech/assets/pwc-elwood-2019-annual-crypto-hedge-fund-report.pdf>

with the top three jurisdictions for the fund entity being the Cayman Islands (55%), the United States (17%) and the British Virgin Islands (BVI) (13%). Legal and Regulatory crypto hedge fund management companies are located in the following countries: 64% US 20% Cayman 5% Singapore 4% Luxembourg 2.5% Liechtenstein 2.5% BVI 2.5% Australia. The same is true when it comes to the jurisdiction of the fund manager. The majority of crypto hedge fund managers tend to be based in the United States (64%).<sup>9</sup>

## Counterparty Risk

If your crypto fund trading strategy requires leaving substantial assets at exchanges, having a proper counterparty risk framework with constant monitoring is key. This may involve strategies such as using numerous exchanges and limiting the maximum exposure to one exchange at any point.

## Accurate price discovery is complicated

Altcoin order books can be thin and fragmented across many different exchanges, making establishing the best price very difficult. On top of that accessing such opportunities requires having an open balance on multiple exchanges – often making it impractical for ordinary investors and traders.

ORION's liquidity aggregator will enable users to easily split orders and purchase coins from different exchanges in a timely and cost effective way.

## Retail investors

Almost 35 percent of Americans investing in cryptocurrency. Men are almost twice as likely as women – 43 percent to 23 percent – to have invested in cryptocurrency. But it wasn't just gender that influenced someone's decision to convert their Benjamins or Jeffersons into bits and coins. Income also played a big role in whether or not someone had dabbled with this new form of currency. Almost half, 47 percent, of individuals making \$75,000 to \$99,999 annually had entered into the markets. Less than a quarter of those making under \$25,000 could swing sinking some teeth into the cryptocurrency game. Age also plays a factor when it comes to investing in crypto. According to our results, millennials were almost twice as likely as any other generation to be crypto-investors. Perhaps that has something to do with millennials' apparent cynicism and distrust of others. A 2014 study by The Brookings Institution published in the Harvard Business Review offered this conclusion regarding

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<sup>9</sup>The data contained in this chapter comes from research that was conducted in Q1 2019 by Elwood Asset Management across 100 of the largest global crypto hedge funds by assets under management (AUM) <https://elwoodam.com/press>

millennials, "Millennials score lower than any other generation in terms of believing that people can be trusted."<sup>10</sup>

## Exchanges disabling new registrations

With the unprecedented growth and interest in cryptocurrencies during 2017, even the largest exchanges have been swamped by new users. Several have had to take the step of closing to new registrations or going offline to upgrade their infrastructure.

This has been due to both technical and regulatory reasons. In December 2018, Bittrex was forced to disable new registrations for several weeks, and in January 2018, Binance also took the step of halting registrations to allow for an upgrade. These exchanges along with other popular ones have had to deal with technical issues such as slow transactions, delayed withdrawals, and other server issues due to the weight of traffic<sup>11</sup>.

Even when exchange infrastructure can deal with the load placed on them by additional users, they still have to fulfill their KYC obligations. This places significant administrative pressure on them and several have taken many weeks to clear the backlog<sup>12</sup>. Coinbase dealt with hundreds of thousands<sup>13</sup> of new registrations per week during recent times, adding 100,000 new accounts in just 24 hours at one point in November 2017. Evidently, at a time of enormous interest, existing exchanges are not always able to scale to serve their markets.

As an aggregator, ORION only needs to register and verify its accounts on each exchange once, meaning that all of its own users do not have to conduct KYC across many different exchanges themselves. Additionally, ORION has dedicated servers and other measures in place to ensure it can deal with a sudden influx of traffic associated with a fast-growing user base.

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<sup>10</sup> We collected responses from 1,004 Americans via Amazon's Mechanical Turk platform. Participants ranged in age from 18 to 80 with a mean of 36.05 and a standard deviation of 11.86 years.

Sources

<https://www.businessinsider.com/bitcoin-millionaires-are-buying-lamborghinis-2018-3>

<http://fortune.com/2018/02/06/bitcoin-price-cryptocurrency-historical-investment-losses/>

<https://www.cnbc.com/2018/01/24/19-year-old-bitcoin-millionaire-offers-crucial-investing-advice.html>

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<https://www.psychologytoday.com/us/blog/neuroscience-in-everyday-life/201610/why-is-it-impossible-not-to-judge-people>

<sup>11</sup> <https://news.bitcoin.com/binance-exchange-disables-new-user-registrations/>

<sup>12</sup> <https://www.theblockcrypto.com/post/26592/bittrex-and-bitfinex-appear-to-step-up-kyc-controls-in-wake-of-regulatory-entanglements>

<sup>13</sup> <https://www.cnbc.com/2017/11/03/coinbase-adds-100000-users-after-cme-announces-bitcoin-futures-plans.html>

## Coins stored at exchanges are at risk

Exchanges are generally accepted to be unsuitable for long-term cryptocurrency storage due to the risks of hacking and theft, as well as scheduled or unscheduled downtime making funds inaccessible. ORION will support instant withdrawals, meaning coins are immediately transferred to the user's external wallet and are not held on the platform itself.

## Professional investors and high frequency traders

### High fees

Almost all of the credible centralized exchanges have relatively high trading fees, typically in the range of 0.25% to 0.5%<sup>14</sup> for moderate users. Despite batching transactions, they also charge fees for deposits and withdrawals that are far in excess of network transaction fees. ORION's liquidity aggregator takes into account not only price and order book depth, but also trading and withdrawal fees.

