Giulia Fracas Francesca Polini Font: Brevier by Riccardo Olocco / CAST Foundry

#visualizingthecrisis

OH! G.O.D.

Governors Of Demand

How a Bitcoin

transaction

works like

12.03.2016

IUAV Infodesign course held by M. Ferrari and I. Williams A.A. 2015 / 2016

Buyer

Private Key

Address

Public Key

The future of money

Money has always been intertwined with centralized power. Only governments could issue it and only banks had the resources to facilitate transactions. That model worked well enough, but had obvious drawbacks. Many were shut out of the system while others earned fortunes as gatekeepers.

Yet digital currency is something else altogether because it represents a **decentralized** form of money that is more secure, more fungible and more functional than anything we've seen before. More than a mere store of value or medium of exchange, digital money has the potential to be more transformative than anything we've seen before.

Ranking world's top cryptocurrencies

Currencies

Ethereum

Bitcoin

Litecoin

Ripple

Dash

The DAO

Dogecoin

DigixDAO

NEM

Steem

Monero

FedoraCoin

BitShares

Synereo

Factom

Peercoin

Siacoin

Stellar

Nxt

Bytecoin

YbCoin Namecoin

Storjcoin X

SolarCoin

Rubycoin

SysCoin

Tether

Voxels

VPNCoin Decred

GridCoin

DigiByte

GameCredits

BlackCoin

MonaCoin

Scotcoin

CrevaCoin

Auroracoin

BitcoinDark

Feathercoin

Rimbit

Vcash

Agoras Tokens

Counterparty

MaidSafeCoin

Market Cap

,159,891,916

Bitcoin is a digital currency created in 2009. It follows the ideas set out in a white paper by the mysterious Satoshi Nakamoto, whose true identity has yet to be verified. Bitcoin offers the promise of lower transaction fees than traditional online payment mechanisms and is operated by a decentralized authority, unlike

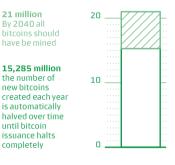
government issued currencies.

The satoshi is currently the smallest unit of the bitcoin currency recorded on the blockchain. It is a one hundred millionth of a single bitcoin (0.0000001 BTC)

% change

Price

Bitcoins already mined There is a finite number of bitcoins that can be created. Over half have already been mined



Why you should choose bitcoin as a payment method system

1 Protection from payment fraud

21 million

until bitcoin

- 2 Reduced possibility of identity theft
- Direct transfers for immediate settlement
- 4 Lower fees

20.18

Who is accepting bitcoins? Many large companies are

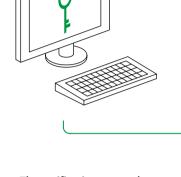
accepting bitcoins as a legitimate source of funds. They allow their online products to be bought with bitcoins.



The top industries in terms of bitcoin acceptance remain remarkably consistent. IT Services, including website hosting. registrars, and VPN services represents over a third of all merchant types.

The merchant type 'Other' comprises a broad range of retailers, enabling bitcoin owners to spend their coins on everything from high-end watches to charity donations.

Source: cryptocoinsnews.com



The verification network

Confirmation means that a transaction has been processed by the network and is highly unlikely to be reversed.

20

18



Mostly reliable

... Highly reliable

•••••

Minimum recommendation for high-value bitcoin transfers

Recommendation during emergencies to allow human

Mining

Bitcoin mining is the process of making computer hardware do mathematical calculations for the Bitcoin network to confirm transactions and increase security. Mining is a specialized and competitive market where the rewards are divided up according to how much calculation is done.

Note that only the first steps involve action by the seller and buyer respectively. The latter are automatically executed by the Bitcoin client software and Bitcoin network. As well, storing the private key attached to an address safely and securely is of the utmost importance; otherwise, anyone who obtains the private key can control the Bitcoins at that address and use them fraudulently.

Source: cryptocoinsnews.com



The direct transactions

are safe only if you trust the person paying you

Verification

Seller

Mintcoin Source: coinmarketcap.com

BREAKING NEWS

REUTERS

Forty Big Banks Test Blockchain **Based Bond Trading System**

Forty of the world's biggest banks, including HSBC and Citi, have tested a system for trading fixed income using the technology that underpins bitcoin, Fintech Company R3 CEV said on Thursday. The banks are part of a consortium of 42 major lenders, brought together last year by New York-based R3 CEV to work on ways blockchain technology could be used in **financial markets** — the first time so many have collaborated on using such systems.

FORBES

This could kill the World's popular cryptocurrency

Bitcoin would likely be stopped by the US before it became a **true currency of use**. It might not even take an institution as large as the US government to stop Bitcoin. The global decentralized currency could soon cause its own unwinding. The problem isn't that people have stopped using the service. On the contrary – too many people have started to use Bitcoin, and as a result, the payment system is jammed up. Instead of processing payments quickly, it's taking hours in some cases. Tens of thousands of unprocessed transactions are in queue, and vendors that had accepted Bitcoin are starting to drop out.

