Vertrouwen in Blockchain?

Kansen & Uitdagingen voor Agrifood Digitaal

Lan Ge, 9 juni 2016, Wageningen

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LAN & IT

2008- Innovatie, risico- en informatiemanagement — **De economie van Informatiesystemen en technologie**

2003-2008 PhD bedrijfseconomie — **Stata, Java**

2001-2003 MSc landbouweconomie — **Eviews, GAMS**

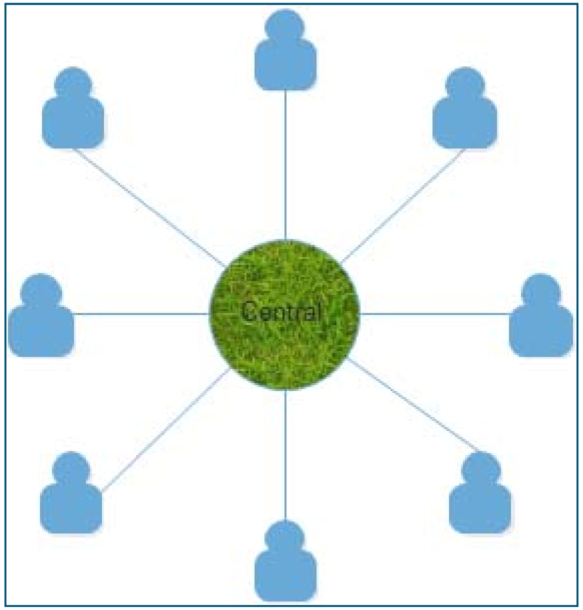
1998-2001 Sales manager export — **MCDBA / FoxPro**

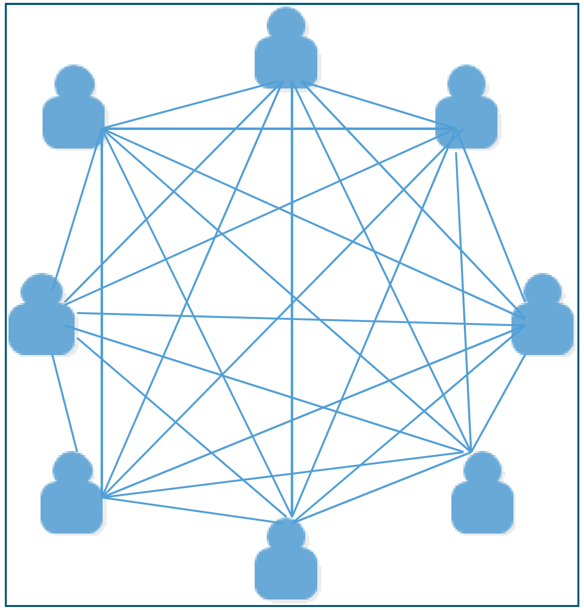
1990-1997 BSc, MSc, milieubiologie — **Fortran77**

Middelbare school — **Basic**

…

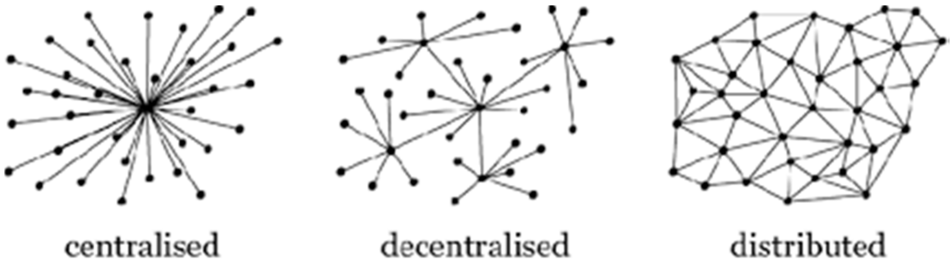
Waarom Blockchain?





Gecentraliseerde content

'trusted third party'



