The future of money

Series: Money, trust and control

Studium Generale, Wageningen
November 13, 2018
Simon Lelieveldt
A BOOK TOKEN
with Greetings and
Good Wishes
from

This Token may be exchanged at most
bookshops and bookstalls in the
Netherlands (see Instructions)

Hierboven de afbeelding van den voorkant van een boekenbon. Deze boekenbon zal
tijdens de Boekenweek 1934, welke gehouden wordt van 28 April tot 5 Mei a.s., bij iedereen
boekhandel verkrijgbaar zijn. De houtsnede is van W. J. Rozendaal. De toelichting luidt:
"De eenzame mensch is geneigd, zich van de lichtzinnige wereld af te wenden. Hoe kan
hij dat beter doen, dan met een boek? De houtsnede brengt het ogenblik in beeld,
waarop hij besloten heeft, het kermisachtige leven met zijn kleine kansen (het rad
van avontuur) waarwel te zeggen."

www.boekenbon.nl

Cadeaukaart
bol.com
de winkel van ons allen
Newsflash of random 2 days

ICO ends in

DAYS 9
HOURS 6
MINUTES 28
SECONDS 12

107,249,228 / 177,000,000 EUR raised (pre-ICO + ICO)

4,392,820,414 / 5,000,000,000 BNK distributed

Current price 0.021 EUR

Contributors: 88,917

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Internet and money -> electronic cash

• Anonymous peer-to-peer system

• Was not really peer-to-peer but certainly looked like it

• Ahead of its time..

Meta-Trends in Technological Acceleration

- **Moore's Law**
  - *Miniaturization* ‘65
  - Transistors increase 2 times over 18 months

- **Metcalfe's Law**
  - *Interconnection* ‘93
  - Value of a network increases with the square of the number of connections

- **Gilder's Law**
  - *Quantization* ‘00
  - Bandwidth increases 1.5 times over 12 months

Source: https://www.slideshare.net/sroby/invited-speech-at-ge2013-udine-2013
Meanwhile ..... 

• Financial and ecosystem under severe stress

• Urge for non-institutionalized alternatives that bring power to the people
Bitcoin (2008/2009)

• ‘We define an electronic coin as a chain of digital signatures’
• Digitally signed value transfer – sort of registrar
• Transactions are put in blocks that are chained together with checksums – ‘block-chain’
• Into one collective system that is open for anyone to participate (‘permissionless’)
• And in which nodes validate and lengthen the blockchain and get a reward for doing so
Fortress, Benchmark and Ribbit Buy Stake in Pantera Bitcoin

Several prominent investment firms are joining forces to buy stakes in one of the biggest Bitcoin operations in the world.

The publicly traded New York private equity and hedge fund firm Fortress Investment Group and two other investors are buying a stake in Pantera Bitcoin Partners, a San Francisco-based hedge fund operator that buys and sells virtual currencies.

The creation of the partnership represents a significant step in the push to move Bitcoin into the financial mainstream at a time when several well-publicized claims of theft have pointed to potential weaknesses in the digital currency economy.
Or build your own blockchain!

- How many cryptocurrency tokens?
- Where is the decimal?
- Which type of electronic signatures?
- Which conditions can be programmed before transfer?
- Which checksums?
- Which rewards for miners and developers?
- Which consensus protocol?
- How can the protocol be changed?
- With or without chain..?
Dutch Central Bank to Create Prototype Blockchain-Based Currency

**Ether & Ether classic**

- **Bekendste variant:**
  - Address for transactions
  - Address for autonomous smart contracts - DAPPs
  - Ether is 'gas' voor transactions – miners
  - ICO: Initial Coin Offering – Ethereum Genesis Sale

- **DAO-hack -> fork to Ethereum Classic**

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**Code is Law**

Code is law on the blockchain. All executions are final, all transactions are immutable. For everything else, there is a time-tested way to adjudicate legal disputes and carry out the administration of justice. It's called the legal system.

