Blockchains and Insurance: Opportunities and Challenges

Christopher Brewster

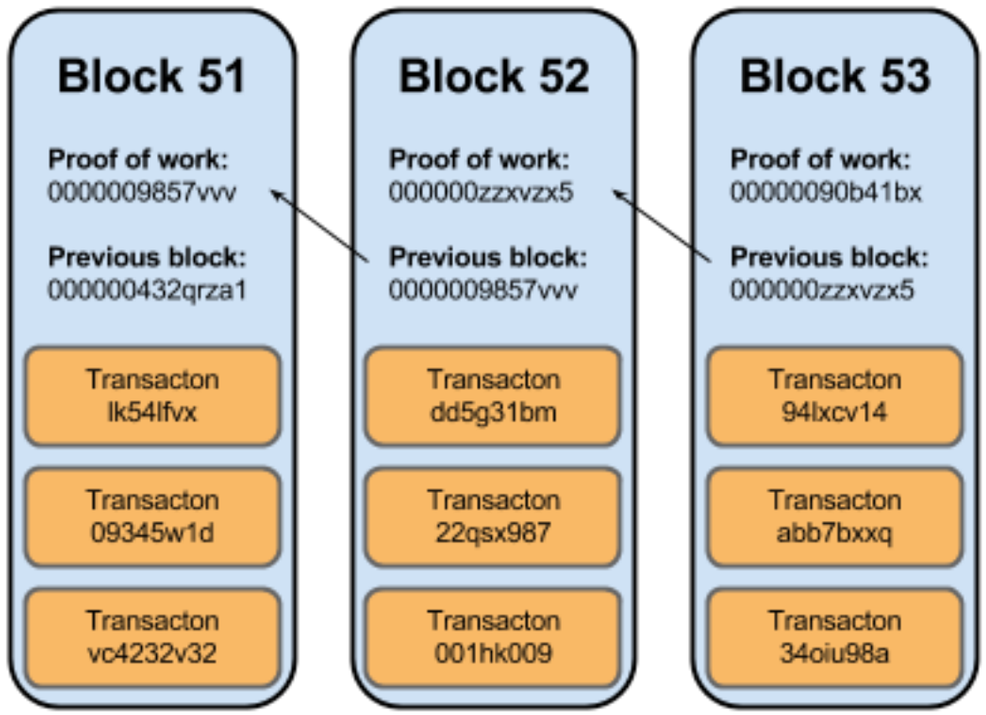
christopher.brewster@tno.nl

Blockchain and Bitcoin

- Origins lie in Bitcoin - Bitcoin was developed as *cryptocurrency - a* technological alternative to *fiat* currencies (dollar, euro, pound)
  - An attempt to be an anonymous eBay
  - Finite number of Bitcoins supposedly provides *gold-standard* type guarantee against inflation
- Bitcoin depends on the *bitcoin Blockchain* to function
  - All Bitcoin transactions are recorded on the bitcoin blockchain
  - The blockchain is the infrastructure upon which bitcoin rests

What is a blockchain?

- A blockchain is a simply **database** but …:
  - Distributed - everyone has a copy
  - Open and public - everyone can add
  - Auto-synced - every copy is the same almost instantly
  - Nothing can be deleted
- **AND** currently *very slow throughput, very low capacity*



Blockchain technology is otherwise known as Distributed Ledge Technology (DLT)

