

An Introduction to Blockchain and Cryptocurrency and the impact on Insurance

Insurance Institute of Sussex
8th February 2024

***** Session is being recorded *****
***** Please ask questions using the Chat facility *****

Gary Nuttall

Distlytics 
Distributed Ledger Analytics
Consultancy & Insight

Agenda

- Introductions
- Blockchain(s)
- Cryptoassets
- Insurance
- Wrapup / Q&A

Agenda

- **Introductions**
- Blockchain(s)
- Cryptoassets
- Insurance
- Wrapup / Q&A

Introduction – Session

Learning objectives

By the end of this event, delegates will:

- Understand what a Distributed Ledger is
- Be aware of examples of how blockchain is being used across a range of industries
- Know how blockchain is being used in Insurance
- Be aware of the main insurable risks
- Understand what cryptoassets, cryptotokens and cryptocurrencies are

Out of scope

- Coding
- Trading

Introduction – Session

Intended audience

1. Assumption is that you have little or no prior knowledge
2. That your interest is from an insurance / finance perspective and not about the technology behind cryptocurrencies
3. That you are not part of a criminal enterprise looking to use crypto to money launder or fund criminal activities

Introduction – Session

Intended audience

<https://www.cnbc.com/2021/06/07/us-recovers-some-of-the-money-paid-in-the-colonial-pipeline-ransom-officials-say.html>



POLITICS

U.S. recovers \$2.3 million in bitcoin paid in the Colonial Pipeline ransom

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Amanda Macias
@AMANDA_M_MACIAS



Christina Wilkie
@CHRISTINAWILKIE

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KEY POINTS

- U.S. law enforcement officials said they were able to recover \$2.3 million in bitcoin paid in the Colonial Pipeline ransom.
- Ransomware attacks involve malware that encrypts files on a device or network that results in the system becoming inoperable. Criminals behind these types of cyberattacks typically demand a ransom in exchange for the release of data.



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<https://www.cnbc.com/2021/06/07/us-recovers-some-of-the-money-paid-in-the-colonial-pipeline-ransom-officials-say.html>

Introduction – Session

PLEASE READ THE SMALLPRINT

- This presentation reflects my personal views and not those of past, current and prospective employers, clients or other agents.
- Any mention of products or services is not an endorsement, recommendation or criticism
- **This is not intended to be taken as financial, taxation or legal advice**

★ = Insurance

Introduction: Me (#GPN01)

UNIVERSAL
UNIVERSAL PUBLISHING
PRODUCTION MUSIC

IOP
Institute of Physics

LLOYD'S

Lloyds Lab

TOKEN360
Visibility

Allied Bank
Human Resource Group

bolt:tech

cryptoBasecamp

The Guardian
UK edition

LET'S LEARN
DIGITAL

phd

Adam Smith
CONFERENCES

TOM
London Market Target Operating

ORIGO

UNIC | Blockchain
Programs

Freeformers

virtusa

Blocksure

TOKIOMARINE
HCC

CHINA LIFE

BARCLAYS

frontiers

AMG World
Accelerated Performance

CLYDE
CODE

MESEJ

TECHNOVA

COVE
Cove Identity

ETHERISC

marcusevans

PRICE FORBES

EQUITBL

pwc

Udemey

LANCOR
SCIENTIFIC
FIND CANCER EARLY

GLC

vedanvi

ROCKET
LAUNCH
Blockchain School

TEAM
BLOCKCHAIN

MACDOUGALL'S
FINE ART AUCTIONS

INNOVATION
& EXCELLENCE
AWARDS 2019
WINNER

TerraBiz
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CASS
BUSINESS SCHOOL
CITY UNIVERSITY OF LONDON
EST 1894