As volumes increase and the platform is able to access more advantageous fee tiers on its partner exchanges, this will further benefit users. Savings can be passed on to customers, with the result that even comparable fee levels on ORION will be more cost-effective than on other exchanges.

### Limited trade-tracking tools

Tracking transactions with several crypto assets on several exchanges requires a lot of manual accounting on the user side, while exchanges cannot offer a unified secure solution.

The exact amounts and dates of the transaction are crucial for tax reporting purposes in many countries. A minor mistake can lead to taxation at a higher rate or in some cases to criminal liability.

ORION's trade and price tracking tools allow users get a quick and accurate overview of profits and losses on all their assets.

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<sup>14</sup>

<https://medium.com/cointracker/2019-cryptocurrency-exchange-fee-survey-49db9b38cb5b>

## Entrepreneurs who seek to raise capital through IEO (initial exchange offering)

### Direct ICO investments are banned

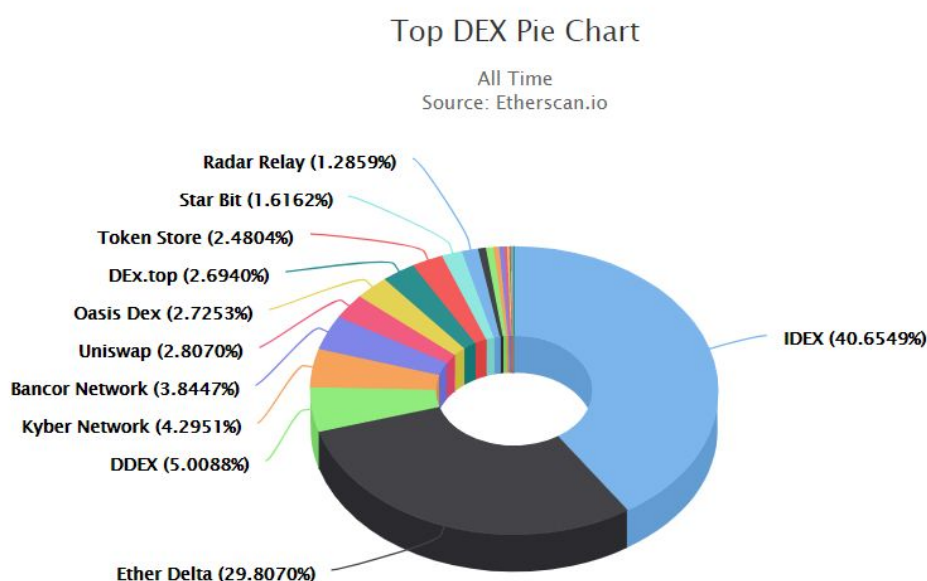
The vast majority of exchanges prohibit withdrawals of cryptocurrencies directly to ICO deposit accounts, and will not credit tokens paid for in this way. This is generally because ICOs require instructions to be attached to the deposit transaction, or because the token is not supported on the exchange at the time the ICO is conducted. Tokens paid for by withdrawals from exchanges are generally lost to the buyer.

By carrying out custom integrations for each token sale, ORION can ensure that every token in demand by its customers are supported, providing a service offered by few, if any, exchanges or trading platforms.

## Competitors

Due to the versatility of the Orion platform products, let us analyze the competitive environment in each particular field of activity.

As mentioned above, the current set of DEXes are still struggling with liquidity. While overall daily trade volume value fluctuates around \$60-80 billions for centralized exchanges, DEXes' daily volume usually does not exceed \$100 million.



source: <https://etherscan.io/stat/dextracker>

BarterDEX: the only competitor with integrated atomic swaps

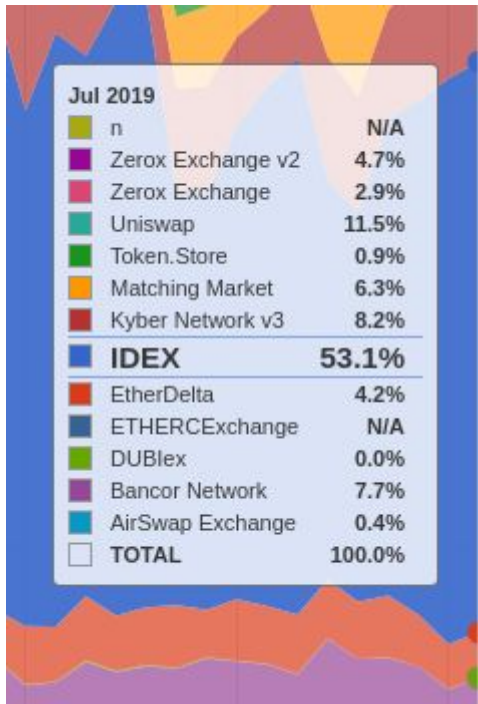
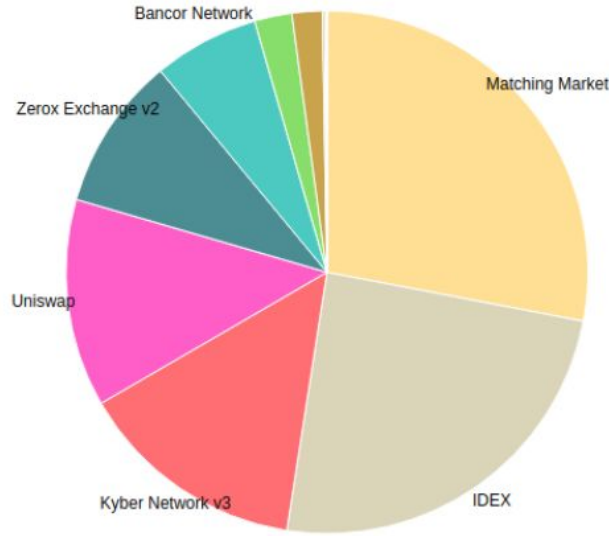
<https://dexstats.info/>