http://dataconomy.com/wtf-is-the-blockchain-a-guide-for-total-beginners/

Important Blockchain Characteristics

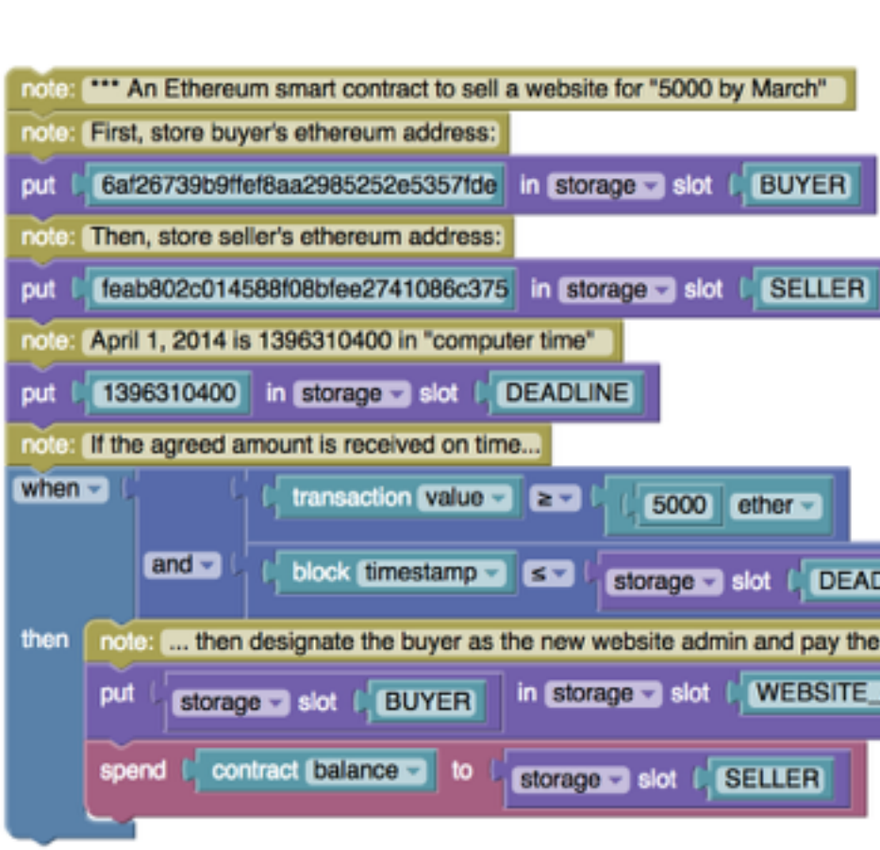
- Very secure due to use of cryptography
- Capable of near real-time synchronisation or settlement
- Very low transaction costs (only partially true)
- Typically based on open source software - changes are developed by the community
- Transparency and traceability of transactions is typically superior to current systems but user identification may be weaker or nonexistent

Key Feature: Permanent Ledger

- “Nothing can be deleted ….”
- The BC as a distributed write only ledger is an ideal repository for certain types of data
- Ideal for reducing some kinds insurance fraud
  - Record auto accidents so only one claim can be made
  - Record valuables so that no fraudulent claims are possible
  - Tracking art works across chains of custody

