

CoinDEX

Cryptographic Asset Allocation
Distributed on Blockchain
March 5, 2018

Abstract

The purpose of CoinDEX is to provide stability, improve transparency, and reduce risks associated with purchasing individual cryptographic assets through a balanced asset allocation strategy. The purchase of one DEX coin results in the indexed purchase of multiple cryptographic assets modeling an efficiency frontier like that described in Modigliani and Miller's Capital Asset pricing model (CAPM)¹.

DEX achieves this strategy through a neural network, which optimizes and publishes its weighted allocation of cryptographic assets 24/7. The base price of DEX is therefore a proxy to the instantaneous weighted average value of the underlying cryptographic basket net of mining fees. Market premiums and periods of devaluation are likely as DEX's unique value proposition described in this white paper becomes established and as DEX achieves its own equilibrium within the cryptographic ecosystem.

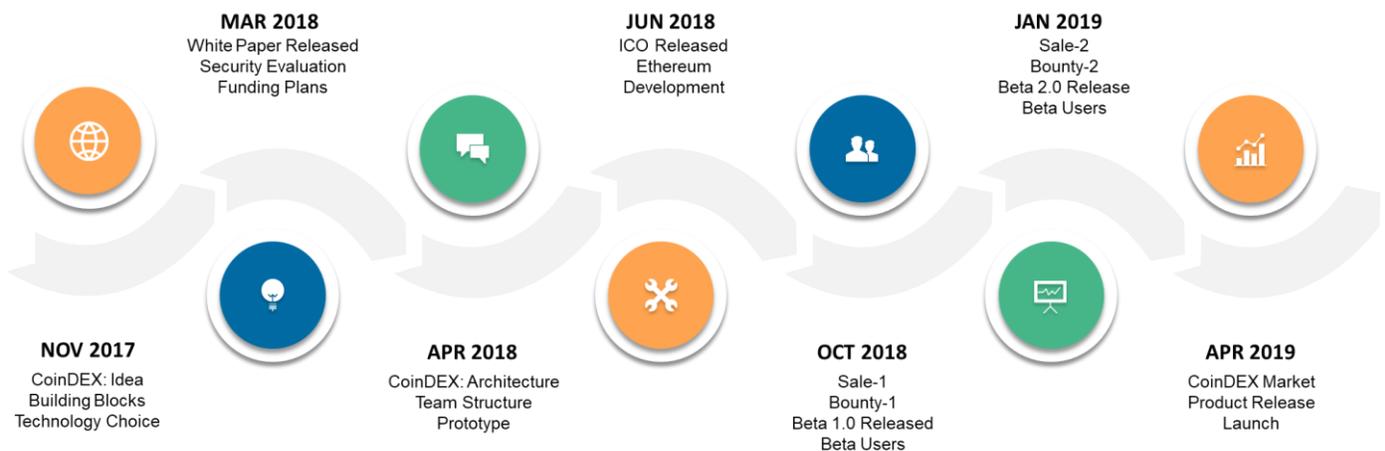


Figure 1 (Roadmap)

Contents:

1. CoinDex Blockchain Allocation: Introduction
2. Stakeholders
 - a. Users
 - b. Developers
 - c. Investors
3. CoinDex Distribution Schedule
4. CoinDex Differentiators and Roadmap
5. Tasks and Phases
6. CoinDex: Opportunities
 - a. Timing
 - b. Access
 - c. Capital

Conclusion

FAQ

References

Appendix

1.0 CoinDex Blockchain Allocation: Introduction

CoinDEX (DEX) is an inexpensive indexing alternative with no cost other than standard miner fees incurred for block chain proof of work. Miner fees obviously fluctuate based on relative supply and demand of constituent cryptos and great care will be taken to execute transactions most efficiently while avoiding excess exchange concentration risks.

It's clear that cryptographic assets sometimes fluctuate wildly in positive and negative directions. The goal of DEX is to add stability and transparency by reducing various risks down to that of the crypto market itself. However, there are no guarantees expressed or implied that DEX pricing will reflect a summation of the initial underlying currencies at the execution of sale. DEX will most likely achieve its own point of equilibrium that will trade independently of its constituent assets.

Please do your own due diligence in evaluating this ICO.

DEX purchase flow overview:

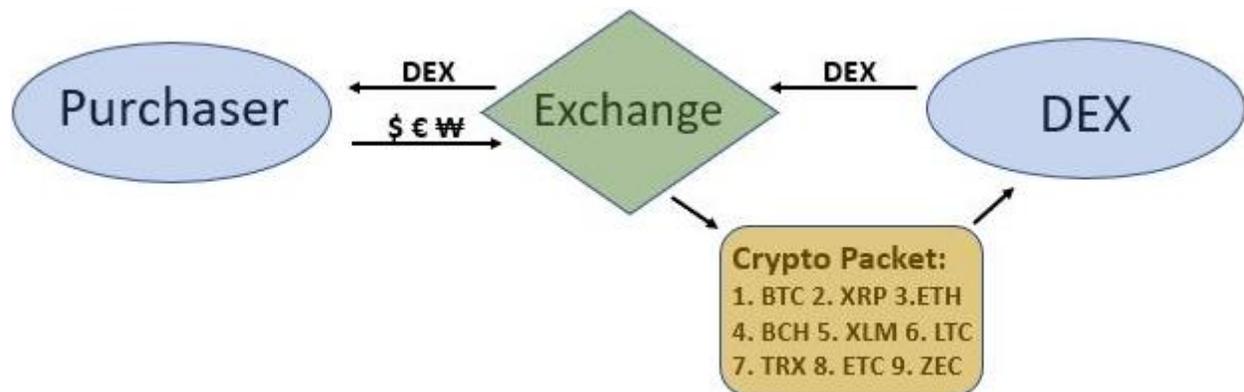


Figure 2

2.0 Ethereum Solidity: The CoinDEX Development Platform

Ethereum is the largest decentralized application (DApp) platform within the blockchain ecosystem with more than 50% market share of projects currently in development. Ethereum DApps have been written in common coding languages like C++, Java, and Python in addition to Solidity, a programming language designed by Ethereum founders.

Accounts are the basic unit or object in Ethereum. The blockchain tracks the state of every account. There are two types of accounts: Externally Owned Accounts (EOA), which are controlled by human users, and Contract Accounts, which are controlled by internal contract code and activated by an Externally Owned Account.