IDEX and EtherDelta take a lead when it comes to the number of trades among different exchanges, covering more than 70% of the total. Both IDEX and EtherDelta are semi-DEXes with off-chain order books & order matching, and on-chain settlement.

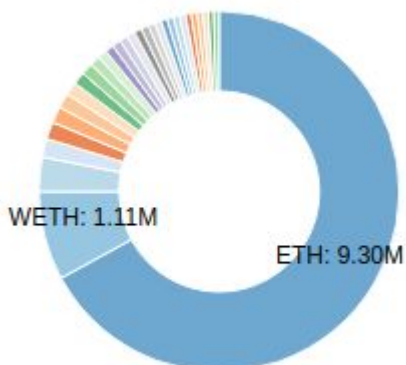
What comes to distribution among different ethereum protocols, IDEX takes the lead again, but token swap protocols like Uniswap, Bancor and Kyber are also getting good traction. However, most of these services are not actually DEXs, as they do not host order books. Overall, DEX protocols (like Ox protocol) are still having a hard time gaining adoption.

DEX Trades Amounts in USD of last 30 days

- Matching Market
- IDEX
- Kyber Network v3
- Uniswap
- Zerox Exchange v2
- Bancor Network
- AirSwap Exchange
- EtherDelta
- Token.Store
- Zerox Exchange
- DUBlex
- ETHERCExchange
- n



IDEX holds more than 50% market share. Various token swap services hold around 33% market share. Two different versions of 0x protocol hold only ~7.6% market share. This shows that there is good demand for token swap services as they are more secure, cheaper and reliable than centralized token swap services like Shapeshift and Changelly.



The major currency traded is Ether and its derivative tokens — ETH and WETH. The most common transaction is an exchange of Ether (in the form of a token or ETH currency) to or from another token. Other than ETH and WETH, Dai is the top-traded coin on DEXs. One more interesting fact is that around 15% of all trades on DEXs involve tokens which are not listed on any CEX, only on these DEXs.



To conclude, the data above shows that even after 2 years and millions of dollars in funding, decentralized exchange protocols are still fighting to overtake CEXs and offer the same level of functionality, liquidity, and service. But there is progress, token swap protocols are doing better and gaining traction.

If you've ever used Uniswap or Kyber, you will clearly see the difference how making a token swap service decentralized leads to a better user-experience and efficient exchange. But this is not true in the case of DEXs. We need Decentralize Exchanges to integrate efficient market making and Algo trading software without wasting a ton of money on Gas (cost of making a change to the Ethereum blockchain). Eth2.0's features aim to help DEX protocols in terms of transaction throughput and cost.

IDEX is a clear winner because of its semi-centralized/decentralized model, where you need to deposit tokens on IDEX's Smart Contract with settlements on-chain, but everything else goes from IDEX's centralized servers and database.

Decentralized Protocol projects such as 0x (ZRX) and Loopring (LRC) have been working hard. Recently, Loopring patented several solutions for the front-running problem and introduced zk-Snarks to increase transaction throughput (in an effort to solve the liquidity problem). While these projects are striving to solve these problems and to move DEXs towards the same functionality and efficiency of CEXs, ORION's plan is to make a significant contribution to solving liquidity and UI problems<sup>15</sup>

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<sup>15</sup> DeFi:

<https://loanscan.io/>

<https://deficompare.com/>

<https://defiprime.com/>

# The ORION Protocol and Foundation

*Orion will be open sourcing some of its core components to the Orion Foundation. The Orion Protocol is the name of the underlying protocol on which the Orion platform runs. This will mean standardizing the API and architecture of the platform's liquidity aggregator protocol.*

*Ultimately, the intention is to create a combined protocol for connecting to both centralized and decentralized exchanges. This will enable secure trading across blockchains, accessing liquidity from across the entire sweep of the crypto markets.*

## Orion Protocol overview

The Orion Protocol is a standard for connecting to centralized and decentralized exchanges' order books, allowing the creation of dApps to provide robust services for buying and selling any cryptocurrency at the best price the market has to offer at the time. There is no other protocol that exists in the market right now which does this. A few that do are specific to DEXs and only for Ethereum (0x protocol for example). Orion protocol can support multiple currencies, along with both DEXs and centralized exchanges.

There is a growing need in the crypto world for secure, reliable, trustless cross-blockchain exchanges. Orion unifies connections to many existing exchanges, providing standardized API access to all of them. While every exchange has differences in data formats and methods of connection and making calls, Orion will hide these behind one single API format.

Beyond this standardization, the platform will provide smart routing and price splitting functionality, searching out the best price and required liquidity across every exchange. Thus a large order may be split into smaller segments and executed across different exchanges, even if any single exchange lacks the order book depth to fulfill the whole trade at once. Especially for less popular pairs and more thinly-traded markets, this solves the problem of slippage and poor execution price.

