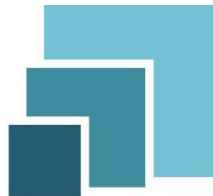


Insuring the future with Blockchain

Global Blockchain Congress
19th December 2018

Gary Nuttall
Managing Director

Distlytics



Distributed Ledger Analytics

Consultancy & Insight

Agenda

- Introductions
- Blockchain(s)
- Use Cases
- Insurance Opportunities

Introduction

- Course
- Trainer
- Audience
- Myths

Introduction

- **Course**
- Trainer
- Audience
- Myths

Introduction

Intended Audience

- Zero prior knowledge
- Designed to be business, rather than technical, focussed
- Intended for those who wish to gain an understanding of blockchain core concepts and use cases

Training outcomes

- Able to explain what a Distributed Ledger
- Have an appreciation of how a blockchain can be used
- Be aware of Insurance Use Cases

Introduction: Course

40 minutes

Course scope

- Core components of blockchains
- Primary use cases
- Insurance Use Cases

Out of scope

- Initial Coin Offerings
- Mining
- Wallet creation/management
- Coding
- Cryptography
- Bitcoin trading

*** Slides will be available to download post-event ***

Introduction: SMALLPRINT!

This presentation reflects my personal views and is not intended to reflect the views of past, current and prospective employers, clients or other agents.

"Prediction is very difficult, especially if it's about the future."

Nils Bohr, Nobel laureate in Physics

This is not intended to be taken as financial, taxation or legal advice

Introduction

- Course
- **Trainer**
- Audience
- Myths

Introduction: Me (#GPN01)



Gary Nuttall MBCS CITP
Providing Blockchain consultancy, insight and education.
Keynote speaker and presenter. ICO Advisor.
London, United Kingdom



Distlytics
Distributed Ledger Analytics
Consultancy & Insight



**TEAM
BLOCKCHAIN**

**C L Y D E
C O D E**



Blocksure



meetup



ETHERISC



Simple Token
THE TOKEN TO POWER YOUR BUSINESS



cove
Cove Identity



**LANCOR
SCIENTIFIC**
FIND CANCER EARLY



Startupbootcamp
InsurTech



REDAIR



tech^{UK}



appg | LOCKCHAIN



cryptoBasecamp



The Guardian UK edition



**LET'S LEARN
DIGITALo**



Freeformers



AMG World
Accelerated Performance



TECHNOVA



**ROCKET
LAUNCH**
Blockchain School



Udemy



ORIGO



LLOYD'S



TOM
London Market Target Operating Model

Introduction

- Course
- Trainer
- Audience
- Myths

Introduction: You



1. What do you know about Blockchain ?
2. What do you hope to learn ?
3. Tell me something that you have heard about it....

Introduction

- Course
- Trainer
- Audience
- **Myths**

Introduction: Mythbusters!

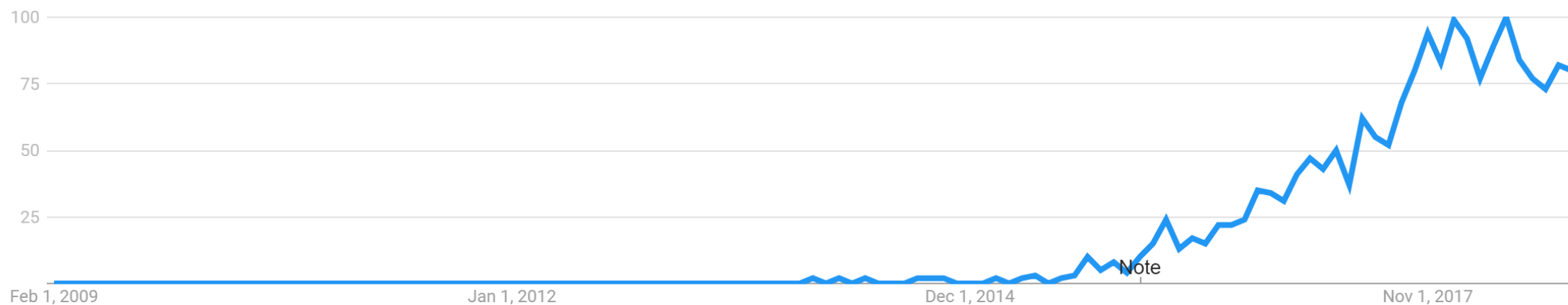
MYTHBUSTER TIME...

1. Bitcoin is an example of **A USE** of **A** Blockchain
2. Blockchains **are secure** – Exchanges & Wallets may not be
3. Cryptocurrency **isn't** the only use
4. It's **not** all about illicit trading and criminal money laundering
5. It's **not** going to consume all the electricity and cause global warming
6. It's **not** the answer to everything
7. It is an **immature** technology – but it's growing up quickly
8. It **really could** cure world hunger

Introduction

Interest over time [help_outline](#)

[file_download](#) [code](#) [share](#)



...Google searches for “Blockchain Insurance”

Agenda

- Introductions
- **Blockchain(s)**
- Use Cases
- Insurance Opportunities

Blockchain Primer

- Protocols
- Distributed Ledgers
- Blockchain

Blockchain Primer

- **Protocols**
- Distributed Ledgers
- Blockchain

Blockchain Primer

What is a protocol ?

Business, Socio/Cultural and Technical



Blockchain Primer

Protocol

TCP/IP (1980's)

HTTP (1990's)

Blockchain (2008)

Blockchain Primer

Protocol	Commonly used for
TCP/IP (1980's)	Internet
HTTP (1990's)	World Wide Web
Blockchain (2008)	Distributed Ledger

Blockchain Primer

Protocol	Commonly used for	Enables
TCP/IP (1980's)	Internet	Data sharing
HTTP (1990's)	World Wide Web	Displaying information
Blockchain (2008)	Distributed Ledger	Transfer of value

Blockchain Primer

(October 31, 2008 at 2:14 PM, EST) A few hundred members of an obscure cryptography group received an email from somebody calling himself Satoshi Nakamoto.

"I've been working on a new electronic cash system that's fully **peer-to-peer**, with **no trusted third party**," he bluntly stated. The email directed the readers to a nine page whitepaper hosted on Nakamoto's brand new domain, bitcoin.org. BITCOIN and a global financial revolution was born

What is needed is an electronic payment system based on cryptographic proof instead of trust.

—Satoshi Nakamoto

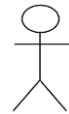
Blockchain Primer

- Protocols
- **Distributed Ledgers**
- Blockchain

Blockchain Primer: Distributed Ledger



Barclays



HSBC

Blockchain Primer: Distributed Ledger

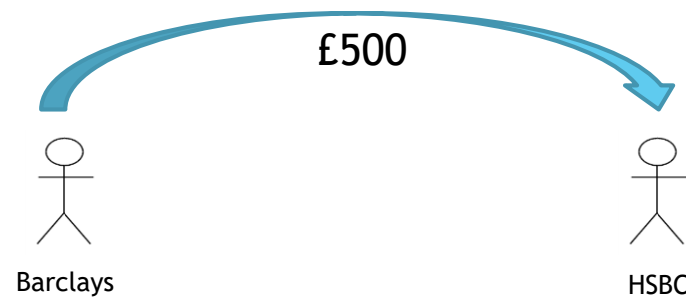
Transferring value



Blockchain Primer: Distributed Ledger

A **Ledger** is simply a journal of transactions

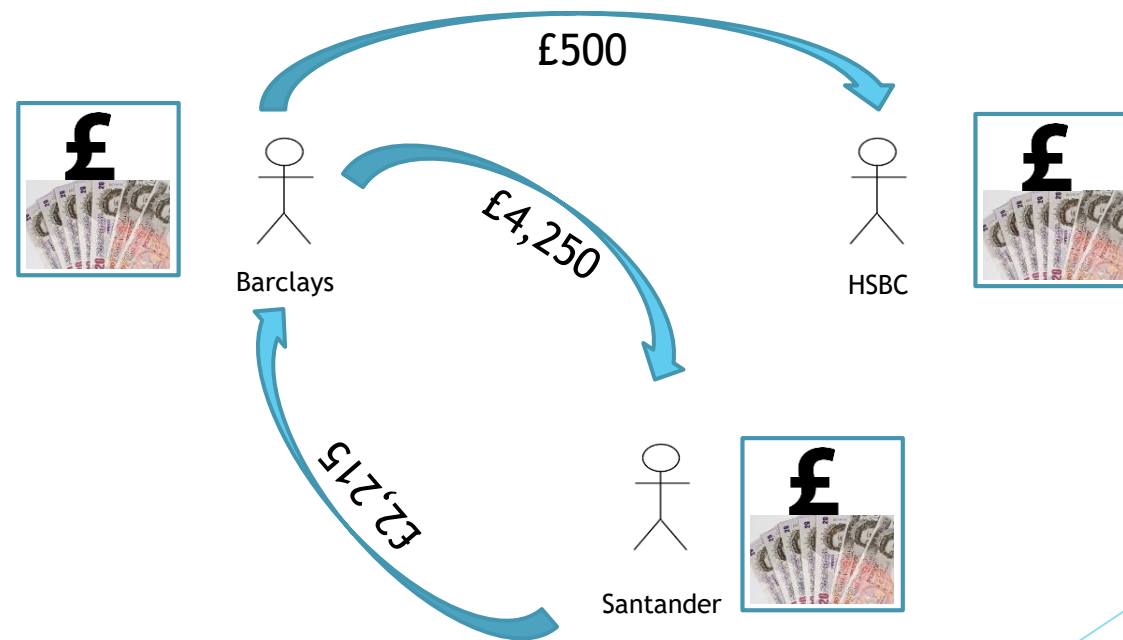
JOURNAL -ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00