“Smart Contracts” or “Decentralized Applications (DApps)” are determined by code in a Contract Account which is activated when an EOA sends a transaction to the Contract Account. Contract Accounts triggered by external EOA produce answers that can be agreed on by participating nodes.

Each account contains at most four fields:

- Nonce (a counter used to make sure each transaction occurs only once)
- Ether Balance
- Contract Code
- Storage

A transaction is a signed data packet which stores messages sent from account to account. It contains the following data fields:

- Recipient
- Signature
- Amount of Ether transferred
- Data

2.1 Ethereum Solidity: The CoinDEX Development Platform

A major advantage of Ethereum DAaps over Bitcoin's protocol is the intentional design of Smart Contracts, which are a pure play solution to automating contractual agreements without brokers. Smart contracts can be continuously deployed world-wide providing a highly scalable source of secure and bias free transaction for any instance where two or more parties want to exchange something of value.

Smart contracts effectively provide 24/7 access to virtually any service without cascades of middlemen and markups. The smart contract cuts across technological, geographic, and temporal barriers from unlocking the door to a driverless vehicle that you've just decided to rent, to instantly signing and recording multiparty contracts globally.

The efficiency and scalability of smart contracts go far beyond the classic concept of a disruptive technology. Smart contracts will hit every industry and the efficiency grab that follows will push other industry players to adapt to this system or perish in the stampede. Visualize the net consumer cost and the competitive effect of a service that has eliminated 40% of its overhead or a startup designed without the extra 40% to begin with.

Punctuating the point, Ethereum was designed to minimize transaction costs relative to alternatives. As of December 2017, Ethereum published a median transaction fee of \$0.33 USD for its own crypto currency called Ether. Bitcoin's median fee was \$23.00 USD at the same time, a difference largely due to Bitcoin's manual mining and resultant fees.

'Proof of work' is the breakthrough decentralization approach pioneered by Bitcoin where blocks are mined and completed by consensus rules across all active nodes. Ethereum blends this approach together with an automated function called 'proof of stake,' which is entirely computerized. According to Ethereum developers, 'Proof of stake' is the solution that will soon replace the mining function all together further eliminating manual processes and subsequent costs.

Merkle trees (aka. Merkle Proofs) provide improved security and storage optimization through light client synchronization. This works by building out a tree for each block chain and classifying each leaf node as a hash (encoded file) of a block of data. Storage is tremendously reduced by using hashes which has an effect similar file to compression. Other optimization projects such as parent/child blockchains and calculation sharding have been proposed to further improve performance.

2.2 Basic code for CoinDEX Token written in Solidity:

Here is an example of the core code delivery that initializes the CoinDEX token supply and allows the coin to be sent. A more comprehensive coding example that builds out the CoinDEX ecosystem is located in the technical appendix.

Basic CoinDEX Token Initialization:

```
contract CoinDEX {

    /* This creates an array with all balances */

    mapping (address => uint256) public balanceOf;

    function CoinDEX(

        uint1,000,000,000 initialSupply

    ) {

        balanceOf[msg.sender] = initialSupply;        // Give the creator all initial tokens

    }

    /* Send coins */

    function transfer(address _to, uint1,000,000,000 _value) {

        require(balanceOf[msg.sender] >= _value);        // Check if the sender has enough

        require(balanceOf[_to] + _value >= balanceOf[_to]); // Check for overflows

        balanceOf[msg.sender] -= _value;                // Subtract from the sender

        balanceOf[_to] += _value;                       // Add the same to the recipient

    }

}
```

2.3 Select use cases currently in development with Ethereum:

A wide range of large US firms are building and testing blockchain applications, many of which have chosen to develop DApps in Ethereum. Most of the top US banks are engaged in Ethereum Smart Contract projects. Tech companies like Microsoft and IBM are building DApps as are online retailers like Amazon, Overstock, and Walmart.

Quorum is a permissioned ledger system being developed by JP Morgan Chase using Ethereum smart contracts. This is a fintech blockchain application with a built-in ruleset that manages public and private information on derivative transactions while providing access to applicable regulators.

Other fintech apps like the Royal Bank of Scotland’s clearing and settlements mechanism for securities transactions use Ethereum Smart Contracts while The Luxembourg Exchange has deployed a document authentication system in Ethereum that can be replicated across many industries. Below is an illustration of smart contracts in fintech:

