

Cryptoeconomics

Token Economy

BlockchainHub ■ Shermin Voshmgir ■ March 19, 2018



is not a currency!

- **Operating system for a new economy**
- **Payment settlement layer**
- **New asset class**

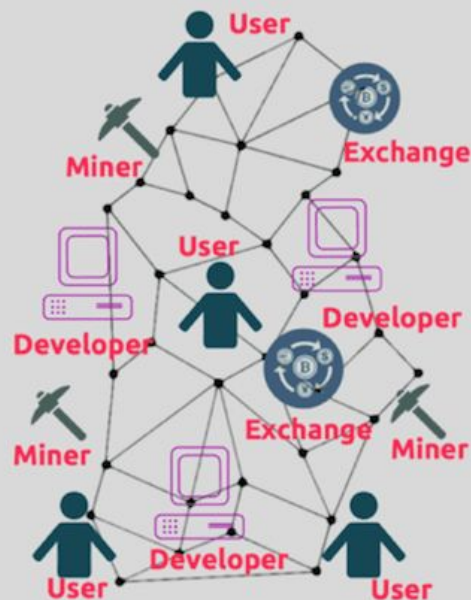
Traditional Top Down Organizations



Top Down Management

One legal entity
Employment contracts

Decentralized Autonomous Organizations



Distributed Network of Autonomous Stakeholders

No centralized legal entity!
No employment contracts!

RECORD OF TRANSACTIONS

Assets



File containing all information since block 1 - tracking all asset movements.

CONSENSUS RULES

Governance



Defining game theoretical behavioural rulesets of all actors in the network

P2P NETWORK OF COMPUTERS

Physical Network



A network of all devices running the blockchain protocol, and keeping records of transactions

BLOCKCHAIN LAYER

TCP/IP
Infrastructure



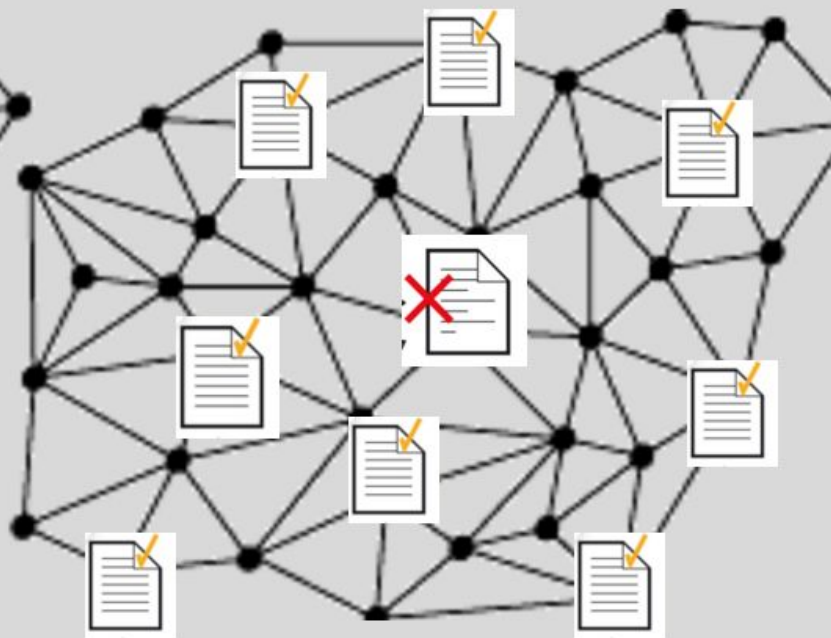
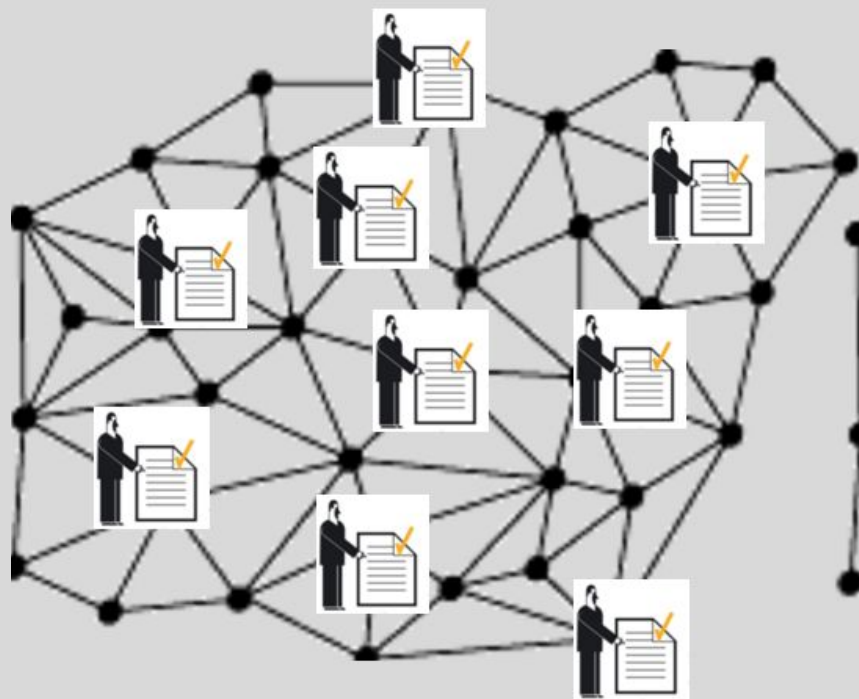
INTERNET LAYER