Blockchain Primer: Distributed Ledger

...usually lots of transactions

BARCLAYS JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00



Blockchain Primer: Distributed Ledger

Everyone has a copy of their own ledger

BARCLAYS JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
	01/01/2016				
1	08:35	BARCLAYS	HSBC	GBP	500.00
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00

HSBC JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
	01/01/2016				
1	08:35	BARCLAYS	HSBC	GBP	500.00
4	01/01/2016 13:35	HSBC	SANTANDER	GBP	105.00

SANTANDER JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00

Blockchain Primer: Distributed Ledger

INEFFICIENT

- **RECONCILIATION** – Need to check that every record of every transaction has been copied to each other's systems correctly
- **AUDIT** – Need to prove that the system works consistently

EXPENSIVE

- **Processing overhead** (needs computing power)
- **Reconciliation systems** need to be designed, developed, tested & supported
- **Excel addicts** writing macros, functions & stuff that goes wrong
- **Auditing overhead** – cost of auditors, audits, etc.
- **Data Quality issues** – End up “working around” problems

SLOW

- **Need to wait** for reconciliations to be executed and verified
- **Audits** are after the event and aren't preventative

Blockchain Primer: Distributed Ledger

SOLUTION!

Merge all the Ledgers into one...

BARCLAYS JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00

HSBC JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00
4	01/01/2016 13:35	HSBC	SANTANDER	GBP	105.00

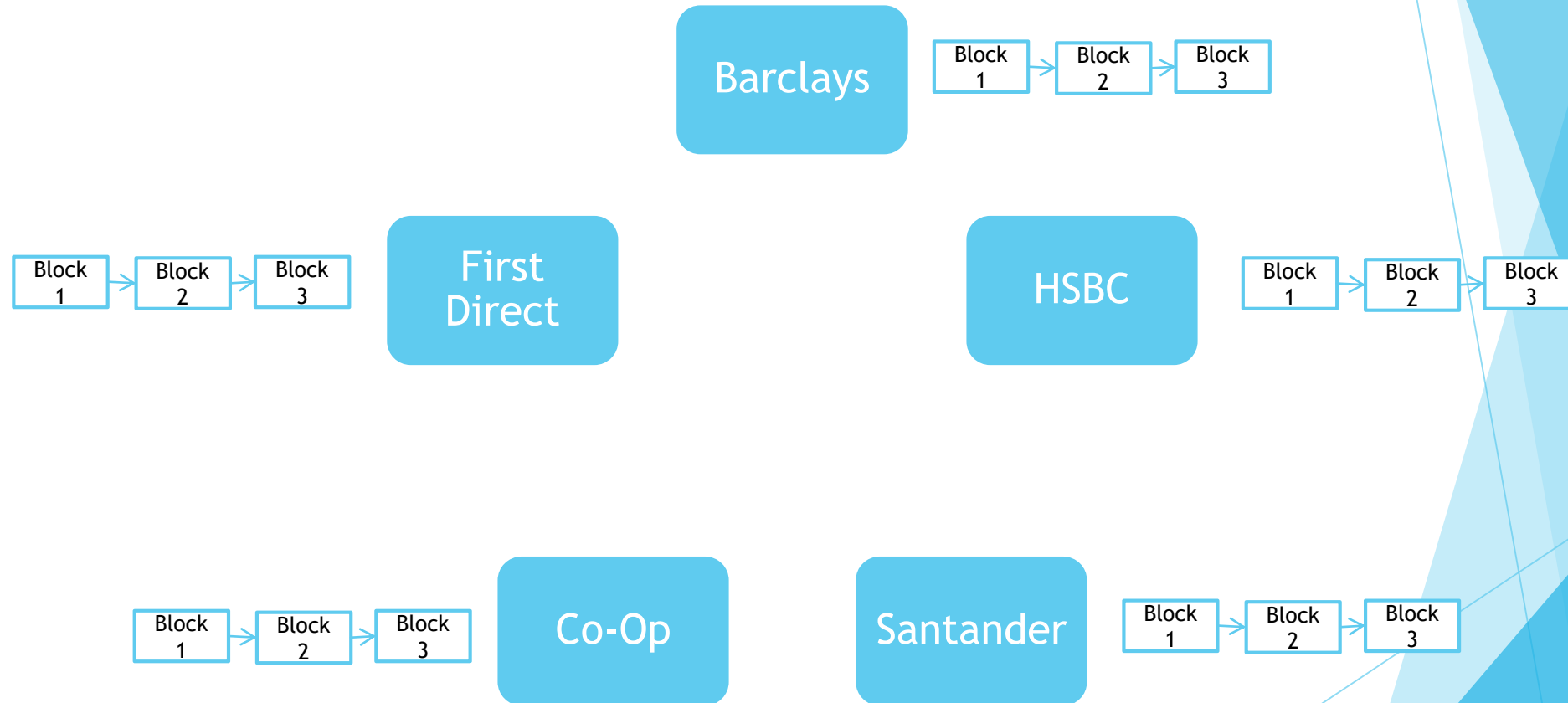
SANTANDER JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00

JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00
4	01/01/2016 13:35	HSBC	SANTANDER	GBP	105.00

A Mutual Ledger... Less reconciliation

Blockchain Primer: Distributed Ledger

Distribute a copy of the ledger to everyone



...And you have a **Mutual Distributed Ledger**

Blockchain Primer: Distributed Ledger

Put crypto-security onto the Ledger


Cryptography



Cryptography or cryptology is the practice and study of techniques for secure communication in the presence of third parties called adversaries. More generally, cryptography is about constructing and analyzing protocols that prevent third parties or the public from reading private messages; various aspects in information security such as data confidentiality, data integrity, authentication, and non-repudiation are central to modern cryptography. Modern cryptography exists at the intersection of the disciplines of mathematics, computer science, and electrical engineering. Applications of cryptography include ATM cards, computer passwords, and electronic commerce.

Cryptography - Wikipedia

<https://en.wikipedia.org/wiki/Cryptography>

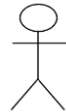
See more about Cryptography 

Blockchain Primer: Distributed Ledger

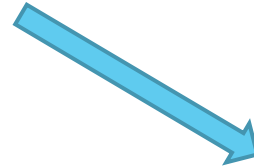
Put crypto-security onto the Ledger

JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT	HASH	BLOCK	BLOCK HASH	START BLOCK	START HASH
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00	1111			0	110111
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00	101				
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00	100011				
4	01/01/2016 13:35	HSBC	SANTANDER	GBP	105.00	101101	1	1111000		

IF FROM = %USER%
OR TO = %USER%
THEN DISPLAY LINE



Barclays



HSBC

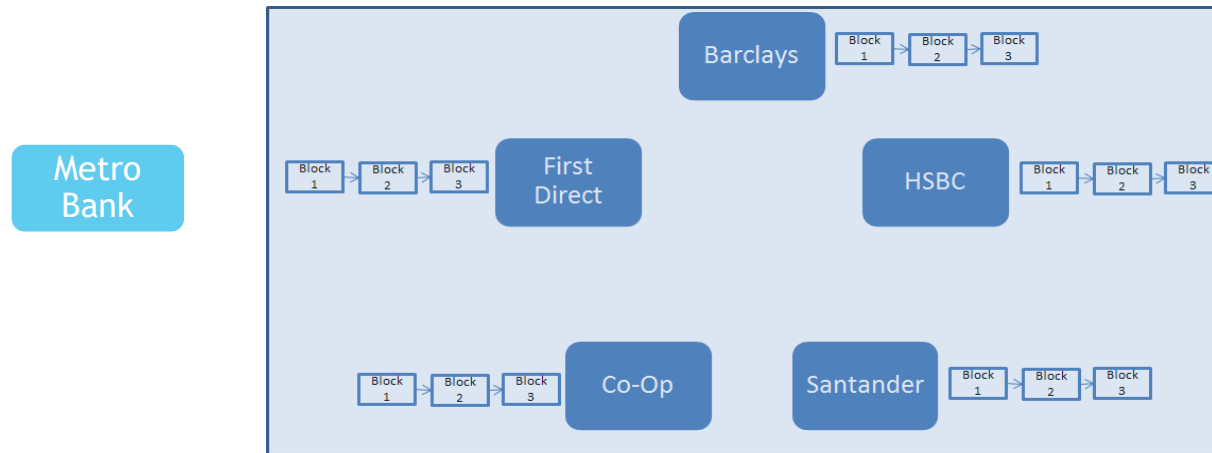
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00

JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00
4	01/01/2016 13:35	HSBC	SANTANDER	GBP	105.00

...now users can only access their own data
Which decreases Security Auditing overhead

Blockchain Primer: Blockchain

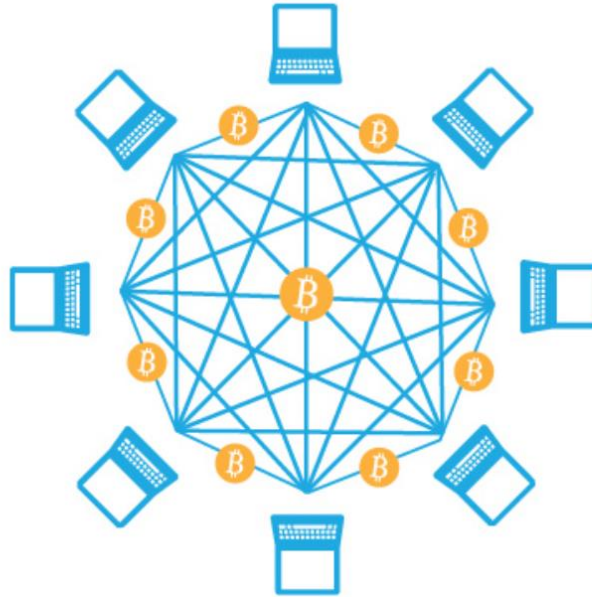
You can restrict access only to members...