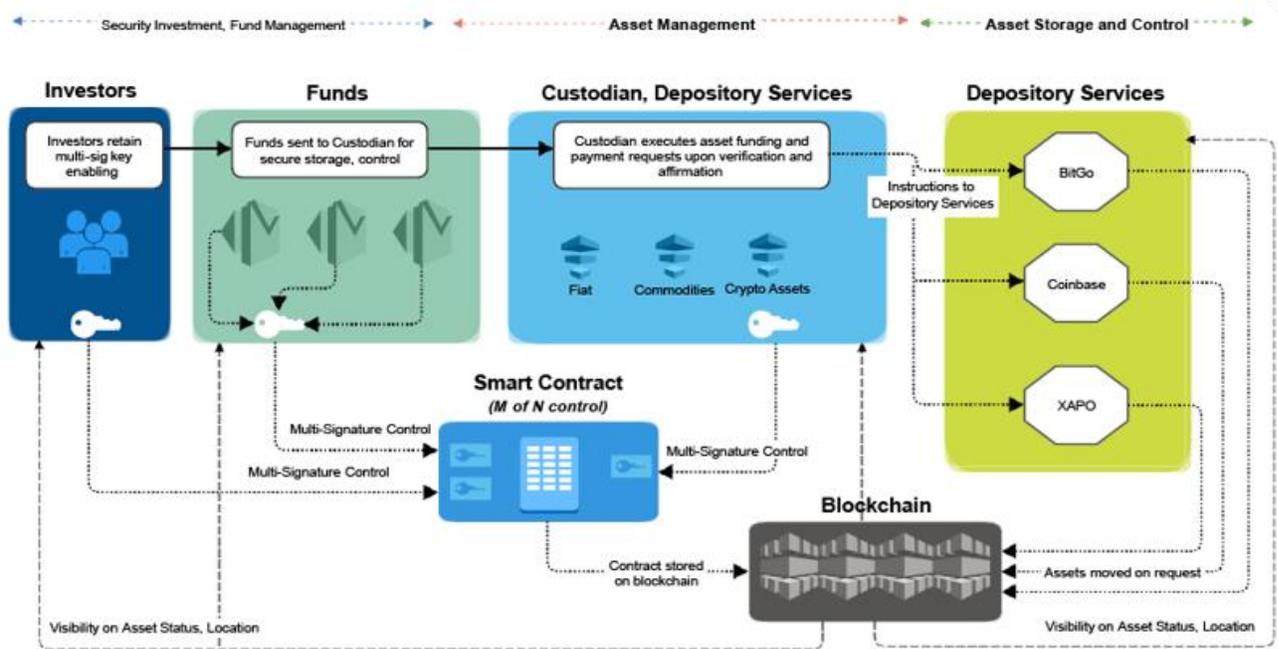


Figure 3

2.4 Neural network and machine learning applications in DEX:

CoinDEX has two machine learning algorithms that are synchronized to optimize portfolio value. The first is an internally focused neural network that functions as our currency valuation engine. This neural network integrates parallel processing for speed together with knowledge acquired from the training set, which for our purposes is the weighted historical valuation of crypto currencies maintained in our basket. For instance, the weighted input variables for a given crypto currency at to would be: opening price, closing price, high price, and low price from a continuous set of structured numeric and character data such as that shown in the following table:

slug	symbol	name	date	open	high	low	close	volume	market	close_ratio	spread
bitcoin	BTC	Bitcoin	4/28/2013	135.3	135.98	132.1	134.21	0	1500520000	0.5438	3.88
bitcoin	BTC	Bitcoin	4/29/2013	134.44	147.49	134	144.54	0	1491160000	0.7813	13.49
bitcoin	BTC	Bitcoin	4/30/2013	144	146.93	134.05	139	0	1597780000	0.3843	12.88
bitcoin	BTC	Bitcoin	5/1/2013	139	139.89	107.72	116.99	0	1542820000	0.2882	32.17
bitcoin	BTC	Bitcoin	5/2/2013	116.38	125.6	92.28	105.21	0	1292190000	0.3881	33.32
bitcoin	BTC	Bitcoin	5/3/2013	106.25	108.13	79.1	97.75	0	1180070000	0.6424	29.03
bitcoin	BTC	Bitcoin	5/4/2013	98.1	115	92.5	112.5	0	1089890000	0.8889	22.5
bitcoin	BTC	Bitcoin	5/5/2013	112.9	118.8	107.14	115.91	0	1254760000	0.7521	11.66
bitcoin	BTC	Bitcoin	5/6/2013	115.98	124.66	106.64	112.3	0	1289470000	0.3141	18.02
bitcoin	BTC	Bitcoin	5/7/2013	112.25	113.44	97.7	111.5	0	1248470000	0.8767	15.74

Figure 4

The network is then organized into a system of three neural layers with normalized inputs fed forward in such a way that the single output of a ‘neuron’ in layer one becomes an input for all neurons in layer two. Layer two is also called the ‘hidden layer’ in the following diagram:

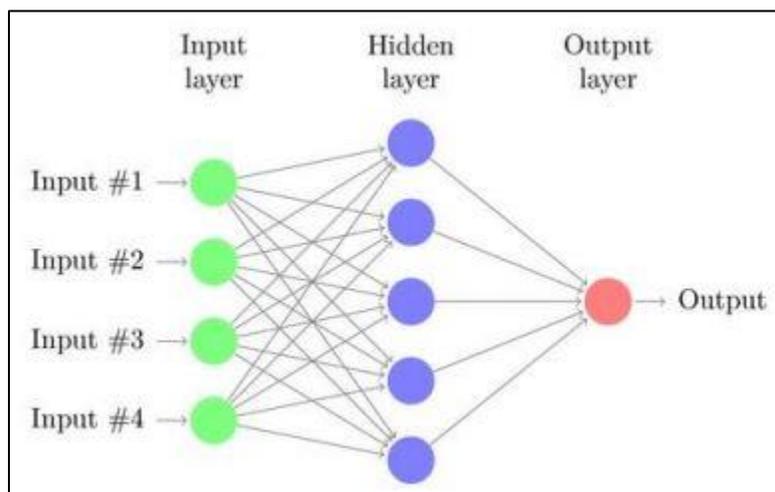


Figure 5

Each neuron is a formula that determines if the signal strength of the input will or won't be transformed into an 'activation,' which adds to the weight of the overall output. Layer two feeds forward to the output layer, which is calibrated to minimize the average error function. The error is then distributed back across the network layers through a process called back propagation, which is then repeated until a threshold is reached where there is no further reduction in error. This is the DEX money manager, which continuously evaluates individual basket holdings as described as well as the basket itself using individual holdings as inputs.