Key feature:Smart Contracts

- A smart contract is a software implementation of legal contract. Originally developed by Nick Szabo in early ‘90s
- Idea is to transfer contractual obligation onto an impersonal software system
- Much excitement now that one can “run” smart contracts on the blockchain
- Bitcoin includes a form of smart contacts. **Etheruem** is an infrastructure to run a VM for smart contracts



http://etherscripter.com/what_is_ethereum.html

Ethereum

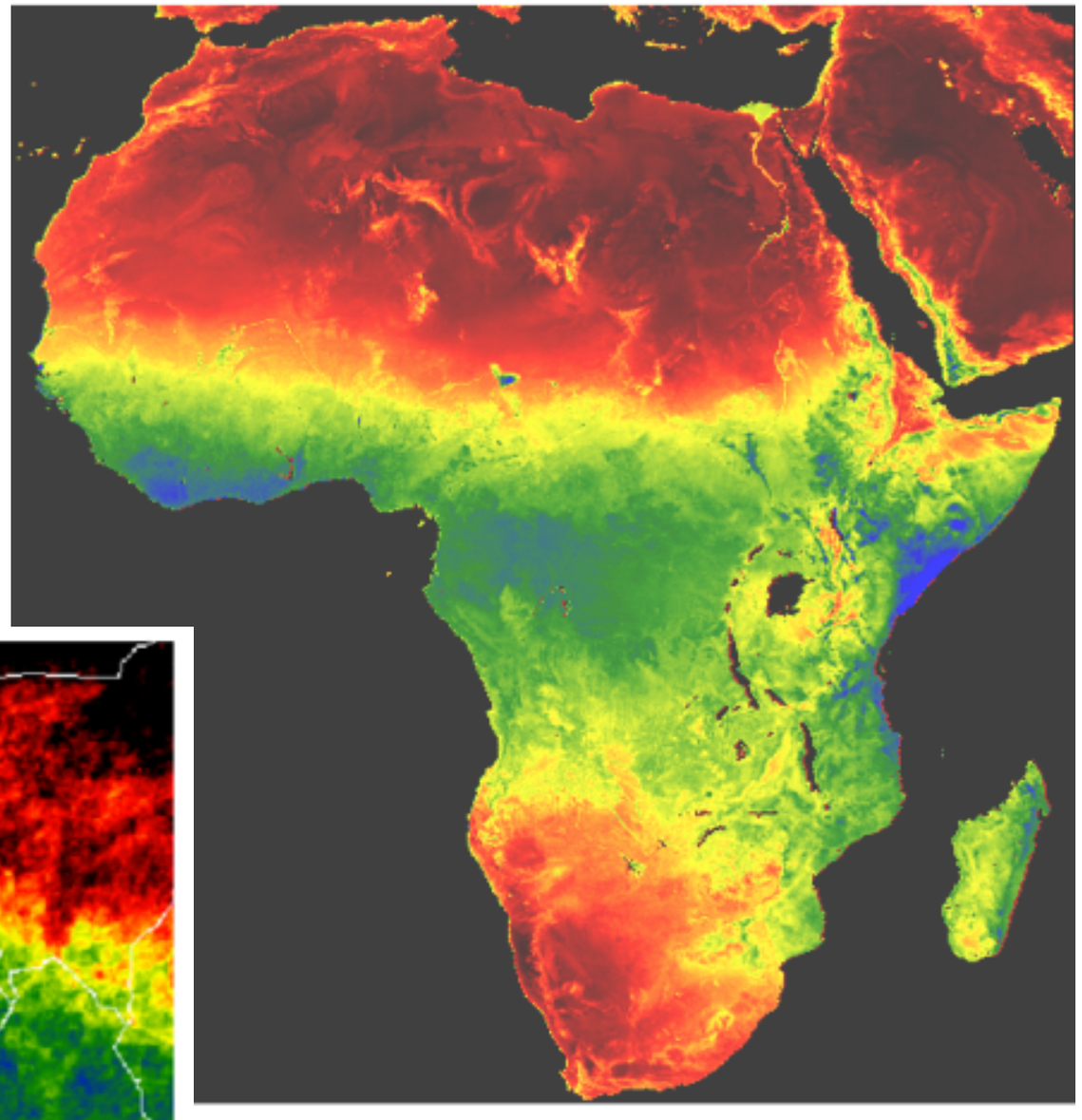
- Etheruem (https://www.ethereum.org) is a programmable smart contract platform, using *ether* as its unit of currency.
  - Also very slow, guaranteed uptime computer!
- Example of Blockchain 2.0 - creating platforms
- Started by Vitalik Buterin and Gavin Wood
- Presold $15M worth of *ether* which has funded its development.
- Major visibility and public backing, e.g. now available on Microsoft Azure.