... Giving a Private, Permissioned Ledger

Blockchain Primer: Blockchain

You can provide open access to everybody...



... but machine-to-machine payment using the Bitcoin protocol could allow for direct payment between individuals, as well as support micropayments.

Graphic: Deloitte University Press | DUPress.com

...Giving a **Public, Unpermissioned Ledger**

Blockchain Primer: SMART CONTRACTS

Computer program of business logic. Often linked with data sources (“ORACLES”), providing evidence of trigger events...

Weather conditions (Temperature, precipitation), Flight Delays, location (via IoT)

WARNING: Smart Contracts are neither Smart nor Contracts!

Journal ID	Datestamp	FROM	TO	UNIT	IDENTIFIER
1	01/01/2016 11:45:00	ATRIUM	LUFTHANSA	EUR	POLICY123
2	01/01/2016 11:45:01	BEAZLEY	FARMER MCGREGOR	GBP	POLICY234

POLICY12
3 IF (POLICY_IS_ACTIVE AND
PREMIUM_PAID AND
CLAIM_CONDITION_MET
THEN PAY_CLAIM

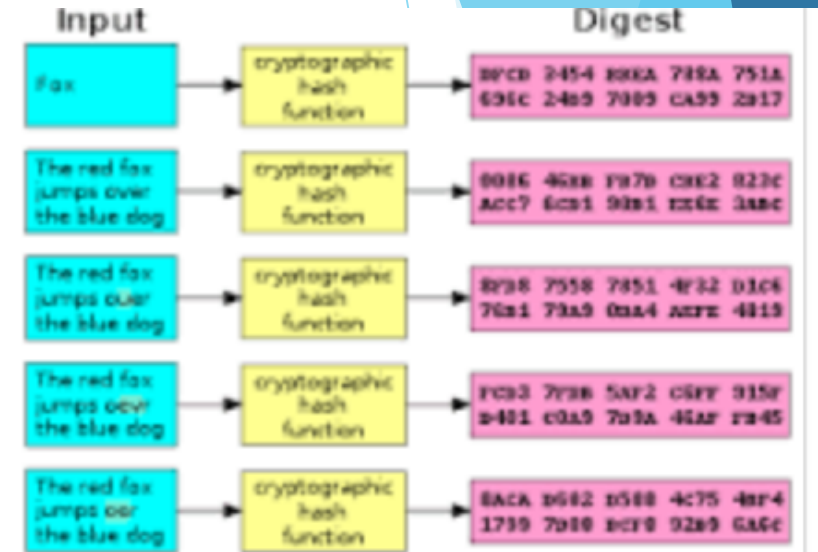
POLICY234
IF (POLICY_IS_ACTIVE AND
PREMIUM_PAID AND
CLAIM_CONDITION_MET
THEN PAY_CLAIM

Blockchain Primer

- Protocols
- Distributed Ledgers
- **Blockchain**

Blockchain Primer: Blockchain

A **cryptographic hash** function is a **hash** function which takes an input (or 'message') and returns a fixed-size alphanumeric string. The string is called the '**hash** value', 'message digest', 'digital fingerprint', 'digest' or 'checksum'.



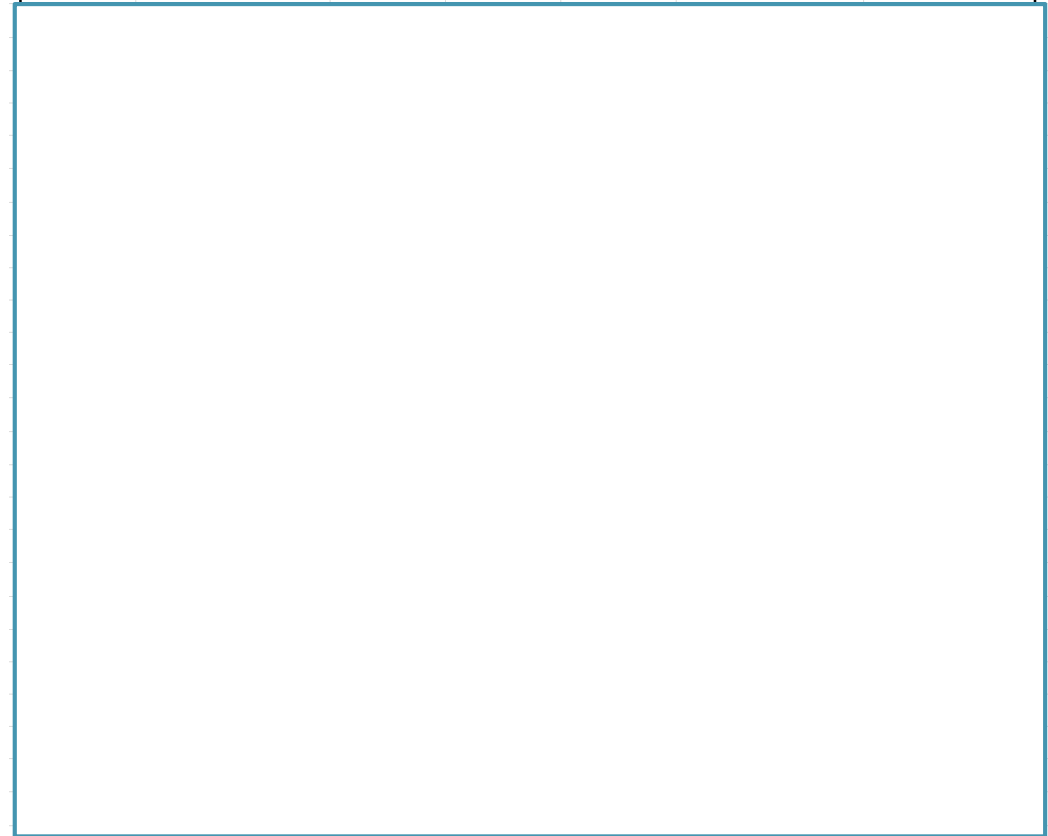
Cryptographic hash function - Simple English Wikipedia, the free ...

https://simple.wikipedia.org/wiki/Cryptographic_hash_function

Blockchain Primer: Blockchain

Imagine a physical ledger, with pages in it

BLOCK 0					PREVIOUS HASH =	
RECORD	DATETIME	FROM	TO	VALUE	UNIT	OF MEASURE
1	01/01/2018 10:23	GARY	JANE	100		GBP
2	04/01/2018 14:22	JOHN	PAUL	7		USD
3	04/01/2018 15:36	CLARE	ALAN	125		GBP
4	05/01/2018 10:16	GARY	PAUL	9		BTC
5	06/01/2018 18:18	PETER	CLARE	83		USD