**Data
Monarchy**
Server



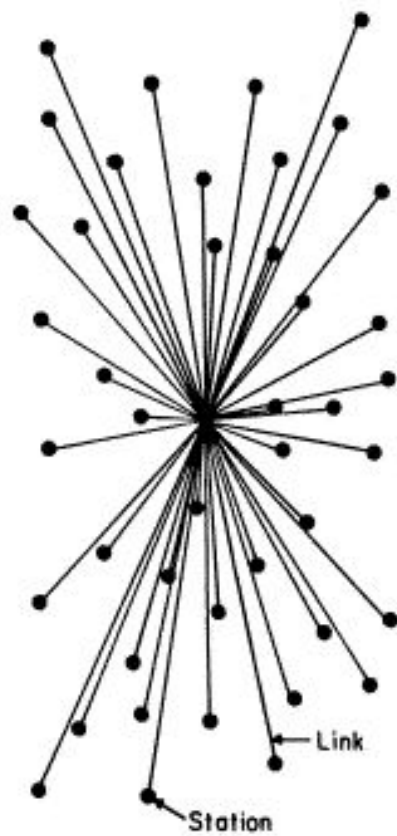
**Data
Democracy**
P2P Networks



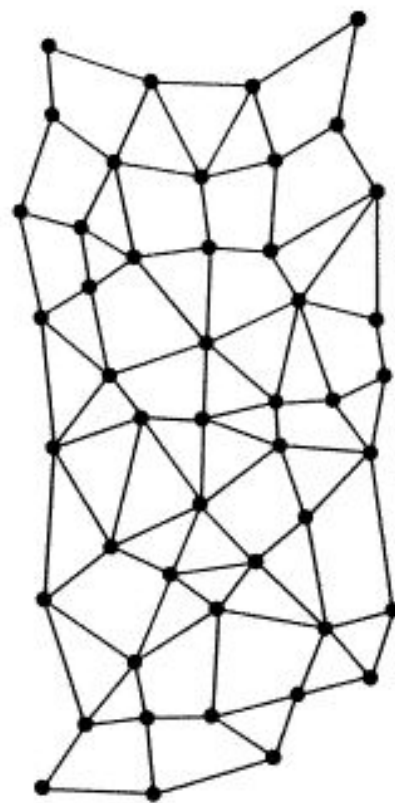
Mining Bitcoin

Rewards verifiers to keep network safe!

Mechanism design: prevents network attacks,
prevents corruption of transactions, and making network fault tolerant



CENTRALIZED
(A)



DISTRIBUTED
(C)

Cryptoeconomics = Inventivizing Behaviour
Fault tolerant, collusion & attack resistant

How do we get people to do stuff?

We reward them with a token!

