



Decentralised Society @ Strathy

Crypto-Economics 101

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pllel

A Question or Two for You.

Meltem Demirors

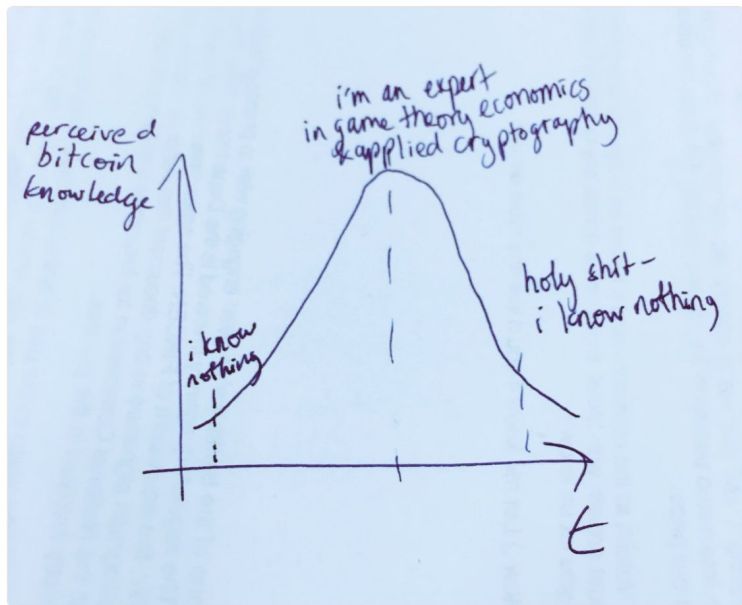
@Melt_Dem



Follow



for @lopp - this is the chart that was drawn for me
my first week in #bitcoin 😂



RETWEETS

68

LIKES

181



12:07 PM - 8 Feb 2017



10



68



181

- This stuff is NEW.
- NO experts, NO easy answers.
- Internet people want your money.
- I am just some guy with thoughts and opinions.



Following

Replying to @kickstartllc

@kickstartllc bitcoin is a fad, or a scam, or a ponzi scheme, or worse.

12:46 PM - 11 Apr 2013

21 Retweets 44 Likes



14



21



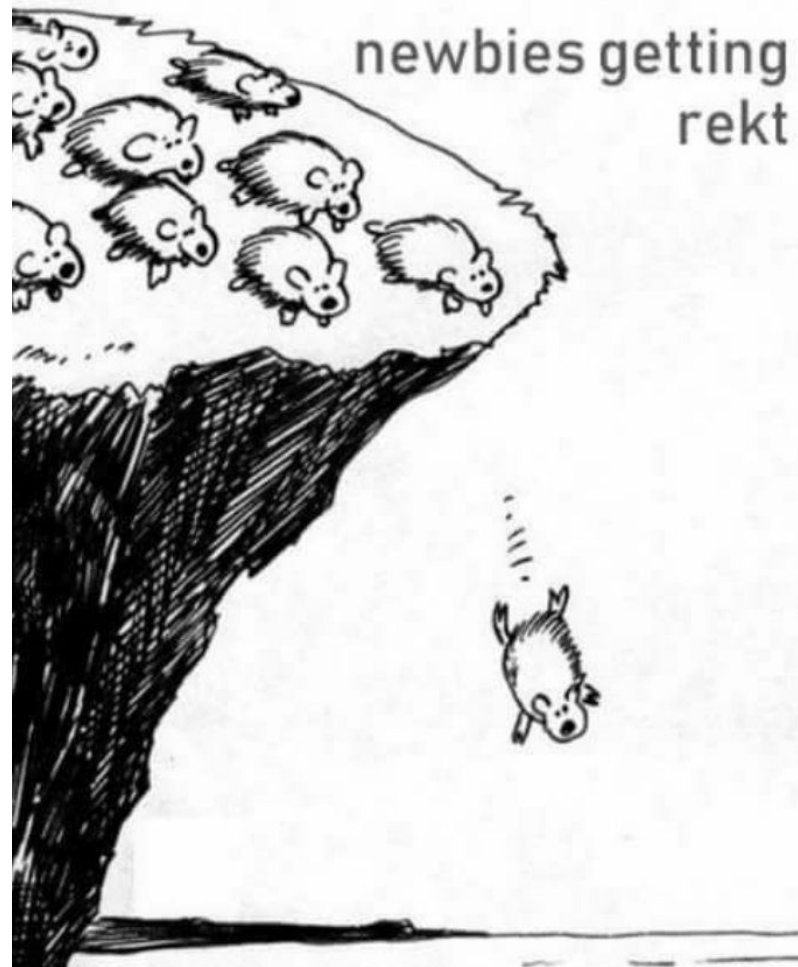
44



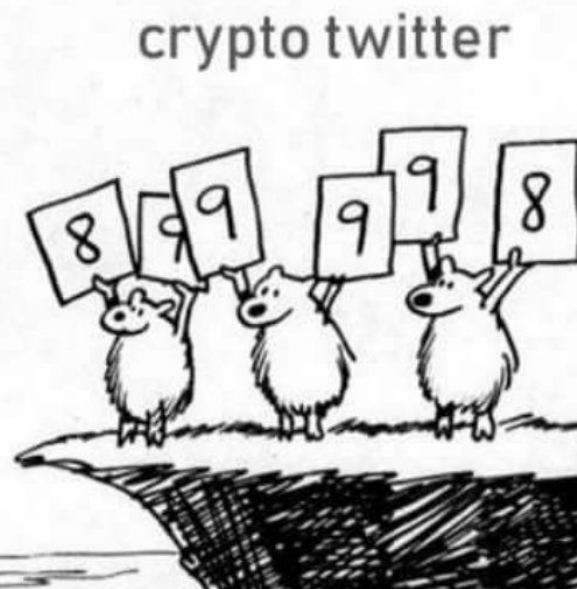
INVESTOR TOWN HALL

CRYPTOCURRENCIES ARE NOT A FAD

ONE OF THE GREATEST INNOVATIONS - BLOCKCHAIN TECHNOLOGY



vs.





Warning on the Risks Involved with Speculative Mania



Warning on the Risks Involved with Speculative Mania

IANYL/IANYFA

DO NOT RISK WHAT YOU CANNOT AFFORD TO LOSE
DO NOT GO INTO DEBT TO ACQUIRE CRYPTO-CURRENCIES
UNDER-REGULATED MARKETS = SCAMMER PARADISE
GOVERNMENTS MAY TAKE SUDDEN, STRINGENT MEASURES
PRICE ACTION IS EXTREMELY VOLATILE + UNPREDICTABLE
90% DRAWDOWNS ARE NOT UNCOMMON
DO NOT TRUST ANYONE & DYOR



IMPORTANT INFORMATION

PAST PERFORMANCE !=
FUTURE RETURNS.

parallel

HOWEVER



CRYPTO-ASSETS ARE NOT “MUH TULIPS”

Money

EX ANTE



1. Durable
2. Portable
3. Fungible
4. Intrinsic value



Aristotle
IV BC

1. Store of value
2. Medium of exchange
3. Unit of account



W.S.
Jevons
XIX AD



Bitcoin Obituaries

Bitcoin has died 245 times

[Obituary Stats](#) | [Submit Obituary](#) | [Obituary Generator](#)



"Bitcoin price THREAT: Bitcoin WON'T last past 2018" – Express | \$11,582.56

Bitcoin will not survive but that does not mean the entire cryptocurrency craze is dead with useful cryptos like Ripple...

[READ MORE](#)



"The end of bitcoin" – The Week | \$11,582.56

To really work as money, bitcoin needs to be widely used. There need to be lots of actors providing a...

[READ MORE](#)

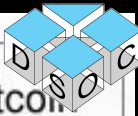


"Bitcoin could be here for 100 years but it's more likely to 'totally collapse,' Nobel laureate says" – CNBC | \$11,582.56

Bitcoin will likely "totally collapse," Nobel Prize-winning economist Robert Shiller has told CNBC, adding that it reminds him of "tulip..."

[READ MORE](#)

Money	Tulips	Fiat	Gold	Bitcoin
Store of value	*	****	*****	****
Medium of exchange	****	****	***	*****
Unit of account	*	****	**	**



Naval
[@naval](#)

Following

Tulips are not durable, not scarce, not programmable, not fungible, not verifiable, not divisible, and hard to transfer. But tell me more about your analogy...

2:11 AM - 9 Dec 2017

2,959 Retweets 7,305 Likes



257

3.0K

7.3K



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Value [\[edit\]](#)

In 2006, the House of Commons Library published a research paper which included an index of prices in po

Regarding the period 1750–1914 the document states: "Although there was considerable year on year fluct since 1945". It goes on to say that "Since 1945 prices have risen in every year with an aggregate rise of ove

The value of the index in 1751 was 5.1, increasing to a peak of 16.3 in 1813 before declining very soon afte

25.3 in 1920, before declining to 15.8 in 1933 and 1934—prices were only about three times as high as the

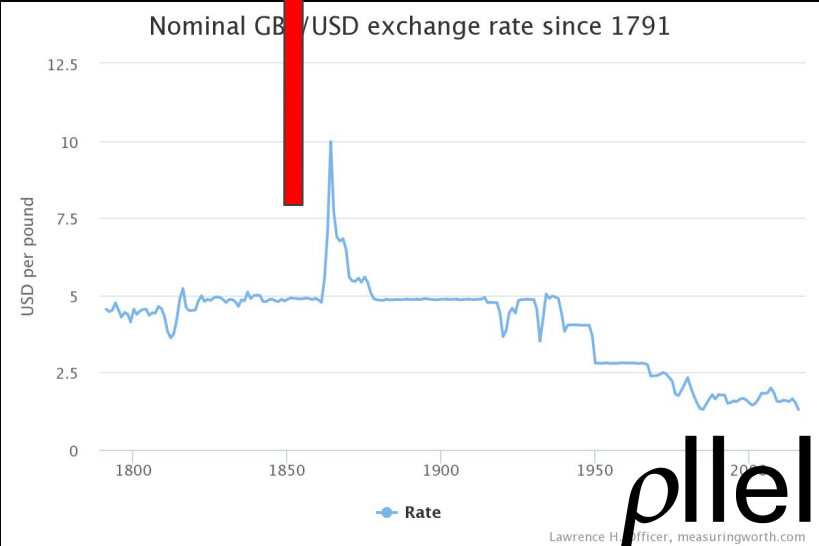
Inflation had a dramatic effect during and after World War II—the index was 20.2 in 1940, 33.0 in 1950, 49.5

The following table shows the equivalent amount of goods and services that, in a particular year, could be p

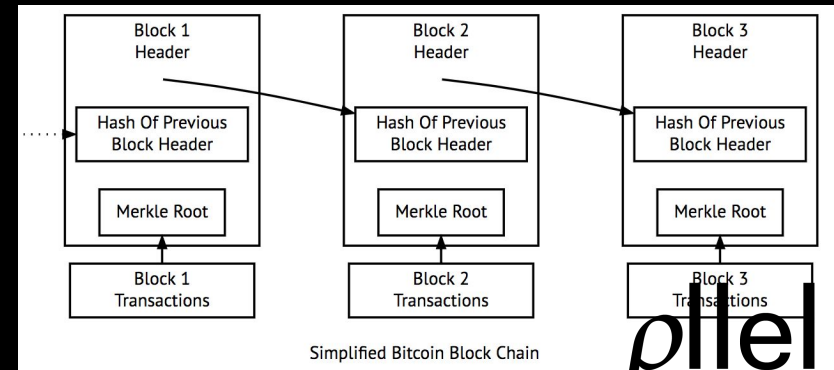
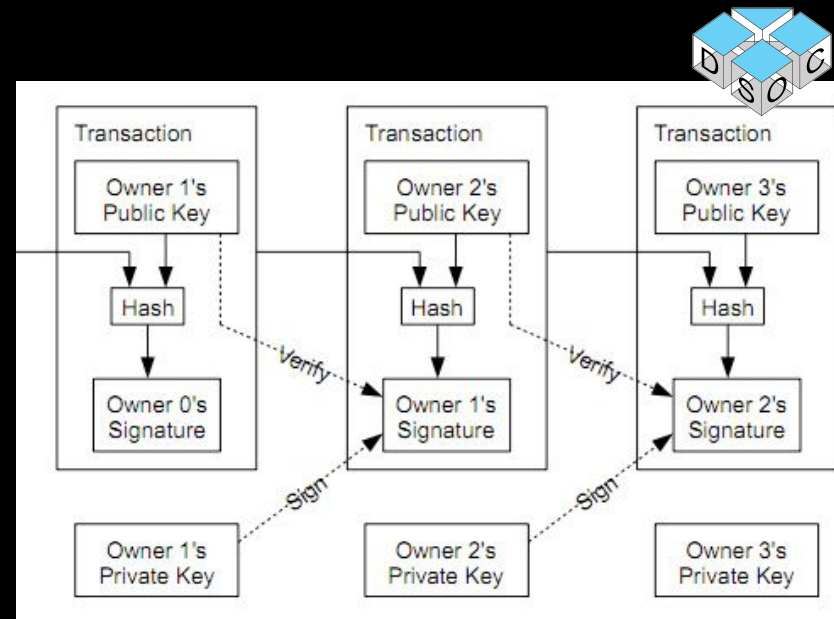
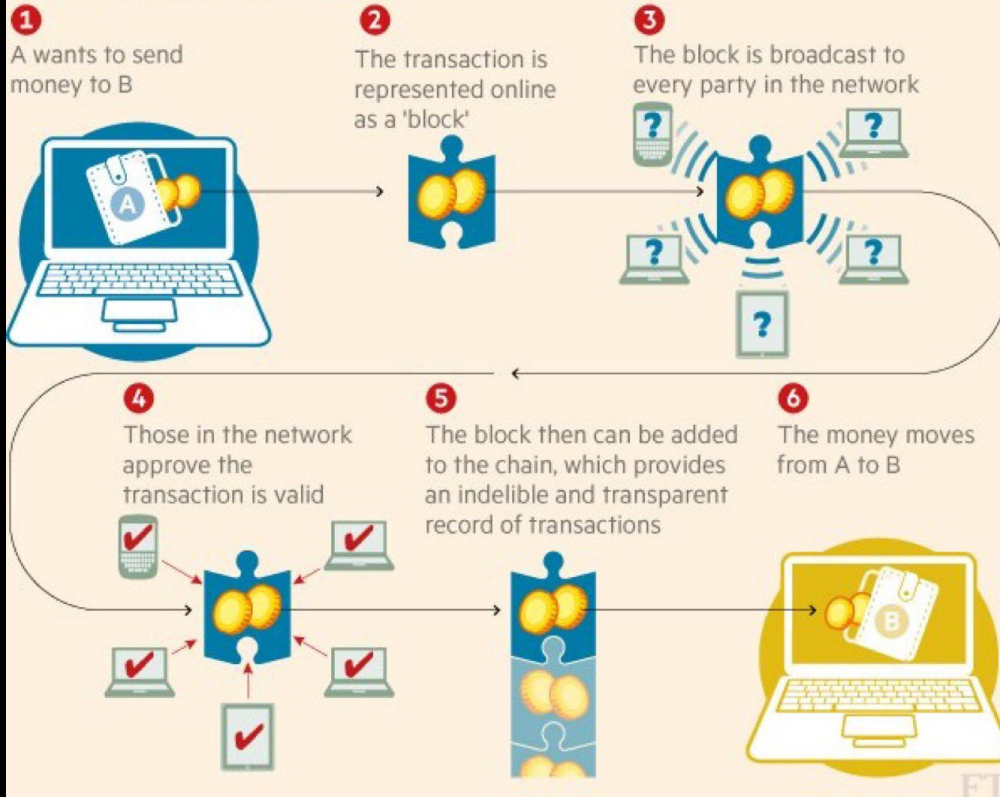
The table shows that from 1971 to 2015 the British pound lost about 92% of its buying power.

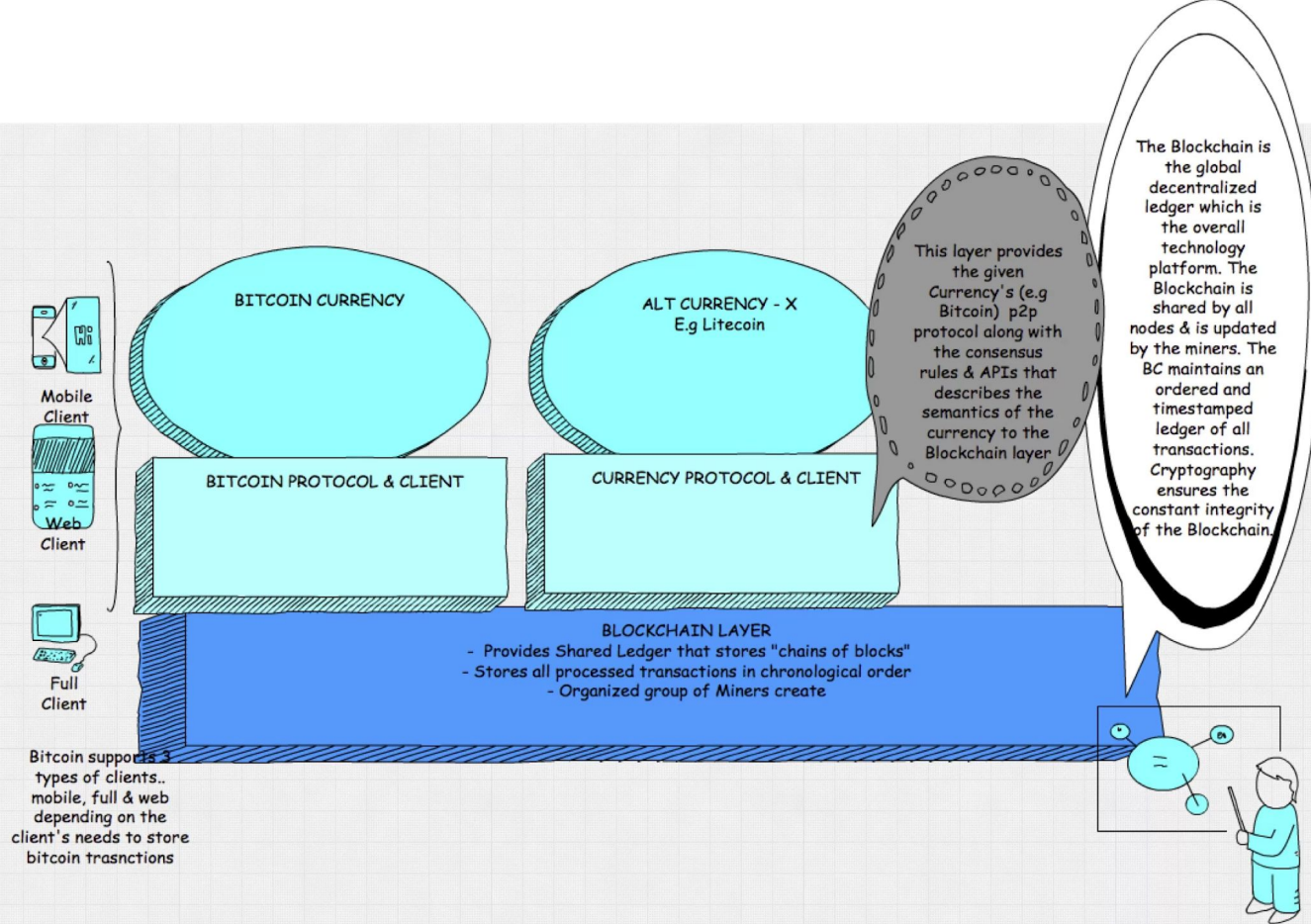
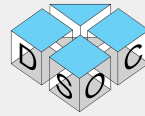
Buying power of one British pound compared to 1971 GBP							
Year	Equivalent buying power	Year	Equivalent buying power	Year	Equivalent buying power	Year	Equivalent buying power
1971	£1.00	1981	£0.271	1991	£0.152	2001	£0.117
1972	£0.935	1982	£0.250	1992	£0.146	2002	£0.115
1973	£0.855	1983	£0.239	1993	£0.144	2003	£0.112
1974	£0.735	1984	£0.227	1994	£0.141	2004	£0.109
1975	£0.592	1985	£0.214	1995	£0.136	2005	£0.106
1976	£0.510	1986	£0.207	1996	£0.133	2006	£0.102
1977	£0.439	1987	£0.199	1997	£0.123	2007	£0.0980
1978	£0.407	1988	£0.190	1998	£0.125	2008	£0.0943
1979	£0.358	1989	£0.176	1999	£0.123	2009	£0.0952
1980	£0.303	1990	£0.161	2000	£0.119	2010	£0.0910
						2011	£0.0900
						2012	£0.0850
						2013	£0.0826
						2014	£0.0800
						2015	£0.0780

Money	Tulips	Fiat	Gold	Bitcoin
Store of value	*	****	*****	****
Medium of exchange	****	***	***	*****
Unit of account	*	***	**	**



How a blockchain works





Bitcoin supports 3 types of clients.. mobile, full & web depending on the client's needs to store bitcoin transactions

The Blockchain explorer and other tools provide a way to explore the contents of different blocks and to query & search them



CRYPTO -

From Ancient Greek κρυπτός (*kruptós*, “hidden, secret”).