UK
FINANCE

Simple Token
THE TOKEN TO POWER YOUR BUSINESS

lokblok

hokan

NobleProg

meetup

Startupbootcamp
InsurTech

tech

appg

LOCKCHAIN

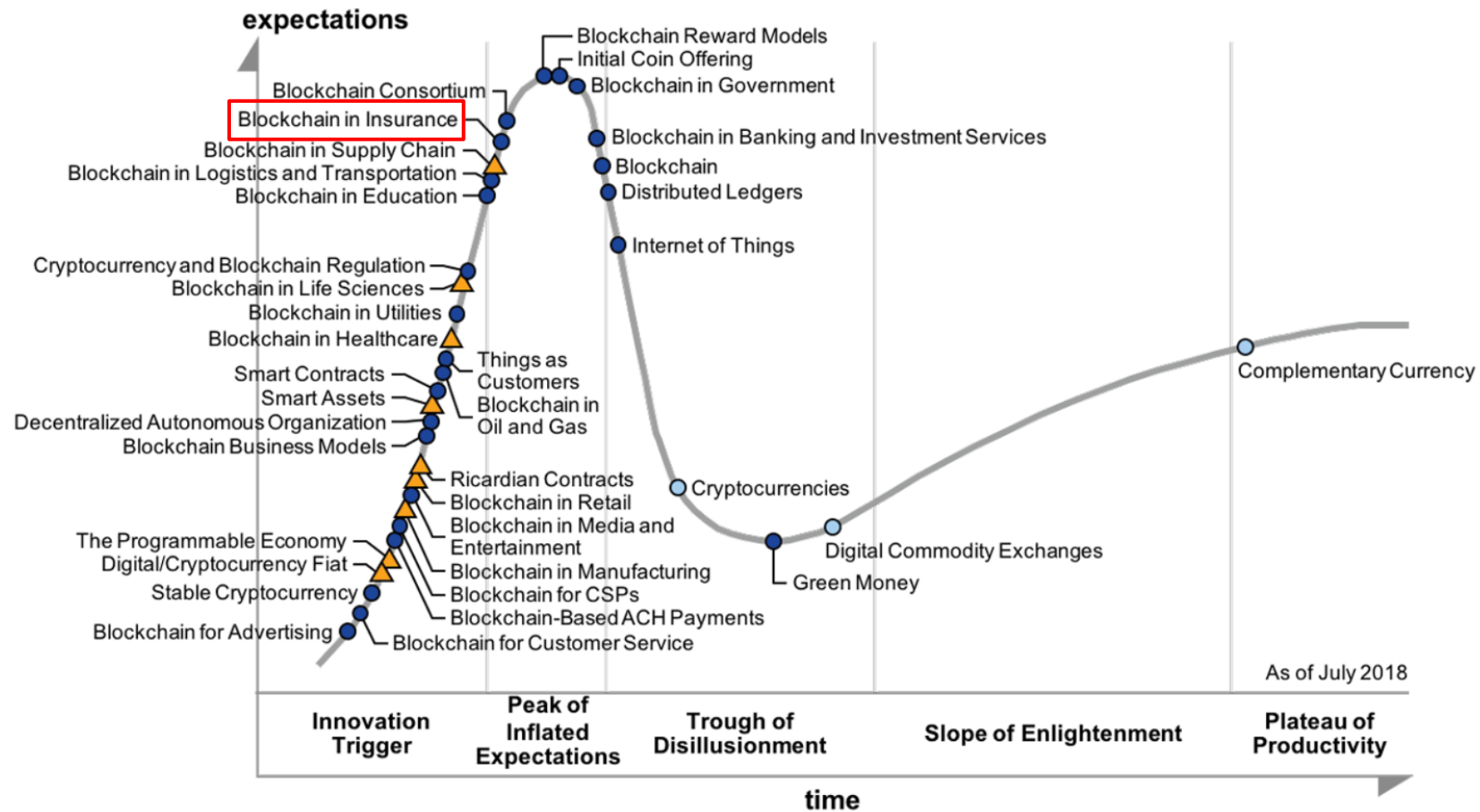
THE CHARTERED
INSURANCE
INSTITUTE

Personal
Finance
Society
Standards. Professionalism. Trust.