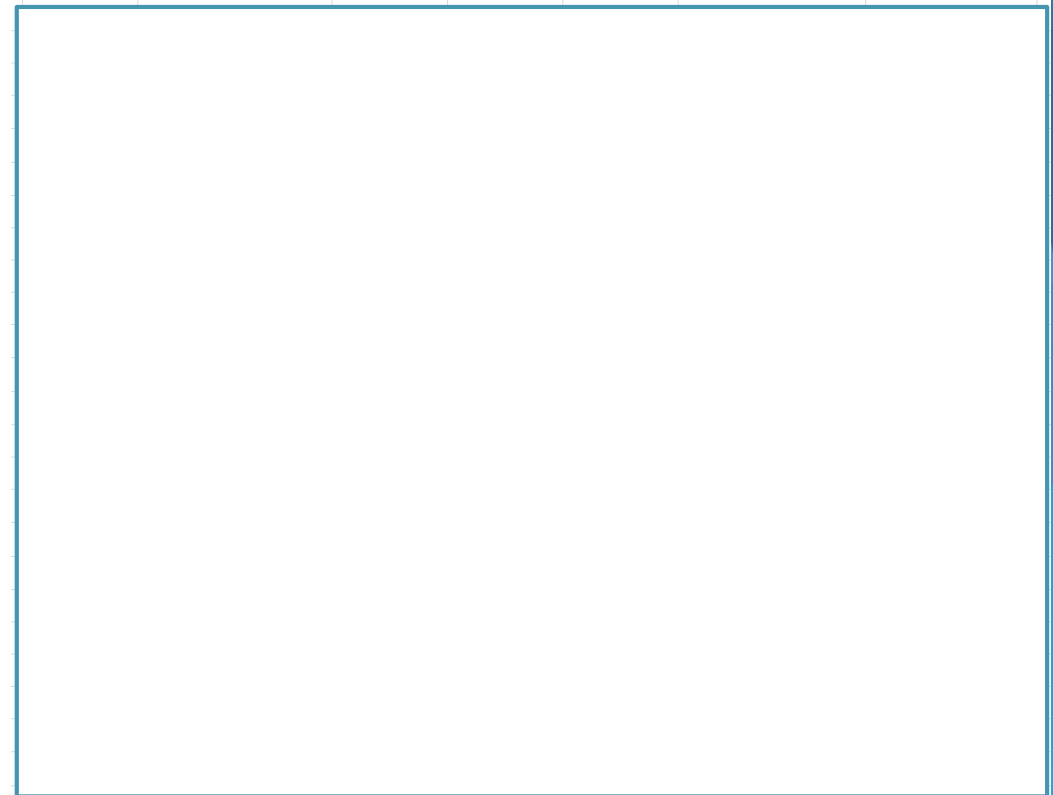


Blockchain Primer: Blockchain

Imagine a physical ledger, with pages in it

At the bottom of the page you enter the hash for that page

BLOCK 0						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00bf124aa001



Blockchain Primer: Blockchain

Imagine a physical ledger, with pages in it

At the bottom of the page you enter the hash for that page

At the top of the next page, you start with the hash from the previous page

BLOCK 0						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00bf124aa001



BLOCK 1						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	00bf124aa001
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00dea123123



Blockchain Primer: Blockchain

Imagine a physical ledger, with pages in it

At the bottom of the page you enter the hash for that page

At the top of the next page, you start with the hash from the previous page

So, the data is held in **BLOCKS** which are **CHAINED** together

BLOCK 0						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00bf124aa001



BLOCK 1						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	00bf124aa001
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00dea123123



BLOCK 2						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	00dea123123
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						009a1aa1121

Blockchain Primer: Blockchain

Imagine a physical ledger, with pages in it

At the bottom of the page you enter the hash for that page

At the top of the next page, you start with the hash from the previous page

So, the data is held in BLOCKS which are CHAINED together

Now VERY difficult to change an earlier entry as all of the hashes on all pages would need to be recalculated

BLOCK 0						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00bf124aa001



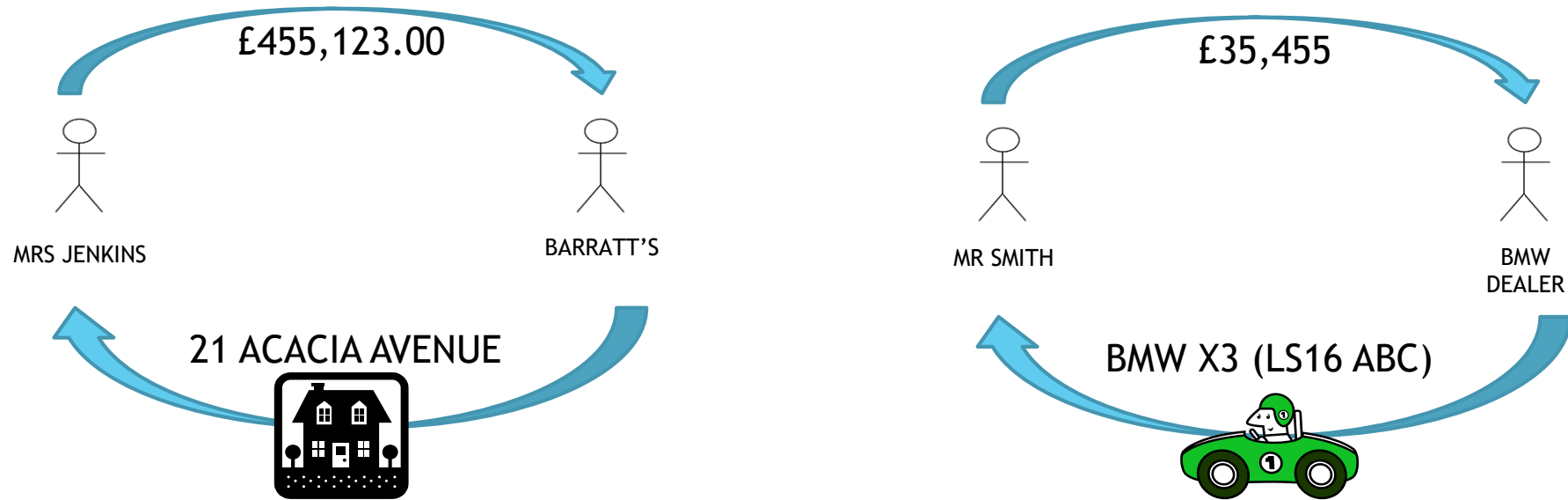
BLOCK 1						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	00bf124aa001
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00dea123123



BLOCK 2						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	00dea123123
2	04/01/2018 14:22	JOHN	PAUL	7	USD	
3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						009a1aa1121

Blockchain Primer: Blockchain

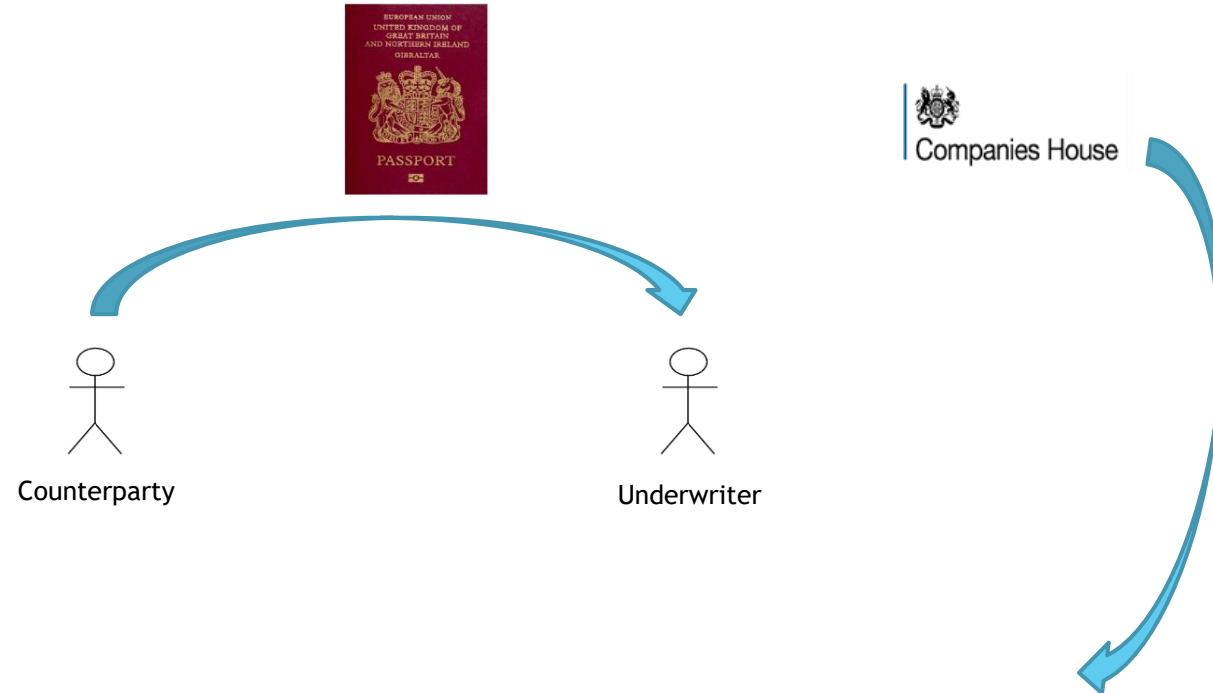
Other things could go onto a ledger...such as assets



Journal ID	Datestamp	FROM	TO	UNIT	IDENTIFIER
1	01/01/2016 11:45:00	MRS JENKINS	BARRATT'S	GBP	455,123.00
2	01/01/2016 11:45:01	BARRATT'S	MRS JENKINS	HOUSE	21 ACACIA AVENUE
3	02/01/2016 10:35:00	MR SMITH	BMW DEALER	GBP	35,455.00
4	02/01/2016 10:35:01	BMW DEALER	MR SMITH	CAR	BMW X3 (LS16 ABC)

Blockchain Primer: Blockchain

Links to other things....such as documents



Journal ID	Datestamp	TYPE	REFERENCE	CLASS	IDENTIFIER
1	01/01/2016 11:45:00	KYC	PASSPORT	PDF	ABC123
2	01/01/2016 11:45:01	KYC	DIR CHECK	PDF	ABC124
3	02/01/2016 10:35:00	CLAIM	FNOL	EMAIL	DEF124
4	02/01/2016 10:35:01	CLAIM	ASSESS	WORD	DOC121

Blockchain Primer: Blockchain

So, back to the definition....