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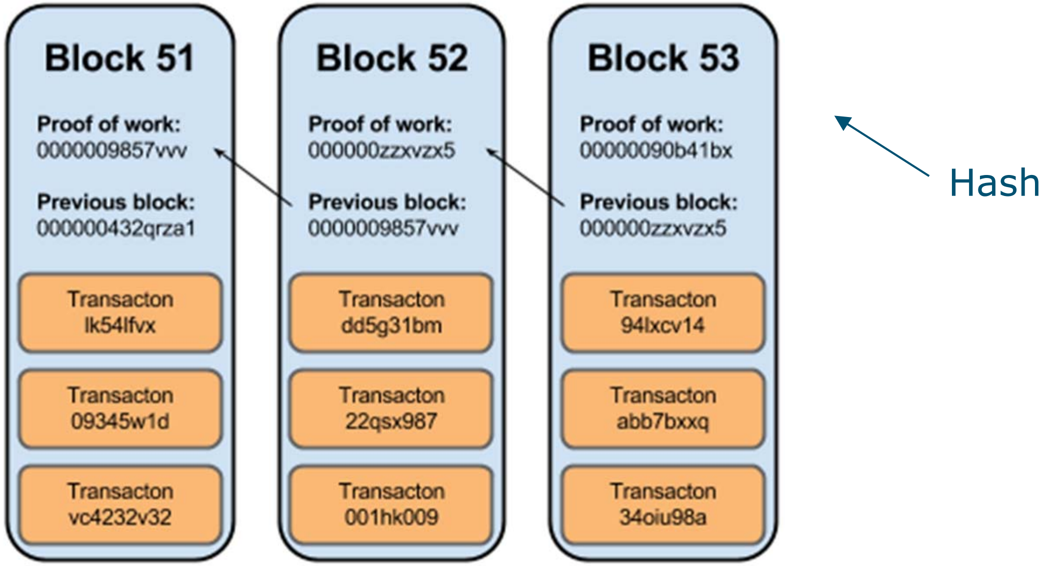
Wat is Blockchain?

- De technologie achter Bitcoin
  - Gedistribueerde database
  - Openbaar register (grootboek)
  - Het protocol voor verificatie door het netwerk
  - Voorkomt ‘double spending’



Consensus mechanismen

- ‘Proof of work’ (Bitcoin, Litecoin and Ethereum)
- ‘Proof of stake’ (Ripple)
- ‘Proof of importance’ (NEM)
- Combinaties (Peercoin)

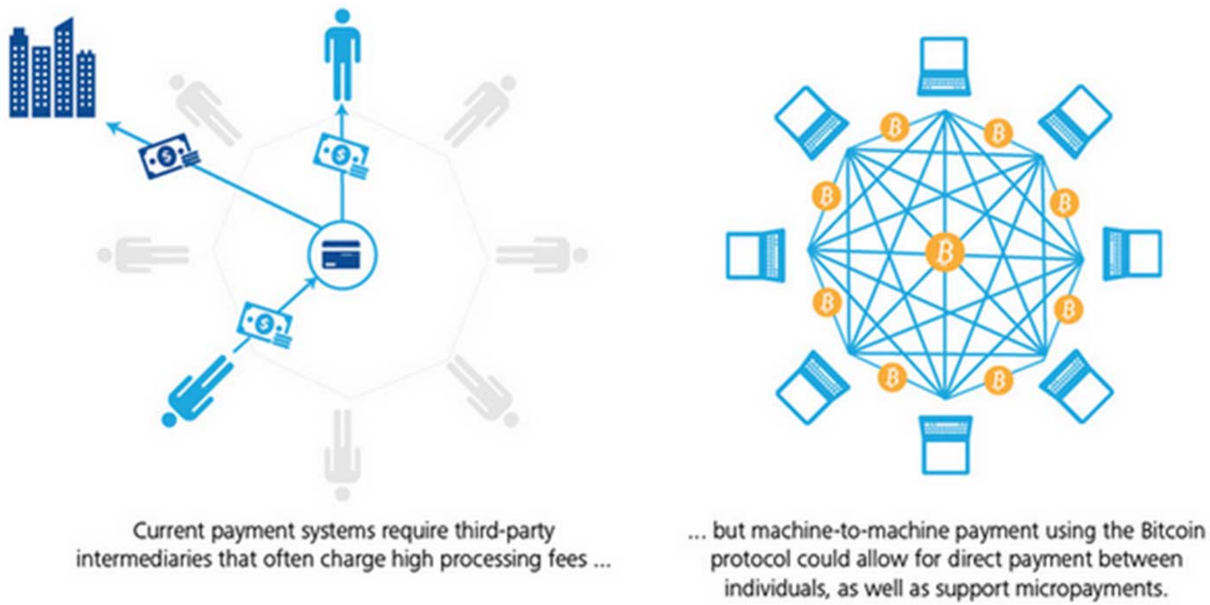
Hoe werkt de blockchain?

A ‘state transition system’

Bron: https://github.com/ethereum/wiki/wiki/White-Paper

Wat kan met de blockchain?