LT FE
LONDON
TRAINING FOR
EXCELLENCE

Introduction

Hype Cycle for Blockchain Business, 2018



Plateau will be reached in:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

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Agenda

- Introductions
- **Blockchain(s)**
- Cryptoassets
- Insurance
- Wrapup / Q&A

Blockchain & Distributed Ledger Technology

DEFINITION - What is “A Blockchain”

A software protocol, running on a network of computers, using an append only database that everyone has an agreed, secured, identical copy of

Blockchain & Distributed Ledger Technology

PROTOCOL



LEDGER



INTEGRITY

BLOCK 0					PREVIOUS HASH #
RECORD	DATE/TIME	FROM	TO	VALUE UNIT/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	
CALCULATED HASH #					00bf124aa001

↓

BLOCK 1					PREVIOUS HASH #
RECORD	DATE/TIME	FROM	TO	VALUE UNIT/MEASURE	
1	01/01/2018 10:23	GARY	JANE	100 GBP	00bf124aa001
2	04/01/2018 14:22	JOHN	PAUL	7 USD	
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4	05/01/2018 10:16	GARY	PAUL	9 BTC	
5	06/01/2018 18:18	PETER	CLARE	83 USD	
CALCULATED HASH #					00de123123

↓

BLOCK 2					PREVIOUS HASH #
RECORD	DATE/TIME	FROM	TO	VALUE UNIT/MEASURE	
1	01/01/2018 10:23	GARY	JANE	100 GBP	00de123123
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 #					00981aa1121

Blockchain & Distributed Ledger Technology



What is a protocol ?

Business, Socio/Cultural and Technical



Protocol is a set of rules describing how people and systems interact with each other

Blockchain & Distributed Ledger Technology



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

Protocol is coded within software - sets the rules
Software can be copied and modified (Forked) to create new blockchains
Each computer on the network runs the same copy of the software

Blockchain & Distributed Ledger Technology

LEDGER



A ledger is a record of activities

Two main types:

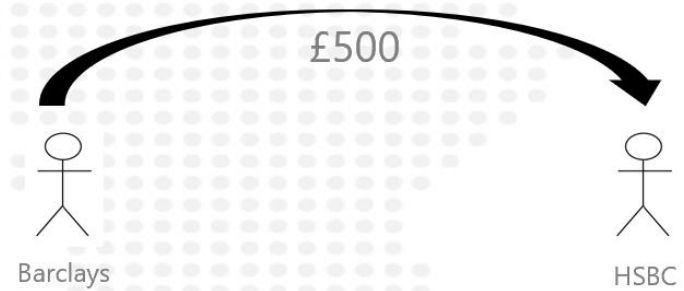
- Transaction ledger - who paid whom, what and when
- Account balances ledger - how much is allocated to an account