The Orion Protocol also includes modules for standardizing portfolio management, storing, tracking, calculating profit/loss for executed trades, managing crypto index funds, and for providing liquidity for lending.

## Orion Protocol architecture

The Orion Protocol uses a modular architecture of distributed and decentralized services that fulfill all their settlement on the Holochain platform. The result is that these services and components can provide exceptional performance as well as the ultimate security of being verified by the blockchain, with funds locked and secured by smart contracts. One of the additional advantages of this best-of-both-worlds approach is that modules can be updated and substituted without affecting the overall functioning of the protocol, so no downtime is necessary when improvements are made.

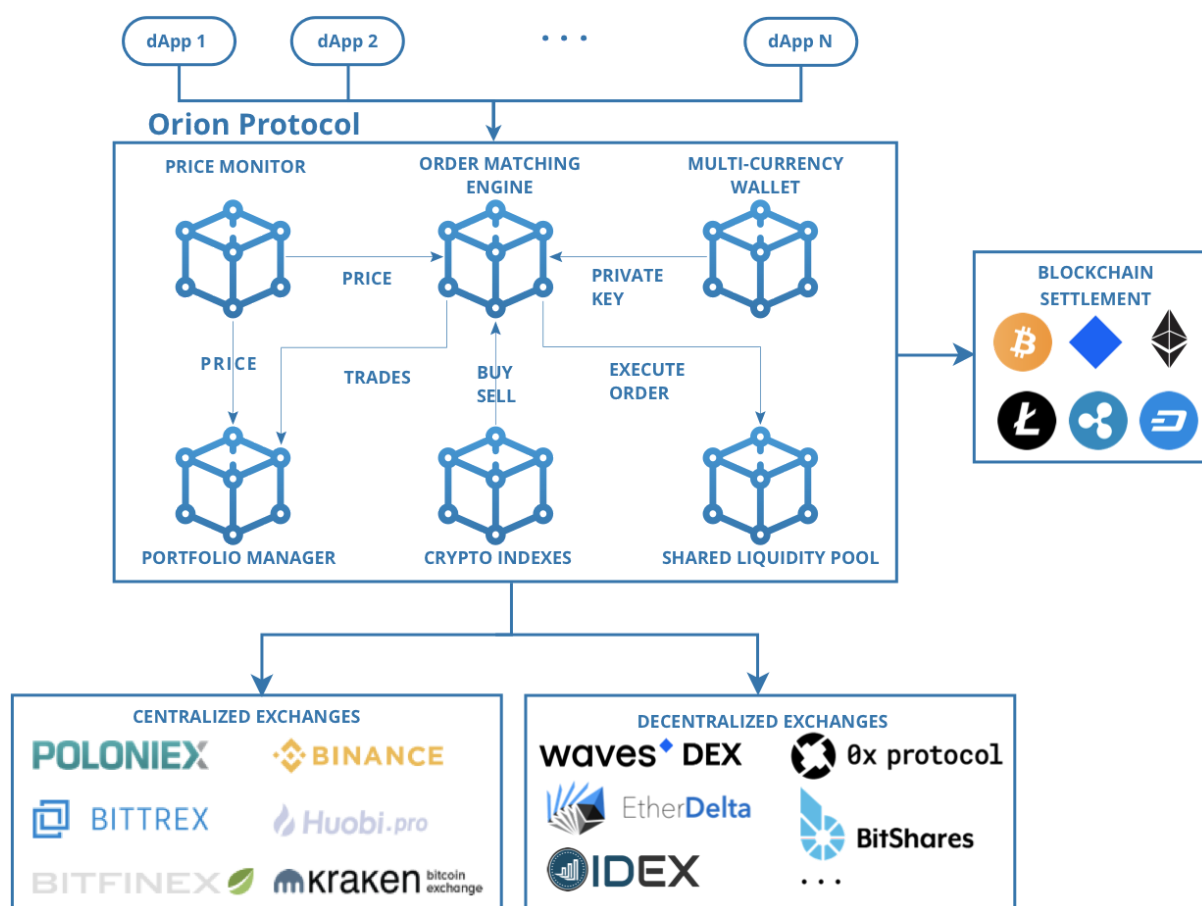


Figure 1. Orion Protocol architecture

The majority of Orion's core components will be open-sourced to the Orion Foundation, which has a number of purposes. Firstly, the Orion Protocol will standardize the API for the different elements of its liquidity aggregator, providing a common "language" for connecting to any exchange.

Secondly, Orion will create a marketplace for dApps built on top of its protocol. Some examples of dApps that might be built include:

- Arbitrage apps

- Algorithmic trading bots
- Investment funds
- Payment integration systems

The network of components that comprise Orion's marketplace can be developed and enhanced by third parties, ensuring greater quality and availability of functionality. Developers can earn an income when others use their modules. For example, anyone can create a Price Discovery Module for a new exchange and join the Orion network. They will be rewarded for providing this service with ORN tokens. Participation in the Orion ecosystem also has the benefit of sharing liquidity across the network and new exchanges.

Orion is the first reference implementation of all of the core components of the Orion Protocol, as well as being the first and major liquidity provider. Over time, more implementations will be added and will work in parallel to Orion – improving reliability, performance, and stability of the protocol.