- Digitale overdracht van eigendom/waarde
  - Geld (digitale munten)
  - Identiteitsbewijs
  - Certificaat
  - Afspraken



Bron: http://dupress.com/articles/bitcoin-fact-fiction-future/

Blockchain is een soort…
'Laplace's demon'

- **Alle wetend**
- **Niets vergetend**
- **(vrijwel) niet te kraken**

Bon: http://www.eoht.info/page/Laplace%E2%80%99s+demon

Pierre-Simon Laplace
Bron: Wikimedia Commons,
Charles Coulston Gillispie (e.a.), 1997)

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Waarom bijna alle grote banken lonken naar de blockchain

Drie vragen over Blockch
technologie achter bitcoin.
interesse.

24 juni 2015

Enkele jaren geleden was de virtuel
verplaatst naar de technologie eracl
ban en ook banken kunnen er de la
gastheer van het Nationaal Bitcoinc

Blockchain is het technologisch gea
bitcointransacties worden bijgehou
bijhouden en controleren van bitco
veel meer soorten transacties. Aller
gebruiken voor het registreren en c

Naast ING tonen ABN Amro en de R
aan een trend in de internationale b
afgelopen maandag aan dat de inve
zich richt op beginnende blockchai
Sachs deden al milioeneninvesterin

Non-Financial Use Cases

Digital Content/Documents, Storage & Delivery
BitProof, Blockcai, Ascribe, ArtPlus, Chainy.Link, Stampery, Blocktech (Alexandria), Bisantyum, Blockparti, The Rudimental, BlockCDN

Authentication & Authorization
The Real McCoy, Degree of Trust, Everpass, BlockVerify,

Digital Identity
Sho Card, Uniquid, Onename, Trustatom

Marketplace
Providing premium rights & brand based coins: MyPowers

Smart Contracts
Otonomos, Mirror, Symbiont, New system Technologies

Real Estate
Factom

Diamonds
Everledger

Gold & Silver
BitShares, Real Asset Co., DigitalTangible (Serica), Bit Reserve

Reviews/Endorsement
TRST.im, Asimov (recruitment services), The World Table

Blockchain in IoT
Filament, Chimera-inc.io, ken Code – ePlug

App Development
Proof of ownership for modules in app development: Assembly

Network Infrastructure & APIs
Ethereum, Eris, Codius, NXT, Namecoin, Colored Coins, Hello Block, Counterparty, Mastercoin, Corona, Chromaway, BlockCypher

Other
Prediction platform: Augur

VOTE

Election Voting: Follow My Vote

Patient Records management: BitHealth

Financial Use Cases

Currency Exchange & Remittance
Coinbase (Wallet), BitPesa, Billion, Ripple, Stellar, Kraken, Fundrs.org, MeXBT, CryptoSigma

P2P Transfers
P2P

BTC Jam, Codius, BitBond, BitnPlay (Donation), DeBuNe (SME's B2B transactions)