ECONOMICS -

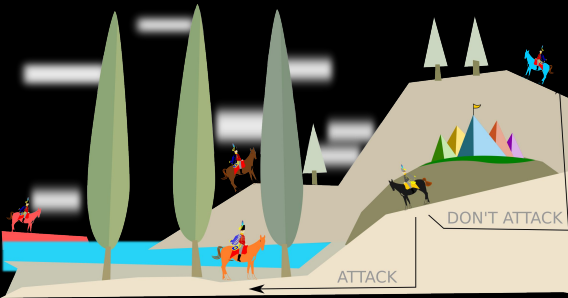
From *economy*, from Latin *oeconomia*, from Ancient Greek οἰκονομία (*oikonomía*, “management of a household administration”), from οἶκος (*oîkos*, “house”) + νέμω (*némō*, “distribute, allocate”).

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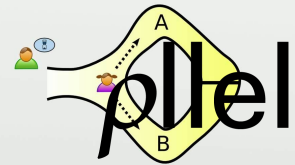


A Multi-Disciplinary Field

Game Theory & Behavioural Economics
Finance, Investing & Trading
Geopolitics & Regulation
Thermodynamics & Entropy
CS Distributed Networks & Applied Cryptography





Zero-knowledge proof





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NECESSARY BALANCE OF INCENTIVE STRUCTURES IN A
FULLY DECENTRALISED P2P NETWORK FOR IT TO FLOURISH
IN SPRING AND SURVIVE IN WINTER.**

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EXPERIMENTS & TECHNOLOGICAL ABSTRACTIONS OF
VALUE.**

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**How are crypto-assets
different from traditional
financial instruments?**

How are crypto-assets different from traditional financial instruments?



(Equity-Debt / PMs / cryptos)

(NOT Fractional / Debt-Based. NO Counterparty Liability)

(Incompatible Value Proposition Models)

(Bearer assets like metals *sans specie* w/ programmability)

(Decentralised / Borderless)

(Culture)

Bitcoin: A Protocol and a Currency

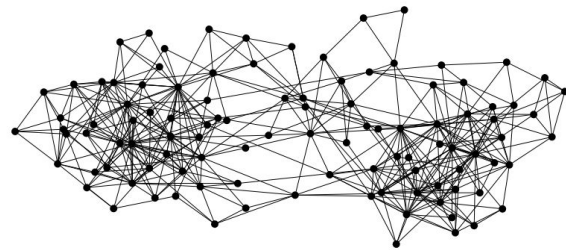
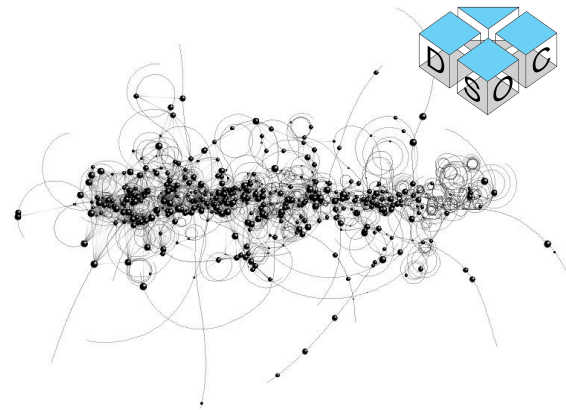
- Bitcoin: protocol, software, and community
- bitcoins: units of the currency

bitcoins are sent using Bitcoin

- bitcoins are the first powerful Bitcoin protocol application: a native digital asset created inside the protocol

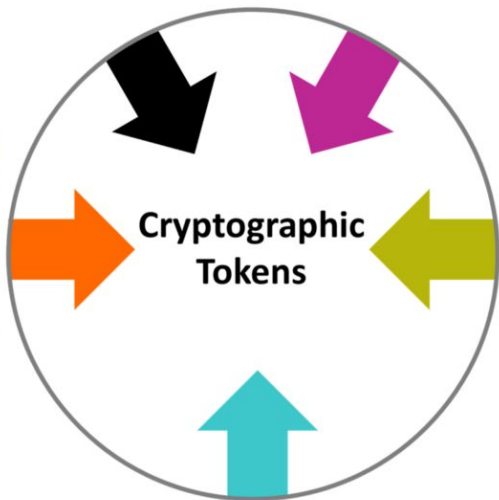
Ferdinando Ametrano 2017

29/68



Purpose
What is the token's main purpose?
Cryptocurrencies 
Network Tokens 
Investment Tokens  

Utility
What utility does the token provide?
Usage Tokens  
Work Tokens
Hybrid Tokens

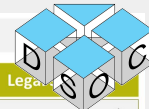

















Technical Layer
On which system layer is the token implemented?
Blockchain-Native Tokens 
Non-native Protocol Tokens  
(d)App Tokens 

Legal Status
What is the token's legal status?
Utility Tokens 
Security Tokens  
Cryptocurrencies 

Underlying Value
Where does the token derive its value from?
Asset-backed Tokens 
Network Value Tokens  
Share-like Tokens

MAIN TOKEN TYPES PER DIMENSION



Technical Layer	Purpose	Underlying Value	Utility	Legal Status
Blockchain-Native Tokens  <p>Description: A token that is implemented on the protocol-level of a blockchain</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Critical to operate the blockchain Integral component of the blockchain's consensus mechanism Part of the blockchain's incentive mechanism for block validators/other nodes <p>Examples: BTC (Bitcoin), Bitcoin; ETH (Ether, Ethereum), STEEM (Steem, Scream)</p>	Cryptocurrencies  <p>Description: A token that is intended to be a "pure" cryptocurrency</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Intended as a global medium of exchange Functions as a store of value <p>Examples: BTC (Bitcoin), ZEC (Zcash), KIN (Kin, Kik)</p>	Asset-backed Tokens  <p>Description: A token that functions as a claim on an underlying asset</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Allows trading via IOUs without actually having to move the underlying asset The issuer is responsible to hold the underlying asset Introduces counterparty risk <p>Examples: USDT (Tether USD, Tether), GOLD (GOLD, GoldMine), Ripple IOUs (Ripple)</p>	Usage Tokens   <p>Description: A token that provides access to a digital service, similar to a paid API key</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Grants holders access to exclusive functionality of the service <p>Examples: BTC (Bitcoin), STX (Stacks, Blockstack)</p>	Utility Tokens  <p>Description: A token offering owners clearly defined utility within a network or (decentralized) application</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Closely tied to the functionality of the issuing network or application Internal network/app currency but not necessarily attempting to be a currency Grants owners the right to actively contribute to the system vs. passive investor role Avoids security-like features <p>Examples: GNO (Gnosis), STEEM (Steem)</p>
Non-native Protocol Tokens   <p>Description: A token that is implemented in a cryptocurrency protocol on top of a blockchain</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Integral component of the protocol's consensus mechanism Part of the protocol's incentive mechanism for nodes Tracked on an underlying blockchain to which it is not integral (e.g. ERC20 Tokens on Ethereum) <p>Examples: REP (Decentralized Oracle Protocol, Augur)</p>	Network Tokens  <p>Description: A token that is primarily intended to be used within a specific system (e.g. network, application)</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Token has functionality within the issuers system Not intended as a general cryptocurrency <p>Examples: GNO (Gnosis), STX (Stacks, Blockstack)</p>	Network Value Tokens   <p>Description: A token that is tied to the value and development of a network</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Tied to the value generated and exchanged on the network (e.g. transaction fee volume) Closely intertwined with key interactions of network participants <p>Examples: ETH (Ether, Ethereum) STEEM (Steem)</p>	Work Tokens <p>Description: A token that provides the right to contribute to a system</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Owning Tokens is the precondition for contributing to the system Contributions are either incentivized with a rewards system or holders get utility from the system/decentralized organization <p>Examples: REP (Reputation, Augur), MKR (Maker, Maker DAO)</p>	Security Tokens   <p>Description: A token that behaves like a security</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Showcases security-like features, e.g. voting on decisions regarding the issuing entity, dividends, or profit shares Holders are regarded as owners Little or insufficient utility <p>Examples: SPICE (SPICE VCI, Bitwala (iba))</p>
(d)App Tokens  <p>Description: A token that is implemented on the application-level on top of a blockchain (and potentially protocol)</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Integrated within the application Part of the app's incentive mechanism for nodes and/or users Tracked on an underlying blockchain to which it is not integral (e.g. ERC20 Tokens on Ethereum) <p>Examples: WIZ (Wisdom, Gnosis), SAFE (Safecon, SAFE Network)</p>	Investment Tokens   <p>Description: A token that is primarily intended as a way to passively invest in the issuing entity or underlying asset</p> <p>Characteristics:</p> <ul style="list-style-type: none"> The issuer promises token owners a share in the success of the issuing entity (e.g. dividends, profit-shares) May or may not come with voting rights Mostly on no/weak legal basis <p>Examples: Neufund Equity Tokens (Neufund), DGG (Digix Gold, DigixDAO)</p>	Share-like Tokens <p>Description: A token with share-like properties</p> <p>Characteristics:</p> <ul style="list-style-type: none"> The issuer promises token owners a share in the success of the issuing entity (e.g. dividends, profit-shares) May or may not come with voting rights Mostly on no/weak legal basis <p>Examples: DGD (DigixDAO), LKK (Lykke)</p>	Hybrid Tokens <p>Description: A token featuring traits of both usage and work tokens</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Grants access to system functionalities Allows owners to contribute to the system <p>Examples: ETH (Ether, Ethereum, after Casper), DASH (Dash)</p>	Cryptocurrencies  <p>Description: A token that is a pure cryptocurrency</p> <p>Characteristics:</p> <ul style="list-style-type: none"> Acts as a store of value and medium of exchange Not emitted by a central authority against which owners have claims in Germany (according to BaFin), currently not regarded as lawful, functional currency Not regulated by e-money laws <p>Examples: BTC (Bitcoin), ZEC (Zcash), LTC (Litecoin)</p>

Untitled INC

*details dependent on respective jurisdiction











General Types	Purpose	Underlying Value	Utility	Legal Status*
Blockchain-Native Token	Cryptocurrency	Asset-backed Token	Usage Token aka: Access Token	Utility Token
Non-native Protocol Tokens	Network Token	Network Value Token	Work Token	Security Token aka: Equity token
(d)App Token	Investment Token	Share-like Token aka: Participation Token	Hybrid Token	Cryptocurrency













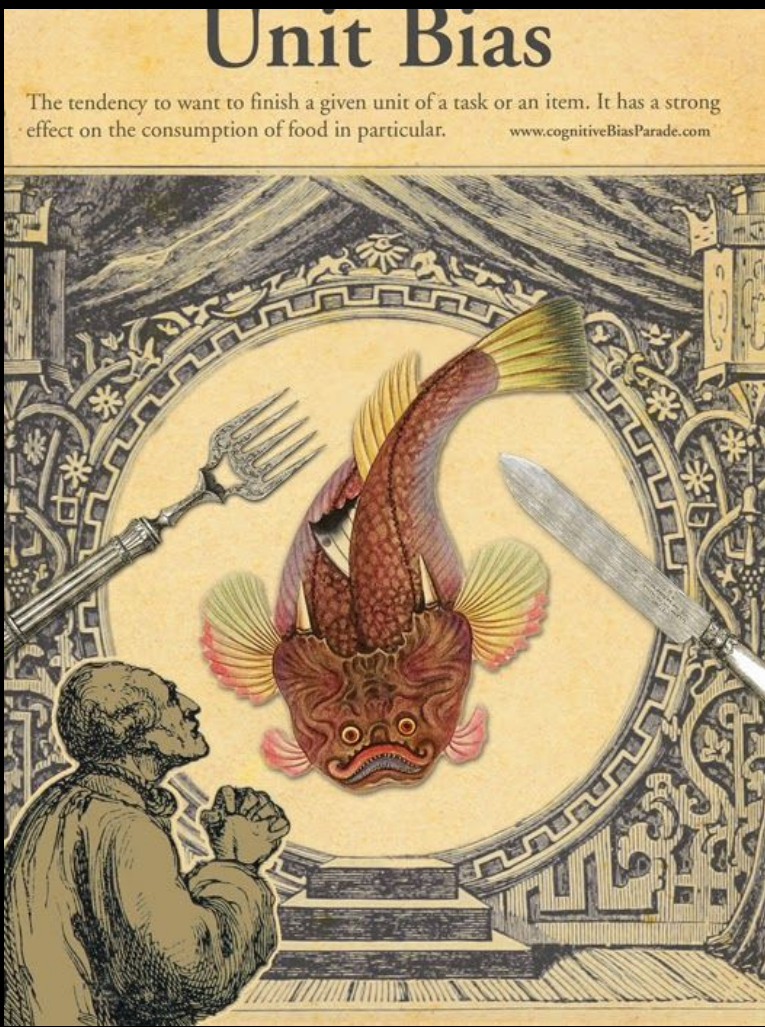
Uses tokens to incentivize "Oracles", a critical component of its decentralized prediction market. Owners have to report events and receive a share of all network fees.

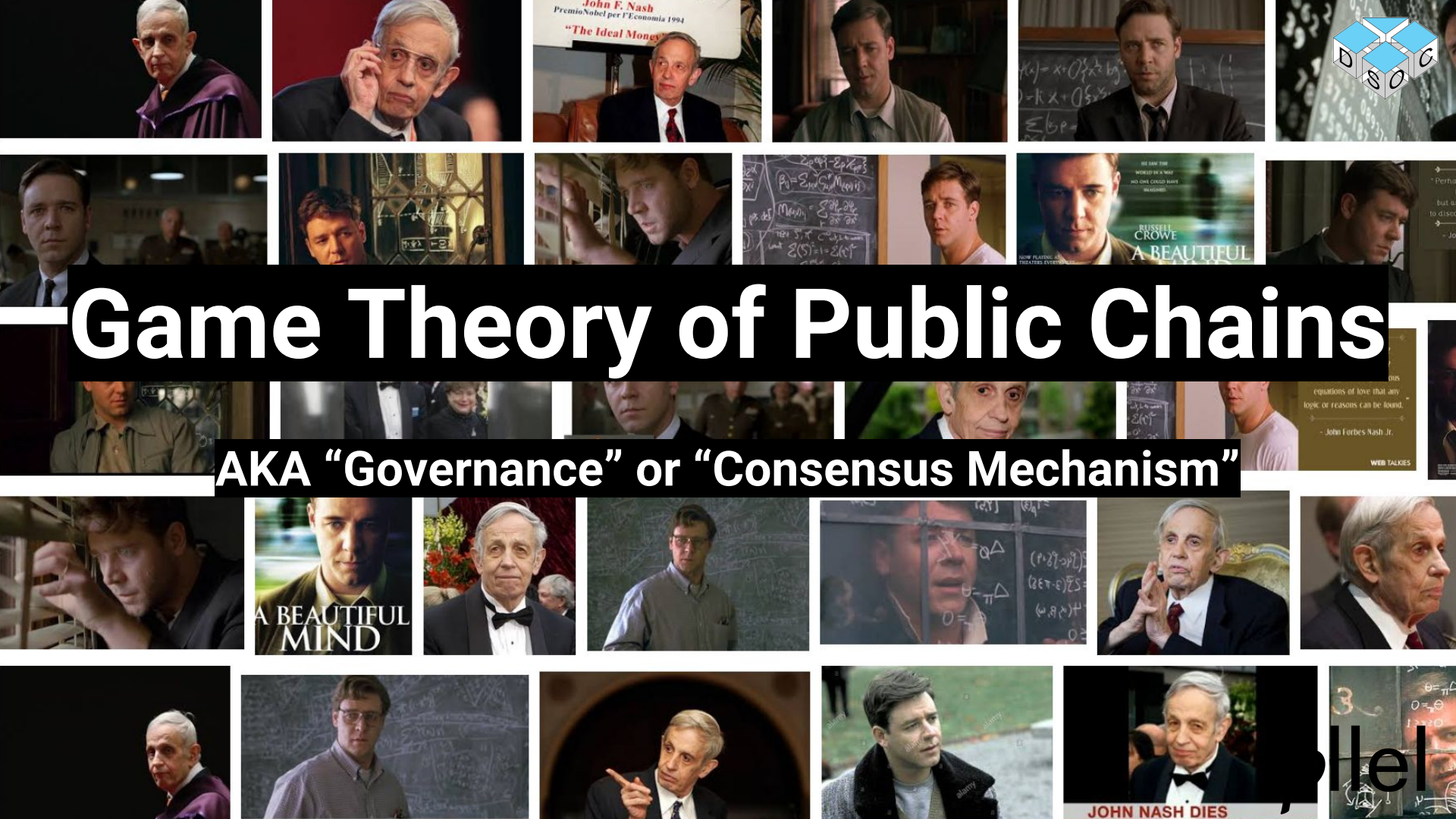
plel

Untitled INC

#	Name	Market Cap ▼	Price	24hour VWAP	Available Supply	24 Hour Volume	%24hr
1	 Bitcoin BTC	\$199,136,321,370	8426.9632000 GBP	8311.4089 GBP	16,832,025	\$8,367,540,000	2.38%
2	 Ethereum ETH	\$120,397,691,094	876.2062340 GBP	840.3536 GBP	97,269,841	\$5,268,110,000	10.79%
3	 Ripple XRP	\$53,528,972,753	0.9548909 GBP	0.8956 GBP	38,739,142,811	\$983,557,000	12.33%
4	 Bitcoin Cash BCH	\$29,511,138,571	1237.8575505 GBP	1219.9581 GBP	16,937,063	\$572,924,000	5.57%
5	 Cardano ADA	\$17,212,333,953	0.4532321 GBP	0.4517 GBP	25,927,070,538	\$315,707,000	5.64%
6	 Stellar XLM	\$11,269,272,464	0.4303982 GBP	0.4383 GBP	17,868,079,183	\$190,192,000	1.56%
7	 Litecoin LTC	\$10,571,955,213	134.5499946 GBP	132.8869 GBP	54,964,933	\$349,060,000	5.63%
8	 NEO NEO	\$9,929,140,000	105.7612160 GBP	101.9727 GBP	65,000,000	\$240,313,000	8.08%
9	 EOS EOS	\$9,286,187,986	10.1731544 GBP	10.2329 GBP	633,549,469	\$594,317,000	1.08%
10	 NEM XEM	\$9,227,159,998	0.7002517 GBP	0.7160 GBP	8,999,999,999	\$94,231,600	-2.64%