Blockchain & Distributed Ledger Technology

LEDGER



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

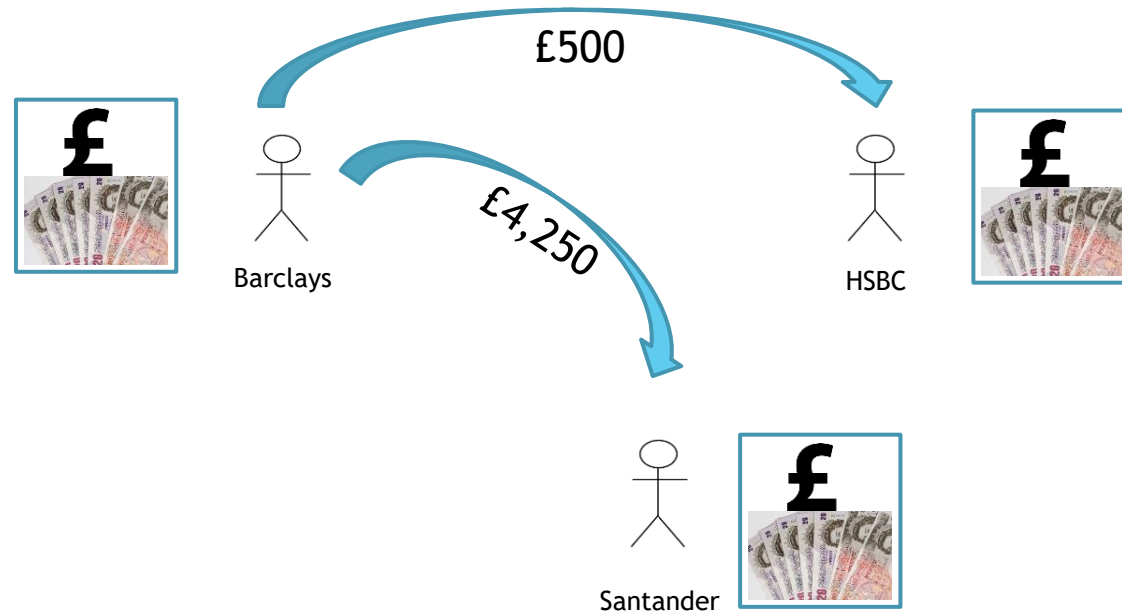


Blockchain & Distributed Ledger Technology

LEDGER



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 & Distributed Ledger Technology

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
	01/01/2016				
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 & Distributed Ledger Technology

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 & Distributed Ledger Technology

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

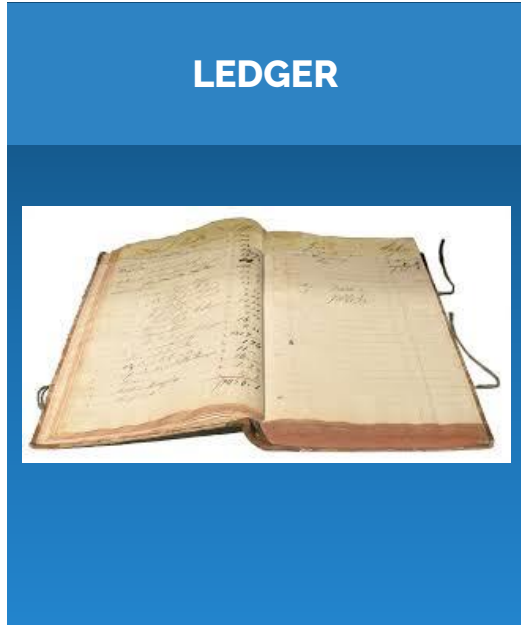
HSBC JOURNAL					
JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00
4	01/01/2016 13:35	HSBC	SANTANDER	GBP	105.00