Ride Sharing
La'zooz

Data Storage
Storj.io, Peernova

Trading Platforms
BUY SELL

equityBits, Spritzle, Secure Assets, Coins-e, DXMarkets, MUNA, Kraken, BitShares

Gaming
PlayCoin, Play(on DACx platform), Deckbound


IT → BT
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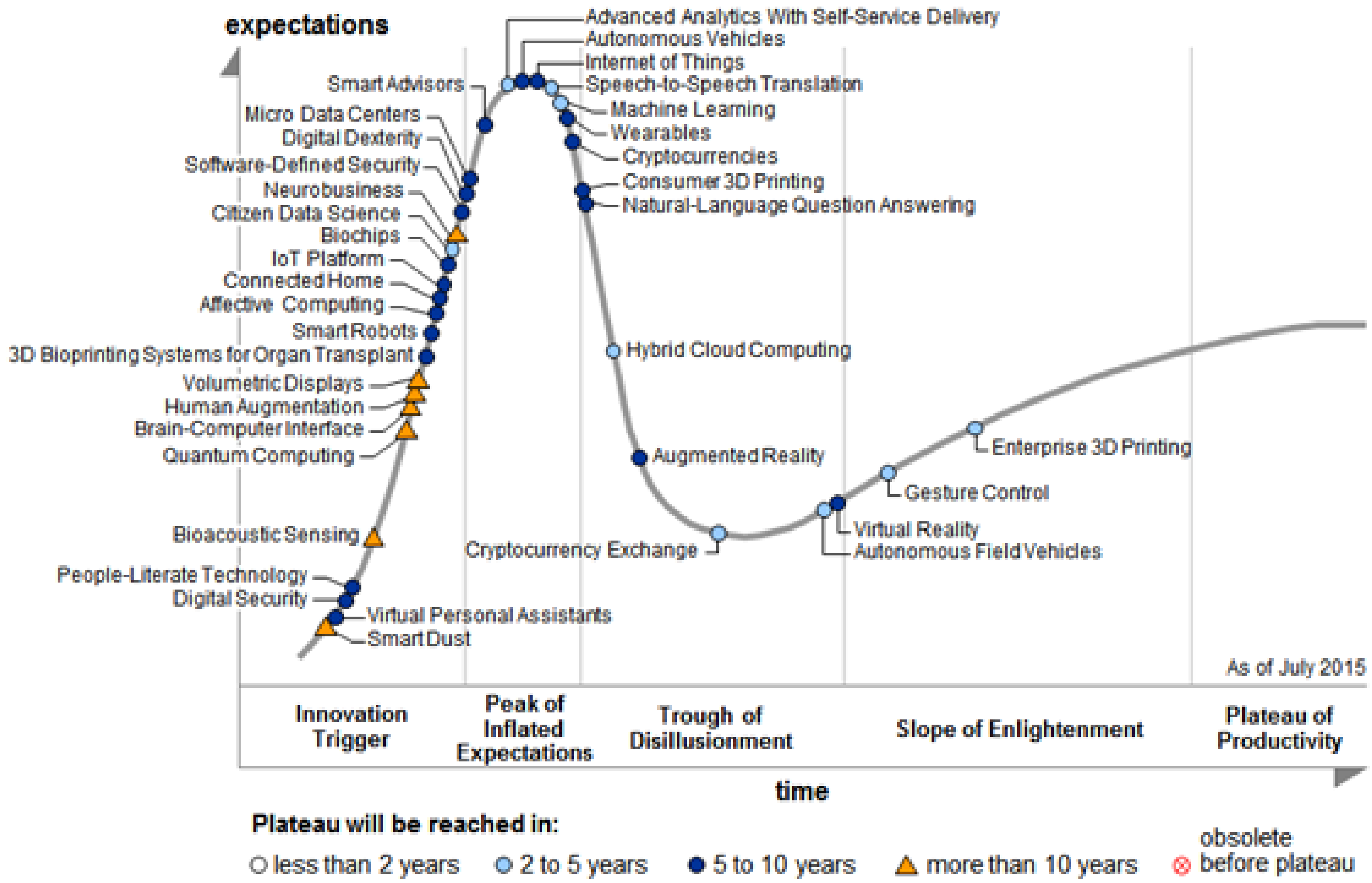
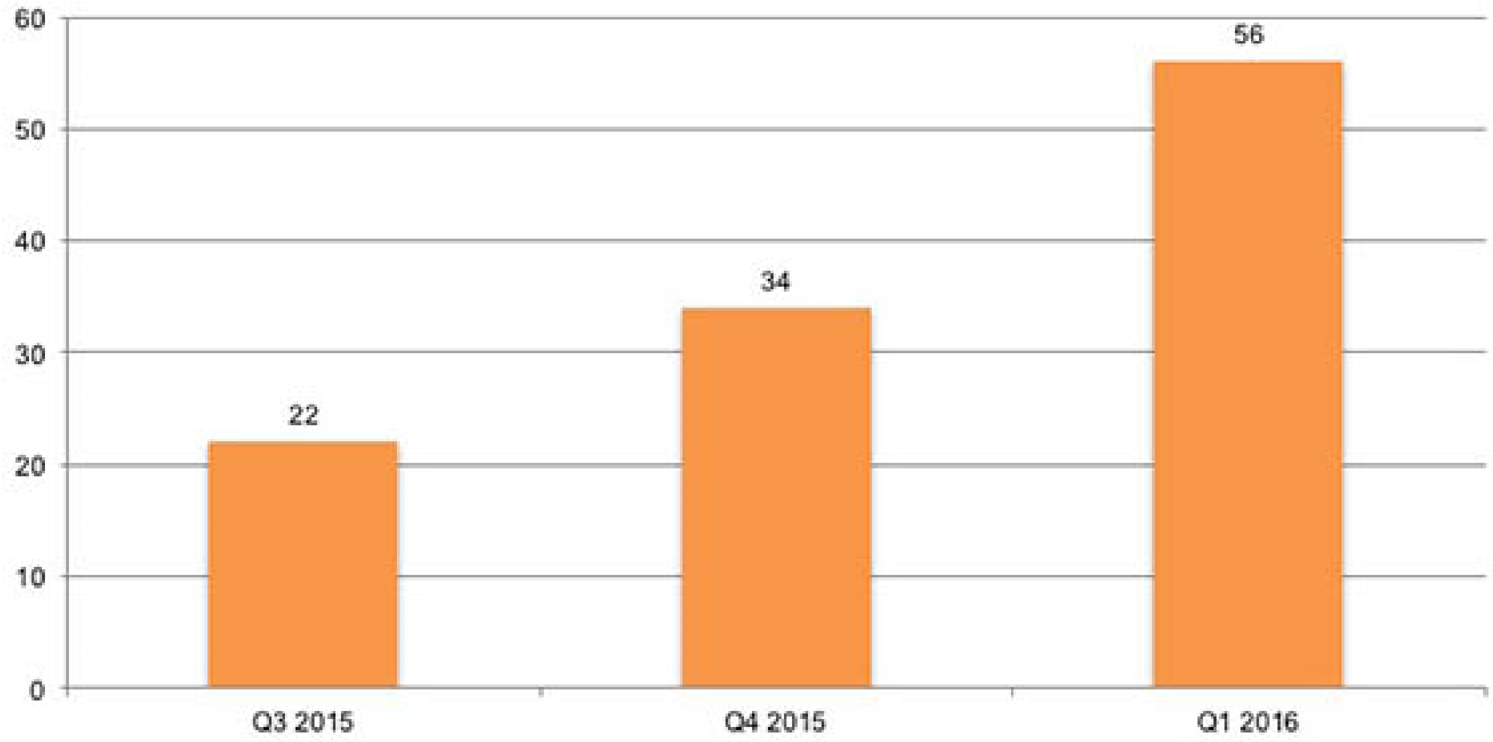
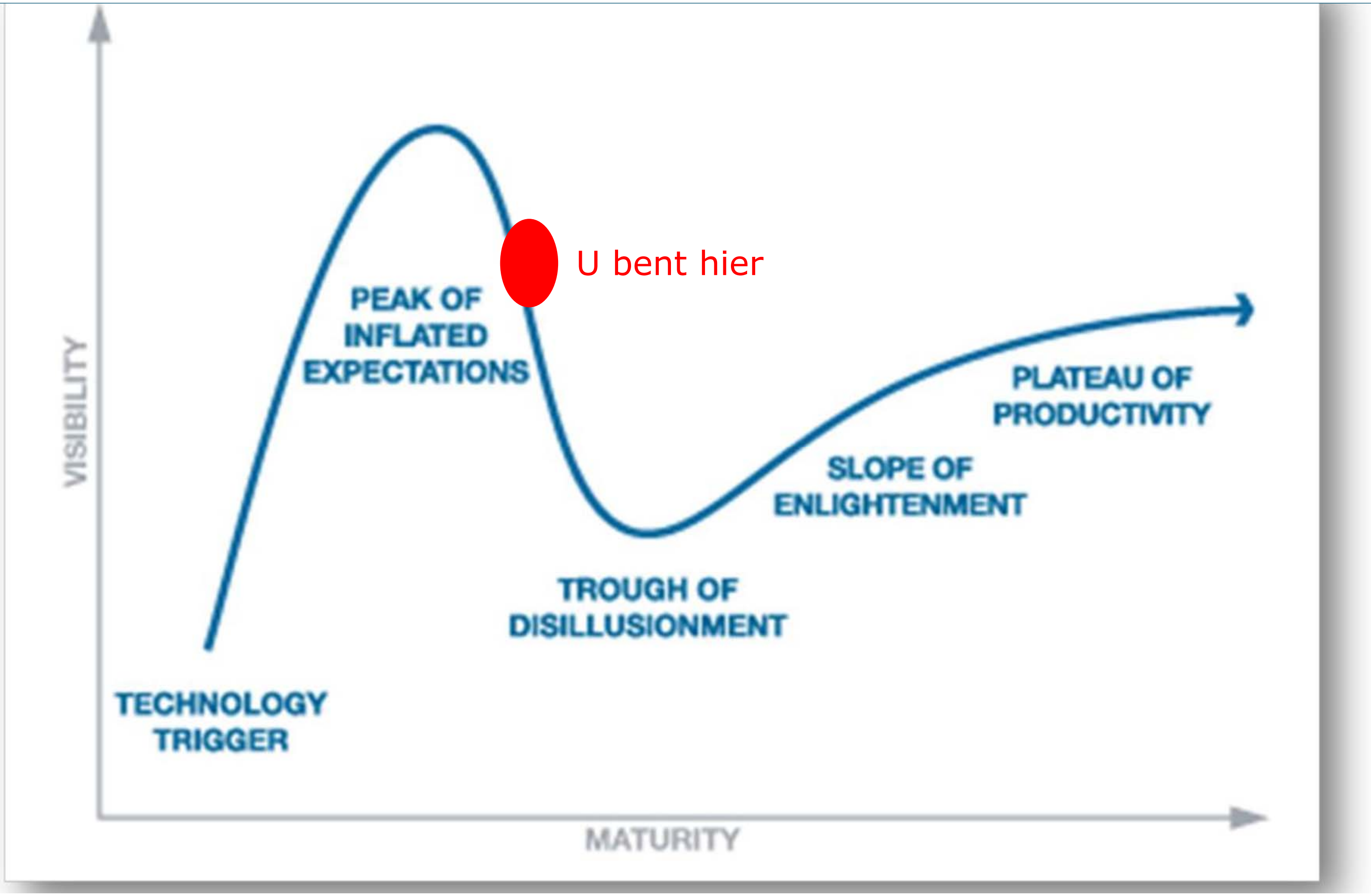