From a technical standpoint the Orion Protocol complies with a microservices architecture in which all components are independent services or daemons that register themselves in the Orion registry and are discoverable by clients. E.g. A price service for a new exchange is simply a standalone service with its own database that implements the standardized Price module API, and adapts the API of that particular exchange, hiding any differences inside the module.

## Orion Protocol: components and modules

### Order Matching Engine

The task of the order-matching engine is to ensure that trades are executed at the most advantageous price by accessing the lowest asks and highest bids across all available exchanges.

When a new order is received, the engine first tries to execute it on the internal orderbook. If this does not give the best price, it then uses data provided by the Price Discovery Module to find the exchange or exchanges to which the order should be sent, depending on the required amount and the depth profile of each exchange.

Based on the results of this analysis the order is split up and submitted to the relevant exchanges. In order to fill a large order, or an order for a less-popular pair, the trade will typically be split into small pieces across a number of different exchanges; in other circumstances, one exchange might offer the best price for the amount required. Following a successful execution, these trades are consolidated and the client is notified of the completion of the order.

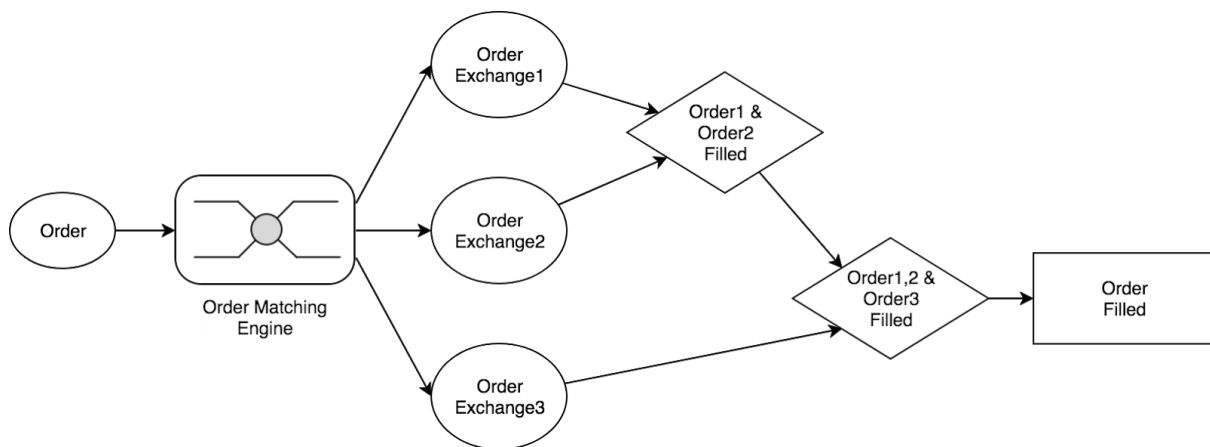


Figure 2. Order split and smart routing

Orders can have one of the following statuses:

- New
- Accepted
- Filled
- Partially filled
- Cancelled
- Partially cancelled

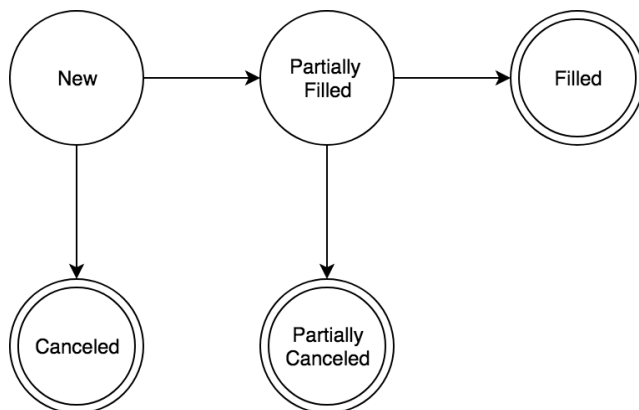


Figure 3. Order statuses

The following is an example of an API call for such an order. Smart routing and price splits are automatically included.

```

interface Order {
  // Client(dApp) address in the system
  clientAddress: string;
  // The traded currency pair, e.g. BTCUSD,ETHBTC, etc.
  symbol: string;
  // Order side: Buy/Sell
  side: string;
  // The amount in units of the base currency the Client wants
  // to buy/sell on exchange

```

```
amount: decimal;
// Limit price
price: decimal;
// The address of the Orion Protocol escrow smart contract
escrowAddress: string;
// How many ORN tokens the Client will pay as a fee
protocolFee: double;
// Order type: Market, Limit, Stop, StopLimit and others
ordType: string;
// Time in force: GoodTillCancel, FillOrKill, GoodTillDate,
etc.
timeInForce: string;
// Order expiration time (unix timestamp in seconds)
expirationTimestamp: integer;
// The order status:
status: string;
// Actual filled order amount in base currency
actualAmount: decimal;
// Actual order cost in quote currency
actualCost: decimal;
}
```

The trading interface supports different order modes, including fill Or kill, market, and limit orders.

A “smart search” is used to discover the right exchanges for the order – that is, the ones with the right combination of price and liquidity. When the Order Matching engine splits the initial order and finds the best exchanges on which to execute them, the final step is to find exchange executors that eventually create, submit, and watch for filling of the native orders. The Orion Protocol unifies the process for working with both centralized and decentralized exchanges, leaving all the differences to be dealt with only by the specific executors. (In short, CEX executors work with API keys where DEX executors sign orders right from the multi-currency wallet using a private key.)