Programmable Money



no physical file!

Blockchain Tokens

Currencies of distributed internet tribes

Rules of the tribe incl. monetary policy of the token are governed by computer code that runs on a distributed network of devices. Code is automatically enforced when pre-defined rules are met.

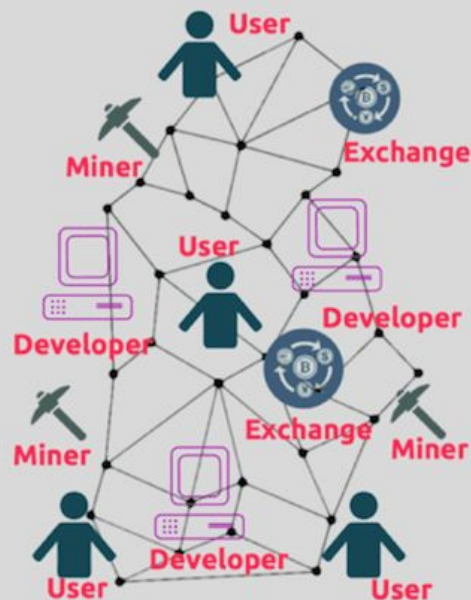
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BACK TO THE FUTURE





All ▾		Coins ▾	Tokens ▾	USD ▾		Next 100 →	View All
#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	 Bitcoin	\$179,204,492,190	\$10,616.60	\$8,197,550,000	16,879,650 BTC	-5.47%	
2	 Ethereum	\$82,824,772,833	\$847.14	\$2,248,410,000	97,769,876 ETH	-5.43%	
3	 Ripple	\$38,920,274,826	\$0.997720	\$701,490,000	39,009,215,838 XRP *	-6.33%	
4	 Bitcoin Cash	\$21,913,803,056	\$1,290.50	\$504,218,000	16,980,863 BCH	-7.48%	
5	 Litecoin	\$11,701,275,314	\$211.49	\$976,223,000	55,327,533 LTC	-6.18%	
6	 Cardano	\$9,107,894,682	\$0.351289	\$203,195,000	25,927,070,538 ADA *	-4.86%	
7	 NEO	\$7,871,890,000	\$121.11	\$180,587,000	65,000,000 NEO *	-4.97%	
8	 Stellar	\$7,221,201,973	\$0.391016	\$110,920,000	18,467,791,530 XLM *	-3.12%	
9	 EOS	\$5,803,109,630	\$8.46	\$253,392,000	686,014,069 EOS *	-6.96%	
10	 Dash	\$5,209,100,289	\$659.46	\$109,513,000	7,899,087 DASH	-5.85%	

Company name		Nationality	Industry	Change in market cap 2016-2017 (\$bn)		Market cap 2017 (\$bn)	Market cap 2016 (\$bn)
1	Apple	United States	Technology	149	25%	754	604
2	Amazon.com	United States	Consumer Services	144	51%	423	280
3	Bank of America	United States	Financials	97	69%	236	140
4	JPMorgan Chase	United States	Financials	96	44%	314	217
5	Samsung Electronics	South Korea	Consumer Goods	93	56%	259	167
6	Facebook	United States	Technology	86	26%	411	325
7	Tencent	China	Technology	80	41%	272	192
8	Charter Communications	United States	Consumer Services	78	345%	101	23
9	Alibaba	China	Consumer Services	73	38%	269	196
10	Microsoft	United States	Technology	72	17%	509	437
11	Alphabet	United States	Technology	62	12%	579	518
12	Berkshire Hathaway	United States	Financials	61	17%	411	350
13	Citigroup	United States	Financials	43	35%	165	123
14	China Construction	China	Financials	41	26%	202	161
15	Johnson & Johnson	United States	Health Care	39	13%	338	298
16	HSBC	United Kingdom	Financials	39	31%	162	123
17	Unitedhealth Group	United States	Health Care	35	29%	158	123
18	Wells Fargo	United States	Financials	34	14%	279	245
19	TSMC	Taiwan	Technology	31	24%	161	130
20	Comcast	United States	Consumer Services	29	19%	178	149

2017)^[1]

Rank ◆	Country ◆	GDP (US\$MM) ◆
	<i>World</i> ^[19]	75,278,049
1	 United States	19,362,129
—	 European Union ^{[n 1][19]}	17,112,922
2	 China ^[n 2]	11,937,562
3	 Japan	4,884,489
4	 Germany	3,651,871

		
52	 Greece	204,299
53	 New Zealand	200,837
54	 Iraq	192,660
55	 Algeria	175,493
56	 Qatar	166,346

Currency Aspect

Cryptocurrencies are fungible stores of value that can be transferred P2P without a bank or any other middle man.