It's a write-only database

That everyone has an identical copy of

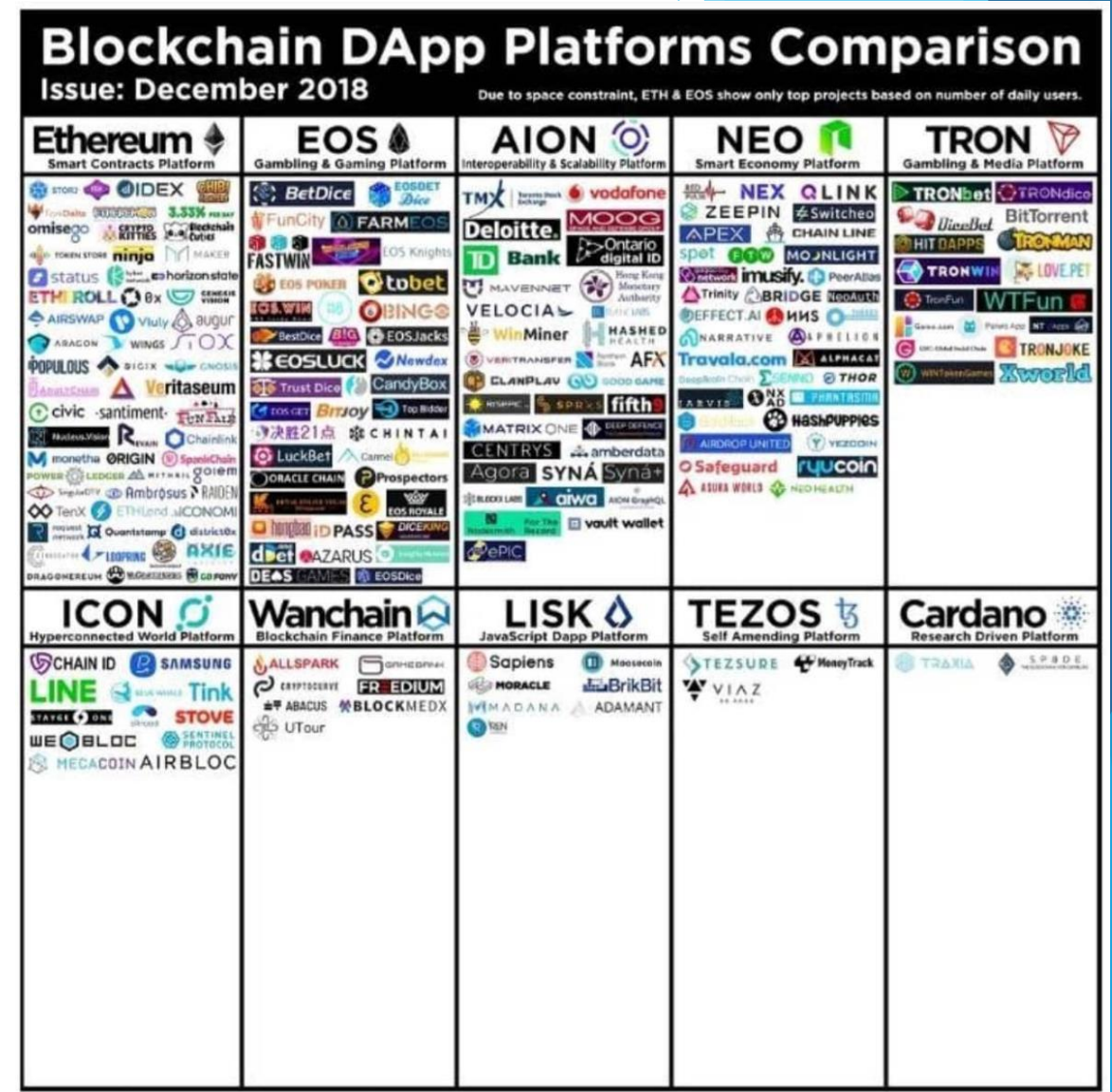
With all entries timestamped

And the data is cryptographically secured

Blockchain Primer: Blockchain

Different flavours.....

Protocol	Focus
Bitcoin	Crypto payments
Ethereum	Programmability
NEO	Programmability
Quorum	Programmability
Hyperledger	Programmability
Corda	Crypto transactions
Monax	Ecosystem
Ripple	Crypto transactions
Symbiont	Ledger



Blockchain Primer: So what?

Features

- Immutable – complete, timestamped, audit trail
- Distributed - Cyber resilient – still functional if nodes removed
- Crypto secured – can't be easily hacked or ransomed
- Programmable - Smart Contracts can be created
- (Pseudo)anonymous

Benefits

- Reconciliation significantly reduced as now single source
- Removal of need for trusted third party
- Decentralised – doesn't need to be owned by anyone (!)

Agenda

- Introductions
- Blockchain(s)
- **Use Cases**
- Insurance Opportunities

Blockchain Use Cases

Hype Cycle for Blockchain Business, 2018



NB: These are mainly industries

Blockchain **MEGA** Cases

1. As an Immutable Ledger
2. As a Cryptocurrency platform
3. To provide Digital Identity
4. Trusted Programmability
5. Tokenization of assets

Blockchain Mega Cases

- As an Immutable Ledger
- As a Cryptocurrency platform
- To provide Digital Identity
- Trusted Programmability
- Tokenization of assets

Blockchain Mega Cases

- As an Immutable Ledger

DIAMONDS

Driving greater transparency and next generation standards for Diamonds

We are pioneers in protecting the value of diamonds through provenance tracking

Diamond supply chains are often complex, unconnected as well as fragmented by their own nature resulting in a lack of transparency and trust amongst stakeholders.



EVERLEDGER
diamonds

<https://www.everledger.io/industry-applications>



FAIRFOOD

Proof of fair payment on the blockchain

Provenance technology supports fair trading in the digital age. Working in an international coconut supply chain, our software was extended to create a system that proves the exact living wage payment for product batches.

Blockchain Mega Cases

- As a Cryptocurrency platform

Ripple and Swift slug it out over cross-border payments

More than 100 banks have signed up with the blockchain-based challenger but the incumbent is fighting back

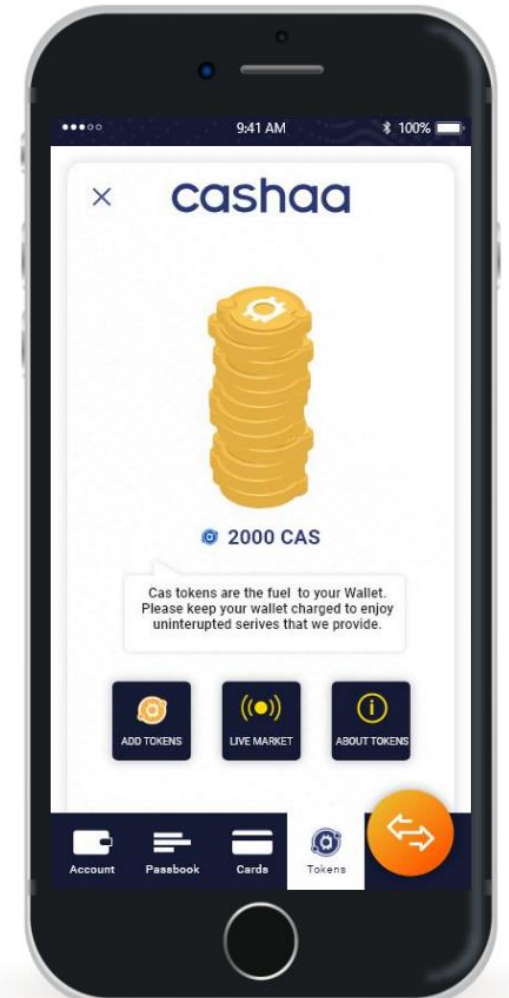


Ripple effect: Santander is one of more than 100 financial institutions that have registered to use the Californian company's blockchain-based messaging system