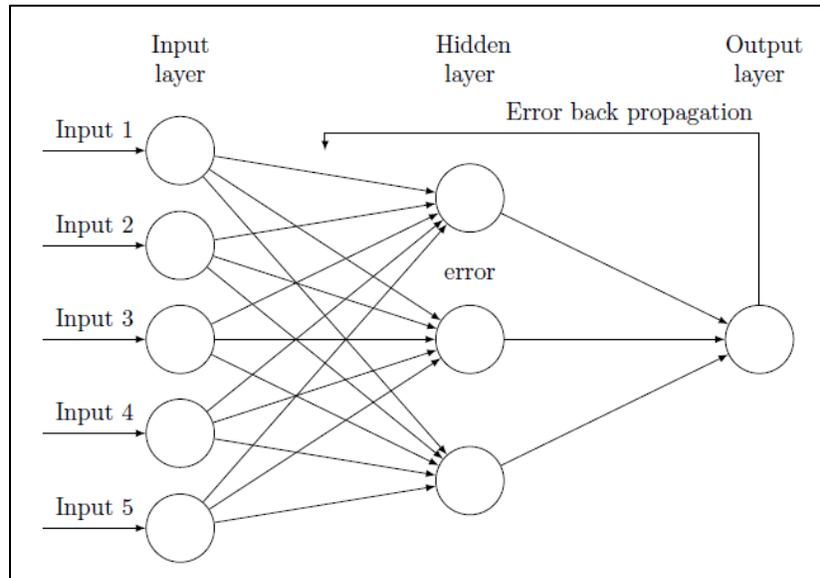


Figure 6

Partial Listing of Worldwide Crypto Currency Exchanges as of 2/10/2018			
Abucoins	Bleutrade	CryptoX	Livecoin
ACX	Braziliex	Etherdelta	LocalBitcoins
Allcoin	BTC Markets	EXMO	Novaexchange
Binance	BTC-Alpha	EXX	OKCoin
Bisq	BTCC	FlowBTC	Paymium
Bitcoin Exchange Of Israel	BTC-e / WEX	Gate.io	Poloniex
Bitcoin Exchange Thailand	BTCTrade	Gatecoin	QuadrigaCX
Bitcoin Indonesia	C-Cex	Gemini	Quoine
Bitcoins Norway	CEX.IO	go4cryptos	The Rock Trading
Bitfinex	Coinbase GDAX	HitBTC	Tidex
bitFlyer	Coincoz	IDEX	TradeSatoshi
Bitthumb	Coinfloor	Indacoin	Vaultoro
Bitkonan	CoinMate	itBit	Vircurex
BitMarket	Coinnest	Korbit	VirWox
Bitso	coinone	Kraken	YoBit
Bitsstamp	Coinsecure	Kucoin	
Bittrex	Cryptonit	LakeBTC	
BitX South Africa	Cryptopia	Liqui	

Figure 7

When the lower boundary of an individual currency value is exceeded, then a trade recommendation is promoted to the execution engine.

The execution engine is an externally focused machine learning algorithm that continuously compares the values of current DEX holdings with the same currencies across nearly 70 exchanges.

The execution engine rank orders the buy and sell prices of target currencies net of transaction fees and automatically recommends execution of transactions where there is a spread greater than .05%. Like the currency valuation engine, the trade execution engine is operational 24/7 in search of optimum execution pricing and possible arbitrage cases, which are still widely pervasive across various cryptocurrency platforms.

CoinDEX founders have extensive backgrounds in the fields of traditional inferential statistics and machine learning. Machine Learning is the foundation of autonomous or semi-autonomous decision making in modern computing. Through a combination of statistics, probability, and classification models, variables can be fed into a machine with predictable decisions resulting in far shorter time than human capability.

It makes sense then that the destiny of our product is a blockchain optimized deployment that intersects with an automated learning model. For reasons described above, we have no doubt that machine learning goes well beyond the standard distributions and parameter estimates of traditional statistics to simulate a logical thought process in a changing environment. We firmly believe that computer science has demonstrated certain advantages over human beings such as memory, processing speed, and consistent output delivery.

Our purpose therefore, is to set forth an algorithm that adequately models our currency basket in context of its environment where each iteration results in a minimized loss function and automated buy sell execution based on this information. This is achieved through the synchronization of our neural net and machine learning platforms with continuous training, measurement, and convergence criteria as the executable output.

2.5 Visualization

Uber proved there's a multibillion dollar market in the provision of a simple visualization method that lets anyone request a ride, track the driver's location, and pay through a generally smooth and enjoyable process. In the case of CoinDEX our visualization tool will function as an overlay letting you see the neural net in action resulting in greater transparency and an improved user experience.

In this light, CoinDEX ties it's offering together with a tool that uses public blockchain addresses to visually quantify one's current DEX cryptographic positions at any time. Further, the tool will visually walk users through their transactions in real time per the architectural flow shown below.

2.6 CoinDEX Architecture

Key architectural features for portfolio and security optimization:

1. Neural net decision making for portfolio allocation
2. 24/7 Machine learning scan of exchanges for optimal execution
3. Discrete distributed storage design to reduce asset concentration risk

