Blockchains and Insurance: Opportunities and Challenges

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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

Block 51
- Proof of work: 0000009857vv
- Previous block: 000000432rza1
- Transaction lk54flvx
- Transaction 09345w1d
- Transaction vc4232v32

Block 52
- Proof of work: 000000zzvxx5
- Previous block: 0000009857vv
- Transaction dd531bm
- Transaction 22qxs987
- Transaction 001hk009

Block 53
- Proof of work: 000000zzvxx5
- Previous block: 000000zzvxx5
- Transaction 94lxcv14
- Transaction ab7bxxq
- Transaction 34ou98a

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. **Ethereum** is an infrastructure to run a VM for smart contracts

http://etherscripter.com/what_is_ethereum.html
Ethereum

- Ethereum (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.
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.

- 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 Ethereum blockchain

- Augur (http://www.augur.net/) - Ethereum 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
How will BT/DLT affect the insurance industry?

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

Acknowledgements

Thanks are due to Vinay Gupta, Trent McConaghy, and others

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