Martin Arnold JUNE 6, 2018

50





















<https://www.ft.com/content/631af8cc-47cc-11e8-8c77-ff51caedcde6>



Blockchain Mega Cases

- As a Cryptocurrency platform

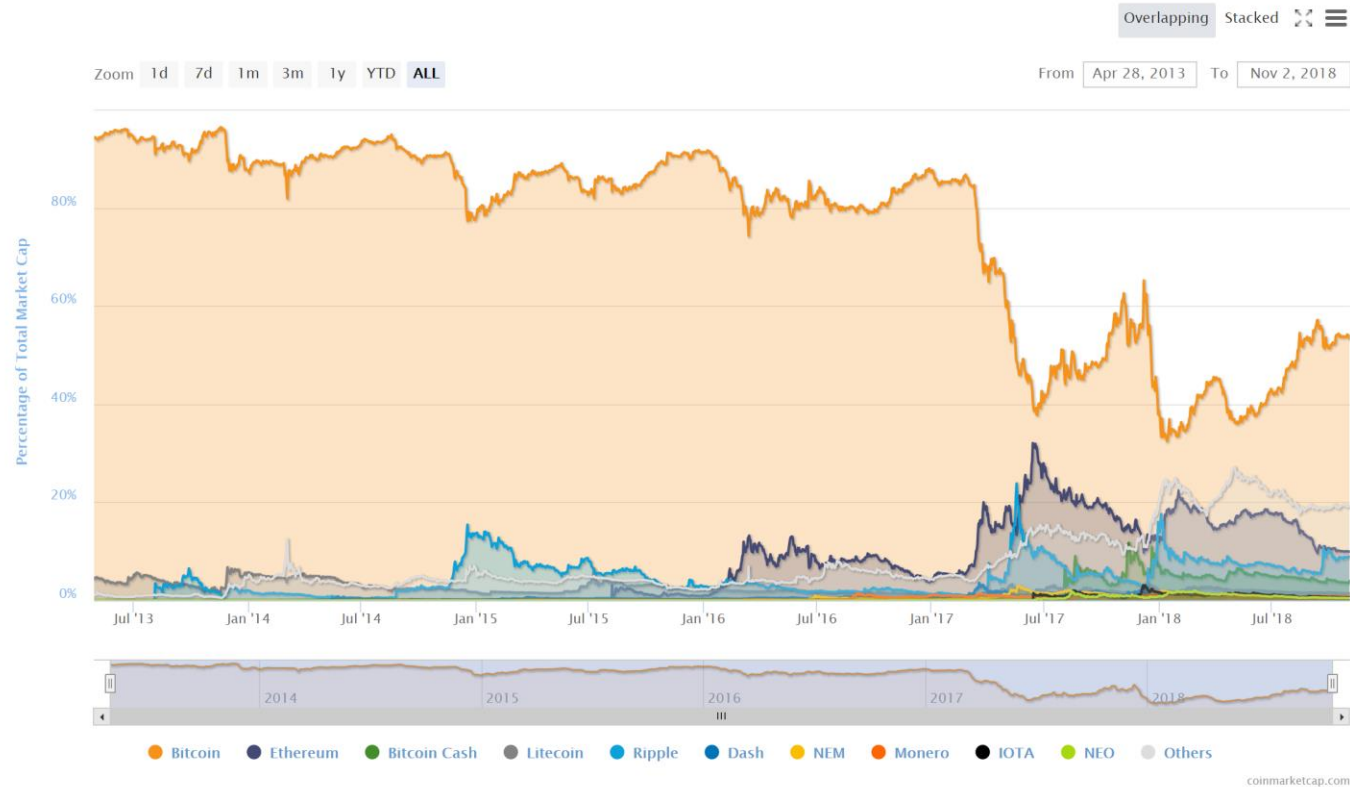
Cryptocurrencies ▾ Exchanges ▾ Watchlist USD ▾ Next 100 → View All

#	Name	Market Cap	Price	Volume (24h)	Circulating Supply	Change (24h)	Price Graph (7d)
1	 Bitcoin	\$110,738,628,317	\$6,380.45	\$4,218,274,440	17,355,925 BTC	0.10%	
2	 Ethereum	\$20,613,262,023	\$200.21	\$1,453,952,823	102,956,695 ETH	0.77%	
3	 XRP	\$18,496,956,741	\$0.460060	\$430,948,559	40,205,513,967 XRP *	1.62%	
4	 Bitcoin Cash	\$8,129,003,660	\$466.21	\$486,375,248	17,436,338 BCH	10.06%	
5	 EOS	\$4,848,018,701	\$5.35	\$668,036,873	906,245,118 EOS *	1.68%	
6	 Stellar	\$4,316,357,254	\$0.228215	\$38,982,082	18,913,564,571 XLM *	2.21%	
7	 Litecoin	\$3,042,619,807	\$51.58	\$349,851,089	58,991,852 LTC	2.79%	
8	 Cardano	\$1,856,197,858	\$0.071593	\$15,686,723	25,927,070,538 ADA *	2.03%	
9	 Tether	\$1,766,752,520	\$0.994557	\$2,345,942,773	1,776,421,736 USDT *	-0.23%	
10	 Monero	\$1,752,666,108	\$105.98	\$12,844,607	16,538,358 XMR	2.82%	

Blockchain Mega Cases

- As a Cryptocurrency platform

Percentage of Total Market Capitalization (Dominance)

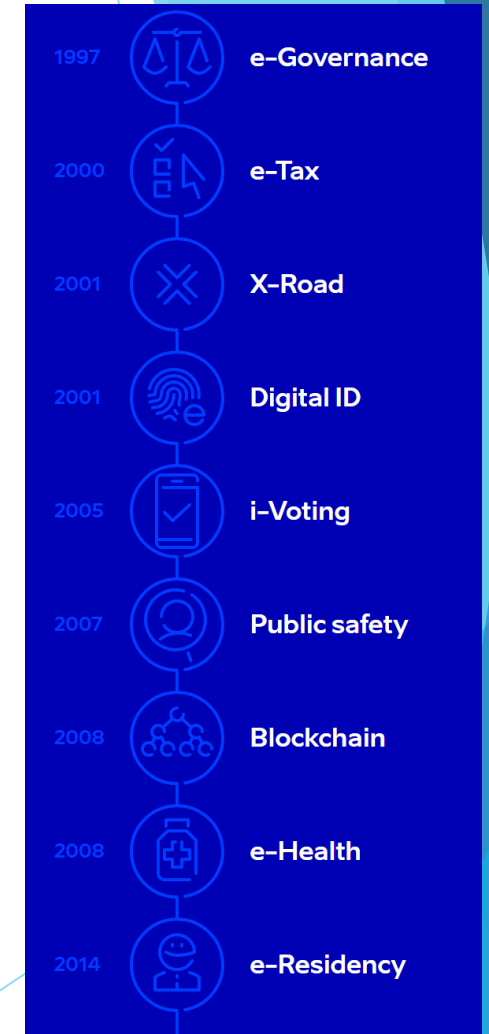


Cryptocurrencies: 2092 • Markets: 15610 • Market Cap: \$207,242,152,491 • 24h Vol: \$11,929,883,911 • BTC Dominance: 53.4%

Blockchain Mega Cases

- To provide Digital Identity

22 Companies Leveraging Blockchain for Identity Management and Authentication



<https://gomedici.com/22-companies-leveraging-blockchain-for-identity-management-and-authentication/>

Blockchain Mega Cases

- **Trusted Programmability**



Flight Delay Insurance

First decentralized insurance. Payouts are automatic and almost instant. Now fully licensed.



Demo video

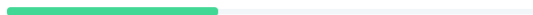
Licensed



Hurricane Protection

Designed for low-income individuals and small business owners. Instant payouts are triggered by wind speed registered by weather-stations within 30 mile radius from insured's permanent location.

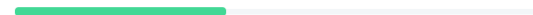
Designed



Crypto Wallet Insurance

Protection against risk of theft and attacks of hackers on wallet smart contracts. Target coverage - up to \$1M.

Designed



<https://etherisc.com/#products>

Blockchain Mega Cases

- Tokenization of assets



The Complete Blockchain Toolkit for Business

OST KIT gives you all the tools you need to run your blockchain-powered economy on scalable OpenST utility blockchains. Launch your own Branded Token without an ICO.

[ACCESS OST KIT \$\alpha\$](#)

[LOGIN TO OST KIT \$\alpha\$](#)



Launch your own Branded Tokens to turn your business into a dynamic ecosystem.

OST KIT is an opportunity to get in on the ground floor and help create a toolkit that meets the real needs of real businesses. Watch how more than 60 Proofs of Concept are building on top of OST today.

Blockchain Mega Cases

Category	Emerging themes	Example
1 Ledger	Asset Register	Honduran Land Register
	Provenance	Everledger, Provenance.org
2 Cryptocurrency	Financial Transactions	Bitcoin, BTL, Cashaa
	Value transfer	ICO's/TGE's
3 Identity	Identity Management	Estonia eRegister, Cygnetise
	Public Services	UK Benefits
4 Programmability	Smart Contracts	TheDAO, Etherisc
	Voting System	Follow My Vote
	Decentralized Markets	Open Bazaar, slock.it
5 Tokenization	Loyalty points	Simple Token
	Assets	LAToken, BITProperty

Current State - Consortia

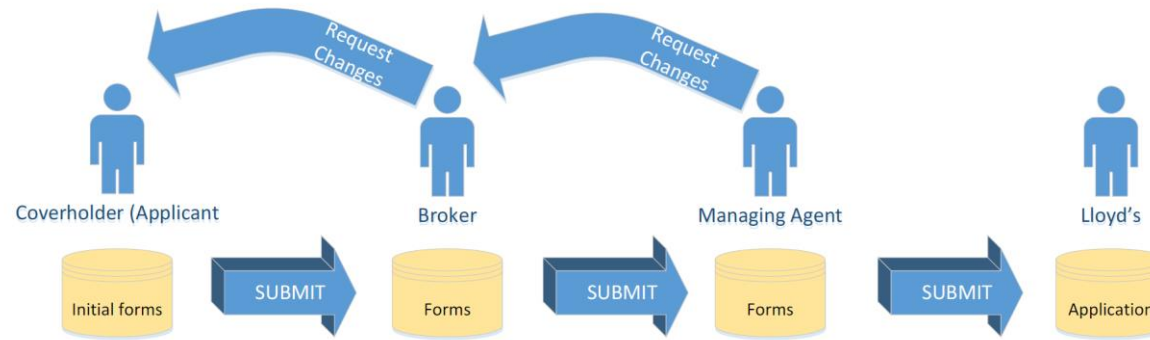
Type	Domain	Consortia
Industry	Insurance	B3i*, RiskBlock Alliance, R3/Acord
	Financial Services	R3, DAH, FundChain, Shenzen (Sino Safe Insurance)
	Construction	Construction Blockchain Consortia
	Healthcare	HashedHealth, BlockRx
Technical	Cross-industry	Hyperledger, Ethereum, MultiChain
Process	Supply Chain	WeTrust, Sweetbridge, Dutch Logistics
Standards	ISO	ISO TC307, ISITC
As a Service	Cross-industry	IBM/Fabric, Microsoft/Azure/Coco, Pwc/Vulcan, Deloitte/Rubix