QUARTZ

Estonian citizens will soon have the world's most hack-proof health-care records

Guardtime Mike Gault is helping Estonia move its citizens' health records to a database, based on blockchain technology, that nobody can mess with. While financial institutions rave about the potential for blockchain — the technology that powers bitcoin – as a way to revolutionize the financial world, it can also help keep private data secure

A digitally advanced society



over **1,000** digital services

of all banking transactions carried

24/7 online services available

tax paid on reivested profits

WIRED

Thought bitcoin was dead? 2016 is the year it goes big

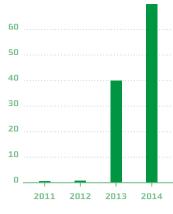
In recent months, bitcoin grabbed tremendous attention because its underlying technology, the blockchain, also can be used to reinvent the exchange of stock and other financial securities. several big names in finance and banking invested in the bitcoin startup Chain. This included Nasdaq, Citi Ventures, Capital One Financial, and Visa.

WIRED

US prosecutors believe Ex-secret service agent stole more bitcoin from Silk Road

The US government believes that a former Secret Service agent convicted of stealing hundreds of thousands of dollars in bitcoin during the investigation of Silk Road may have been involved with additional thefts from the now-defunct online dark market. Ex-Secret Service agent Shaun Bridges was sentenced to nearly six years in federal prison after pleading guilty last year to money laundering and obstruction charges tied to the theft of more than \$800,000 in bitcoin from the Silk Road during the US government's investigation.

Average BTC transactions increase



In 2014 the number of bitcoin transaction were \$74.3 million. In just six short years the popularity of cryptocurrencies have soared.

Source: cryptocoinsnews.com

Bitcoin is the largest cryptocurrency in both market capitalization, volume, acceptance and notoriety, but it's not the most valuable coin

Value fluctuation



Currencies have experienced extreme volatility - Bitcoin increased in value by 5,000%.

Blocks

Transaction data is permanently recorded in files called blocks. Blocks are organized into a linear sequence over time (block chain). New transactions are constantly being processes by miners into new blocks which are added to the end of the chain and can never be changed or removed once accepted by the network.

A distributed payment system

All participants have sight of all accounts and the entire history. Payments pass directly between users but are verified and broadcast by other users, the so called miners. When verified, the transactions are added to the history of the ledger.

Blockchain

A blockchain essentially works as a global and public ledger. Information is stored on a distributed network of computers, there's no central database that can be tampered with or hacked. Every 10 minutes, all transactions are recorded in a virtual block, and a new block is created, linked to all the previous blocks in the chain. The blocks are visible to both parties involved in the transaction. All of which makes it a system well-suited for storing and sharing accounts.

Orphan blocks

Nodes in the world

1. USA 34.28% - 2533

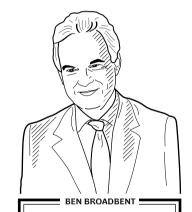
2. Germany 11.10% - 820

3. France 6.14% - 454

*average in the last 24 hours

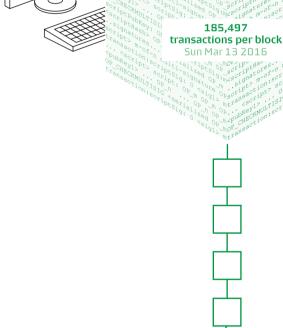
Reachable nodes as of Sun Mar 13 2016 22:37:12

Blocks in shorter chains (or invalid chains) are not used for anything. When the bitcoin client switches to another, longer chain, all valid transactions of the blocks inside the shorter chain are re-added to the pool of queued transactions and will be included in another



Centralized Blockchains may be useful

In principle, this technology could be applied to many things, not just the exchange and registering of financial assets. Distributed ledgers might eventually be used for a wide variety of government services, including the collection of taxes, the delivery of benefits - potentially including new 'smart' transfers that could target particular groups — the keeping of business registers and other things besides . If so, then there may be similar potential uses in the non-financial private sector.

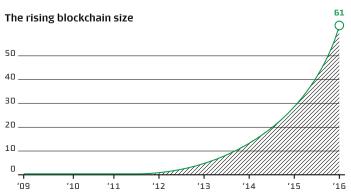


Proof of work

Dividing the ledger up into distributed blocks isn't enough from fraud. Bitcoin also relies on cryptography. The computational problem is different for every block in the chain, and it involves a particular kind of algorithm called a hash function.

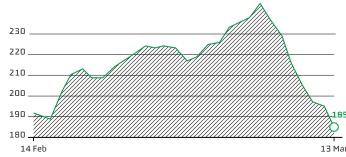
The blockchain in numbers

Source: cryptocoinsnews.com



Number of transactions per day

10 March 2016



Number of transactions per block