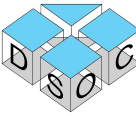
#	Name	Market Cap ▼	Price	24hour VWAP	Available Supply	24 Hour Volume	%24hr
1	 Bitcoin BTC	\$199,250,779,140	B1.00000000	B0.9862	16,832,025	\$8,360,420,000	2.41%
2	 Ethereum ETH	\$120,384,073,316	B0.10130285	B0.0997	97,269,841	\$5,271,110,000	10.79%
3	 Ripple XRP	\$52,959,507,354	B0.00011587	B0.0001	38,739,142,811	\$960,668,000	11.11%
4	 Bitcoin Cash BCH	\$29,514,864,725	B0.14800000	B0.1474	16,937,063	\$573,267,000	5.56%
5	 Cardano ADA	\$17,194,366,493	B0.00005379	B0.0000	25,927,070,538	\$315,282,000	5.53%
6	 Stellar XLM	\$11,282,351,898	B0.00005213	B0.0000	17,868,079,183	\$190,165,000	1.63%
7	 Litecoin LTC	\$10,558,873,559	B0.01640000	B0.0157	54,964,933	\$348,906,000	5.49%
8	 NEO NEO	\$9,916,920,000	B0.01283977	B0.0123	65,000,000	\$239,904,000	7.94%
9	 EOS EOS	\$9,290,115,993	B0.00123482	B0.0012	633,549,469	\$594,154,000	1.12%
10	 NEM XEM	\$9,232,649,998	B0.00009523	B0.0000	8,999,999,999	\$94,755,500	-2.56%



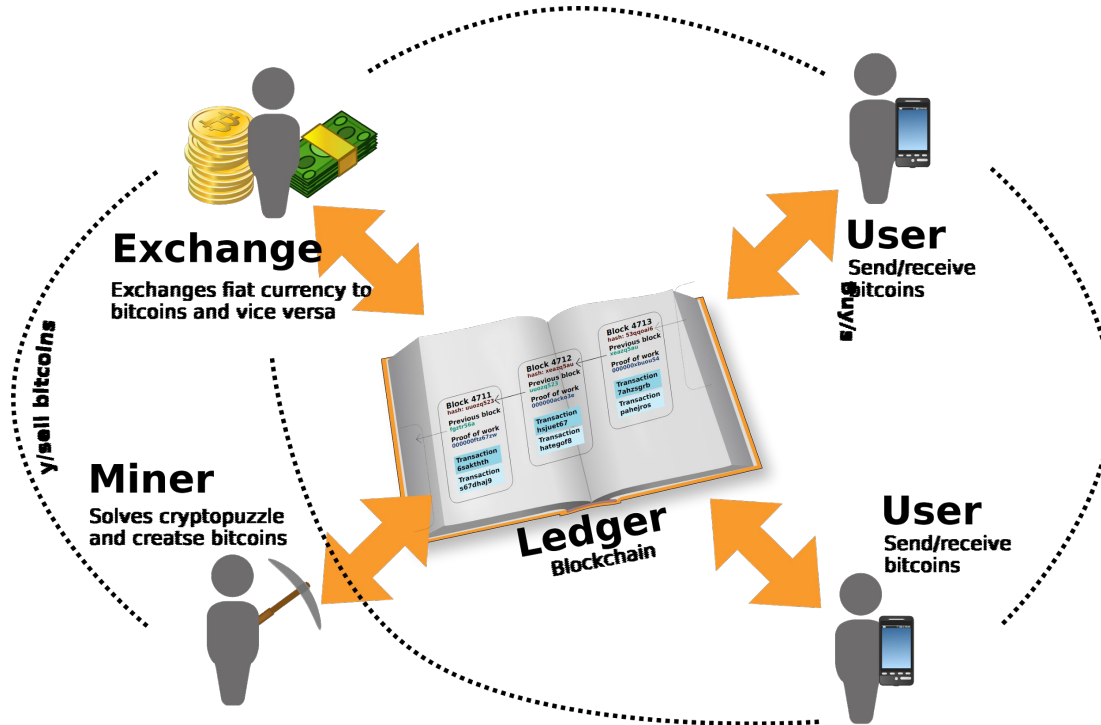


Game Theory of Public Chains



AKA "Governance" or "Consensus Mechanism"



Network Stakeholders



ρ_{\parallel}



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pllel

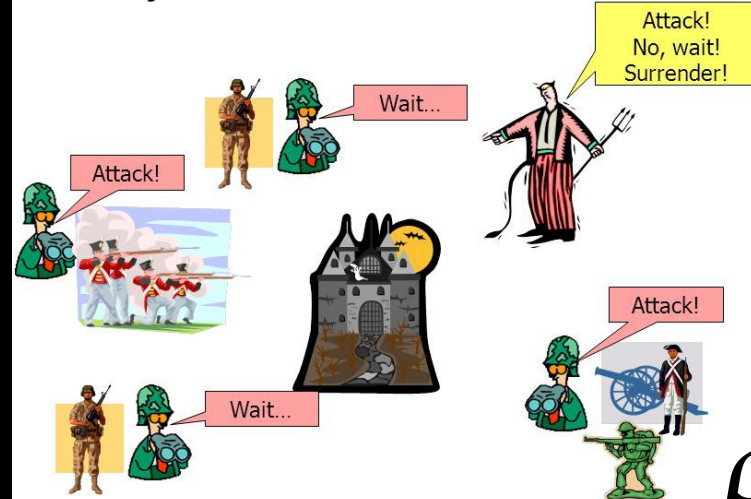
Game Theory of Public Chains



AKA “Governance” or “Consensus Mechanism”
Byzantine Generals / Prisoner’s Dilemma



The Byzantine Generals Problem





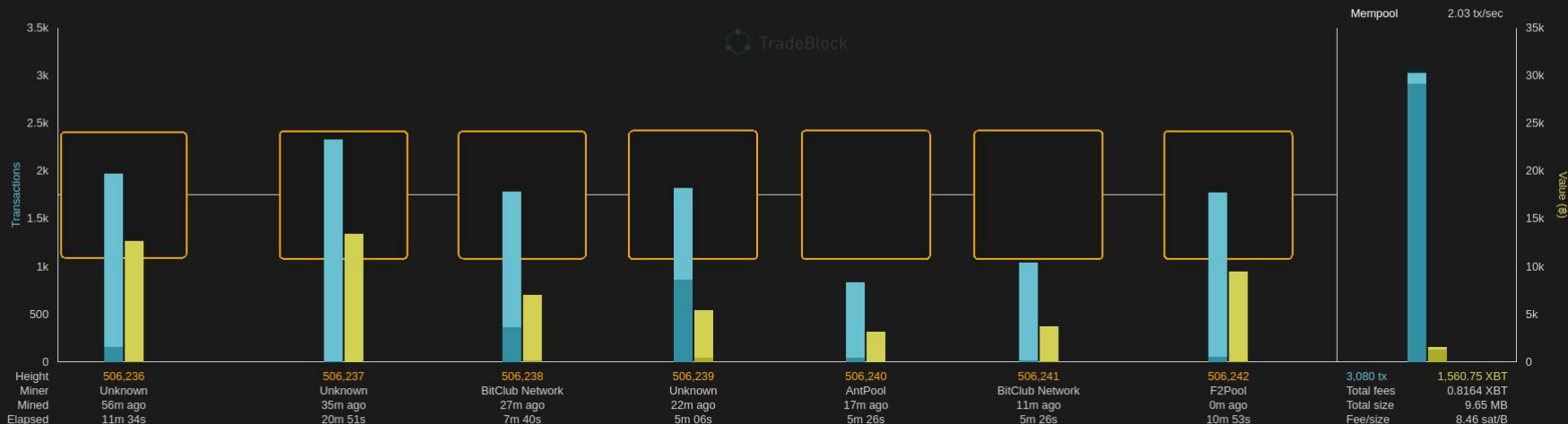
**Can we approach these
networks from a data-driven
and analytic perspective?**

Recent Blocks

Chart

Table

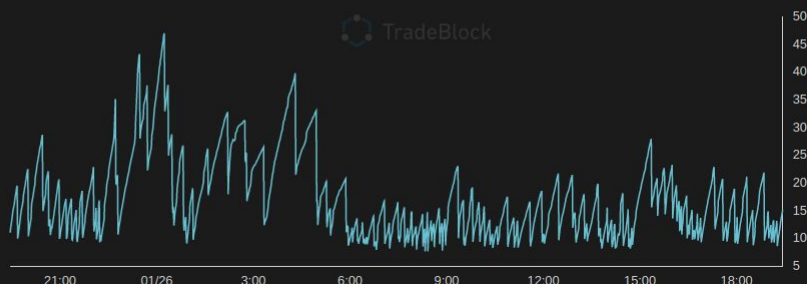
?



Recent Mempool

1 Day

Fee/size



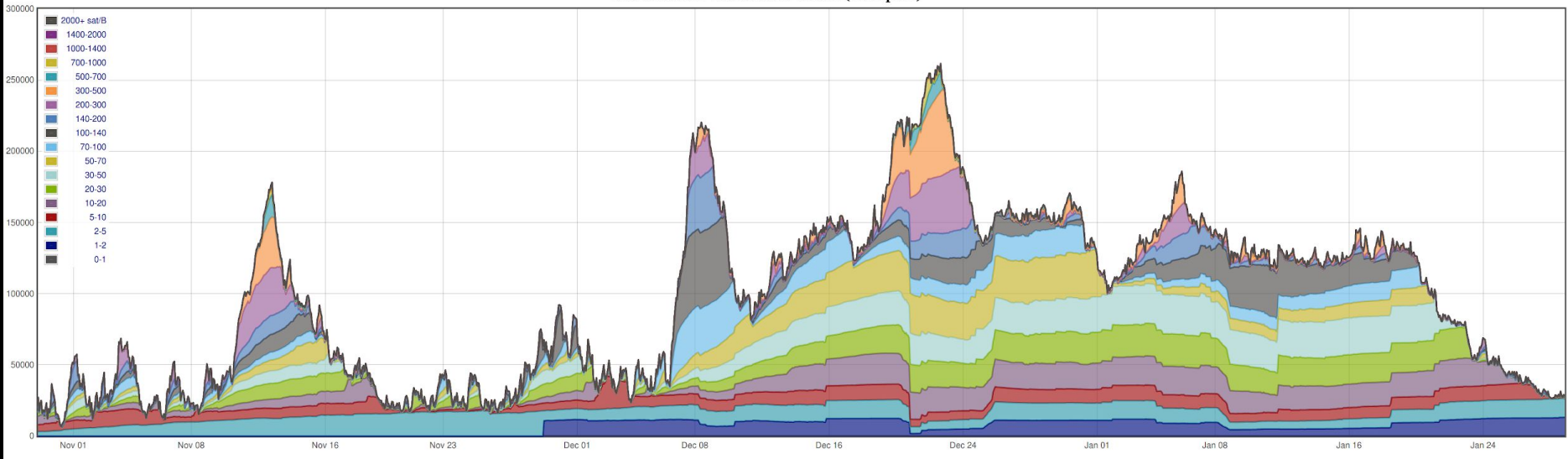
Latest Transactions

Transaction Hash	Received	Size	Fee/size (7)	Fee	Volume	Value
a5f069c6a75e048e0823a30503480f48963b676335126adb...	19:26:58	223 B	222.35	0.00049584	0.00232010	\$25.52
ca015fec9bdab83313842852a96c4eb70e0c7d3ec58b5cc8...	19:26:58	226 B	150.00	0.00033900	0.21059589	\$2,316.55
f282588d5825520ea349cb2ebbc5fd9043abc1eb8314507c...	19:26:57	225 B	222.34	0.00050027	0.04324125	\$475.65
c548aa6d7cf1414994b067d7ec13a74b8b039ecfe034552...	19:26:57	225 B	222.34	0.00050027	0.00020645	\$2.27
f12527dfe7362d4555c8b66c045136a0fde622c780db0543c...	19:26:57	225 B	222.34	0.00050027	0.00399973	\$44.00
95b45cc5995edfe0a900c68ddbe6e91ce58f756462d12f91...	19:26:57	226 B	221.36	0.00050027	0.01557337	\$171.31
fd78929949e5c1f060538e25c392035fd50621c4be0b97b4...	19:26:57	226 B	221.36	0.00050027	0.00093783	\$10.32
9d2c61593281cf3d280b95d491b18d3216f7af1fd2c7d4e3a...	19:26:57	225 B	253.81	0.00057108	0.00270507	\$29.76
0cd033907f7fce3d1517db50cb397f5bb271d49b0becb03d...	19:26:57	225 B	222.34	0.00050027	0.00100742	\$11.08
0459860804a07e713559d58c7828af2df22db9c6d4e5fc19...	19:26:57	976 B	388.20	0.00378887	0.2580571	\$2,837.39
0c75c20b31323e61911bc8c479bc81241327b749d631902...	19:26:57	223 B	80.29	0.00017905	0.0390981	\$43.17



Public blockchains = data-mining paradise

Unconfirmed Transaction Count (Mempool)





Blocks

Market

Nodes Map

Proof-of-Stake

Proof-of-Work

Supply

Click the dashboard you want to show:

Blocks

Home

Market

Nodes Map

Proof-of-Stake

Proof-of-Work

Supply

Transactions

charts.dcr.farm



This site contains charts about the [Decred](#) blockchain.

Select a dashboard to start exploring.

Looking for a missing chart?

Email us at [admin \[AT\] dcr \[DOT\] farm](#) and we'll try to add it.

Proudly maintained by the [dcr.farm](#) stake pool.

Regular Transactions in the last 24h



24h Volume over Market Cap



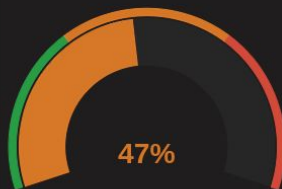
Market Cap



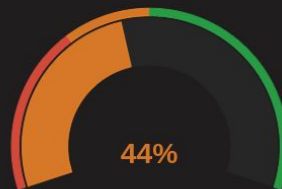
Ticket Price



Proportion of Supply locked in PoS



Proportion of Regular Transactions



Coin Supply Mined

33.6%

Blockchain Size

2.001 GB

USD/DCR

\$89

BTC/DCR

0.0080 BTC

Tickets staked on Public Pools

45%

Best Block

207,341

Mean Transaction Fee

Last 24 hours

0.004 DCR/kB

Nodes reachable

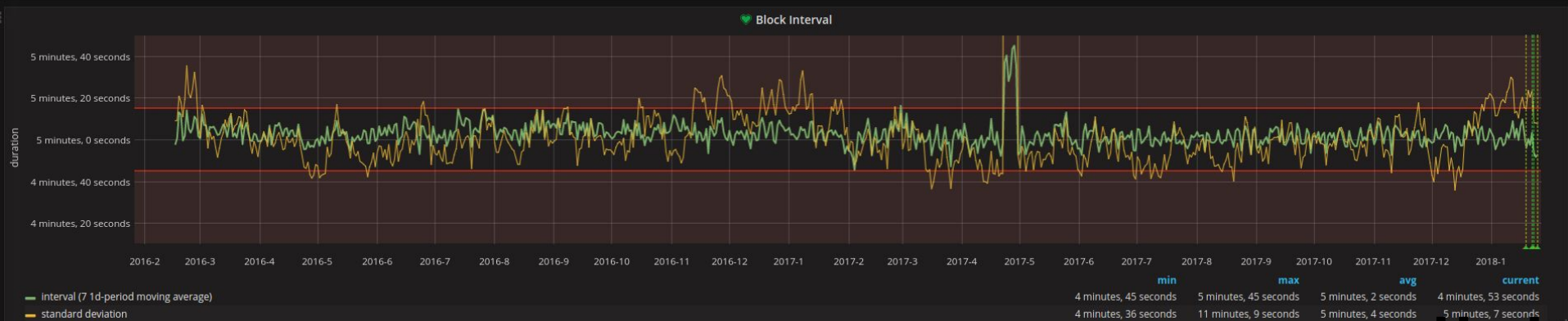
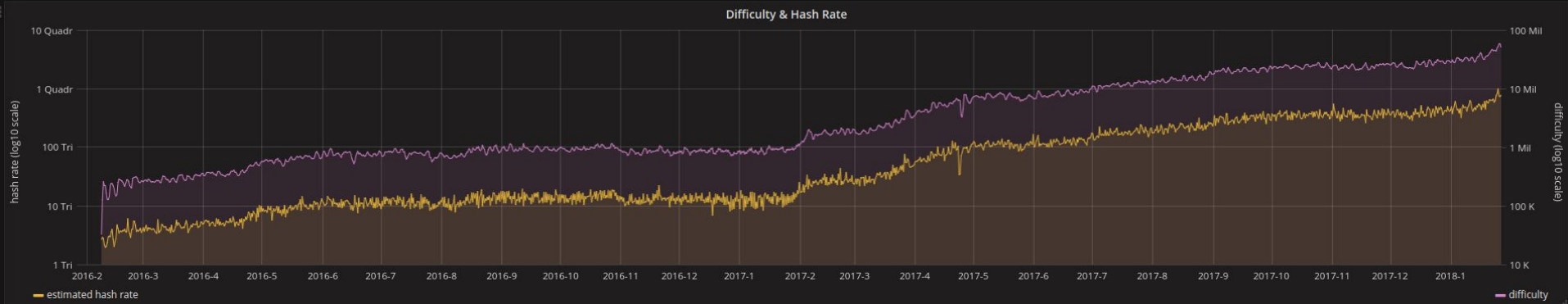
Last 24 hours

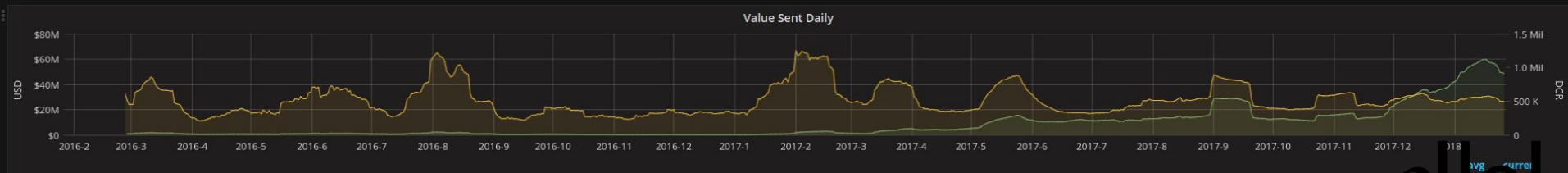
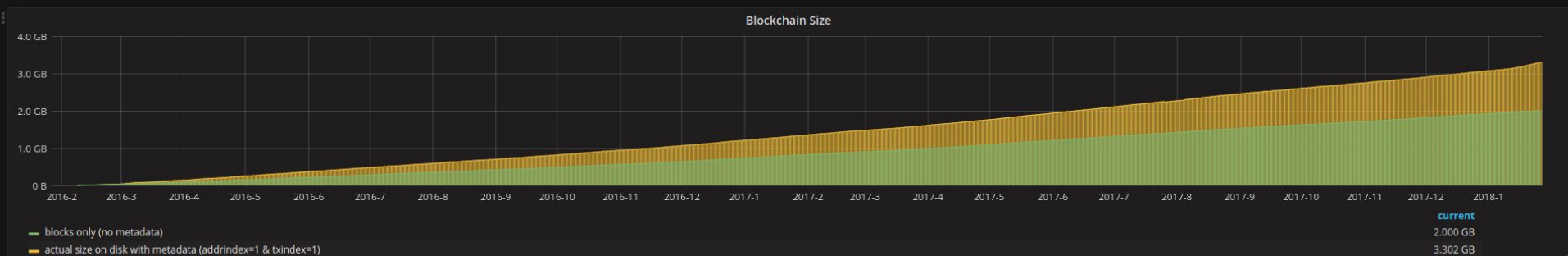
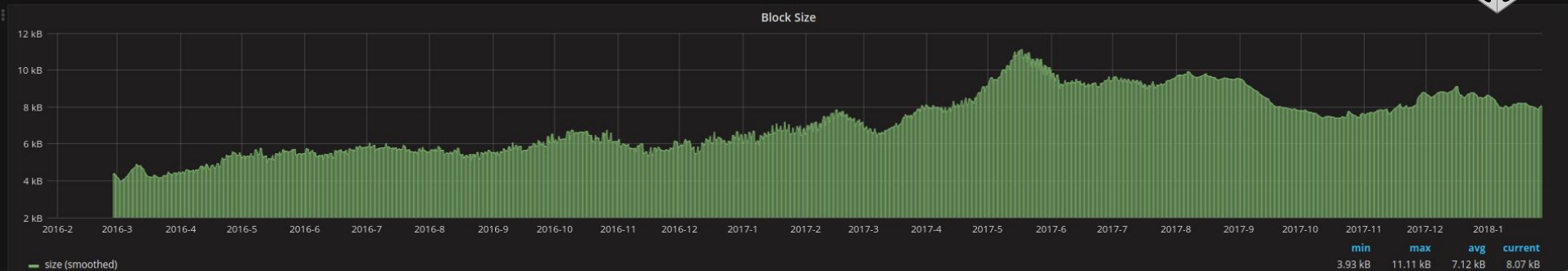
320 nodes