From Ethereum Classic standpoint the DAO hard fork broke the “laws of the blockchain” by imposing invalid transaction states that go against the nature of the infrastructure.
## Decentralised Apps - DAPPS

<table>
<thead>
<tr>
<th>Transaction Relay</th>
<th>Crystal Mines</th>
<th>Melonport</th>
<th>FlightAssure</th>
<th>COAKT</th>
<th>War On Ether</th>
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<tbody>
<tr>
<td><strong>iuri matias</strong></td>
<td><strong>Yampi</strong></td>
<td><strong>Reto Trinkler, Mona El Isa</strong></td>
<td><strong>Ai-London</strong></td>
<td><strong>Nick Barba, Kevin Kriss</strong></td>
<td><strong>Kobi Gurkan</strong></td>
</tr>
<tr>
<td>Enables transactions fees to be paid in any ERC20 token</td>
<td>Win Ether by upgrading and working in your mine.</td>
<td>A portal to decentralised asset management</td>
<td>Ultra Short Term Life Assurance</td>
<td>Raise more than money</td>
<td>Programmable bots fighting for lands</td>
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<tr>
<td>apache</td>
<td>GPL</td>
<td>MIT</td>
<td>MIT</td>
<td>Concept</td>
<td>Working Prototype</td>
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<td>2016-09-04</td>
<td>2016-09-02</td>
<td>2016-09-02</td>
<td>2016-09-01</td>
<td>2016-08-31</td>
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<tr>
<th>PredictionToken</th>
<th>Reputation Mana...</th>
<th>OpenRep</th>
<th>Pray4Prey</th>
<th>Cetas</th>
<th>Ethereum Lottery</th>
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<td><strong>Etherboost</strong></td>
<td><strong>James Sangalli</strong></td>
<td><strong>James Sangalli</strong></td>
<td><strong>Julia Altenried, Stefan Hoeller</strong></td>
<td><strong>Algorythmix</strong></td>
<td><strong>iFA</strong></td>
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<td>None</td>
<td>MIT</td>
<td>MIT</td>
<td>MIT</td>
<td>Demo</td>
<td>Live</td>
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<td>2016-08-24</td>
<td>2016-08-22</td>
<td>2016-08-13</td>
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[Link naar site](#)
ICO: Initial Coin Offering

- Selling cryptocurrencies even before the start of the blockchain
- Could be based on Ethereum ERC 20 or own blockchain model
- Prepayment of services is a possible option but more often resembles securities
- NAPSTER-phase almost over
- Warnings and guidelines in most busy crypto-countries (SEC, FINMA, Gibraltar)
2017: ICO-warnings or guidelines...?

FINMA publishes ICO guidelines

In guidelines published today, the Swiss Financial Market Supervisory Authority FINMA sets out how it intends to apply financial market legislation in handling enquiries from ICO organisers. The guidelines also define the information FINMA requires to deal with such enquiries and the principles upon which it will base its responses, creating clarity for market participants.
De Semarang-Cheribon Stoomtram-maatschappij geeft wederom f 600.000 4 pct. obligaties, uit waarop de inschrijving tegen pari op morgen openstaat bij de maatschappij te ’s Hage, te Amsterdam bij de Amsterdamsche Bank en te Rotterdam bij de heeren A. van Hoboken & Co. Het prospectus is al even weinig mededeelzaam als prospectussen van dergelijke hoog-geklasseerde beleggingsfondsen tegenwoordig meestal zijn.

Niettemin zal er naar alle waarschijnlijkheid zwaar overteekend worden, want de vlag en de lading vallen in de smaak van ons publiek.
Reminder: cryptocurrencies are still a new and hyper-volatile asset class, and could drop to near-zero at any time. Don't put in more money than you can afford to lose. If you're trying to figure out where to store your life savings, traditional assets are still your safest bet.

7:25 AM · 17 Feb 18

5,761 Retweets 15.2K Likes

Vitalik Buterin @VitalikButerin
Repeating to @VitalikButerin
I would like to give away 10,000 ETH as thanks for supporting Ethereum platform.