Agenda

- Introductions
- Blockchain(s)
- Use Cases
- **Insurance Opportunities**

Blockchain Use Cases – INSURANCE

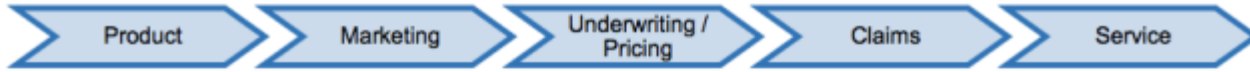
As-Is



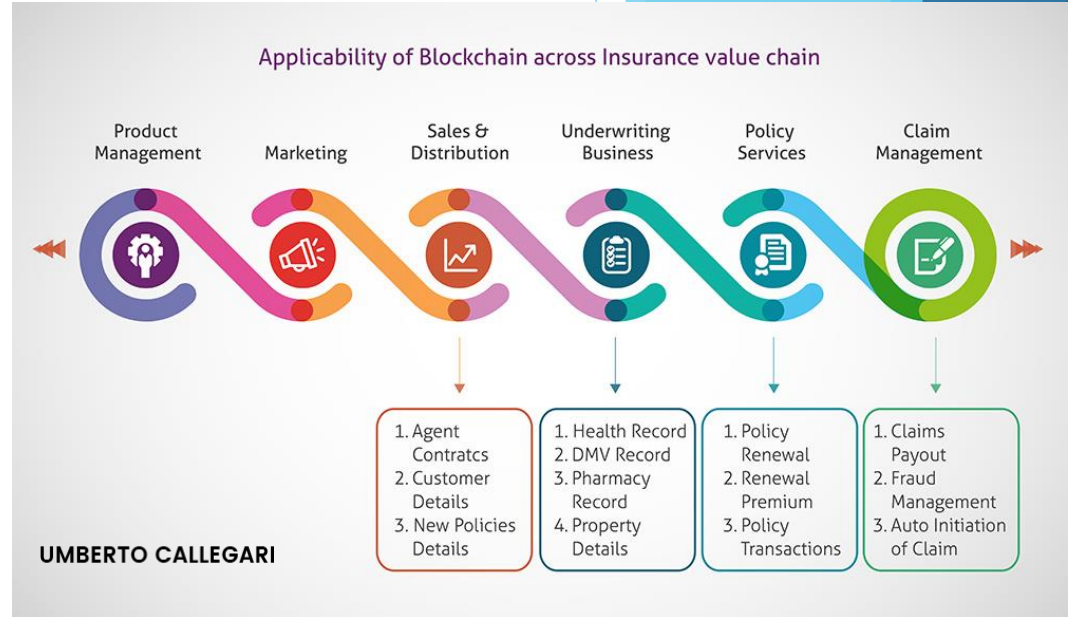
To-Be



Blockchain Use Cases – INSURANCE



<p>Insurance products and services are becoming increasingly personalized and usage based</p> <p>Recent Example Metromile's insurance of ride-sharing drivers (327k+ active Uber drivers in 2015)</p>	<p>Advancements in digital engagement (mobile, social) capabilities are driving increased conversion rates via better targeting</p> <p>Recent Example 60% of consumers get auto insurance quotes online, 40% via mobile</p>	<p>New data and enhanced analytics enable insurers to better understand risk and to significantly improve pricing accuracy</p> <p>Recent Example Cellphones, social media, and connected cars provide new data sources for insurers</p>	<p>The claims adjustment process becomes increasingly digital; tech such as sensors, play an enhanced role in the adjustment process</p> <p>Recent Example Four carriers have applied for FAA approval to test drones for commercial use</p>	<p>Higher portion of service interactions are completed digitally via online, mobile, and social platforms, frequently utilizing Chatbots</p> <p>Recent Example Leading insurance providers now see over half of their service interactions completed digitally</p>
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IMPACT FOR INSURANCE INDUSTRY

7 In Insurance, blockchain have potential for impact across the entire value chain

[NOT EXHAUSTIVE]

	Product development and distribution	Pricing/underwriting	Payment & collections	Claims	Policy administration and back offices	Risk capital & investment management
Potential	●	●	●	●	●	●
Potential use cases	• Offer P2P insurance via blockchain for customer to customer promotion and sales, and automated ops with smart contracts	• Use blockchain as a reliable registry for on-demand / usage-based insurance or micro-insurances	• Using blockchain as payment infrastructure (especially across multiple countries)	• Leverage blockchain for information about insured goods and events in order to fight fraud	• Use blockchain for onboarding of new customers or verification of policy-holder identity	• Make data available for re-insurers or other parties in a controlled way
Potential use cases with smart contracts	• Reduce cost related to commission and sales and operations	• Use blockchain for P2P insurance underwriting, include external data, smart contracts and peers (humans) to determine tariff	• Automate payments through smart contracts evaluating conditions for paying out claims	• Automate claims triggering and handling with smart contracts, and e.g., with sensors (IoT)	• Use smart contracts to automatically determine payouts – e.g. triggering process of catastrophe swaps and bonds	
Key benefits	• Increase trust of customers due to open, distributed system	• Reduce cost of operations	• Reduce cost and increase speed for payments	• Reduce average claims cost related to – Claims administration – Damage from fraud and fraud detection	• Reduced admin cost and speed-up process for onboarding	• Automate and increase reliability, audibility and speed for financial instruments transactions based on defined events
Examples ¹	RISKebiz, DYNAMIS	Auto System, DYNAMIS	COINBASE, EVERLEDGER, EDGELOGIC	EVERLEDGER, EDGELOGIC	DNENAME, ShoCard, Tradie, Per	STAN, Allianz Risk Transfer

¹ Not all insurance-specific

POTENTIAL USES FOR BLOCKCHAIN IN INSURANCE

- ◆ CONTACT LIFECYCLE DOCUMENTATION
 - ◆ CLAIMS MANAGEMENT
 - ◆ PROOF OF INSURANCE
 - ◆ MULTINATIONAL ENTITY POLICIES
 - ◆ KNOW YOUR CUSTOMER/ ANTI-MONEY LAUNDERING
 - ◆ INTER-FIRM ACCOUNTING
 - ◆ EXCESS OF LOSS REINSURANCE
- Source: Z/Yen/PwC 2016

Current State: Use Cases - INSURANCE

Category	Line of Business	Example
Policy Admin + Operations	End to End Insurance	Blocksure* (due disclosure), Chain-B, Zhong An (Non-Life P&C)
Operations	Accounting & Settlement	ChainThat, R3, Surematics, Consensys/I-Chassis
Marketplace	P2p + matching Insurance	Fidentiax, Wekeep, TeamBrella, LenderBot, Nexus Mutual, Akinova, Ixledger (GenRe), Shanghai Insurance Exchange
Alternate risk	Prediction Market	Gnosis, Augur
IoT	Trade Finance	EY/Maersk/IBM (MS-Amlin, XL-Catlin, Willis), Bancassurance (AIA), AIGang
Smart Contract	Flight Delay	InsurEth, Etherisc/Atlas Insurance (Malta), Fizzy (Axa)
	Crop Protection	Achmea, AoN/Etherisc/Oxfam
Reinsurance	Retrocession	B3i (Property Cat XOL), XLRAS
Parametric	Cat Bond, Weather	Allianz, Rainvow
Captive	Prof Indemnity & property	Allianz
General	Motor	Travel Ezee (Allianz)
	Unemployment	DynamisApp
	Marine	Microsoft/R3/Maersk Insurwave
	P&C	Riskblock Alliance
	Life	LIMRA/BAC
	Surety Bond	Zurich/Accenture
	Industry Loss Warranty	Cognizant/Cordalnsur

Live Insurance Platforms – Press Releases 2018

Insurance firm + [technology provider]	Product	Date & Link
A.P. Moller - Maersk, ACORD, MS Amlin, Willis Towers Watson and XL Catlin. [EY/Microsoft]	Marine Hull	25 May 2018 - http://www2.laufer.com/first-marine-insurance-blockchain-platform-live.html
Covea Insurance and Commercial & General [Blocksure/Corda]	GI + some Life & Health	31 July 2018 - https://coverager.com/blocksure-goes-live-with-covea-insurance-and-commercial-and-general/
Zurich Insurance [Accenture]	Surety Bond (Benelux)	16 Oct 2018 - https://newsroom.accenture.com/news/accenture-and-zurich-benelux-apply-blockchain-technology-to-help-streamline-customer-experience-and-improve-transparency.htm
Aon [Etherisc/Ethereum]	Crop Protection	29 Oct 2018 - http://aon.mediaroom.com/news-releases?item=137772
Huatai P&C Insurance [Qingsongchou]	Critical Illness	31 Oct 2018 - https://www.prnewswire.com/news-releases/qingsongchou-launched-the-first-full-industrial-chain-blockchain-insurance-in-cooperation-with-a-renowned-insurance-company-300741336.html
Marsh [Evident]	Gig Proof of Insurance	31 Oct 2018 - https://www.insurancebusinessmag.com/us/people/marsh-were-in-the-beginning-stages-of-a-massive-blockchain-revolution-115101.aspx