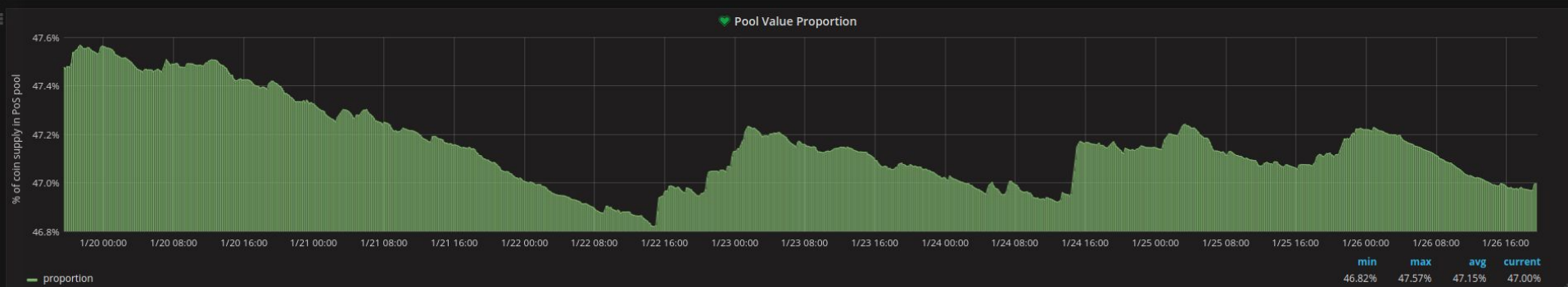
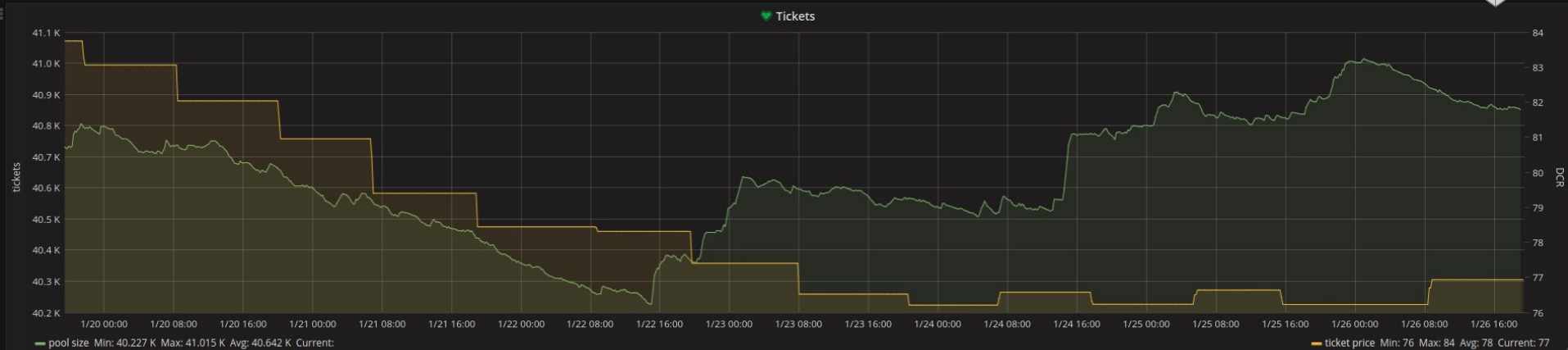
Value sent

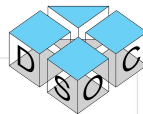
Last 24 hours

\$41.5M

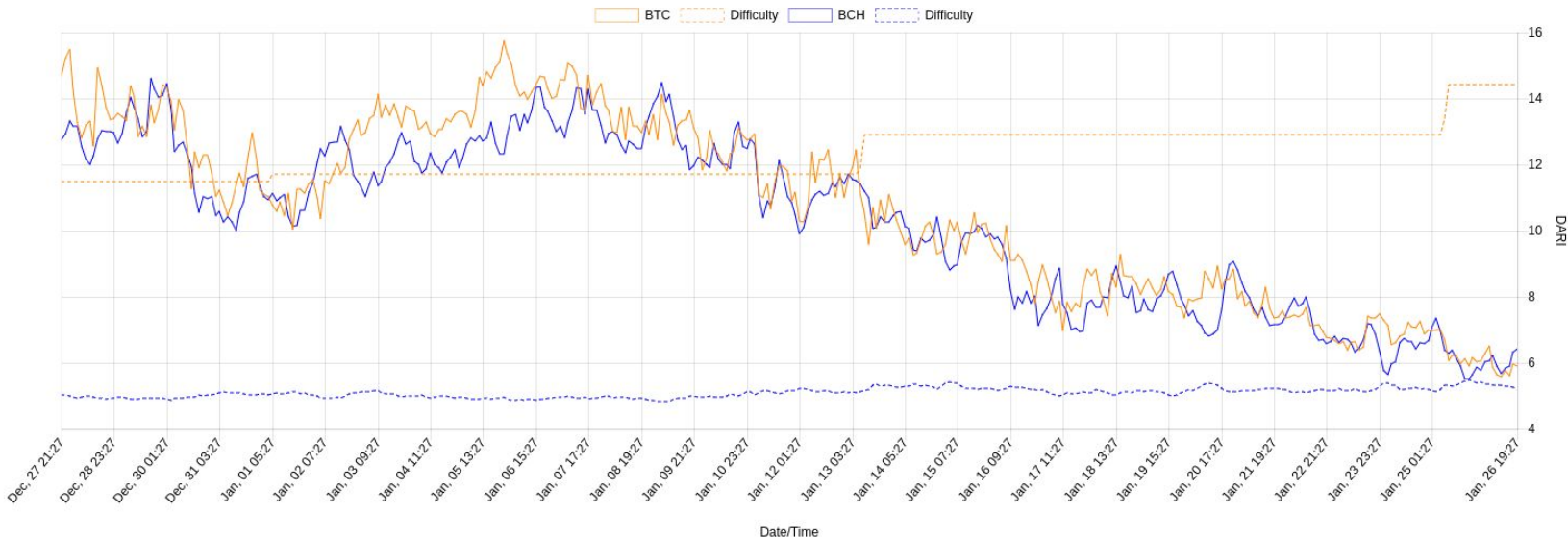








Normalized miner income for work done (DARI)



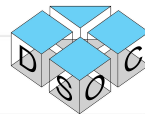
The DARI (Difficulty Adjusted Reward Index) is a way to compare the rewards of two chains that share the same reward system. The following calculation is used to determine the DARI:

$$(\text{block coinbase} + \text{fees in satoshis}) / (\text{block difficulty}) * (\text{exchange rate in USD})$$

With this result we can compare the two chains. For example, using the DARI of the last block we can estimate that a BCH miner could potentially collect $(6.36 / 5.95 =) 1.07$ times the reward (in USD) that a BTC miner could collect.

Since the inception of BCH we have seen that some miners switch based on which coin is most rewarding for the work they perform. The data below is an attempt to capture some of the effects of this so called "chain hopping"

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[Reward](#)[Blocks](#)[Tx](#)[POW](#)[Security](#)[Hashrate](#)[Total work](#)[Retarget](#)[Speed](#)[Difficulty](#)

Estimated days for difficulty retarget.



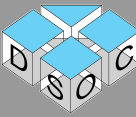
Estimated next difficulty. The 12 hour hashrate average is used to make a prediction about upcoming blocks in the period.

Coin	Date (UTC 24h)	Remaining	Change
BTC	Feb 6th, 15:31	1 week, 2 days (1467 blk)	▲ +13.28%
BCH *	-	-	-

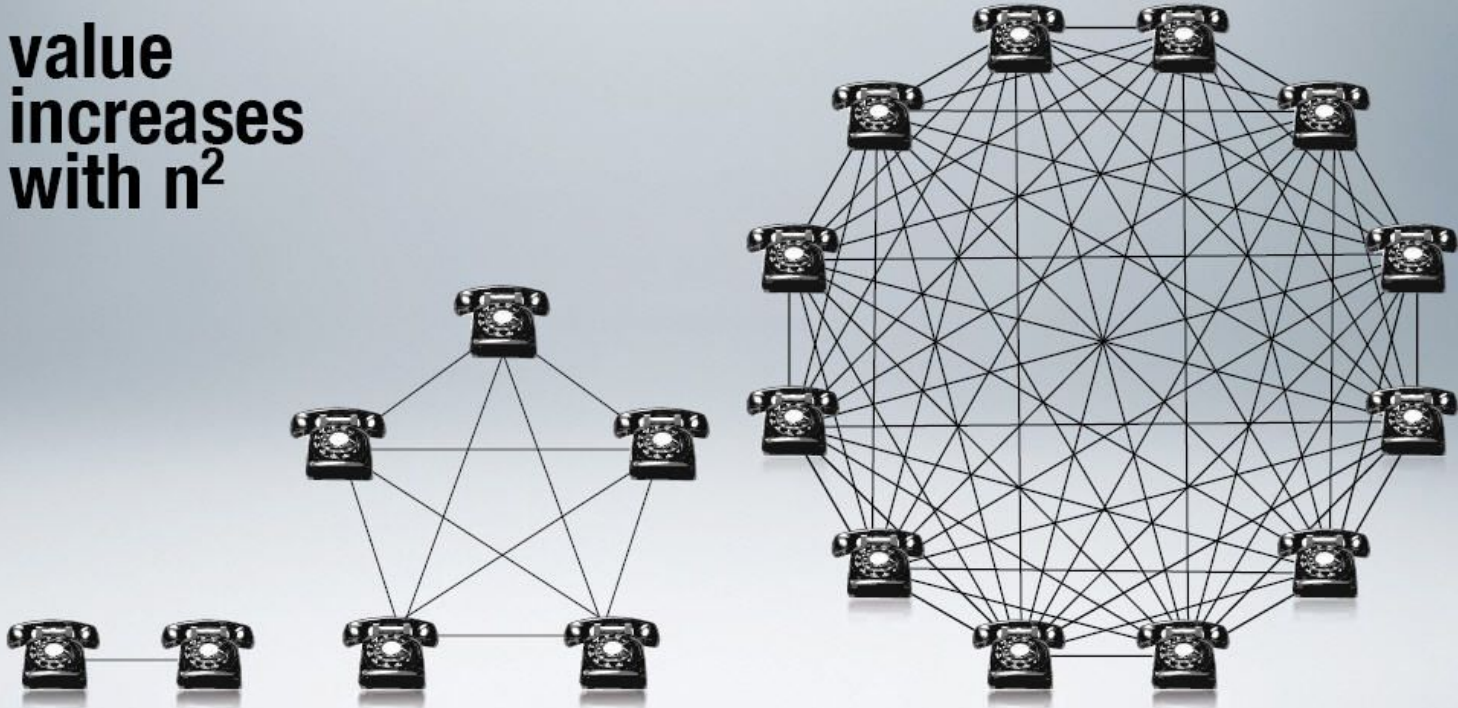
* On November 13th 2017 BCH switches to a faster changing difficulty algorithm which makes it impractical to make predictions about its behaviour.

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METCALFE'S LAW



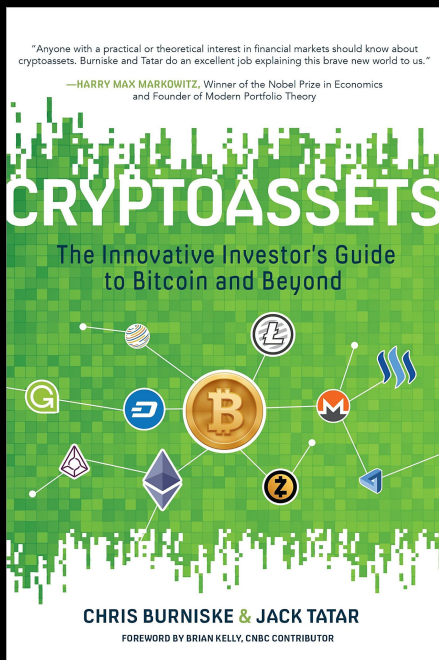
value
increases
with n^2



parallel

Appraising network value

NV : T ?

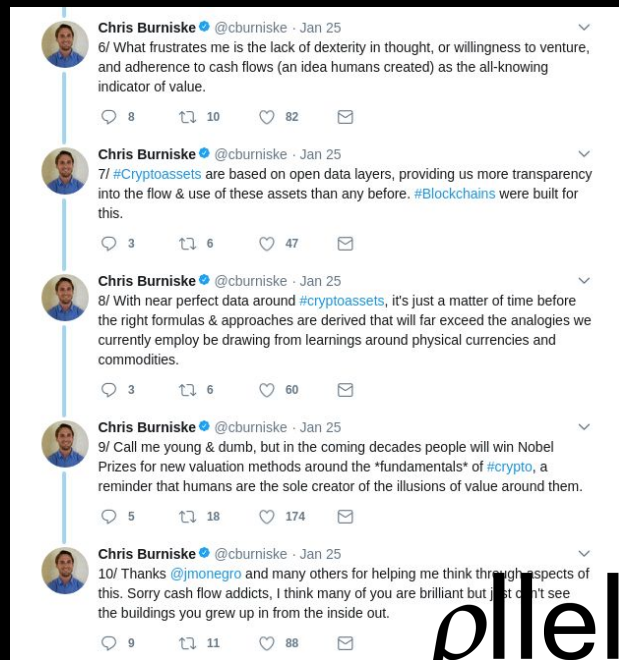


I believe in a taxonomy of cryptoassets that goes far beyond currencies. That said, within its native protocol a cryptoasset serves as a means of exchange, store of value, and unit of account. By definition, then, each cryptoasset serves as a currency in the protocol economy it supports. Since the equation of exchange is used to understand the flow of money needed to support an economy, it becomes a cornerstone to cryptoasset valuations.

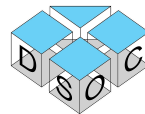
The equation of exchange is $MV = PQ$, and when applied to crypto my interpretation is:

- M = size of the asset base
- V = velocity of the asset
- P = price of the digital resource being provisioned
- Q = quantity of the digital resource being provisioned

A cryptoasset valuation is largely comprised of solving for M , where $M = PQ / V$. M is the size of the monetary base necessary to support a cryptoeconomy of size PQ , at velocity V .



Is Bitcoin In A Bubble? Check The NVT Ratio



Willy Woo, CONTRIBUTOR

I do data-centric investment research on cryptocurrency markets. [FULL BIO](#) ✓

Opinions expressed by Forbes Contributors are their own.



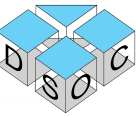
Shutterstock

February of this year, I [tweeted](#) a chart that presented the idea of a PE ratio for Bitcoin, something I temporarily called MTV Ratio before my buddy [Chris Burniske](#) suggested the less confusing term of **NVT Ratio** (Network Value to Transactions Ratio). Later in May, Chris was the first to present NVT Ratio at [Token Summit 2017](#). Subsequently, this ratio has been mentioned in blog and media articles across the web. In my original tweet, I promised an article; it lay unwritten until now.