expectations
Advanced Analytics With Self-Service Delivery
Autonomous Vehicles
Internet of Things
Speech-to-Speech Translation
Machine Learning
Wearables
Cryptocurrencies
Consumer 3D Printing
Natural-Language Question Answering
Smart Advisors
Micro Data Centers
Digital Dexterity
Software-Defined Security
Neurobusiness
Citizen Data Science
Biochips
IoT Platform
Connected Home
Affective Computing
Smart Robots
3D Bioprinting Systems for Organ Transplant
Volumetric Displays
Human Augmentation
Brain-Computer Interface
Quantum Computing
Bioacoustic Sensing
People-Literate Technology
Digital Security
Virtual Personal Assistants
Smart Dust
Hybrid Cloud Computing
Augmented Reality
Cryptocurrency Exchange
Enterprise 3D Printing
Gesture Control
Virtual Reality
Autonomous Field Vehicles
As of July 2015
Innovation Trigger
Peak of Inflated Expectations
Trough of Disillusionment
Slope of Enlightenment
Plateau of Productivity
time
Plateau will be reached in:
less than 2 years
2 to 5 years
5 to 10 years
more than 10 years
obsolete before plateau

Number of Blockchain Announcements by Traditional Institutions Continued to Increase in Q1



Note: 'Traditional institutions' include governments, central banks, financial institutions and other large firms.
Source: CoinDesk

Blockchain hype?



Gartner’s Hype Cyle

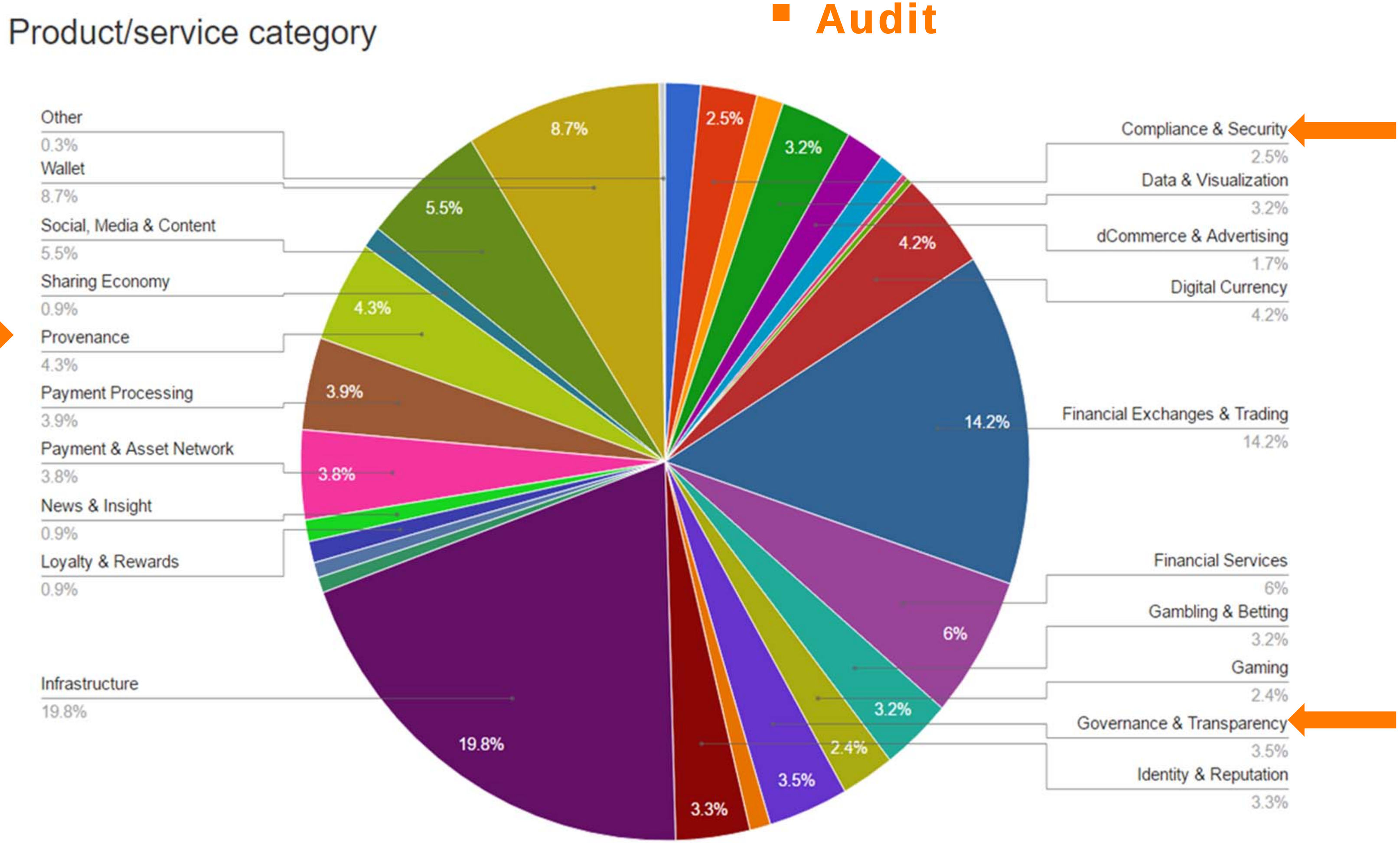
Transacties en vertrouwen: Voelen, Meten ...Automatiseren?