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

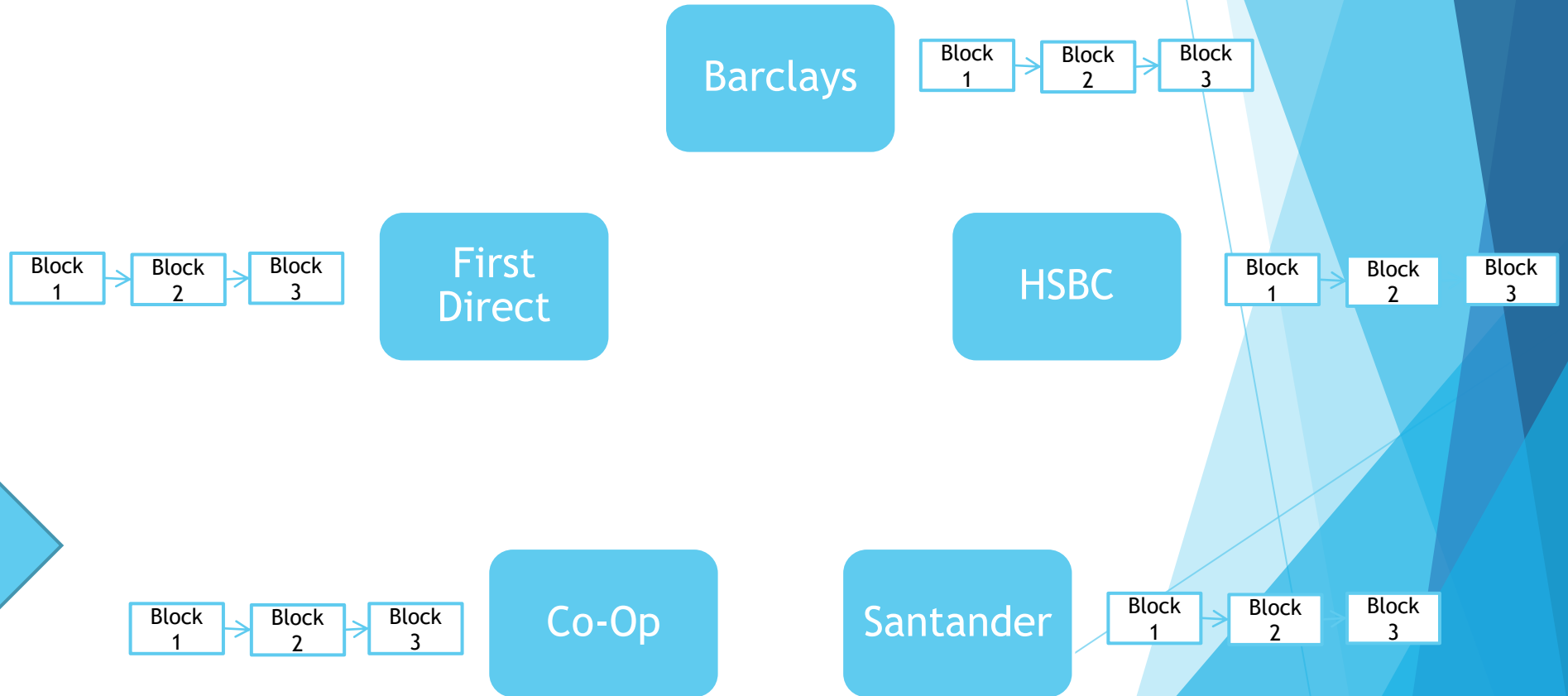
MUTUAL LEDGER

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

Blockchain & Distributed Ledger Technology



SOLUTION - Distribute an IDENTICAL copy to everyone



MUTUAL
DISTRIBUTED LEDGER

Blockchain & Distributed Ledger Technology

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.

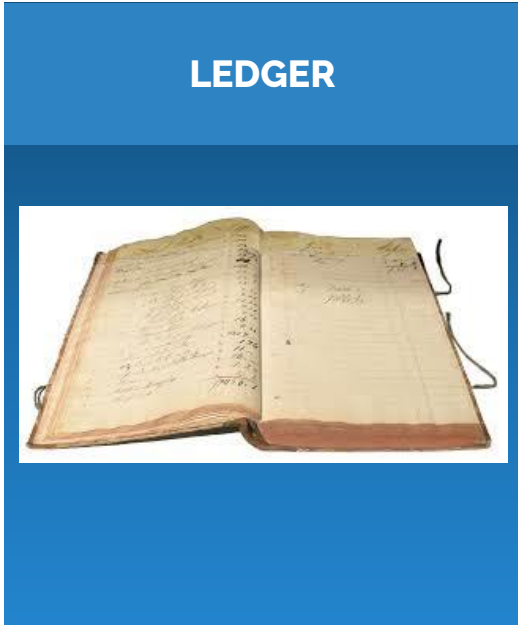
Cryptography - Wikipedia

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

See more about Cryptography 

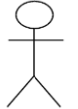
Blockchain & Distributed Ledger Technology

Put crypto-security onto the Ledger

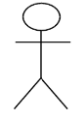
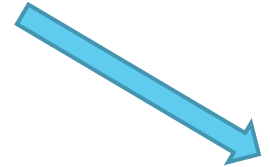