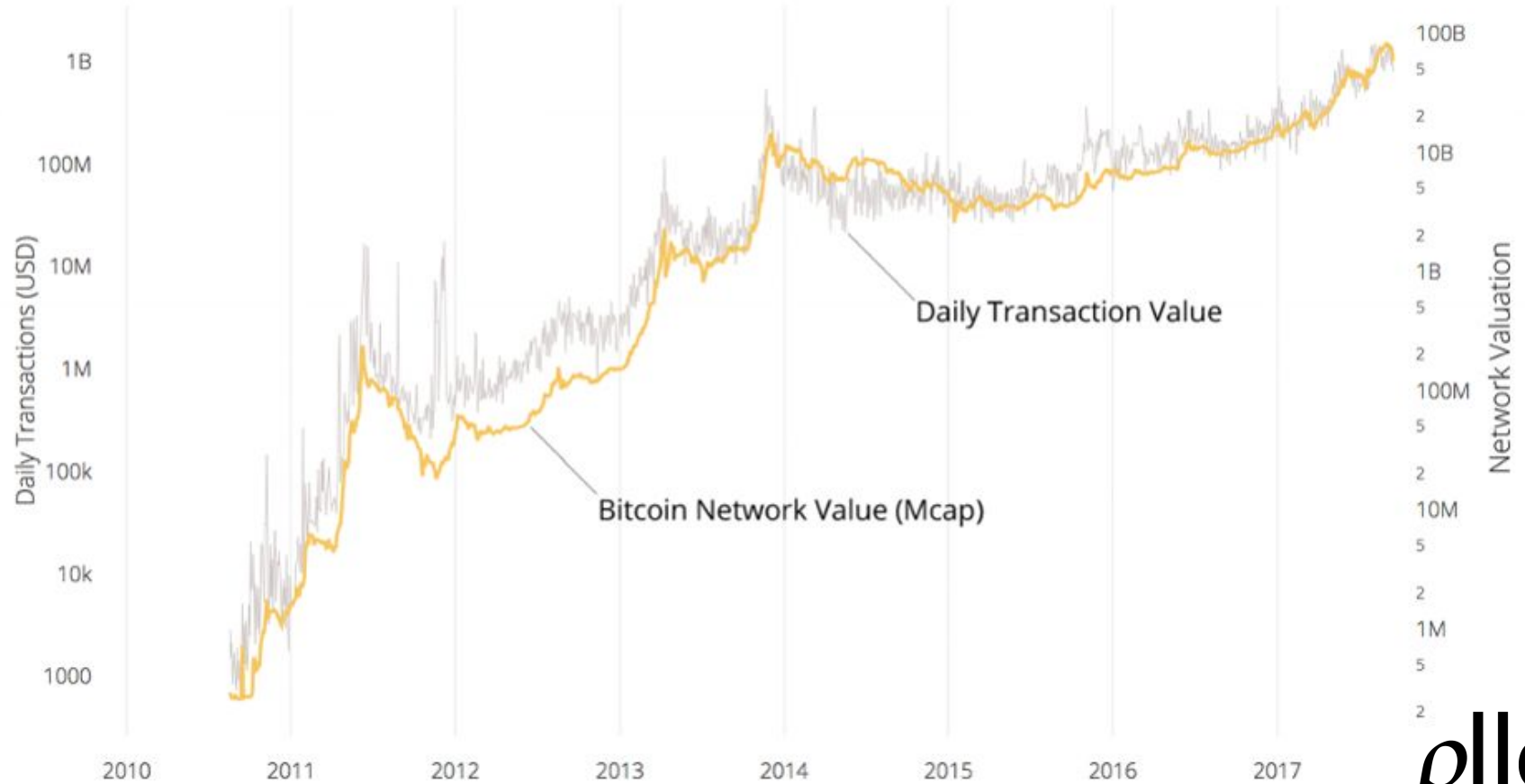
The Idea Behind NVT Ratio

pllel

Network Value and Transaction Value



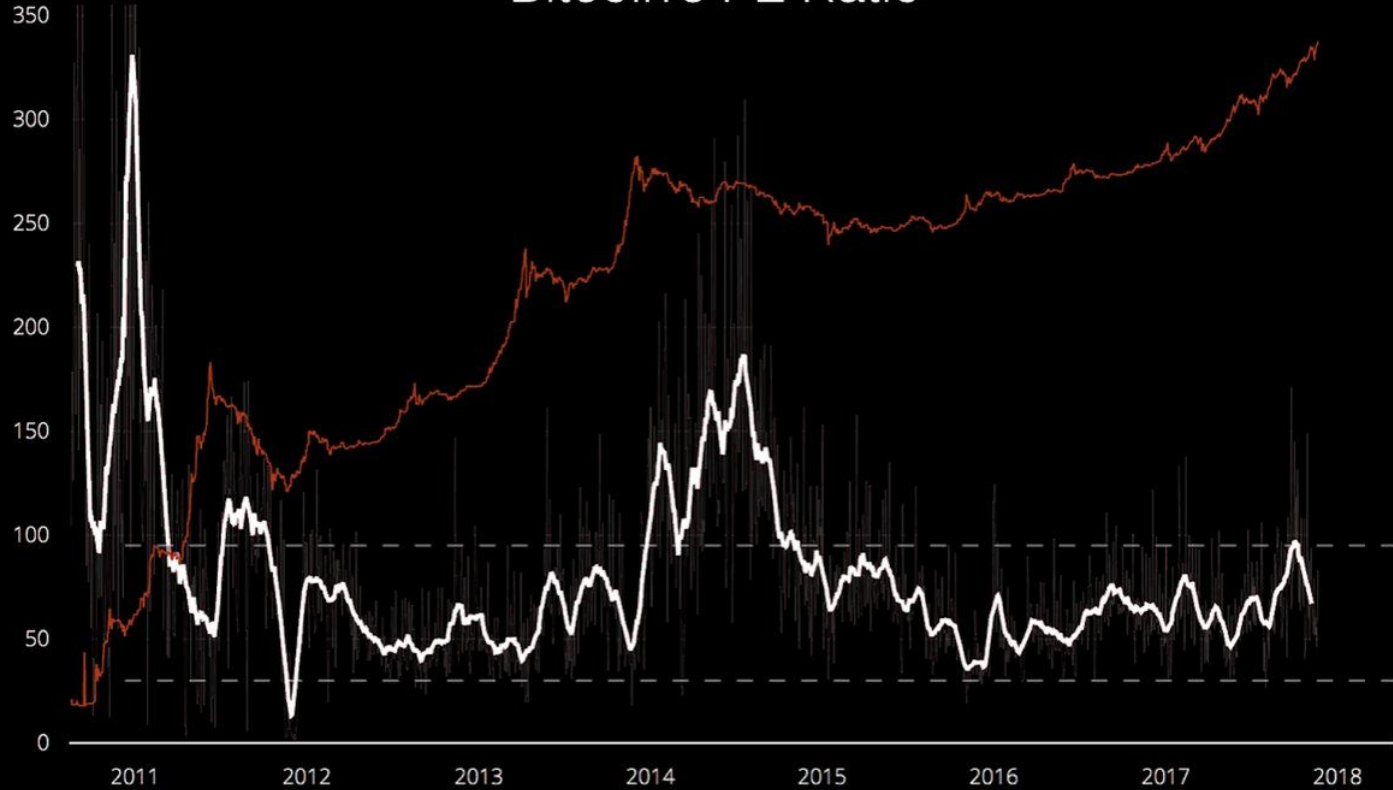
Source: Wootbull.com





NVT Ratio

“Bitcoin’s PE Ratio”



Network value to money transmitted through the blockchain

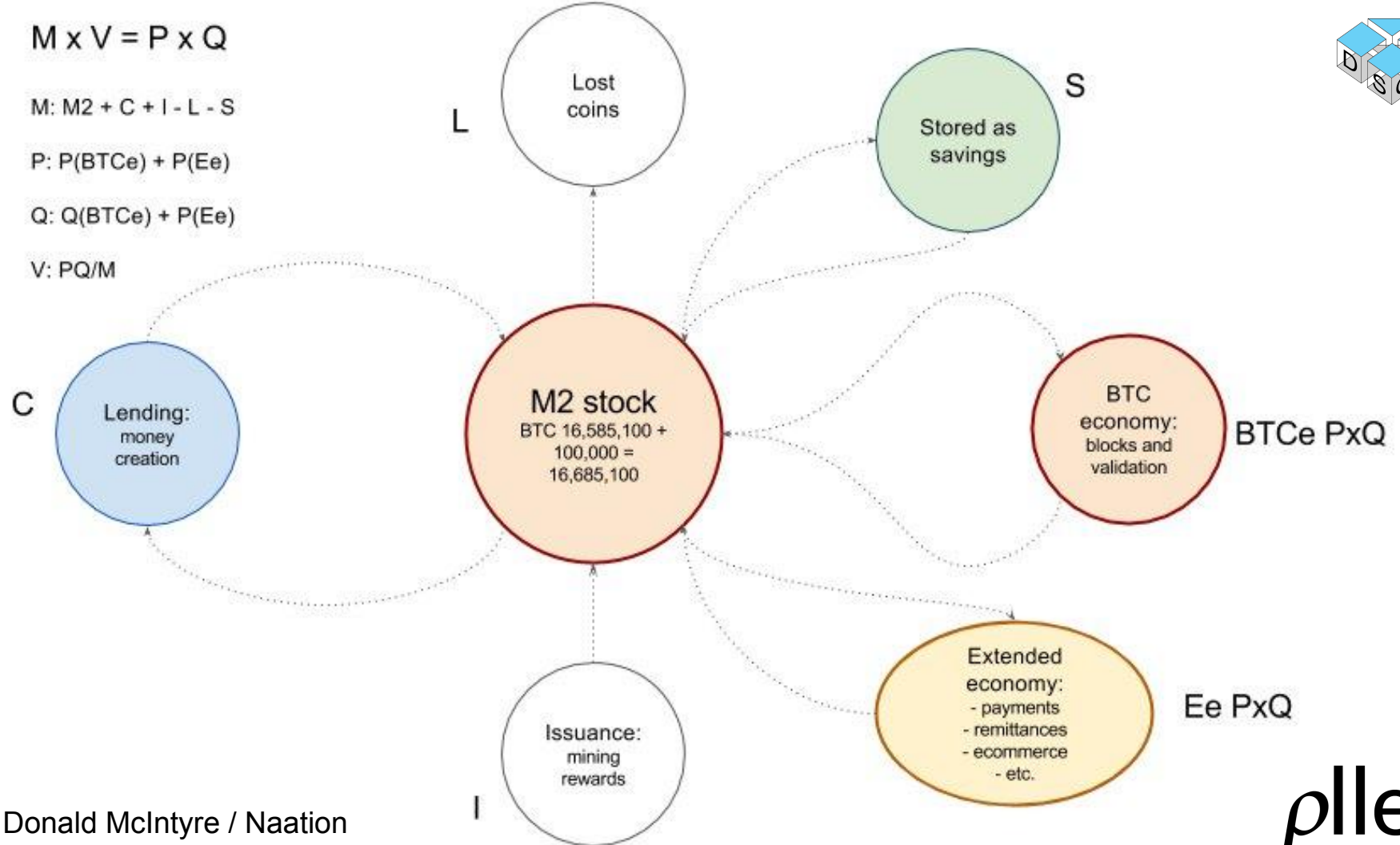
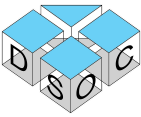
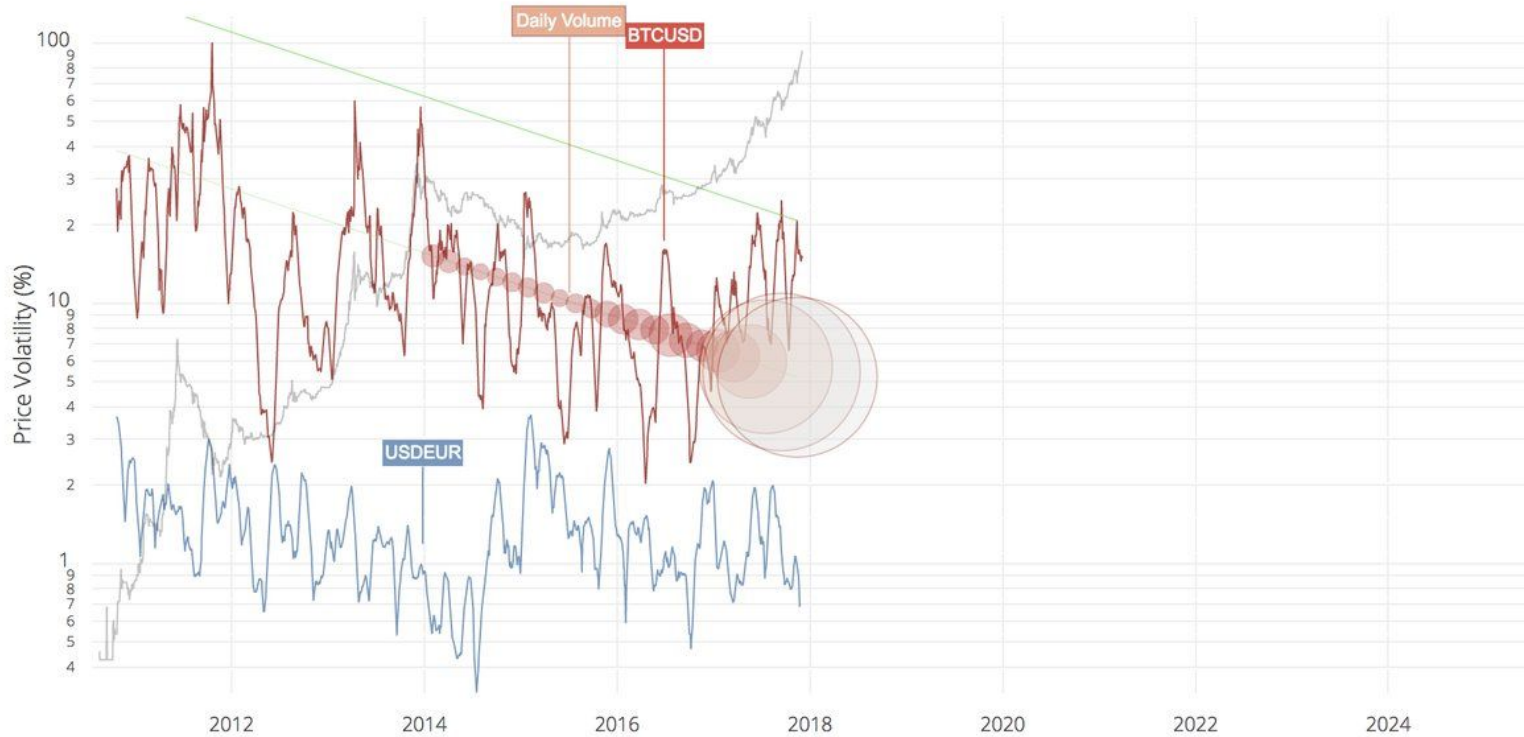
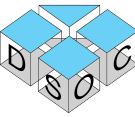


Fig: Donald McIntyre / Naation

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Bitcoin 60-Day Volatility

14.85%



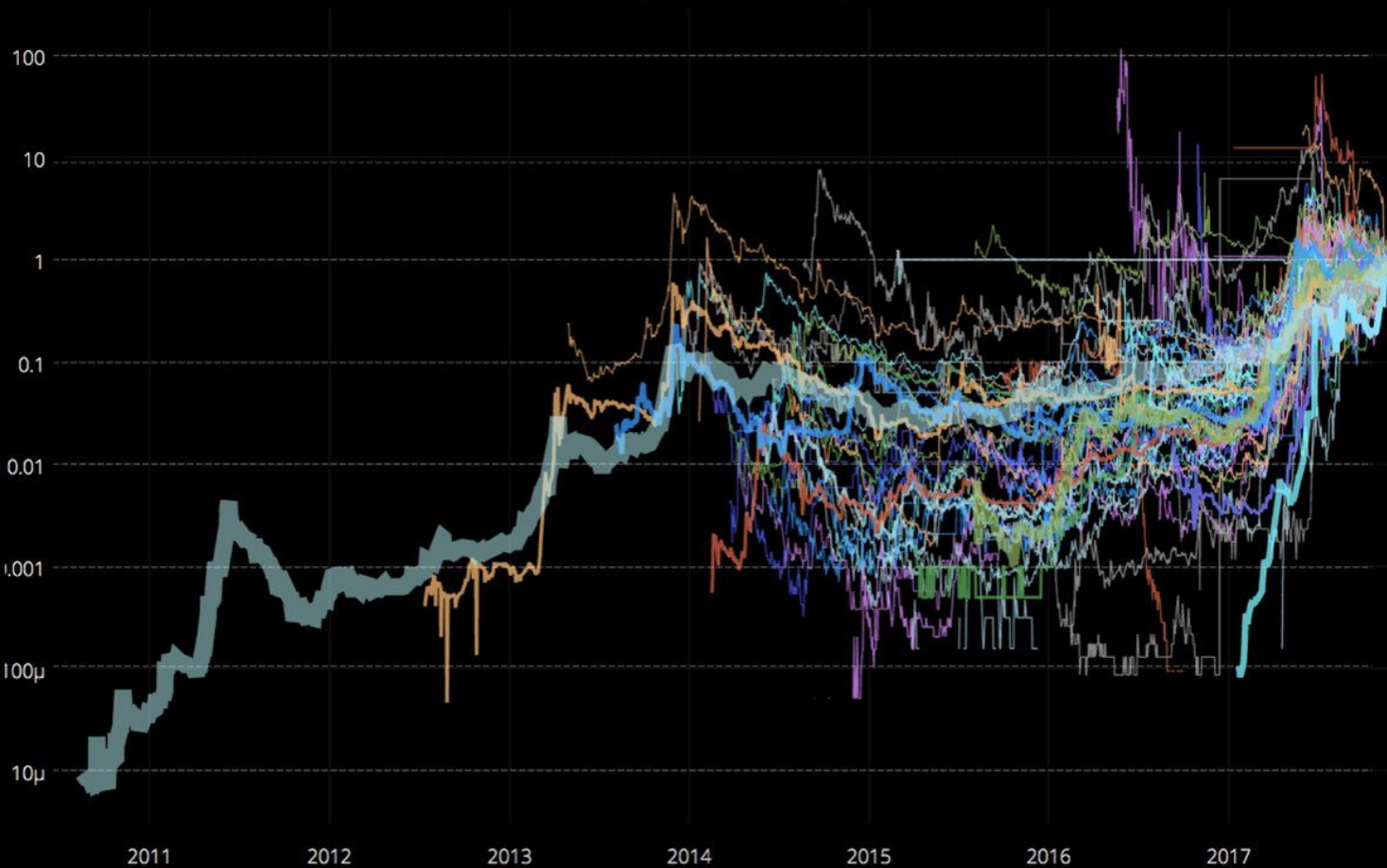
Source: Woobull.com

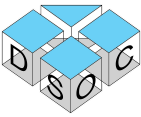
Bitcoin historical price (grey), daily volume (circles) and USDEUR volatility (blue) included for reference

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Individual Performance

(Top 125 coins)





What creates that value?

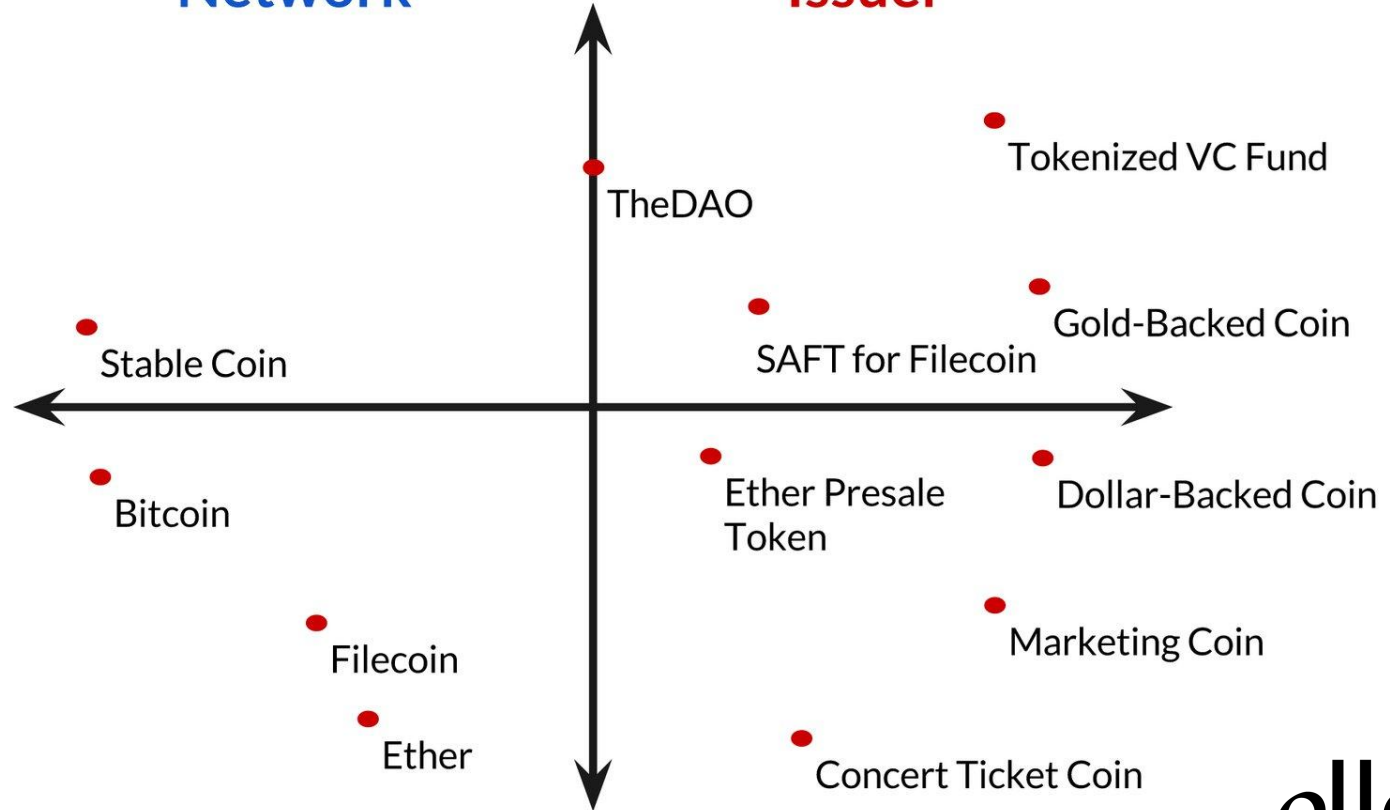
Why is the token valuable?