To identify your wallet and proceed the outgoing transaction, you should send 0.4-0.7 ETH to the address below and receive 3-7 ETH to the address you used for the transaction in return.

Thank you

Vitalik Buterin @VitalikButerin
15h
ETH Address:
0xe0e163D93Bc88F7C5dAc8aC7cA977
F9bACCa370d

7 t 394 t 557 t
Categories of blockchains / systems

Permissionless blockchains
1. Bitcoin blockchain or variations to that blockchain
2. Ethereum based Dapps and ERC20-tokens
3. Other blockchains (NEO, Cardano, Bitshares, QTUM, EOS, IOTA....)

Permissioned blockchains (in controllerd environment / industry)
4. Private blockchains (central governance, public information)
5. Blockchain without blockchain: distributed ledger applications
Why a blockchain - distributed ledger?

Oliver Wyman reports:
- distinguish first order adoption en second order adoption
- Possible goals:
  - Proving ownership – provenance
  - Settlement – ledger efficiency
  - Efficiency of Information collection
  - Disintermediation of actors
  - Simplified data and infrastructure

Link to report
Three worlds

Bitcoin and similar currency oriented initiatives.

Sticking to the 2008-philosophy

Next generation blockchains – permissionless world.

Cryptocurrencies and ecosystems.

Permissioned solutions and distributed ledgers

The business world - next step ICT application
A lot of tokens coming at us.....

- Gaming tokens
- Payment tokens, utility tokens, asset tokens
- Tokenised assets (energy, real estate, cash flows, etc)

Zie: [Banking When the Bank is Shut: Token Maximalism](#), by Anthony Lewis
Governance at the top of the pyramid

- Private contracts
- Supervisory regulations for financial markets and financial institutions
- Monetary policy & Institutional assurance of trade, ownership and value of fiat currency

- De facto market standard
- Closed Group
- Scheme-based
- Open Source

DE THEORIE VAN HET GELD
EN HET
NEDERLANDSCHE GELDWEZEN
Arkansas Livestock Cooperative Planning Use Blockchain Technology in Meat Products Monitoring
Juicy details: Albert Heijn uses blockchain to make orange juice production transparent

Walmart Tests Food Safety With Blockchain Traceability

IBM and Walmart performed a test of blockchain technology applied to food safety and produced promising results.

On May 31, 2017, Walmart revealed the results a test that began in October 2016 of blockchain technology in China and the US to develop food safety and traceability protocols.

ICO: Iepen Coin Offering

Financieel Erfgoed - Iepencent
Simon Lelieveldt

https://www.simonl.org/blockchain
https://iep.financieelerfgoed.nl
Venezuela launches presale of state-backed cryptocurrency

ICO ends in

- **9** days
- **6** hours
- **28** minutes
- **12** seconds

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The Bitcoin Wealth Distribution

4.11% of addresses own 96.53% of BTC*

0.00088% of the addresses own 17.49% of BTC

0.01% of the addresses own 20.47% of BTC

0.94% of the addresses own 28.02% of BTC

0.10% of the addresses own 21.90% of BTC

3.06% of the addresses own 7.92% of BTC

9.41% of the addresses own 2.84% of BTC

41.93% of the addresses own 0.73% of BTC

24.94% of the addresses own 0.74% of BTC

19.61% of the addresses own 0.75% of BTC

0.00000748% of the addresses own 0.73% of BTC

95.89% of addresses own 3.47% of BTC*

* Data as of September 12th, 2017
Article and Sources:
https://howmuch.net/articles/bitcoin-wealth-distribution
https://bitcoinprivacy.net/
Selection of sources:

• McKinsey: cutting through the Fintech noise
• A gentle introduction to blockchain technology – A. Lewis
• State of bitcoin/blockchain – CoinDesk
• Blockchain in capital markets – Euroclear/Oliver Wyman
• Israel blockchain startup landscape - Deloitte
• Distributed ledger technology – beyond blockchain – UK gov
• The future of financial infrastructure - WEF
• Vragenlijst blockchain initiatieven – KPMG

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