There are two principally different modes of executors: a direct executor, which works with the funds held on their own accounts (either via API key or a private key); and proxy executors that lend the required funds via a shared liquidity pool, for circumstances in which a dApp does not have enough liquidity of its own on a particular exchange. Clients can therefore use their own funds on exchanges, in which case they will first need to provide API keys to give the engine access, or lend funds to a liquidity pool on different exchange.

### Centralized exchanges

The centralized exchange executor is simply an adapter for a particular exchange that can send Buy or Sell limit orders using the provided API key, and monitor them for fulfillment.

### Decentralized exchanges

A decentralized exchange (DEX) module is designed to connect to a DEX in the same way that the order-matching engine connects to a centralized exchange. The nature of a DEX and the way it operates means that the API functions vary differently and additional concerns must be considered. The exchange executor for a DEX uses a private key provided by a multi-currency wallet (see below) to generate, sign, and validate transactions tailored for the DEX on different blockchains. Because the transactions are signed before sending, the private key does not need to be exposed to the web. Nevertheless, security for this operation is paramount.

Where orders are executed internally, e.g. on Orion's internal DEX, atomic swaps can be used. These employ Hashed Timelock Contracts (HTLC) to exchange pre-determined amounts of cryptocurrency in their entirety (hence "atomic"), or not at all. Partial orders are not possible.

### Multi-currency wallet

A multi-currency wallet comprises a set of tools that is stored securely on the client's computer or mobile phone, and that supports different cryptographic functions and connectivity for many blockchains. Support for new currencies will be added gradually with the help of the Orion development community.

A set of easy and user-friendly tools will be integrated with the Orion Protocol, such as functionality for depositing and withdrawing currencies, sending ORN tokens to the escrow smart account, signing DEX orders for exchange executors, and integration with a portfolio management module to provide a history of operations and calculate the cost and profit of trades; amongst others.

### Price discovery

A price discovery module comprises a pluggable architecture that offers a feed of live prices from exchanges in real time. A new plugin can easily be written by creating a simple interface and presenting exchange information within it. The module displays the last price but also analyzes exchange order books to show volumes and depths. Whenever possible, it attempts to update and push results to the user, connecting to the exchange via web socket. When not available, it falls back to using a pull-based mechanism, constantly checking the exchange's REST API.

The price discovery module also aggregates and interprets historical prices, giving a feed to connected clients and a UI with prices for plotting charts by different time-frames and periods.

Providing price data will be charged in ORN tokens from the client. Developers can run their services with 99.9% uptime, receiving a fee for providing that data.

## **Portfolio management module**

The portfolio management module supports a range of functions for smart portfolio use, including trading history, current balance, and profit/loss. It also allows users to compare different trading strategies.

## **Crypto index funds module**

This module consists of the set of API calls required to create a custom index fund, providing a list of currencies and the proportion of the index they comprise in percentage terms. Indexes can be public or private. The module also includes the API calls needed to buy/sell each index, which are internally unpacked into separate orders relating to their underlying currencies and submitted to exchanges for execution by the Order matching engine. Additionally, there are APIs for price feeds using the prices of each constituent currency.

## **Staking shared liquidity pool**

When a client using the protocol does not have sufficient funds on certain exchanges, they can opt in to borrowing the necessary liquidity from a common pool. All final settlements are performed on the Holochain platform and guaranteed by a purpose-designed validation rule and mutual-credit accounting system of underlying hApp.

When a pool receives a request to execute a given order, it searches the stakeholder(s) able to execute it based on various criteria such as the rating of each stakeholder, its fees, available funds etc. Once found, stakeholders execute requested orders from their account on the centralized or decentralized exchange. During execution, the order is guaranteed by a Smart Contract Escrow Account, so that the parties receive the full amount of the correct currency and their ORN tokens for the commission fee.