Investment

Utility

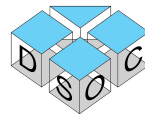
Network

Issuer

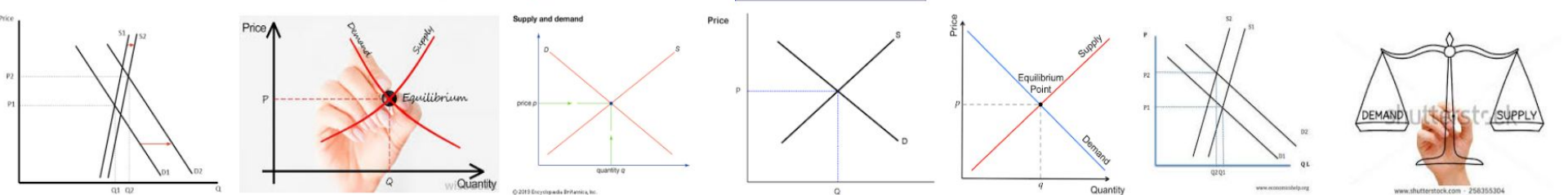


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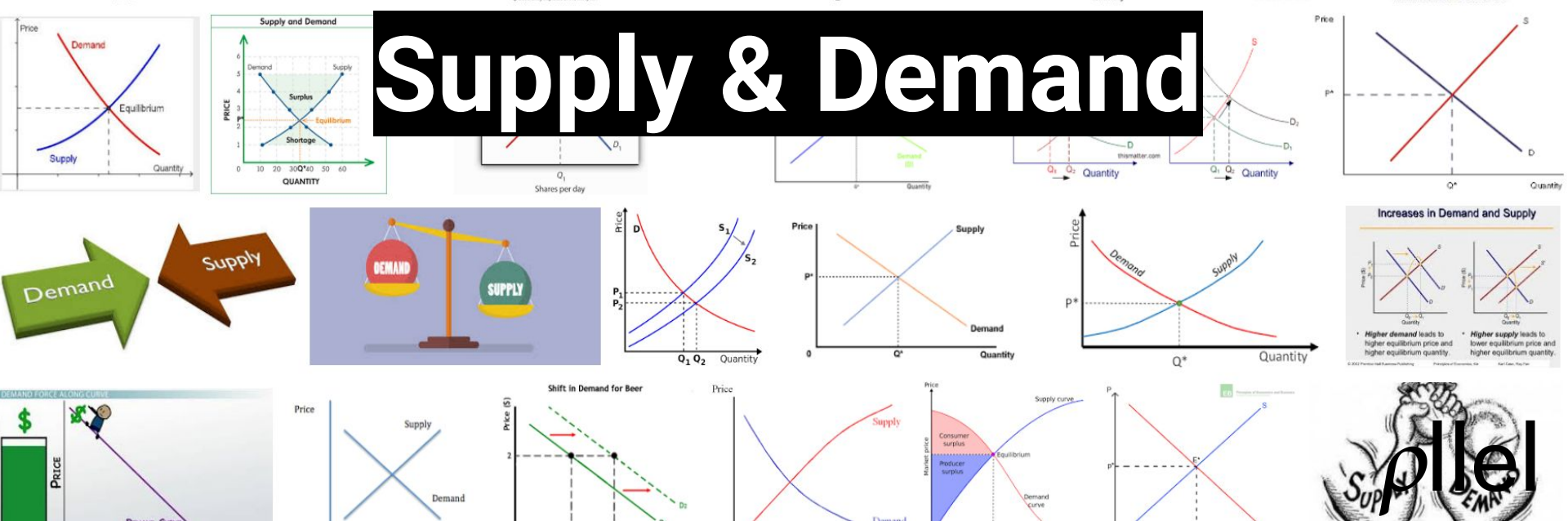
A Guide to Crypto Tokens Usage and Value



ROLE	PURPOSE	FEATURES
RIGHT	→ Bootstrapping engagement	Product usage Governance Contribution Voting Product Access Ownership
VALUE EXCHANGE	→ Economy creation	Work rewards Buying Spending Selling something Active/Passive work Creating a product
TOLL	→ Skin in the game	Running smart contracts Security deposit Usage fees
FUNCTION	→ Enriching user experience	Joining a network Connecting with users Incentive for usage
CURRENCY	→ Frictionless transactions	Payment unit Transaction unit
EARNINGS	→ Distributing benefits	Profit sharing Benefits sharing Inflation benefits



Supply & Demand



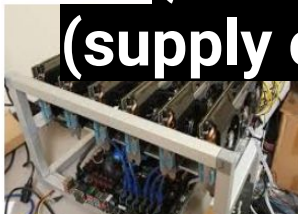


Supply: Mining

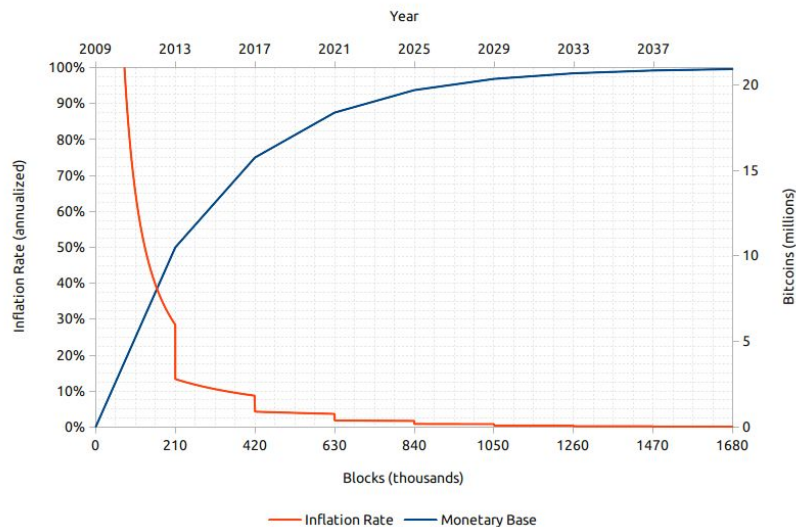
(mining schedules + diff, pre-mine)

(supply cap, delation/inflation, POS/MNs)

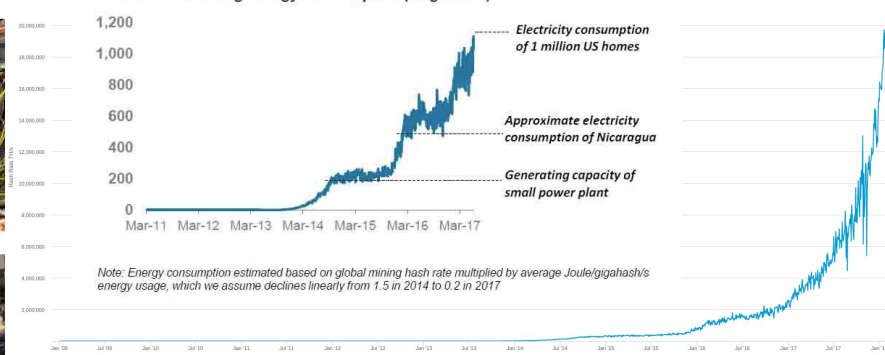
(security via hashpower)

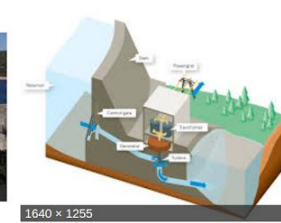
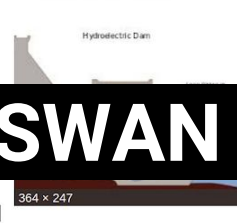
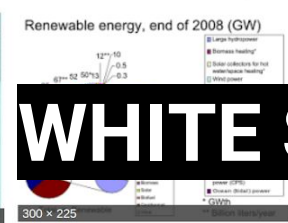
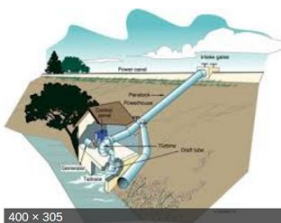
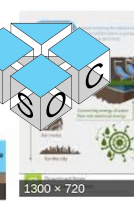
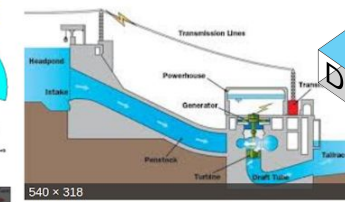
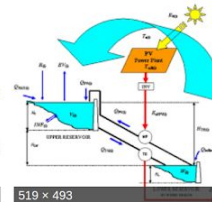
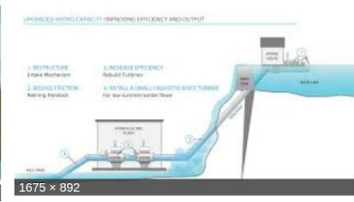


Bitcoin Inflation vs. Time



Global Bitcoin Mining Energy Consumption (Megawatts)

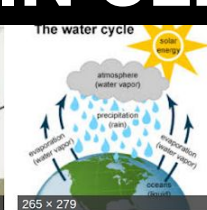
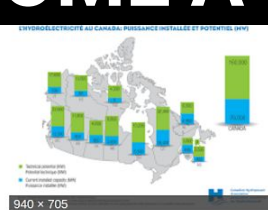
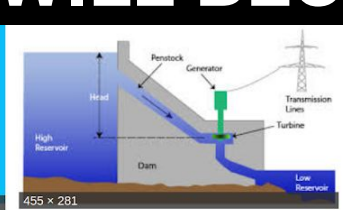




WHITE SWAN PREDICTION:



INCENTIVISED THERMODYNAMIC ARBITRAGE
WILL BECOME A MAJOR DRIVER IN CLEAN
ENERGY





????

file:///home/req
uesting/2018-0
1-27-054609_
4000x1887_sc



Supply: TGE / ICO

(supply cap, deflation/inflation, vesting, whitelist)



ICO POLICE



MIT Media Lab Director: ICOs Are
'Attracting the Wrong People'



2018-01-28 22:25:33

Kraken - GNO/XBT (D)

O: 0.02005482 H: 0.02095000 L: 0.01980000 C: 0.02041500

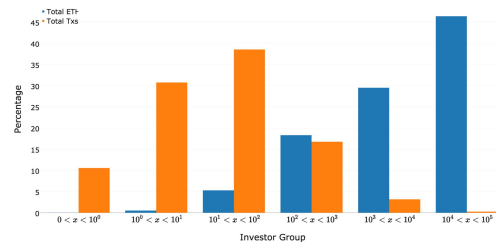
Ichimoku (9, 26, 52, 26)

ICO "INVESTOR"
BUYS DURING PEAK HYPE
RECEIVES ILLIQUID TOKEN

MMs AND WHALES
BUYING HERE FOR
NEXT CYCLE

Alright, so the [Gnosis](#) dutch auction reached their goal of 250K ETH in less than 15 minutes. I'm not too terribly surprised, to be honest, it was an incredibly popular project in the space.

Over \$12.5 million was raised, creating a \$300 million valuation, in less than 15 minutes...



Interactive version: <https://plot.ly/~ConeyPatty/188/percentage-vs-investor-group/>

So this plot shows us that over 40% of ETH invested in Gnosis was done by two single transactions. Since we are looking at the internal transactions of the contract address, it is not immediately apparent who they came from. Potentially exchanges, potentially Gnosis, potentially a super whale. More analysis would need to be done.

Top highlight

40% OF ICO IN 2 TX
\$12.5M RAISED IN 15MIN
FOUNDERS RETAINED 95%

Volume (false, 20)
OBV

RSI (14)

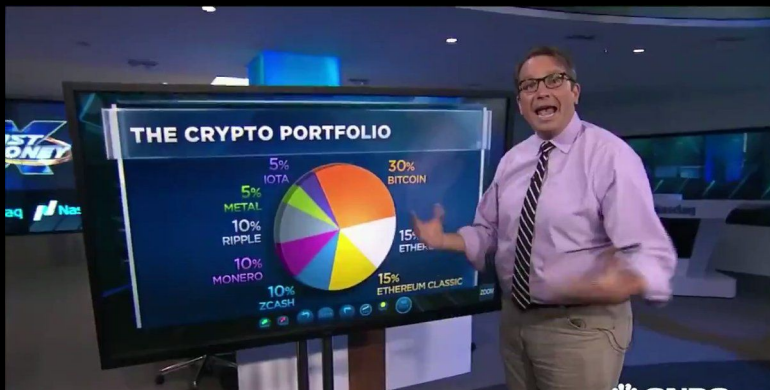
charts by TradingView

Demand: Secondary Markets

Exchanges + OTC / DEX vs Brokerages

**SPECULATING ON PRICE ACTION OF CRYPTO-ASSETS
DRIVES A LARGE AMOUNT OF ATTENTION TO THEM,
ULTIMATELY LEADING TO EXPANSION OF THEIR
ECOSYSTEMS.**

**Just look at the media over the past 6 months
- even “respectable” outlets.**



MSM CONTRA INDICATOR?

5,295.87
+220.74
+0.88%
2:16P
PACIFIC



WHY BUY STELLAR?

- MONEYGRAM DEAL WITH RIPPLE A WATERSHED EVENT
- STELLAR THE NEXT DEAL TARGET?
- PARTNERSHIP WITH IBM

THE NEXT COIN TO SURGE?

Coin	Price	Change
Advanced Micro (AMD)	11.81	+0.15
BJ's Restaurants (BJRI)	37.1	
Gold (FEB)	1299.2	+0.28
Silver (MAR)	18.95	+0.10
Copper (MAR)	3.18	+0.06

ETHEREUM'S RISE

13,698.00

WHY IS ETHEREUM SO HOT?

CRYPTO CLASS

INTENSIVE MINI

Adtalem Global Education Inc (ATGE)

Bellicum Pharma (BLCM)



Bittrex and Binance Exchange Account - Package Deal



\$19,999.99

or Best Offer

Free Shipping



FAST 'N FREE

Estimated Delivery Wed, Jan. 17



Bittrex account for sale verify needed

\$3,000.00

or Best Offer

Free Shipping



NEW LISTING

Brand New Cryptopia Account + Email *Instant Delivery* - Bittrex/Binance/BTC/ETH

\$75.00

Buy It Now

Free Shipping

Only 1 left!

1 Watching



FAST 'N FREE

Estimated Delivery Thu, Jan. 18



Bittrex Account - REGISTRATION CLOSED UNTIL END OF 2018

Accounts Are Becoming Extremely Rare! Buy Now!

\$202.50

11 bids

Free Shipping

2d 12h left (Monday, 9AM)

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Get Early Access
939,704 people in line

(ONLY ANNOUNCED THIS WEEKEND)

Enter email address

Get Early Access



GET IT ON
Google Play



Download on the
App Store

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A dense crowd of people, many with blood on their faces and hands, reaching out in a chaotic manner. The scene is filled with a sense of panic and desperation. The text "UNINFORMED MARKET PARTICIPANTS" is overlaid in the center.

"UNINFORMED MARKET PARTICIPANTS"



“Gym Theory” or how to Make Sense of Parabolic Trends in Deflationary Assets



2014

2015

2016

2017

2018

S&P 500, W, SP - O 2809.16 H 2872.87 L 2808.12 C 2872.87
WAPR - 11.51B - 5.74B



5,000.00

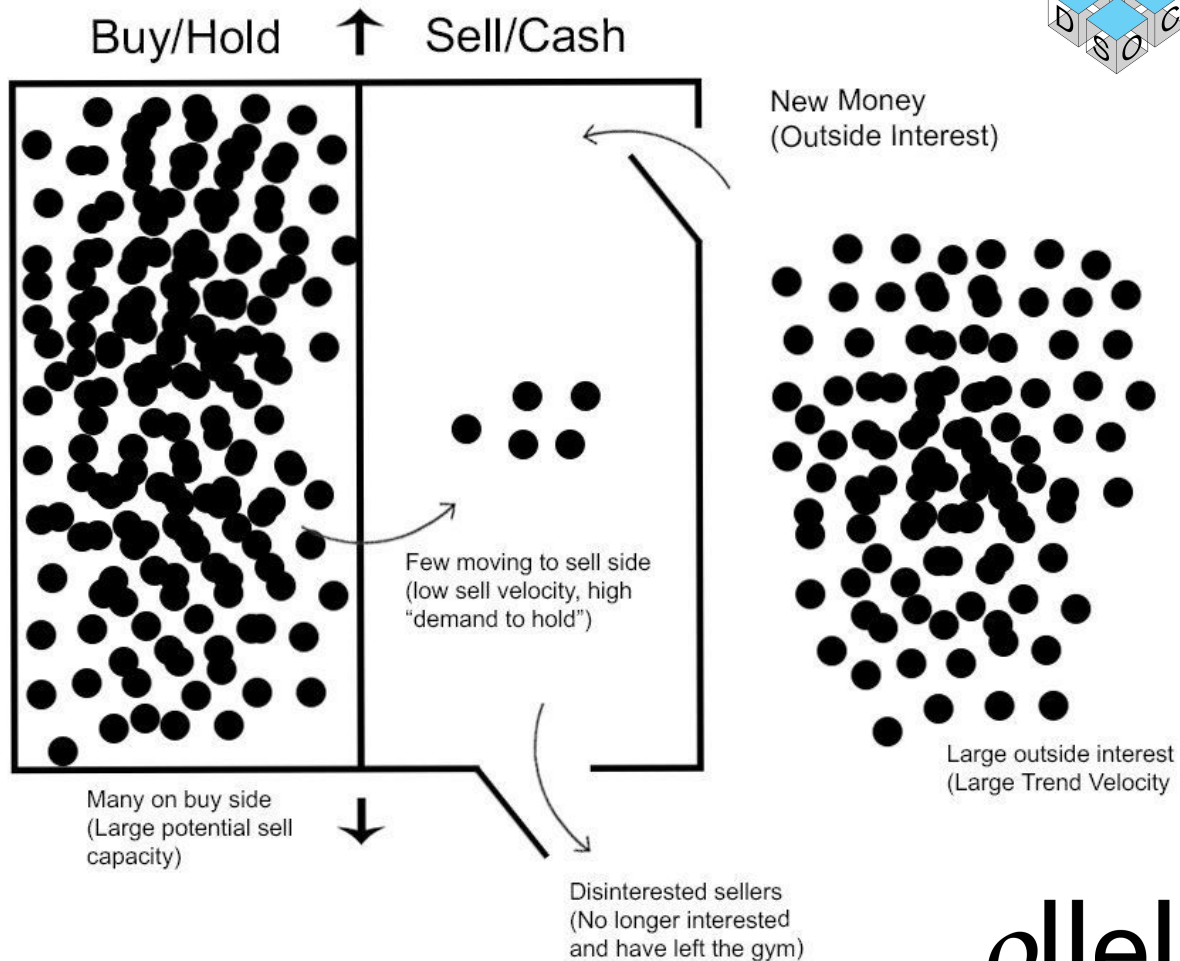
4,000.00

3,000.00

2,000.00

1,000.00

01/26 5,940.00



Parabolic Trav

@parabolictrav

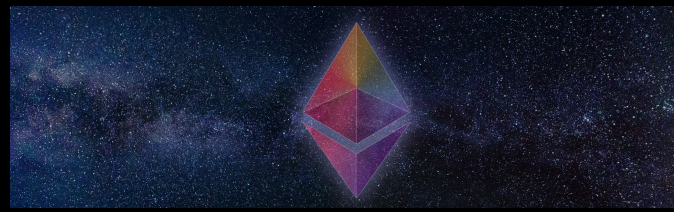
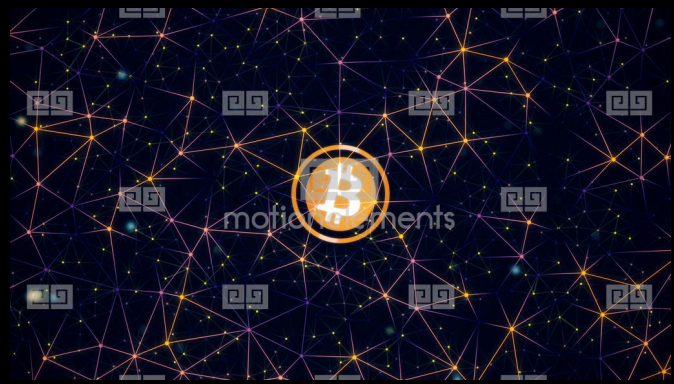
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CRYPTOCURRENCY UNIVERSE



BTC Bitcoin 660 forks	BCN Bytecoin 17 forks	NXT Nxtcoin 13 forks	XRP Ripple 4 forks
--------------------------	--------------------------	-------------------------	-----------------------



pllel



WALL ST. CHEAT SHEET™ WE'VE GOT THE WORD ON THE STREET

PSYCHOLOGY OF A MARKET CYCLE

THE FEELINGS APPEARING
AS THE MARKET FLUCTUATES.