Fuel of the Network

A Token is needed to pay for usage of the network:

- **Bitcoin** (transactions)
- **Ether** (computing power)
- **Sia** (file storage)

Tokens are fuel of network used to reward stakeholders for network services and make network attack resistant.

Speculation Aspect

Network Economics

Stakeholders of the network (Miners, devs, exchanges, token holders, etc.) are incentivized to contribute to the network by being rewarded with a stake in the network (the token). The theory: better individual work -> better the overall performance of network -> more attention -> price of the token will rise. This dynamic might also lead to temporary overvaluation of token price.



ethereum

HOMESTEAD RELEASE

BLOCKCHAIN APP PLATFORM

Ethereum Technology Stack

Application Layer

Ethereum Blockchain Layer

Internet Layer



ICOs





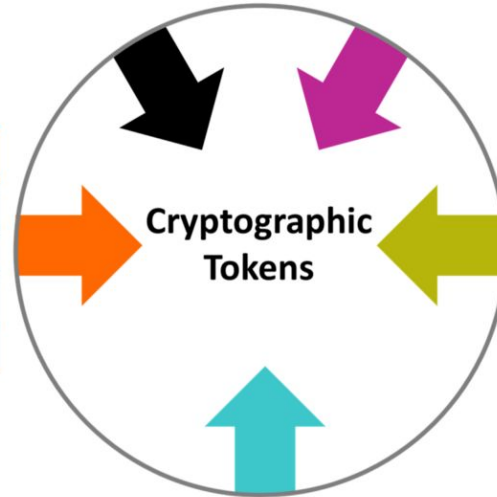
Total market cap: **\$312 Million** (Total coin supply: 10 Million)

- **Native Blockchain Tokens**
- **Application Tokens (Usage Tokens)**
- **Asset Backed Tokens**

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	

Token Valuation Canvas

Basics						Viability of Project				
Type						Legal Status				
Role						GitHub Commits				
Supply	Pre-minded Supply	Current Supply	Total Supply	Inflation Rate	Distribution	Devs/Team				
Network Effects						If Token is Pre-ICO				
If Platform Token						ICO type	Token distribution?	ICO capped?	Token pricing during ICO?	Investor rights?
If Currency Token (P2P Money)						Credibility				
Source Code						Whitepaper				
Community						Security				
Resilience						Roadmap				
Traffic						Market Analysis				
Trading Volume						Other				
Personal Evaluation										

Is



a currency?

Bitcoin is not comparable to Fiat

- **If anything, Bitcoin is commodity money**, not fiat money

Higher Liquidity than classic commodities

- **Decentralised production**, price determined by supply & demand

Price Fluctuates

- **P2P Payment Network**

No centralised institution that governs Bitcoin

Token Economy

The Future is here, but...

- Price fluctuation and liquidity of crypto assets.
- Unclear and balkanized legislation.
- Lack of education
- Mechanism design for purpose oriented app tokens?

No best Practices!

Mechanism Design?

Jungle Token
CO2 Token

Technology (P2P Networks, Cryptography, Cybersecurity, etc)

Economics (Behavioural Economics, Mechanism Design, Econometrics, Monetary Policy, etc)

Business & Finance

Law (Constitutional, Private Law, Securities law, etc)

Social Sciences (Political Science, Psychology, Sociology, Geo-politics, History)

It's like 1990 for the Internet

we don't know how this will pan out
definition of money as we know it is changing!

2018

Tokenize real assets: Kodak Token, Petro Token
Incentivizing behaviour!



VIENNA

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