JOURNAL-ID	DATESTAMP	FROM	TO	CURRENCY	AMOUNT	HASH	BLOCK	BLOCK HASH	START BLOCK	START HASH
1	01/01/2016 08:35	BARCLAYS	HSBC	GBP	500.00	1111			0	110111
2	01/01/2016 09:45	BARCLAYS	SANTANDER	GBP	4,250.00	101				
3	01/01/2016 11:35	SANTANDER	BARCLAYS	GBP	2,215.00	100011				
4	01/01/2016 13:35	HSBC	SANTANDER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

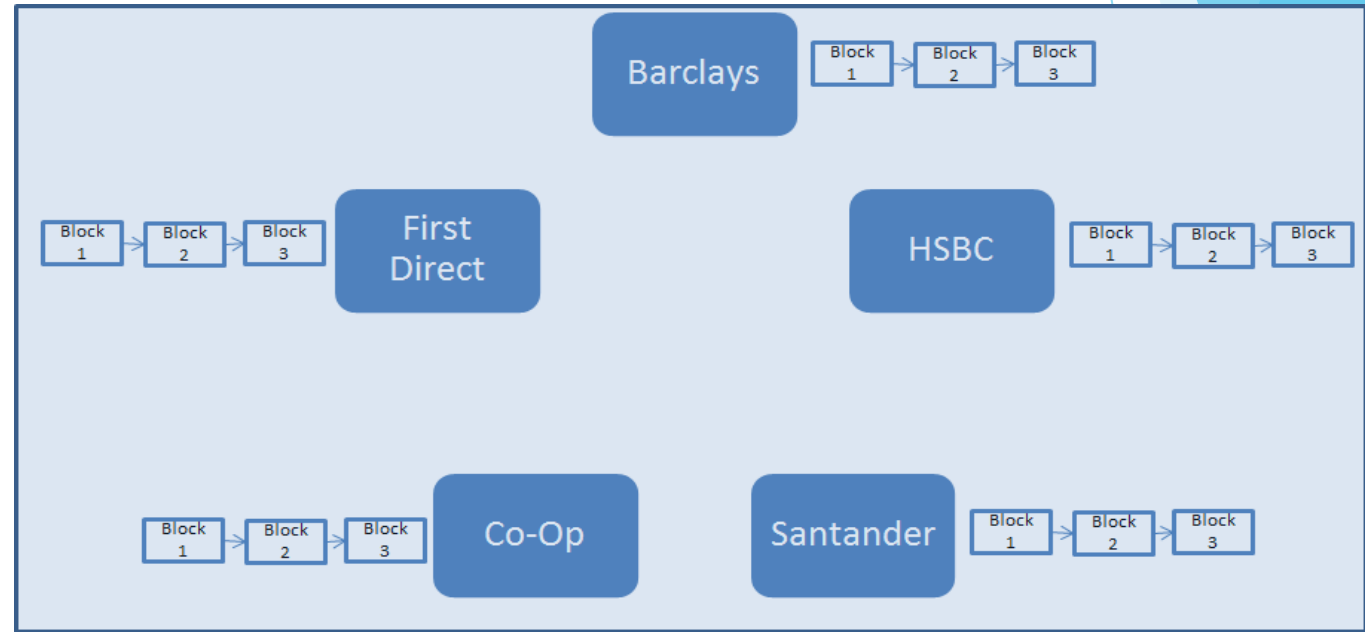
Blockchain & Distributed Ledger Technology