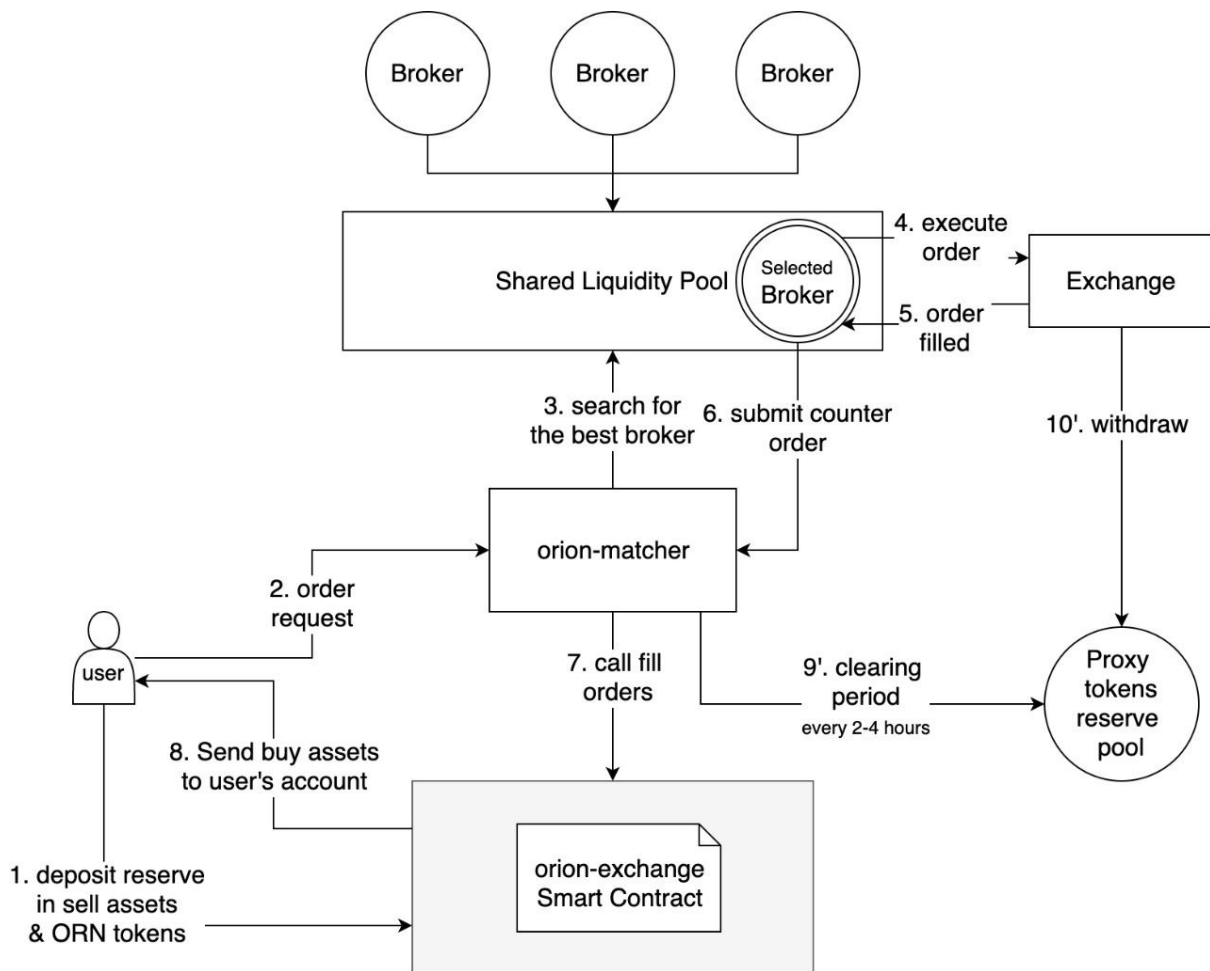


Figure 4. Shared Liquidity Pool with Exchange Smart Contract

The client first needs to deposit the necessary amount of the currency to sell and ORN tokens to the Smart Contract Account with a time lock. Within that amount, they can execute trades and create a portfolio.

All lenders provide their stake for overall liquidity (common pool). When they receive requests from the Order matching engine they execute trades on their own account on the relevant exchange. Lenders receive fees in ORN, when the initial request is fully closed. This can be done in two ways:

- The lender withdraws bought currencies to an external address, and provides proof with the transaction hash to the Holochain application validating broker Smart contract addresses to unlock sell currencies and ORN tokens for commission fees.
- The counter order is received that closes the initial open trade. The lender then receives a commission fee in ORN.

## dApps marketplace

A wide variety of applications can be created for the Orion Protocol, including apps for investment, trading bots, and payment gateways. The Protocol will be

used extensively for every decentralized application in the marketplace. The first dApp running on the Orion Protocol will be Orion itself, the reference implementation that will provide a liquidity aggregator, portfolio management and an ICO platform. Within Orion's dApps, ORN will function as a utility token, being used to pay for all services, including for commission fees and within its lending model.

## Example scenarios

### Scenario 1

A blockchain fund wants to buy a total of 10 BTC of Ethereum.

1. The fund sends 10 BTC to the Orion Smart Account address with a time lock period (depending on the blockchain parameters of the received currency). It can choose to pay trade fees in ORN tokens, or subtract this from the BTC amount.
2. A Send request is made to the Order matcher to buy Ethereum for the total amount of BTC, also providing an Ethereum address.
3. The Order matcher splits this across three exchanges: Binance, Bittrex and Poloniex.
4. The three orders are executed. Three withdrawal requests are initiated, and there will be three ETH transactions to transfer the resulting funds to the Buyer's address.
5. A transaction hash for each of these three transactions is provided as proof in order to unlock the BTC from the Orion Smart Account address. The transfer from that address can be made only by the stakeholders who provided liquidity to execute corresponding orders on exchanges.
6. If for some reason a buyer hasn't received the ETH to their account after the lock period ends, they can receive the locked BTC back.

### Scenario 2

A multi-currency terminal provides the following functionality to users:

1. Subscribe to the service
2. Pay a monthly fee in ORN token
3. Relevant exchanges and altcoins of interest can be selected
4. Real-time price feeds are delivered

### Scenario 3

Trading using funds held by the dApp itself.

1. The dApp deposits ORN tokens to an account used for fee payment.
2. The dApp sends a request to buy/sell a given amount of a particular currency, providing the API key for exchanges where it has funds.

3. The Order matching engine module finds the best prices across the relevant markets, splits the initial order and returns the list of orders to be submitted to different exchanges.
4. The dApp must provide an API key for a CEX with sufficient funds on account, and a signed order must be submitted to DEXs using a private key from a local multi-currency wallet. All orders are executed by corresponding direct exchange executors.
5. The OrderWatcher is notified about the status of each order. The fee in ORN tokens is deducted from the dApp account for filled orders.
6. Filled trades are published to the Portfolio management module for further tracking and analysis. The purchased coins remain on the dApps exchange account until withdrawn, or in the cold wallets for DEX trades.