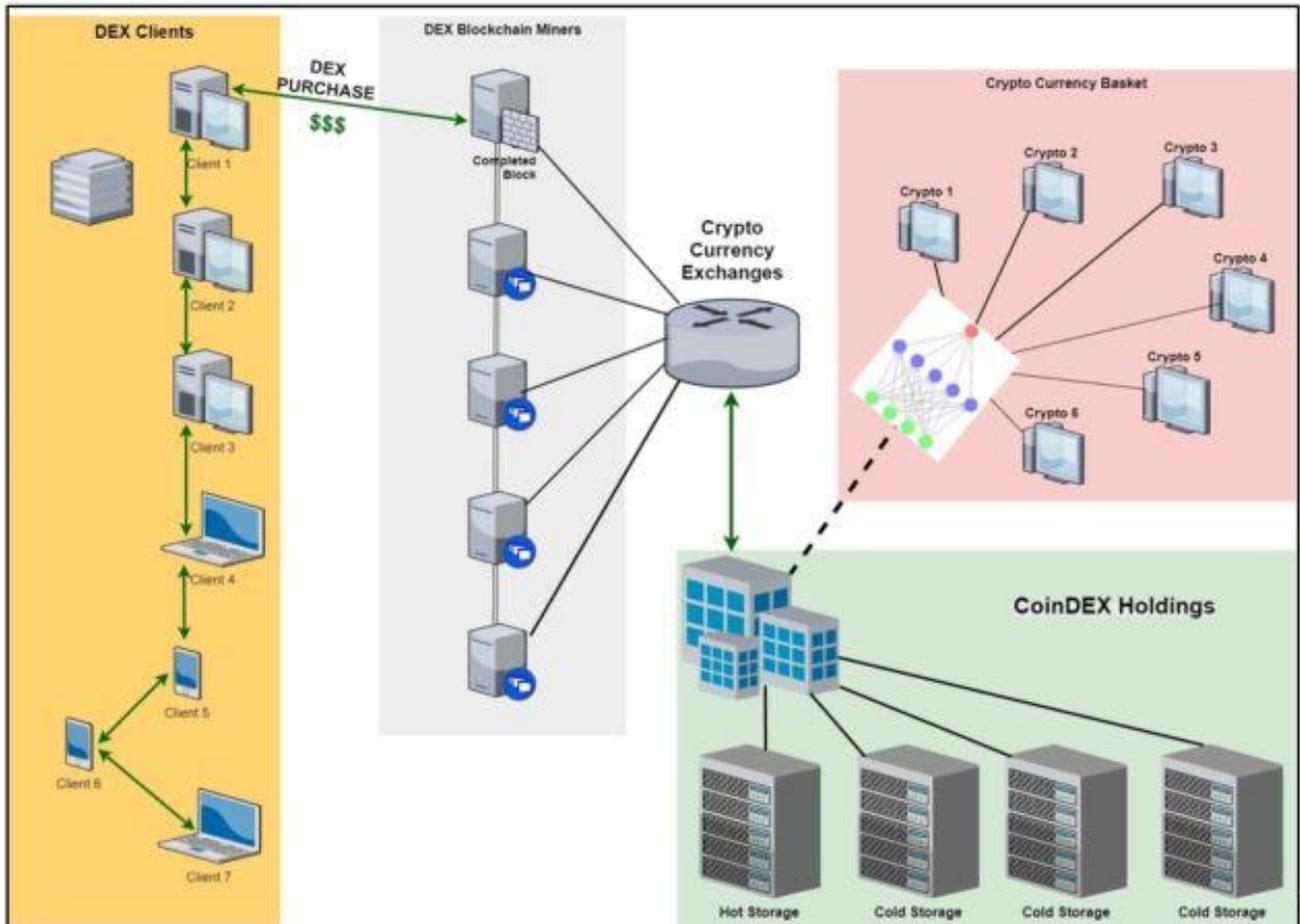


Figure 8

Wallets

A wallet is required to securely protect and store crypto currencies via public and private key. Ethereum's wallet is well designed to hold a variety of cryptographic assets and has been stress tested for functionality and vulnerability since it was launched. This wallet is a desktop application that also functions as an advanced tool where you can develop and deploy smart contracts directly. Therefore, the Ethereum wallet is a good option. That said, participation in hardware wallets such as Nano and wallets that participate in a wider array of assets will also be considered for DEX.

3.0 Stakeholders:

3.1 Users

The purpose of CoinDEX is to reduce risks associated with the purchase of individual crypto currencies along with exchange, country, and storage risks among others. DEX distinguishes itself amongst cryptographic holdings in the following ways:

- CoinDEX's primary purpose is to anticipate and manage risk through portfolio diversity, vetting of all system inputs for quality and integrity, deployment of asymmetric cryptography and discrete distributed storage to provide added stability and protection.
- CoinDEX is a no cost alternative to heavily loaded hedge fund and other pooled asset products commonly rolled out through traditional platforms.
- CoinDEX's spot valuation is supported by an underlying portfolio of premium cryptographic assets. The growing class of cryptographic assets may move countercyclically to traditional cryptos thus reducing covariance and volatility.
- CoinDEX deploys neural net and machine learning algorithms for transparency and automated portfolio allocation.
- CoinDEX's GUI provides instant visualization of positions in one's wallet and walks purchasers through their purchases in real time at each instance of a purchase transaction.
- CoinDEX is the first cryptographic blockchain app designed to automate an unbiased index of funds.

3.2 Investors

- DEX highly values its funding sources and users as evidenced by cost free transactions and by the following ICO launch structure:
- Hard Capped ICO Funding Target: 200,000,000 tokens targeted at .01 USD each.
- Total coin development: 1 Billion coins. 20% to ICO tokens, 40% retained, and 40% issued to market.
- Operational Funding Allocation from ICO: 15% marketing, 15% legal consultation and licensing, 70% for operations including: development, maintenance, upgrades, server compute and storage as outlined by the bar chart below:

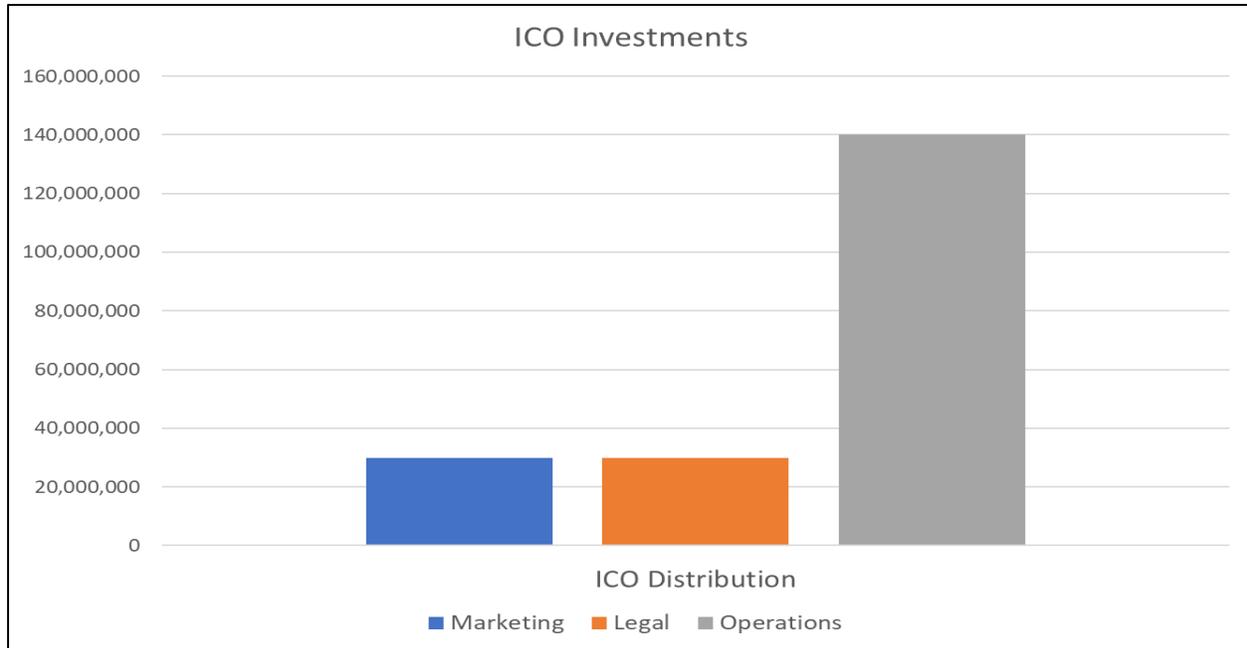


Figure 9

3.3 Risk Analysis:

To be clear, CoinDEX makes no promise, guarantee, or warranty expressed or implied that the net value of any DEX purchase including ICO tokens will appreciate or retain the purchase value. DEX purchases are not FDIC insured and a variety of risks present in the cryptocurrency market may negatively impact ones purchase thereby reducing the value down to as little as zero.

As stated throughout this document, DEX's primary mission is to provide optimum levels of confidence and stability that can be achieved in this space. DEX proactively uses a variety of strategies to manage the following categories of risk and to protect its underlying assets.

Ecosystem Risk is simply the launching of ICOs that are predicated on a combination of momentum and hype. These coins rarely have any defining innovation or underlying business activity. By virtue of basic portfolio theory, some risk posed by individual coins will be reduced through diversification. CoinDEX evaluates prospective cryptographic assets in light of these concerns and will only purchase those that it deems to have met its fundamental quality standards.