Kosten vs. Baten

Risico vs. transactiekosten

Kansen (of mythen?)

- **Transparantie**
- **Authenticatie**
- **Audit**

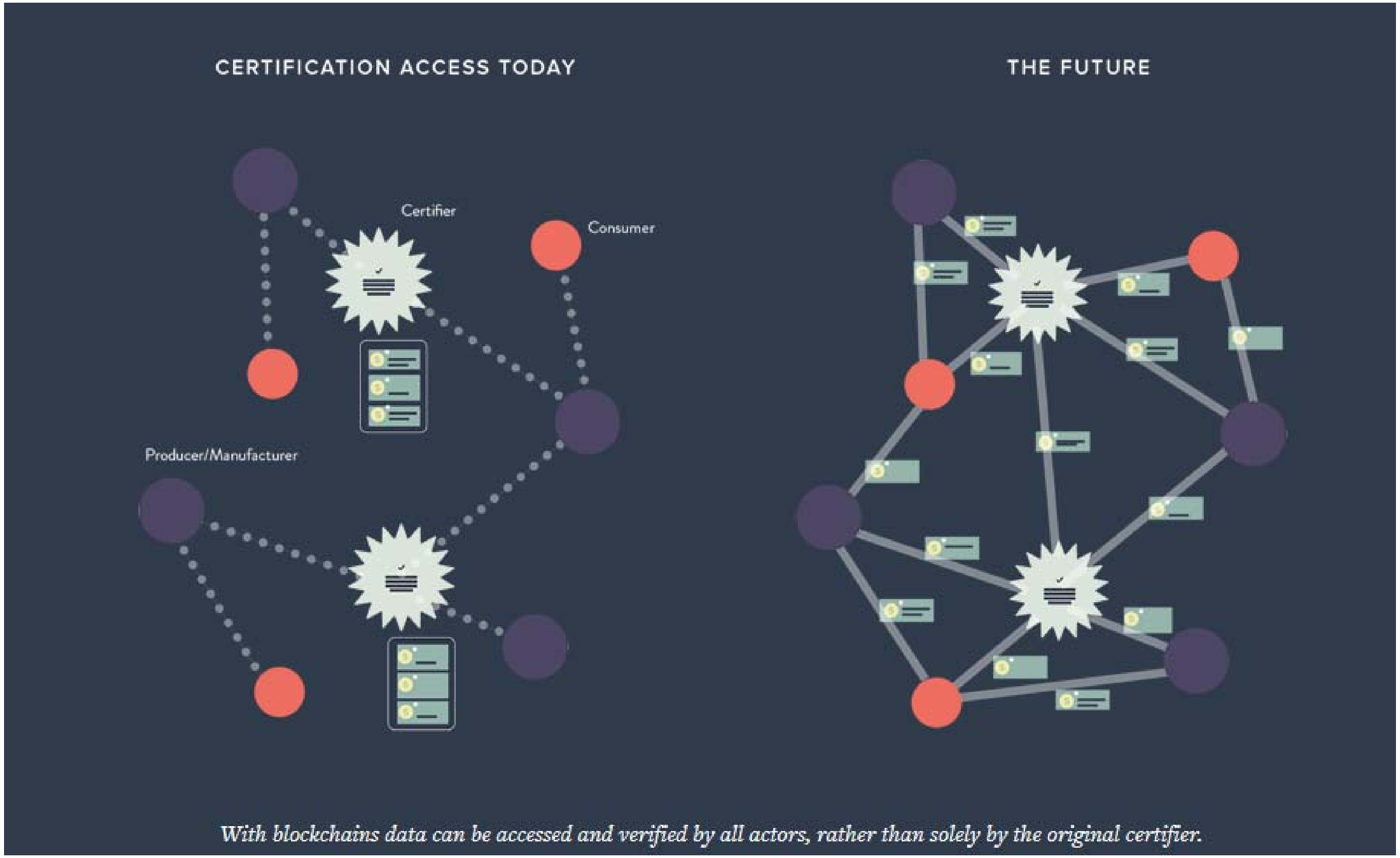


Source: http://www.blockchainangels.eu/startups

Blockchain voor food chain?

- Vertrouwen/Informatieproblemen
  - Data-consistentie/integriteit
  - Data-authenticiteit
  - Transparantie->verdelingsproblemen
- Oplossingen?
  - Databanken
  - Agri-coins (Fishcoin?)
  - ‘Smart contracts’

Certificering in the blockchain?



Bron: https://www.provenance.org/whitepaper

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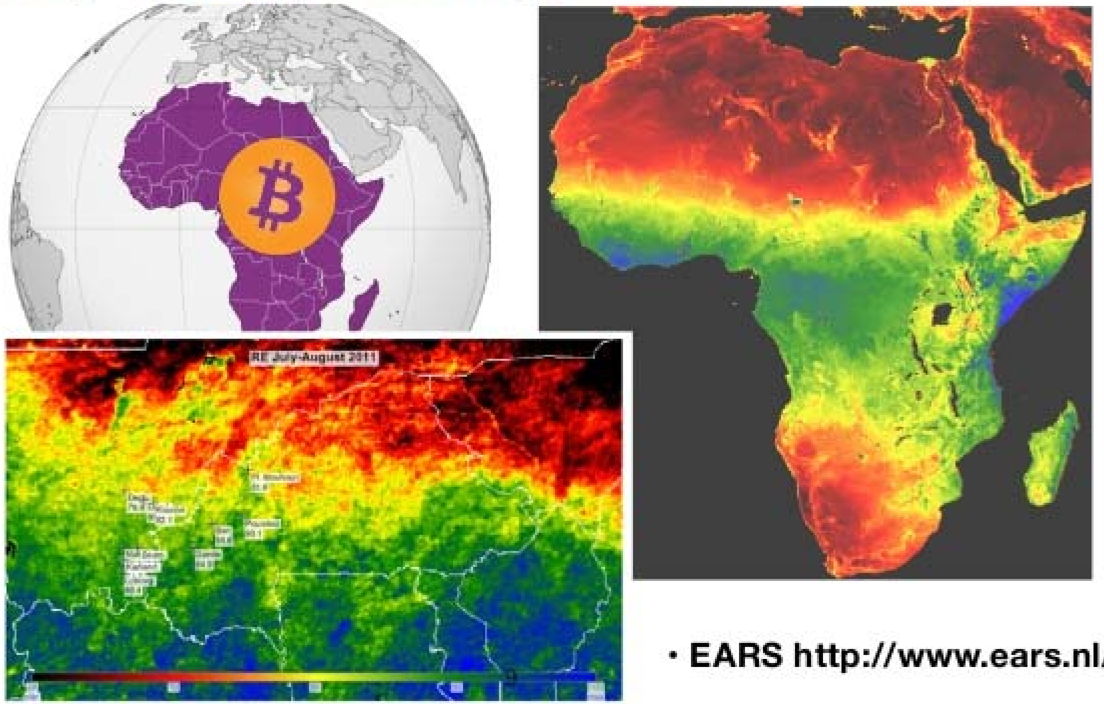
Verzekeing in de blockchain?

Crop Insurance: A hypothetical example



- EARS http://www.ears.nl/

Uitdagingen (of kansen?)

- Het 'Trilemma'
  - o Efficiency
  - o Betrouwbaarheid
  - o Decentralisatie
- Onzekerheden wet- en regelgeving
- Complexiteit van agrifood ketens
  - Digitalisering/dataficatie/Dataficering
  - Ontwerp informatie architectuur
  - Organisatie en governance

Meer informatie

http://bravenewcoin.com/

http://www.coindesk.com/

http://www.blockchainangels.eu/startups

http://www.slideshare.net/christopherbrewster/semantics-blockchains-and-ricardian-contracts

Dank voor uw aandacht

Vragen en ideeën?

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