SIMPLIFIED MARKET CYCLE



(alts vs BTC,
approx cycle
0.75-1.5yr)



WALL ST. CHEAT SHEET™
WE'VE GOT THE WORD ON THE STREET

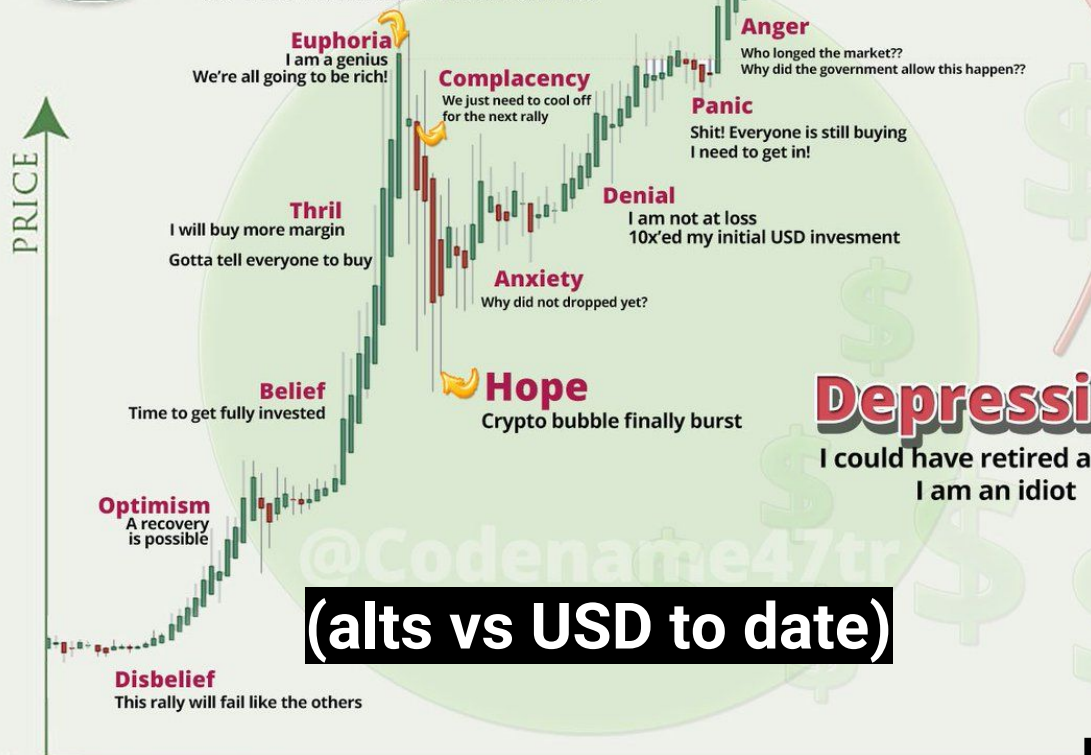
www.wallstcheatsheet.com

phel



CRYPTOTRADER CHEAT SHEET™ WE'VE GOT THE WORD ON THE STREET PSYCHOLOGY OF A MARKET CYCLE

THE FEELINGS APPEARING
AS THE MARKET FLUCTUATES.



(alts vs USD to date)



CRYPTOTRADER CHEAT SHEET™ by @Codename47tr just for fun



pilel



*Click and drag to zoom.



Data may be delayed by up to 15s

BIDS (14.7069 BTC) • WALLS (0.00049455, 0.000456, 0.00047127, 0.00047513, 0.000467, 0.00049867, 0.00051, 0.00051999, 0.00052, 0.000518)

PRICE	QTY (BTC)	TOTAL++
0.00049706	0.00584251	0.00584251
0.00049700	0.01420238	0.02004489
0.00049575	0.00104737	0.02109226
0.00049478	0.04793777	0.06903003
0.00049477	0.23341211	0.30244214
0.00049455	2.80927074	3.11171288
0.00049445	0.10000000	3.21171288
0.00049146	0.00066905	3.21238193
0.00049144	0.00766292	3.22004484
0.00049140	0.00357356	3.22361841
0.00048868	0.00085077	3.22446918
0.00048827	0.00128624	3.22575542
0.00048640	0.19456100	3.42031542
0.00048330	0.01995012	3.44026555
0.00048329	0.01778507	3.45805062
0.00048328	0.00483280	3.46288342
0.00048007	0.34144699	3.80433041
0.00048000	0.48000000	4.28433041
0.00047999	0.04468221	4.32901262
0.00047951	0.10377227	4.43278489
0.00047901	0.00796278	4.44074767

ASKS (67.5466 BTC) • WALLS (0.00049867, 0.00051, 0.00051999, 0.00052, 0.000518)

PRICE	QTY (BTC)	TOTAL++
0.00049866	0.04191216	0.04191216
0.00049867	49.65317931	49.69509148
0.00049875	0.01426339	49.70935487
0.00049877	0.00050376	49.70985863
0.00049888	0.01616371	49.72602234
0.00049905	0.02495250	49.75097484
0.00049906	0.01104812	49.76202296
0.00049923	0.02496150	49.78698446
0.00049940	0.01248500	49.79946946
0.00049944	0.02497200	49.82444146
0.00049947	0.00050125	49.82945396
0.00049956	0.03132089	49.86077485
0.00049964	0.01797360	49.87874845
0.00049972	0.03818432	49.91693277
0.00049975	0.00710777	49.92404054
0.00049996	0.08055341	50.00459395
0.00049999	0.01886042	50.02345437
0.00050030	0.01017457	50.03362894
0.00050135	0.02594872	50.05957765
0.00050161	0.00618000	50.06575765
0.00050253	0.01370949	50.07946715

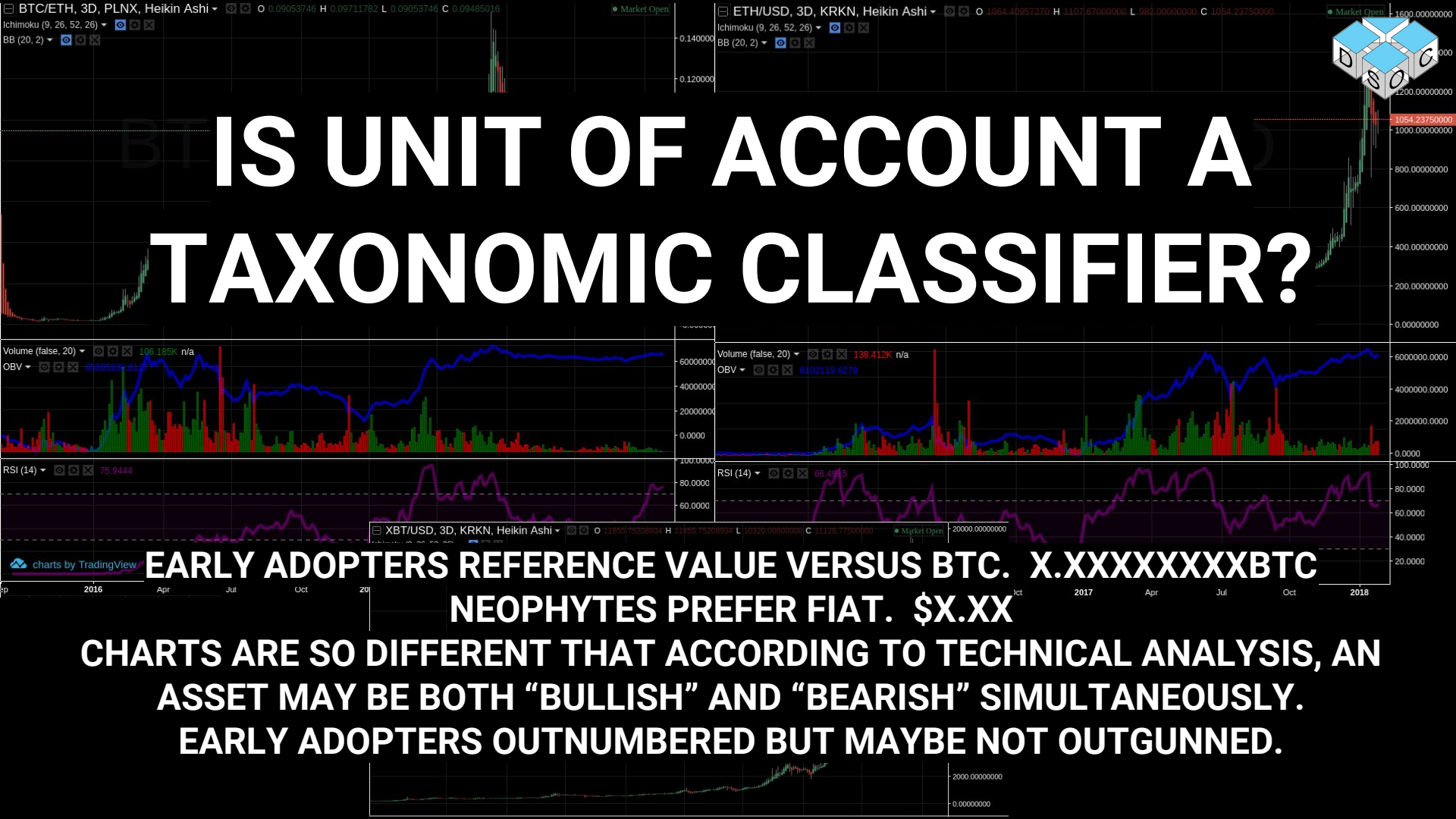
HIGH 0.000519 LOW 0.00043127 VOL 640076.
BID 0.00049706 ASK 0.00049866 SPR 0.00000

Data	Trade	Alerts	Economy	Notes
ASKS	PRICE	QTY	TOTAL	PR
	0.00050161	12.32032854	0.00618000	
	0.00050135	51.75769119	0.02594872	
	0.00050030	20.33693316	0.01017457	
	0.00049999	37.72159250	0.01886042	
	0.00049996	161.11970674	0.08055341	
	0.00049975	14.22264893	0.00710777	
	0.00049972	76.41142495	0.03818432	
	0.00049964	35.97310700	0.01797360	
	0.00049956	62.69695746	0.03132089	
	0.00049947	10.03563778	0.00501250	
	0.00049944	50.00000000	0.02497200	
	0.00049940	25.00000000	0.01248500	
	0.00049923	50.00000000	0.02496150	
	0.00049906	22.13785740	0.01104812	
	0.00049905	50.00000000	0.02495250	
	0.00049888	32.40000000	0.01616371	
	0.00049877	1.01000000	0.00050376	
	0.00049875	28.59828124	0.01426339	
	0.00049867	99571.21806981	49.65317931	
	0.00049866	84.04957830	0.04191216	

0.00049706 0.0000016 0.00049866

PRICE	QTY	TOTAL
0.00049706	11.75413852	0.00584251
0.00049700	28.57620739	0.01420238
0.00049575	2.11270792	0.00104737
0.00049478	96.88703955	0.04793777
0.00049477	471.75881167	0.23341211
0.00049455	5680.45847558	2.80927074
0.00049445	202.24491860	0.10000000
0.00049146	1.36134656	0.00066905
0.00049144	15.59278775	0.00766292
0.00049140	7.27220695	0.00357356
0.00048868	1.74096150	0.00085077
0.00048827	2.63428259	0.00128624
0.00048640	400.00000000	0.19456100
0.00048330	41.27896687	0.01995012
0.00048329	36.79999999	0.01778507
0.00048328	10.00000000	0.00483280
0.00048007	711.24417098	0.34144699
0.00048000	1000.00000000	0.48000000
0.00047999	93.08988617	0.04468221
0.00047951	216.41314910	0.10377227





IS UNIT OF ACCOUNT A TAXONOMIC CLASSIFIER?

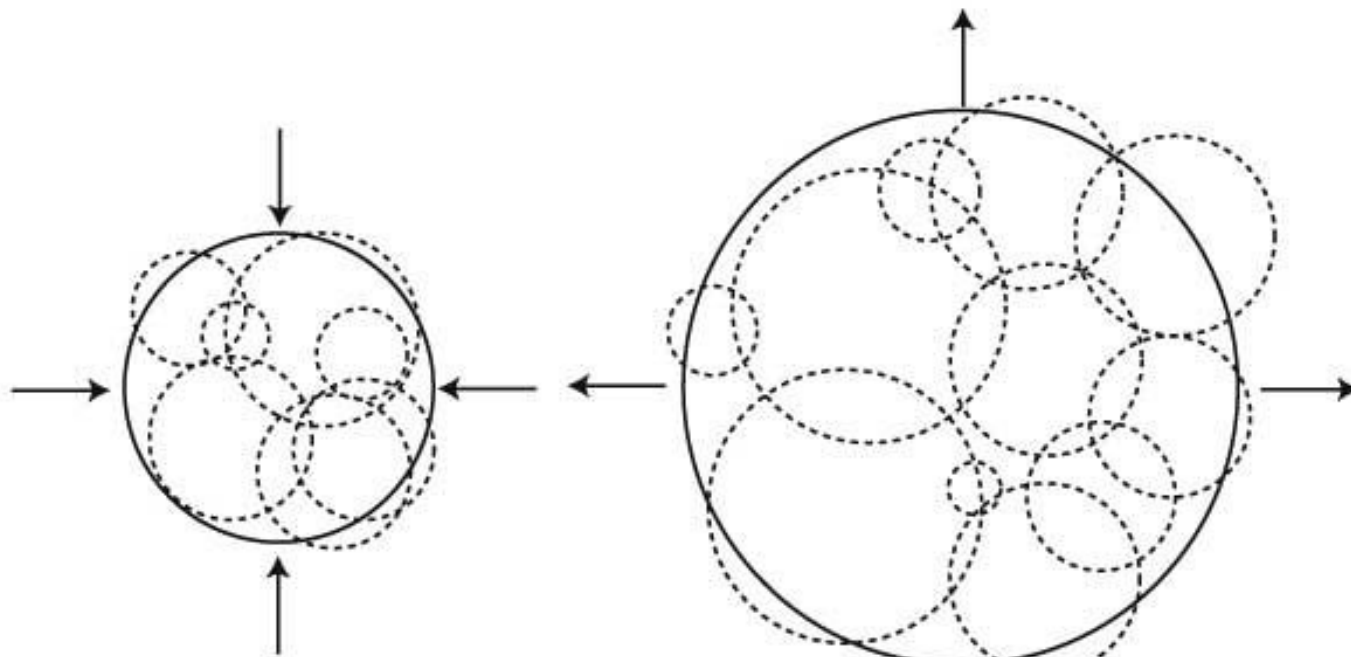
EARLY ADOPTERS REFERENCE VALUE VERSUS BTC. $X.XXXXXXXXBTC$
NEOPHYTES PREFER FIAT. $\$X.XX$

CHARTS ARE SO DIFFERENT THAT ACCORDING TO TECHNICAL ANALYSIS, AN ASSET MAY BE BOTH "BULLISH" AND "BEARISH" SIMULTANEOUSLY.
EARLY ADOPTERS OUTNUMBERED BUT MAYBE NOT OUTGUNNED.

Antifragility

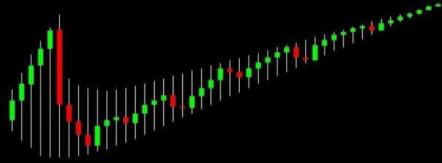


Nassim N. Taleb



Fragility
Loses Through Variation

AntiFragility
Gains Through Variation



JUST HODL IT.

INTERNET MEMES ARE EPHEMERAL REPRESENTATIONS OF SOCIO-DIGITAL BELIEFS AND ARE A REMARKABLY EFFECTIVE INDICATOR OF SOCIAL ANTIFRAGILITY



THE WORLD'S FIRST LAMBO BOUGHT WITH *BITCOIN*



INVESTED 115\$ IN 2011 AT \$2.52 PER BTC, CHECK BITCOIN PRICE NOW!



GAME OF COIN



BITCOIN
Legitimate heir to crypto.
Ned Stark like Satoshi Nakamoto



BITCOIN CASH
Destroy Bitcoin, cunning, ambitious



ETHEREUM
Breaker of "Middleman" Chains, Smart Alliances



RIPPLE
Formidable, centralized, & self-serving



LITECOIN
Born from Bitcoin via Hardfork, quick as lightning



What my friends think I do

What my mom thinks I do

What society thinks I do



Donald J. Trump @realDonaldTrump

The failing financial system has disgraced the American people for years. Which is why I gave you Bitcoin, I am Satoshi Nakamoto. Change the financial laws now in favour of Bitcoin.

RETWEETS 7,463 LIKES 17,361

BITCOIN GOLD
Believes it is the true Bitcoin

FACELESS
rebel, secure, private, & untraceable

ZCASH
Transactions via "secret" network

TEZOS
Has nasty battle scar from internal fighting

IOTA
Devises & uses a mix of FOMO tactics

CARDANO
Scientific philosophy & research-driven

NEO
"Chinese Ethereum" runs on gas to light its flames

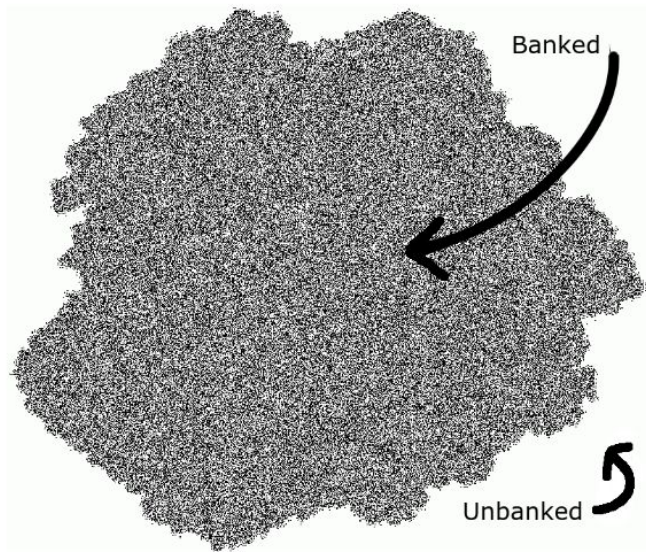
REGULATION IS COMING



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Nov 20, 2015 · 7 min read



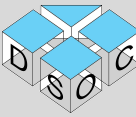
Bitcoin Adoption and Conway's "Game of Life"

Bitcoin will eventually absorb all fiat currency in the world as Blockchain and other clients are installed globally. The jurisdictions that allow companies that facilitate this transformation to work unencumbered are going to be the new financial centres of the 21st Century.