Hackers are an obvious concern. In addition to standard public/private keys, DEX uses and highly recommends two factor identifications for added protection on surface level transactions such as the transfer of funds to and from the DEX wallet. DEX secures its cryptocurrencies through discrete distributed storage where no more than 5% of the portfolio is stored in a given location to avoid excess asset concentration. When a new DEX coin is minted through a purchase request, the underlying currencies are bought and evenly distributed across internal storage nodes.

3.4 Brand Identity

Strategic Marketing and Differentiation-DEX must maintain its unique value proposition to attract participants at all levels including purchasers, miners, and bloggers. Failing to build and continuously communicate DEX differences will likely stall its momentum and impact value.

Reputation-DEX's purpose of creating stability in the process of owning cryptographic assets must be underscored by its association with participants of good moral character and sound judgement at every level. This includes employees, partners, suppliers, and even purchasers.

Any instance of theft, fraud, or currency manipulation can have extremely negative effects on the value of cryptographic assets, especially currencies. Therefore, DEX will proactively seek to eliminate this risk type through continuous review of its business processes, scrutiny of its association with market participants, and vulnerability testing of software and hardware facilities.

3.5 Regulatory

US Regulatory Landscape-DEX intends to follow the self-registration process with the US CFTC as a pooled currency offering. Further DEX will register with the SEC and FINRA as a regulated security with the ICO made publicly available through the approved crowdfunding platforms in the US. After the ICO DEX will trade like any other crypto currency through decentralized trading with the added architectural features described above.

Crypto currency regulation is rapidly evolving meaning the rules in place today may be updated by these agencies and other agencies may weigh in as well in the future. DEX will make every effort to stay current and in compliance with prevailing laws, rules, and regulations as applicable.

International Regulators-DEX follows US laws in issuance of its ICO and management of its crypto currency. All suppliers, users, and investors should become familiar with predominant laws covering oversight, monitoring, and regulation of cryptocurrency ICOs in the US.

Capital Expenditure/Structure-The whole DEX concept is based on efficiency which is another way of saying low overhead. Adequate budgeting for vital functions such as compute and storage, mining fees, management and consulting fees must be balanced to safely accommodate all levels of trade volume at the lowest possible expense ratio.

Failure to adequately plan for capital expenses will negatively impact DEX operations and ultimately its valuation. A comprehensive budget is set forth together with this white paper and can be viewed along with all past versions on the DEX homepage.

4.0 CoinDEX: Investment Opportunities

Highlights of the CoinDEX opportunity are as follows:

- a) **Timing:** Crypto market is still in infancy in terms of value, regulation, and competition.
- b) **Access:** Global distribution of cryptographic assets is possible within a very short time.
- c) **Capital:** Larger players are entering crypto market-already exceeded \$500 Billion USD.

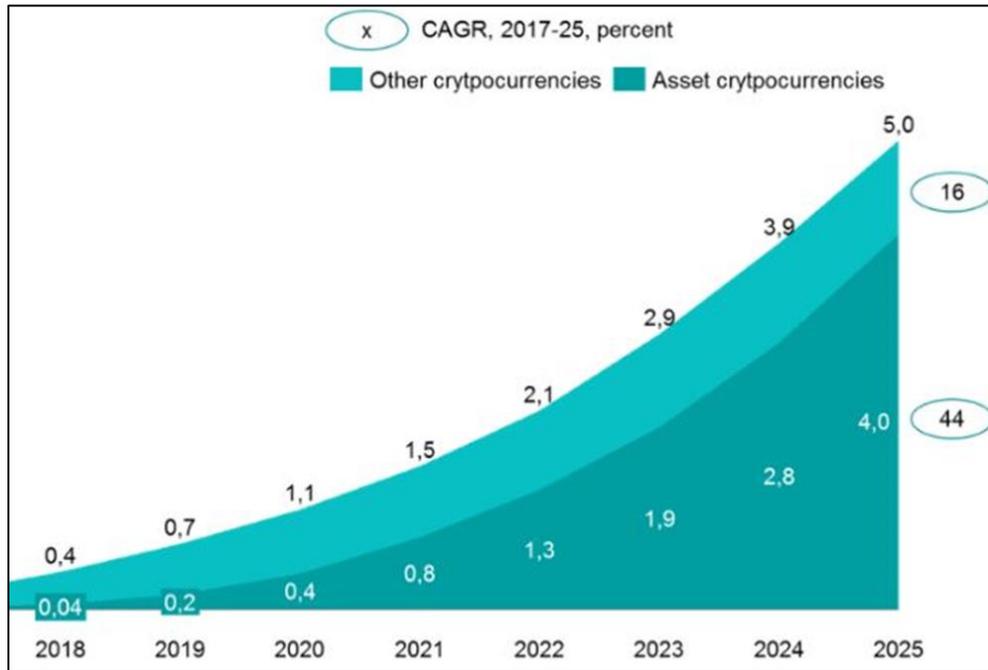


Figure 10

5.0 ICO and Phases of Sale:

DEX founders will rollout ownership opportunities in a phased distribution schedule per the table below (Figure 11). ICO tokens may initially be available to corporate partners and accredited investors only depending upon SEC and FINRA registration turn around. Registration with these agencies is required to make tokens available to non-accredited investors in the US. Phase three is post ICO in alignment with Sale 1 and Sale 2 below.

CoinDEX: Distribution Schedule

The token distribution begins on Monday, April 16, 2018 and ends on Sunday, June 17, 2018 and per the following distribution schedule:

Phase	Begins on	Ends on	DEX
ICO	Monday, April 16, 2018	Sunday, June 17, 2018	200,000,000
Sale-1	Monday, October 1, 2018	Sunday, November 4, 2018	150,000,000
Sale-2	Monday, January 7, 2019	Sunday, February 10, 2019	150,000,000

Figure 11

CoinDEX: Allocation Segments

Total 1 Billion coins are allocated to various buckets as per the following schedule:

Segment	Allocation %	Aligned with Phase	# of DEX
ICO	20%	ICO	200,000,000
Sale-1	15%	Sale-1	150,000,000
Sale-2	15%	Sale-2	150,000,000
*Bounty-1	3%	Sale-1	30,000,000
*Bounty-2	2%	Sale-2	20,000,000
*Advisors	5%	Sale-1	50,000,000
Retained	40%	Post Sale-2	400,000,000
Total DEX			1,000,000,000

Figure 12

*Any excess Bounty and/or Advisors tokens will be allocated to public after Sale-2.