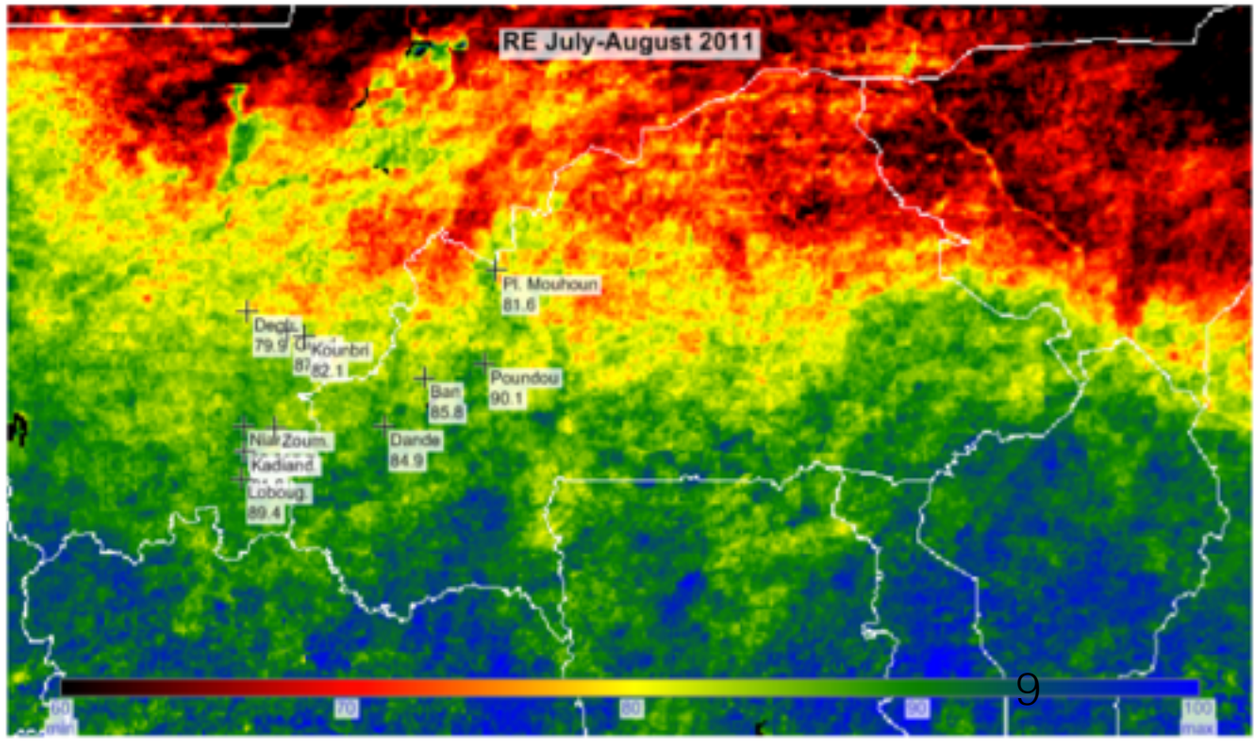
Microsoft Azure

The Hype

- “Decentralised systems, such as the blockchain protocol, threaten to disintermediate almost every process in financial services” — “The Future of Financial Services”, World Economic Forum, June, 2015
- “The most **imminent** effects of disruption will be felt in the banking sector; however, the greatest **impact** of disruption is likely to be felt in the insurance sector” ibid
- Venture capital in 2015 $0.5B - $1B, predicted to be 2016 $10B (Vinay Gupta)

Crop Insurance: A hypothetical example





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

Real Examples (1)

- Everledger (http://www.everledger.io/) - Eris based permanent record of all **diamonds** to ensure authenticity and provide a record against fraudulent insurance claims.

everledger

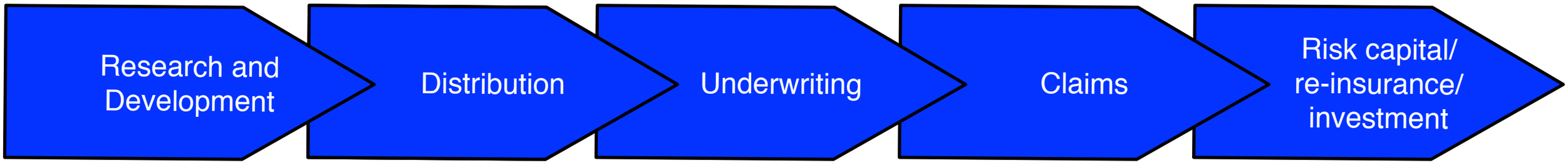
- Dynamis (http://www.dynamisapp.com/) - Ethereum based, uses LinkedIn as social network and oracle to provide **unemployment insurance**

Real examples (2)

- InsurEth (http://insureth.mkvd.net/) - Ethereum based flight insurance - contract runs on the Etheruem blockchain

- Augur (http://www.augur.net/) - Etheruem based prediction market

How will BT/DLT affect the insurance industry?



- Blockchains provide an opportunity for **R&D** to develop new products/new ways to tailor products to customer
- **Distribution** has already been deeply affected by technology but now BC/DLT not so important

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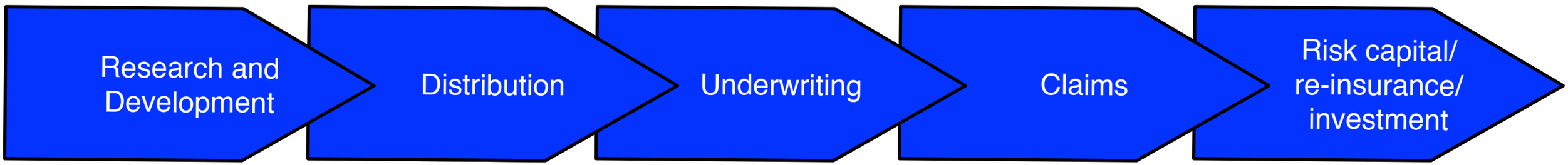

- Collaborative **underwriting** - a significant potential for a return to mutual insurance facilitated by BC.
- Smart contracts are the key challenge for **claims** processing BUT depend on an oracle or some other source of verification! —> Digital to Physical Interface

Digital to Physical

- The need for an oracle! But not to tell the future but rather reality!

- Crop insurance, delayed flight insurance etc. are easy cases - external digital oracle

- In other cases - fire, car accidents, death - some **certifying authority** is needed - this cannot be taken away by automation, BC or smart contracts….

QUESTIONS

- Gelieve mijn excuses dat dit gesprek is in het Engels. Volgende keer dat ik hoop dat in het Nederlands te spreken!

Further Reading/Links

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- Vaughan, W. (2015) Improving Insurance with the Blockchain URL: https://tierion.com/blog/improving-insurance-with-the-blockchain/

Acknowledgements

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- Image credits:
  - https://commons.wikimedia.org/wiki/File:Bitcoin.png
  - https://www.flickr.com/photos/fdecomite/11464052775/in/gallery-gamingfloor-72157638888166706/
  - https://commons.wikimedia.org/wiki/File:CumaeanSibylByMichelangelo.jpg