Current State: Use Cases - INSURANCE



Realtime Policy Bordereau

As of 10:32:48 AM

Policy ID	Issue Date	Policy Holder	Broker
23d28e05-7e46-4fJul 12, 2018 1:40 PM	Q 0x2525fbc7def0f3	TestBroker	
a64ee749-bc84-4cJul 12, 2018 1:20 PM	Q 0x2525fbc7def0f3	TestBroker	
d2e25a30-467e-4tJul 12, 2018 10:51 A...	Q 0xa63466c48e2b4	TestBroker	
1b27b7d9-280c-41Jul 11, 2018 1:50 PM	Q 0xa63466c48e2b4	TestBroker	
3c717ac4-9861-4dJul 10, 2018 12:25 PM	Q 0x8668fd891b4f	TestBroker	
beefb7b5-504f-4eJul 6, 2018 11:52 AM	Q 0xa63466c48e2b4	TestBroker	
0ab3f56e-886f-40Jul 4, 2018 12:50 PM	Q 0x0a4d35f59c555	TestBroker	
efdbeba0-83b2-47Jul 4, 2018 9:41 AM	Q 0xc7c236ab9a7fd	TestBroker	
46d273d3-4b64-4Jul 4, 2018 9:40 AM	Q 0x60f7c4c52c9a9c	TestBroker	
44c852c6-523e-46Jul 3, 2018 9:37 AM	Q 0x60f7c4c52c9a9c	TestBroker	
c220b64b-c8f7-48Jul 3, 2018 9:36 AM	Q 0x60f7c4c52c9a9c	TestBroker	
27e6b4ec-342e-46Jul 3, 2018 9:31 AM	Q 0x60f7c4c52c9a9c	TestBroker	
ea1c860c-d559-43Jul 3, 2018 9:29 AM	Q 0xb4a5549f59203	TestBroker	
01e74ada-ed41-4fJun 28, 2018 12:23 ...	Q 0x34d1ec615ba88	TestBroker	
dd3e97a3-7572-4cJun 28, 2018 11:36 ...	Q 0x34d1ec615ba88	TestBroker	
eb744837-f924-4bJun 28, 2018 11:31 ...	Q 0xbc9fe90ecef6d	TestBroker	
316713dc-b97c-44Jun 28, 2018 11:30 ...	Q 0xf34e5f5ff423d2	TestBroker	

Blocksure OS Goes Live with Covéa Insurance and Commercial and General

Blocksure launches a new blockchain platform for the insurance industry. The first product is underwritten by insurance group Covéa Insurance and in partnership with broker Commercial and General.

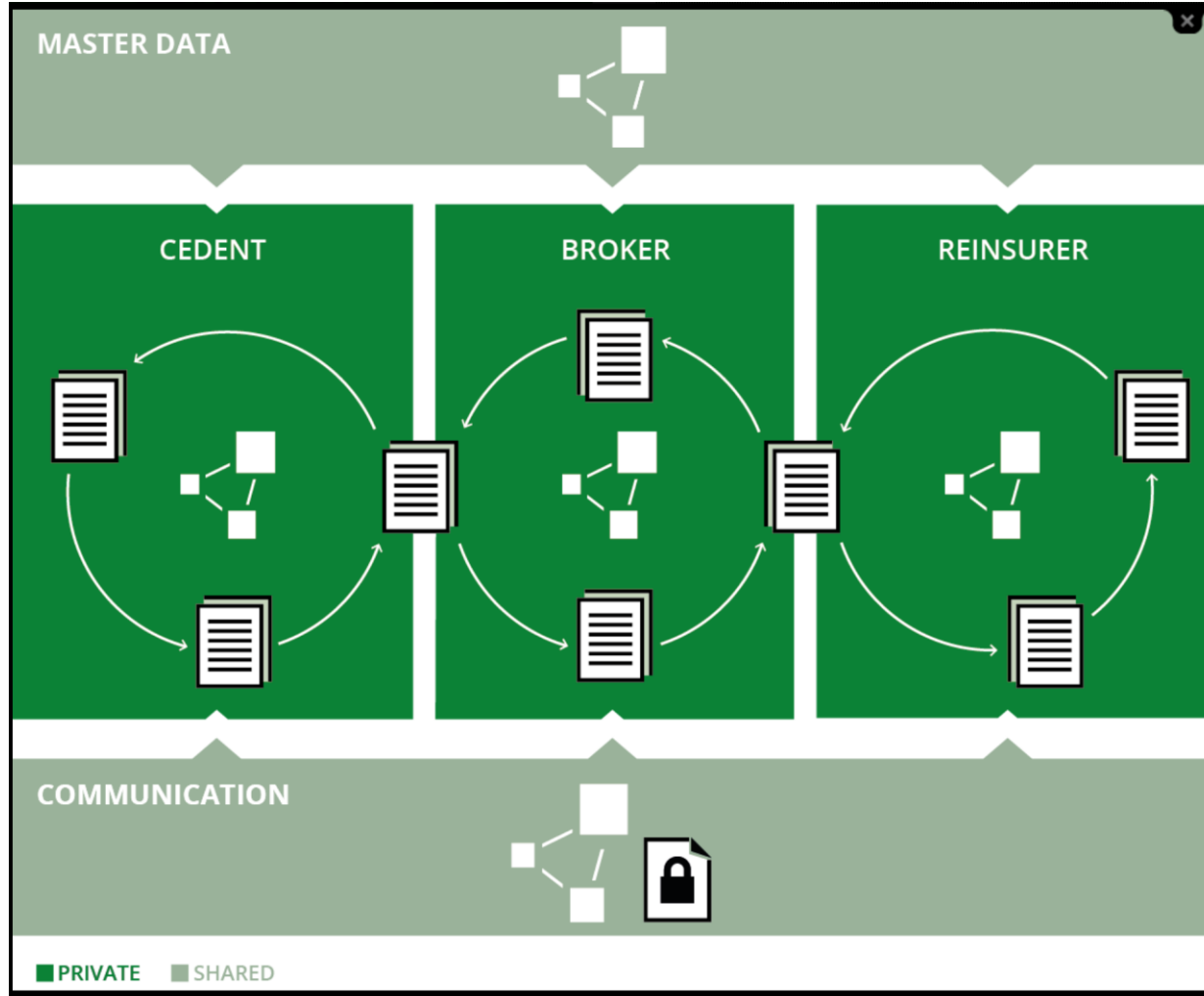
Blocksure OS is the first British blockchain platform for mainstream insurance to go live with an insurer and broker.

The platform has been through rigorous UAT testing to ensure functional and commercial viability and the first product is being launched officially on 30th July 2018.

The platform will be applicable to all lines of business in general insurance and some life and health segments.

It will be available in some overseas markets late in Q4 2018.

Current State: Use Cases - INSURANCE



Completed testing of this prototype in October 2017 through a collaborative market wide network of 38 insurers, brokers, and reinsurers.

The product will continue to be developed during 2018 with the first live trades on the platform anticipated by the end of the year.

Looking further forward, we will gradually expand applications across the industry value chain. New projects in the future will focus on reinsurance and commercial (B2B) propositions.

<https://b3i.tech/our-product.html>

Insurance Opportunities

Insurance and virtual money



It is only recently that virtual money or cryptocurrencies have emerged in the financial landscape. Are these new monetary values covered by standard home insurance policies?

[National Bank Insurance Auto / Home](#)
27 April 2017

BITCOIN SERVICES FEBRUARY 19, 2018 10:51

Cryptocurrency Insurance: More Companies Join The Bandwagon



Crypto-Currencies will open new horizons in the world of insurance.

We see mutual-help systems functioning on a variety of scales and levels, whether it be through insurance, mutual aid organizations, or through like-minded individuals pooling and purchasing items together. In utilizing cryptocurrency and Blockchain technology, we believe can make the process of mutual aid much more efficient and simple. By utilizing these technologies, we believe that the insurance world will expand as a whole.

SPONSORED

Introducing BITRUST: The
Cryptocurrency Insurance

QUEST AUTHOR | MARCH 8, 2018 | 11:38 AM

GIFCOIN
ICO Just Started
Get **60% Bonus**
Buy Tokens NOW

INSURANCE COMPANIES SEE BIG OPPORTUNITY IN UNREGULATED CRYPTOCURRENCY MARKET

What needs insuring ?

- Wallet insurance (loss & theft)
- Key Management
- Professional Indemnity/D&O Cover
- Exchange protection
- Counterparty (Trade) Risk
- Mutualisation/p2p
- Custodial Services
- Ransomware/Cyber

Any questions ?

Gary Nuttall

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Twitter: @GPN01

LinkedIn: uk.linkedin.com/in/garynutall

Web: www.Distlytics.com



Distlytics provides education, training, consultancy and advisory services.

Technology domains include blockchain/DLT, Artificial Intelligence, Big Data and Analytics.

Industry expertise includes Insurance, Life & Pensions, Legal, Healthcare, Distribution and much more.

Specific services are dependent upon client needs and existing methodologies. Previous engagements have included:

- Initial team training
- Value chain analysis
- Feasibility study
- Options analysis
- Requirements elicitation
- Workshop planning & execution
- Project filtering & shortlisting
- Vendor selection
- Project Management
- Board papers
- Post-project review & recommendation

If you need help, advice, training or guidance around Blockchain/DLT, then contact gnuttall@distlytics.com to see how we can help.