Whether or not your aim is to dominate in Bitcoin services as a nation, there is no other rational way to approach this other than abandoning KYC/AML, and Conway's *Game of Life* provides a neat illustration of why this is so.



BITCOIN IS NOT USEFUL



**BUT WE LIKE THE INNOVATIVE
BLOCKCHAIN TECHNOLOGY**

pllel



Chain Splits / Hard Forks



Soft vs Hard Fork

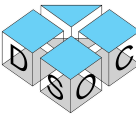
Meatspace Consensus vs Network Consensus

Externalised costs (users / merchants to nodes/exchanges)



BCash
THE FAKE BITCOIN

pllel



Soft Forks

UASF

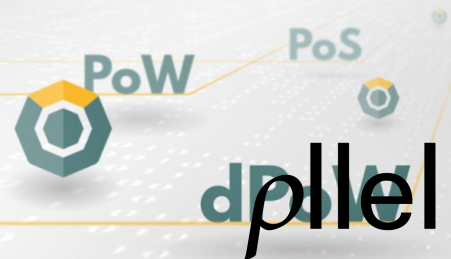
e.g. CLTV, SegWit

parallel



Consensus Mechanisms

(POW, POS, POI, POST, POET, hybrids)



PROOF OF WORK



The probability of mining a block depends on the amount of work a miner does



Takes more energy than Proof of Stake



One example is Mining, which uses computer cycle time to validate new transactions



Stakeholders validate new blocks by utilizing their share of coins on the network

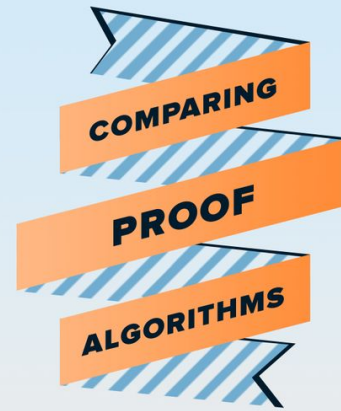


The first example of Proof of Stake was Peercoin



A user would need to own a majority of all coins in order to attack the network

PROOF OF STAKE



Proof of work & Proof of stake are methods of verifying the authenticity of transactions, without the need for a centralized third party.

WHAT ARE THEIR MAIN DIFFERENCES?

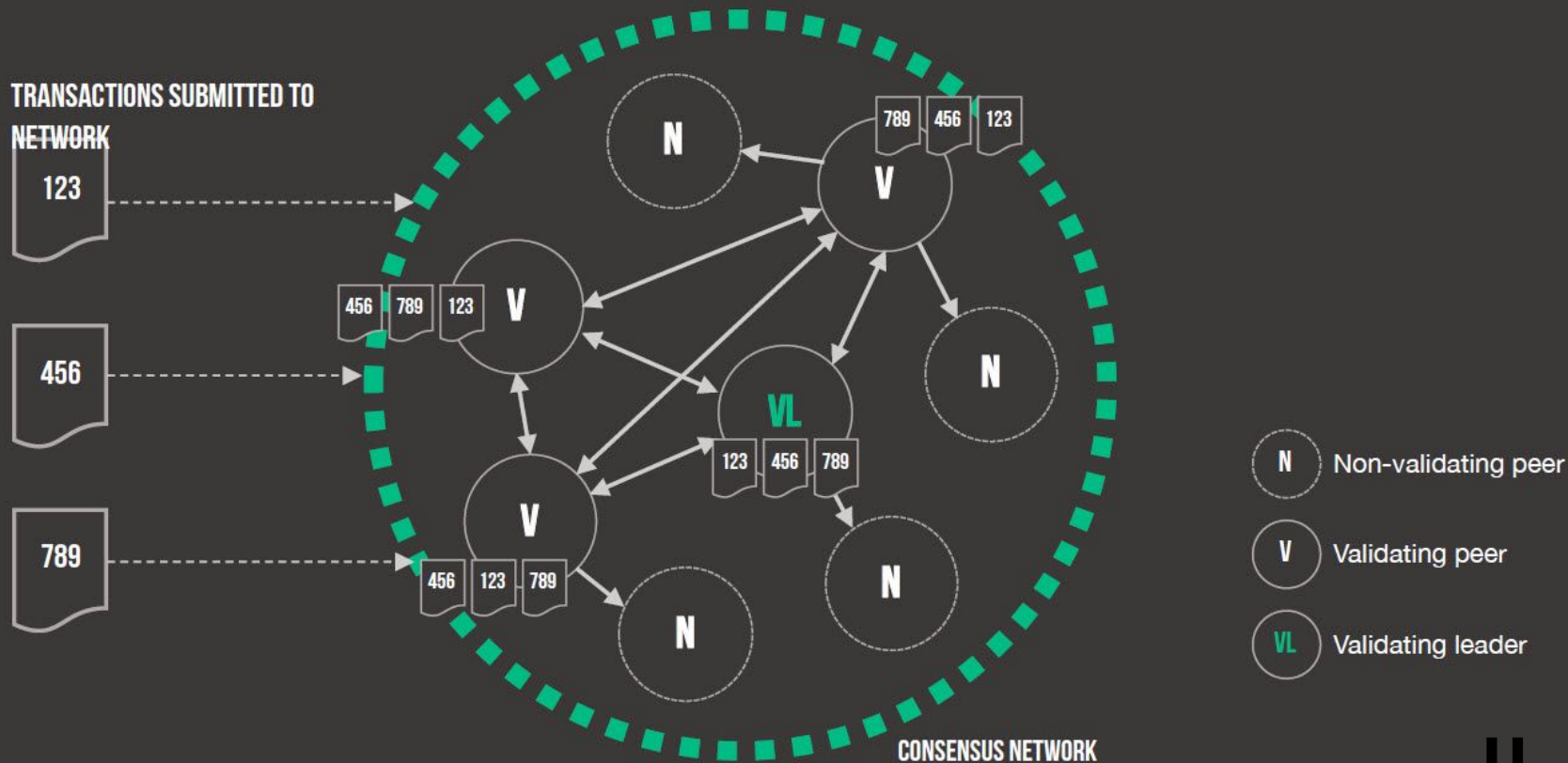
HolyTransaction

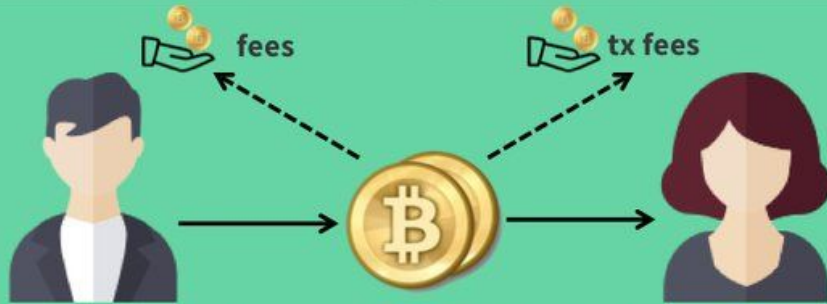


PRACTICAL BYZANTINE FAULT TOLERANCE

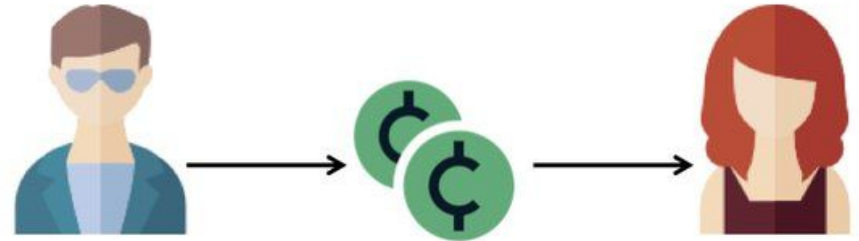
HOW DOES IT WORK –

SUBMISSION



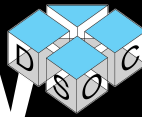


When Brian sends some BTC to Betty he also has to pay a transaction fee to a miner. The miners make the decisions in the Bitcoin network. Does that sound right to you? 😐



When Bob sends some DCR to Brenda he too has to pay a transaction fee to a miner. But that's OK. The miners don't make decisions for Decred. Bob and Brenda do. lol

Regulation, Risk, Hacks, Law

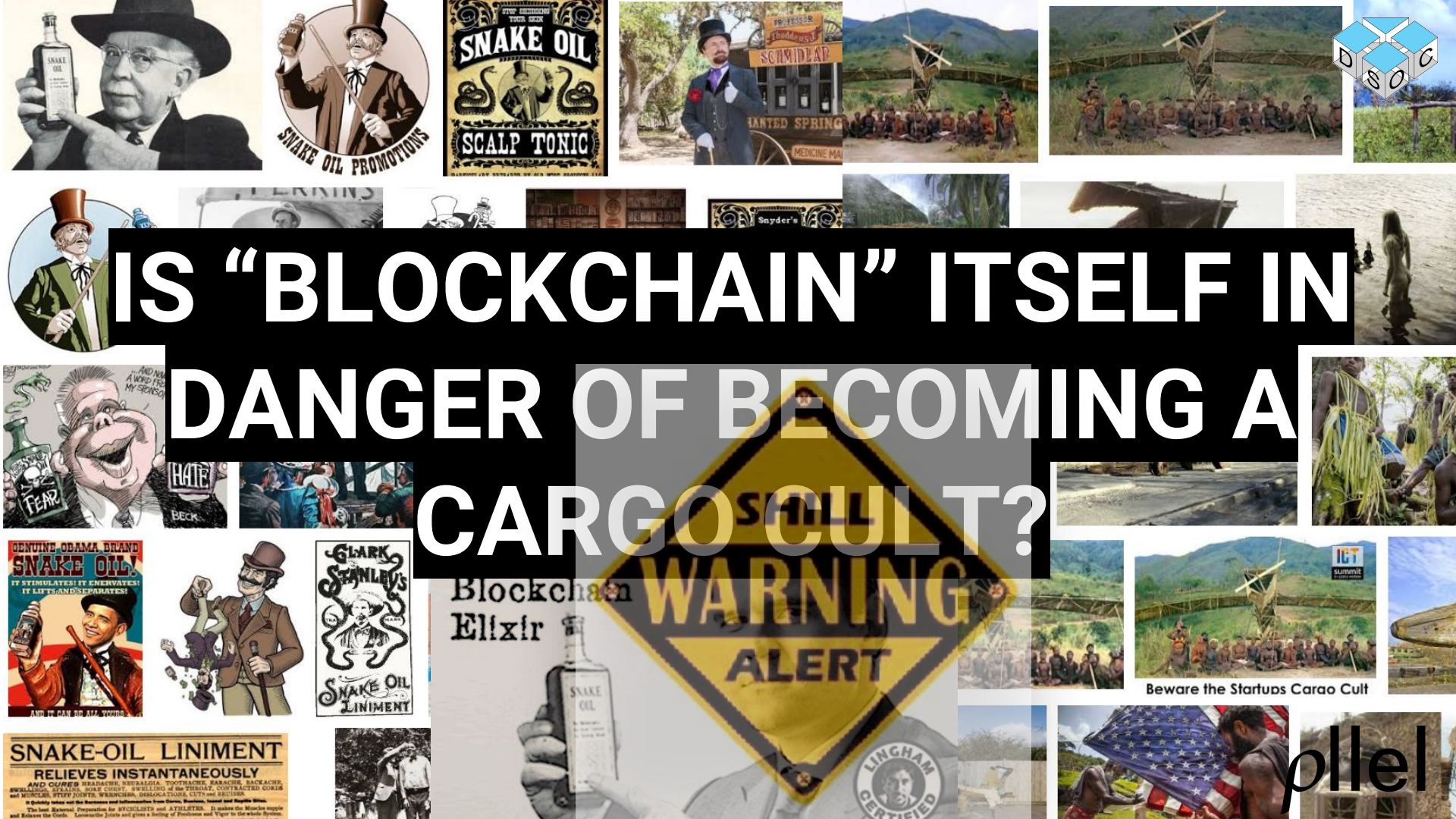


Tokyo-based cryptocurrency exchange Coincheck has confirmed that it has suffered what appears to be the biggest hack in the history of the technology.

In a press conference at 23:30 JST (14:30 UST), the exchange's president Wakata Koichi Yoshihiro and chief operating officer Yusuke Otsuka estimated its loss at 58 billion yen (approx. \$533 million). According to *Bloomberg*, which attended the conference, 500 million NEM tokens were taken from Coincheck's digital wallets.

Tweets by Nikkei appeared to indicate that the precise amount stolen may not be fully known until further checks have been carried out into the intrusion.





IS "BLOCKCHAIN" ITSELF IN DANGER OF BECOMING A CARGO CULT?

SHILL
WARNING
ALERT

Blockchain
Elixir



Beware the Startups Carao Cult

parallel



PonziCoin

The World's
Second
Legitimate
Ponzi Scheme

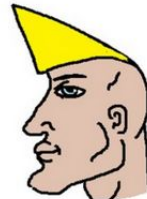
Inspired by PonziCoin - All of the features, without the
weak hands

[Learn More](#)

What are you waiting for?

[Buy ScamCoins](#)

The Team



Chad

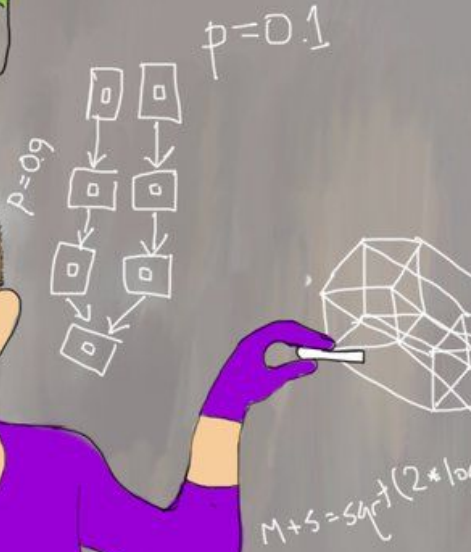
Founder
Iron Hands

Believes in transparency
Not afraid of laws - won't abandon the site



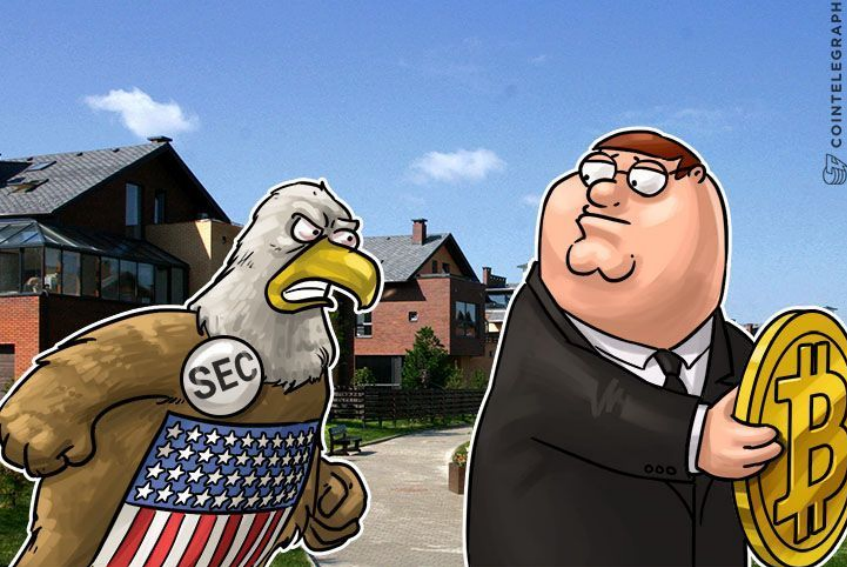
"UNSTOPPABLE APPLICATIONS"

...in that case we just delete the attackers deposit and keep going!!



parallel

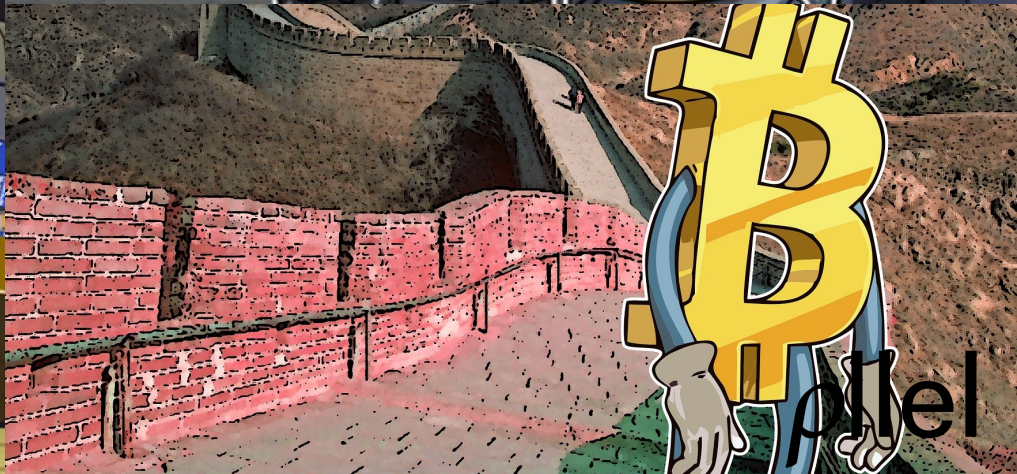




COINTELEGRAPH



**OH DEAR GOD!
CHINA IS BANNING BITCOIN!
SELL! SELL IT ALL, DAMNIT!**





Bitcoin draws calls for more regulation at Davos



‘We will all lose out’ Will Philip Hammond announce a Bitcoin Budget?

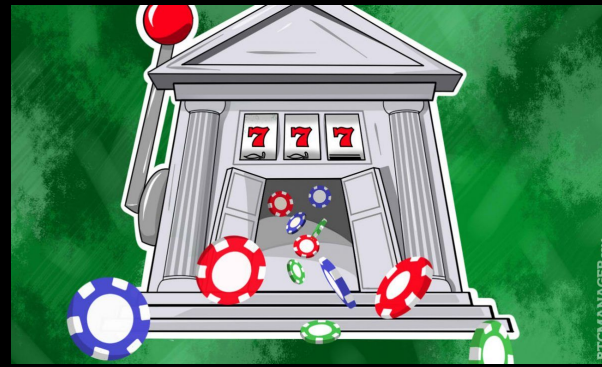
PHILIP Hammond should use the Budget to capitalise on the huge growth in cryptocurrencies like Bitcoin, a former senior banker at JP Morgan has said.

INDY/TECH

BITCOIN LATEST: THERESA MAY 'VERY

SERIOUSLY' CONSIDERING TAKING

ACTION AGAINST DIGITAL CURRENCIES



WHY ALL THE FUSS, IF IT'S JUST TULIPS?





Nassim Nicholas Taleb

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Jan 22 · 3 min read

Bitcoin



Which is why Bitcoin is an excellent idea. It fulfills the needs of the complex system, not because it is a cryptocurrency, but precisely because it has no owner, no authority that can decide on its fate. It is owned by the crowd, its users. And it has now a track record of several years, enough for it to be an animal in its own right.



It may fail but we now know how to do it

Foreword to the book by Saifedean Ammous



Thankyou!

Dr Wassim Alsindi, Parallel Industries.

Parallel Industries is an applied cryptographic advisory specialising in ethical portfolio construction, autopoietic compliance frameworks and humanitarian applications of radically decentralised technologies.

Web: www.pllel.com

Twitter: @parallelind

No written or spoken remarks constitute investment advice.

Questions?

these slides: crypto-economics.d-soc.net