Conclusion:

Blockchain is a young industry that is simultaneously fraught with risk and open for reward. Rewards are available to those who exercise good judgement, develop sound strategies, and pursue them with a thoughtful disciplined approach. Risks and uncertainties are in fact balanced by new transparencies and efficiencies that leave little doubt about the direction this industry is headed. CoinDEX's intent is to capture and deliver a cross-section of it through a value added, turn key level of service for our users. The final illustration below highlights the main efforts that will be completed in preparation for the ignition of CoinDEX on the blockchain.

6.0 Tasks & Phases

2017	2018				2019	
Q4	Q1	Q2	Q3	Q4	Q1	Q2
IDEATION	PRE-ICO	POC-ICO	DEV-TEST	TEST-PROD	PROD	LAUNCH
DEX Idea	White Paper	Team Structure	Dev Team Onboard	QA/Prod - Test	UX Final	Prod Env. Final
Core Team	Legal Advise	POC Environment	QA Team Onboard	QC & Security	Sprint-5	Cloud Mgmt. (CMP)
Market Study	Regulatory	Ethereum Coding	Security Onboard	Licenses	M/L Algorithm Final	Final Prod Migration
Research	Architecture	Testing	Test Onboard	Sprint-3	Prod Security Test	DQ Test Final
Base Technology	Roadmap	Dev Environment	Licenses	Sprint-4	Prod QA Test	Security Final
Evaluation	Org Structure	Code Migration	Sprint-1	Code Migration	Final Code Migration	QC Final
Base Funding	Technology Choices	Regression Testing	Sprint-2	Dashboard	Prod DQ Test	Network Final
	Prototype	Super User Onboard	Ethereum Code - Build	M/L Algorithm	Ops Plan	Ops Final
	Website	Marketing	Dev/Test - Deploy 1	Test & Fix	Beta Test	Beta User Cut-off
	ICO Marketing	Project Plan in Place	QC Approval	Prod - Deploy 3	Prod - Deploy 4	LAUNCH
	Exchange Validation	ICO Launch	Security Approval	Beta Release 1.0	Beta Release 2.0	
		Design	Base Neural Network	Beta User Onboard	Beta User Onboard	
		CFTC Approval	Events & Marketing	Usability Testing-1	Usability Testing-2	
		SEC Approval	Production Environment	Beta Testing-1	Beta Testing-2	
		FINRA Approval	Prod Security	UX & UAT-1	UX & UAT-2	
		VC Funding	Test/Prod - Deploy 2	Prod Stress Test	Network Test	
			Funding Secured	Ops Team Onboard	Prod Stress Test	
				Events & Marketing	Events & Marketing	

Figure 12

FAQ:

What happens if someone hacks in and steals corporately owned DEX positions?

Individual DEX positions recorded in the blockchain and securely maintained in remote wallets through asymmetric cryptography. Protection of one's private key is the primary requirement at this level.

Furthermore, DEX corporate positions including underlying indexed cryptos are distributed into uniquely clustered and dis-similar storage vaults, i.e. discrete distributed storage optimized to have no more than 5% of our positions in a single storage location.

Is there a cost to purchase DEX?

Miner fees AKA 'proof of work' fees are paid to those who authenticate the transaction are paid as is customary with all crypto currencies at this time. Proof of funds algorithms are currently on the horizon, which will reduce this cost even further. Fees on the Ethereum platform are the most cost effective in the blockchain ecosystem and relative to the costs of purchasing other indexed funds or pooled assets, these costs are nominal.

How long before a transaction is considered final?

Your purchase becomes part of the public blockchain will generally be confirmed within a few minutes.

Can the same wallet be used simultaneously on different computers?

Yes. However, attempts to double spend will fail.

How do I confirm that my transaction went through?

Your transaction has a hash which can be used to look it up via a node with sufficient ledger history. The ledger can then verify that the transaction meets the payment terms.

Is DEX open source?

Yes, DEX is an open source project built on Ethereum's Solidity platform. Depending on market drivers DEX Developers may develop and implement proprietary code in response.

How does privacy work with DEX?

Anonymity is not a design goal of DEX, but the network should provide adequate privacy for most people.

Are validation servers rewarded?

Yes, DEX validators are rewarded with DEX Coins upon completion of Proof of Work.

Who will buy coindex?

Anyone looking for stability in crypto currency. People who understand the value of indexed funds.

What is the current size of global coin market in 2018 and the estimated market potential by 2025?

\$500 Billion USD as of of January 2018 with estimated potential of \$5 Trillion USD by 2025.

How much is the estimated CoinDEX market potential by 2025?

750 Billion USD is a conservative estimate considering the ratio of 18.6 Trillion in mutual funds to 75 Trillion in funds under management worldwide today. Another proxy validation of this estimate is that the Bitcoin market, arguably in its infancy which has approached \$500 Billion value as of this writing.

What is the market cap goal of CoinDEX?

Achieve 5 Billion USD market cap by 2021.

How does DEX differentiate itself from 1,700+ alt coin choices currently available?

DEX diversifies the risk across a basket of crypto currencies. DEX may trade above or below the summation of these values as companies often trade at multiples of book value. The purpose of DEX is to create stable value/ reduce volatility of individual coins.

How is it regulated?

DEX intends to register as a pooled fund with the Commodities and Futures Trade Commission. For the ICO, DEX will register with the US Securities Exchange Commission Division of Corporation Finance and the Financial and Insurance Regulatory Agency.

References:

1. CAPM Pricing Model Theory:
https://en.wikipedia.org/wiki/Financial_economics#Portfolio_theory
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4. Neural Network and Machine Learning:
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https://www.sas.com/content/dam/SAS/en_us/doc/conclusionpaper1/statistics-machine-learning-at-scale-107284.pdf

CoinDEX Development Team:

Our development team is steadily progressing through the development of the CoinDEX ecosystem as discussed in the implementation tasks and phases section above. A short bio on our Chief Executive Officer and Chief AI Advisor are followed by the initial setup environment laid out in the technical appendix. Additional reading material is published on www.coindex.ai.



Manash Bhattacharya, Chairman and CEO

Manash is a business technology strategic leader with diverse experience in digital strategy, consulting, and operations excellence. He is a technological thought leader and a champion of digital transformation who has proven himself instrumental in market penetration and in leading the delivery of quality business solutions through a consultative approach.