## ORN utility token

All major activities on the ORION platform can be paid for with the ORION utility token (ORN). While other currencies will be accepted, paying with ORN will secure a discount for fees and other functions. Non-ORN payments will be converted to ORN in real-time at the best price on any available exchanges. As with all of its supported ICOs/IEOs in the future, ORION itself will be the initial trading platform for the ORN token. Additionally, ORN will be the currency of payment for all services provided by the Orion Protocol.

### Token functions and benefits

Similar to the tokens integrated with existing exchange platforms such as Binance, ORN will give holders a range of benefits, plus additional functionality that will add further value to users.

The token will be integrated with all of the main transactions that take place on the platform, thereby taking the form of an internal currency or utility token. By holding and using it, ORN owners will be able to access premium services and generate extra profits from various operations on the platform, as well as participating in the buyback program that will help to maintain and increase the token's value.

The functions of the ORN token include but are but not limited to:

- **Discounts on trading fees.** Users will be able to save up to 20% on standard trading fees by paying with ORN. Since fees are typically calculated as a proportion of order size, if ORN tokens rise in value then a smaller amount will be required to pay the equivalent value in the traded currencies. Buying ORN at ICO therefore represents the ability to pre-purchase trading activity at a favorable rate.
- **Buyback program.** When an order is fulfilled on a trade and the user does not pay fees with ORN, a standard commission is charged as a percentage of the total order amount. When the ORN buyback program is started, every such operation on the ORION platform is immediately converted to a market BUY order for ORN tokens across supported exchanges. Therefore every trade represents demand for ORN.
- **Staking in a shared liquidity pool.** Brokers or liquidity providers who want to receive transaction fee revenue for fulfilling orders from users need to stake a minimum amount of ORN tokens to join the shared liquidity pool. The more they have, the more orders they can handle, in return receiving trading fees.
- **IEO listing and voting.** The ORN token can be used to participate in platform development. This includes voting to list new cryptocurrencies and to support new IEOs, rating IEOs in terms of business model and

trustworthiness of teams as a form of collective due diligence, and implementing new functionality of various forms on the platform.

- **Advertising.** One of ORION's revenue streams will come from selling advertising space on its platform. ORN will be the default token of payment for this service.
- **Unlocking advanced features.** Users who hold ORN tokens within their portfolios will be able to unlock additional premium services on the platform. They will gain access to margin trading; be able to set advanced trading orders that are not available to other users (Limit orders, Stop market and Stop-Limit orders), as well as controlling Stop Loss and Take Profit parameters; and be sent alerts for arbitrage opportunities and other useful features that will allow them to generate additional profits.
- **Orion Protocol payments.** Every service and all dApps offered within the Orion Protocol will be charged using ORN. Developers who upload dApps to the Orion marketplace will be able to charge customers for using them. Fees are set by the developers, with users deciding whether they offer value for money or not.

## Development Road Map

ORION has been in development for a year, with core functionality such as the liquidity aggregator already completed. The platform will remain under constant and active development, starting with the improvement of current features, support for additional cryptocurrencies, implementations for ICO investments, asset and portfolio management, the crypto index funds marketplace, and ultimately a fully decentralized platform.

- [Q2-2020: Pilot MainNet release](#)
- [Q3-2020: Launch of MainNet](#)  
Start generating revenue from Commissions Fees
- [Q4-2020 Launch of trading terminal with Arbitrage trade module](#)  
Increase of trading Volume
- [Q4-2020: Launch of Orion Enterprise Trade](#)  
Income from B2B revenue streams
- [Q1-2021: Launch of Liquidity Boost Plugin](#)  
Increase trading volumes via partners
- [Q1-2021: Launch of Trading Signals plugin](#)  
More features to retail customers
- [Q2-2021: Launch of DEX launcher kit](#)  
Whitelisting Orion core modules for use in different blockchains
- [Q2-2021: dApp tools available for Developers and dApp market](#)  
Engage 3d party projects and developers to contribute to the protocol



## Conclusion

ORION is designed to meet a series of needs in the fast-growing crypto world by addressing a number of flaws in the efficiency and usability of current crypto exchanges.

The platform's flagship liquidity aggregator engine is fundamental to this aim. The engine analyzes prices on a large number of crypto exchanges in order to fulfill customer orders, which can be split into several trades across different markets. This functionality is accessed from a single web or mobile portal with a convenient interface and powerful tools for more advanced traders, while allowing a single, unified fee for commission and withdrawals. Thus ORION combines the best features of an exchange, brokerage, and instant conversion service; and means that users only need to register with one website to benefit from potentially dozens of markets. Support for both investing in popular ICOs and launching custom ICOs will be included, with users engaging with these opportunities directly from their accounts and ORION providing the first exchange for the new tokens.

All economic activity on ORION directly or indirectly uses the ORN token. Trading fees and charges for other services like margin trading or advertising can be paid in ORN for a discount, or if paid in other currencies then are converted immediately to ORN. ORN will also be used to vote on platform upgrades and other features.

ORION is the first initiative to deploy such an innovative set of technologies within the user interface of a traditional crypto exchange, dramatically lowering the barrier to accessing the crypto markets, reducing costs, and streamlining the user experience far beyond anything currently available.