Dr. Atif Mohammad, Chief AI Advisor

Dr. Atif is a senior data scientist with more than twenty years of expertise in big data analytics, software engineering, business systems analysis, design and application development. He is a data evangelist with diverse programming skills and subject matter expertise in areas ranging from dba stacks like NoSQL and Hadoop to the latest in blockchain ecosystem development, neural networks, and AI.

Technical Appendix: Setup Development Environment

- For windows, setup PowerShell instead of using command prompt. Easier
- For Linux, command prompt will do well

The development environment will consist of four main tools:

1. GETH - This is the Go Ethereum implementation. That we will use to run Ethereum nodes on our development machine
2. Testrpc - which we will use to test our smart contract
3. Truffle - it will be our build framework to build and deploy our smart contract and our DApp
4. Your favorite text editor - I use Sublime. I've seen Atom and even

Notepad++. You can also use Eclipse. As of this moment, there are no IDE specific for smart contract development.

Before we install any of the above tools, we will need to first install nodejs along with npm or Node Packet Manager

Installation of Development Environment Windows

Dev Tools:

- Geth - to run ethereum nodes
 - Test if installed: geth version
- Testrpc to test smart contract: run testrpc from command prompt to test setup
- Truffle - build framework to build deploy smart contract
 - Truffle --version
- Text editor - Atom, Sublime, Notepad++
- Nodejs
 - Test if installed: node -v will show current version
 - npm -v will show npm current version

Installation of Development Environment Linux

Nodejs install command shell:

- sudo apt install curl
- Download from nodejs.org and select linux distribution and select "Installing Node.js via package manager"
 - Select "Debian and Ubuntu based Linux distributions" then copy line:

- `curl -sL https://deb.nodesource.com/setup_9.x | sudo -E bash sudo apt-get install -y nodejs`
- Sudo apt update
- Sudo apt install -y nodejs

Install geth -

- `sudo apt install software-properties-common`
- `Sudo add-apt-repository -y ppa:ethereum/ethereum`
- `Sudo apt update`
- `Sudo apt install ethereum`

Install testrpc run from nodejs: `sudo npm install -g ethereumjs-testrpc` Install Truffle: `sudo npm install -g truffle`

Installation of Development Environment Linux continue

Dev Tools:

- Geth - to run ethereum nodes
- Test if installed: `geth version`
- Testrpc to test smart contract: run testrpc from command prompt to test setup
- Truffle - build framework to build deploy smart contract
- `Truffle --version`
- Text editor - Atom, Sublime, Notepad++
- Nodejs
- Test if installed: `node -v` will show current version
 - `npm -v` will show npm current version

Installation of Development Environment MacOS

Use Homebrew package manager for the MacOS. This will assume that you have Homebrew already installed on your MacOS. Installing XCode should make installing from Homebrew much easier.

- After installing XCode, will need to install command line tools: `xcode-select --install`
- Go to <https://brew.sh> and download and install Homebrew. Copy/paste from shell window:
`/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"`

Command above is a Ruby command. We will assume that Ruby is installed on your MacOS machine.

Check version run command: `brew --version`

To update current install of Homebrew, run command: `brew update`

- To install nodejs and npm run from shell window: `brew install node`

- Can also install nodejs from www.nodejs.org. This will install Node Package Manager or npm as well.
- Check install run: `npm -v` and `node -v`
 - To update the package: `brew update node`
- Install Geth: `brew tap ethereum/ethereum` - this will add the Ethereum repository
 - Run: `brew install ethereum`
 - Run `brew update ethereum` to updated current version
- Install testrpc
 - `npm install -g ethereumjs-testrpc`
- To update current testrpc install: `npm update -g ethereumjs-testrpc`
- Install Truffle
 - `npm install -g truffle`
 - To update version: `npm update -g truffle`

Setting up private network instance

- Create directory to hold all of the required files in private network
- Create directory `goldrush`
- Get a copy of the `genesis.json` and explain each item in details. This is the config file for the private mining server. Place this file in the “goldrush” directory
 - Run the initialization GETH command to init private server: `geth --datadir . init genesis.json`
 - NOTE that if “--datadir” is not specified, GETH will assume current directory
 - Create accounts that will hold all earned ether and paying gas amount for usage of the

Ethereum network

- `geth --datadir . account new` ←- will do this 3 times for 3 different accounts. **MAKE SURE, YOU REMEMBER THE PASSWORD YOU USE OTHERWISE EVERYTHING WILL BREAK.**

Setting up private network instance continued

- To see the newly created accounts:
 - `Geth --datadir . account list`
- Create batch file or shell script file to run the startup command of the private network server

- Explain each param: networkid, mine, datadir, nodiscover, rpc, rpcport, port, rpccorsdomain, nat, rpcapi, unlock, password
- Make sure to chmod the startnode.sh in linux. No need to do this in windows: chmod a+x startnode.sh
 - Create password.sec file that contains the password
 - Start server
 - Windows: .\startnode.bat
 - Linux: ./startnode.sh
- Command line to start server: `geth --networkid 4224 --mine --datadir "C:\Users\CoinDEX\private" --nodiscover --rpc --rpcport "8545" --port "30303" --rpccorsdomain "*" --nat "any" --rpcapi eth,web3,personal,net --unlock 0 --password C:\Users\CoinDEX\password.sec`

Setting up private network instance continued

- Attach geth to network node. Open new shell window and change directory into goldrush
- `geth attach`
 - On Linux may have to run: `geth attach http://localhost:8545`
- View accounts or coinbase within the current running node
- `eth.account` or `eth.coinbase`
 - Get balance of accounts:
 - `eth.getBalance(eth.coinbase)` OR `eth.getBalance(eth.accounts[0])`
- Amount displayed in Wei 10th to minus ether. Way to show just ether value format: `web3.fromWei(eth.getBalance(eth.coinbase),"ether")`
- Ether earned 5 ether per block

Setting up private network instance continued

- Transfer ether between accounts:
 - `web3.fromWei(eth.getBalance(eth.coinbase),"eth")` first check the balance from coinbase or main account
 - Check balance on the other accounts that will receive the transferred eth:
 - `web3.fromWei(eth.getBalance(eth.accounts[1]),"ether")`
 - Send or transfer command:
 - `eth.sendTransaction({ from:eth.coinbase,to:eth.accounts[1],value:web3.toWei(200,"ether")})`