LEDGER



SOLUTION - Restrict access to specified users

Metro Bank



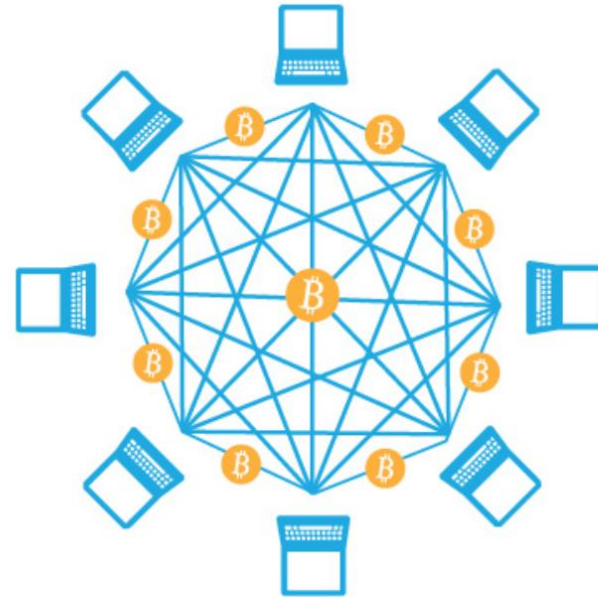
PRIVATE,
PERMISSIONED LEDGER

Blockchain & Distributed Ledger Technology

LEDGER



SOLUTION - Give everyone unrestricted access



PUBLIC,
UNPERMISSIONED
LEDGER

... 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

Blockchain & Distributed Ledger Technology

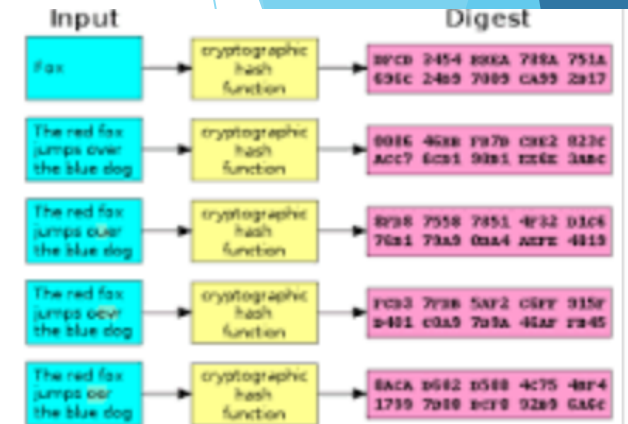
INTEGRITY

BLOCK 0						PREVIOUS HASH =
RECORD	DATETIME	FROM	TO	VALUE	UNIT/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	
						CALCULATED HASH = 00bf124aa001

BLOCK 1						PREVIOUS HASH = 00bf124aa001
RECORD	DATETIME	FROM	TO	VALUE	UNIT/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	
						CALCULATED HASH = 00de123123

BLOCK 2						PREVIOUS HASH = 00de123123
RECORD	DATETIME	FROM	TO	VALUE	UNIT/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	
						CALCULATED HASH = 009a1ee1121

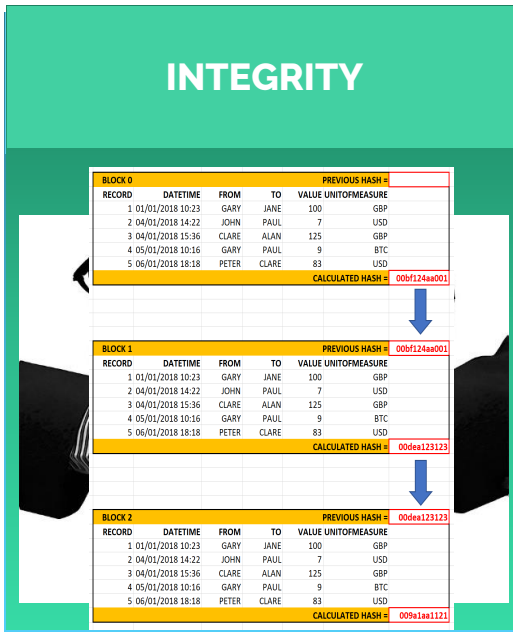
A **cryptographic hash** function is a **hash** function which takes an input (or 'message') and returns a fixed-size alphanumeric string. The string is called the '**hash** value', 'message digest', 'digital fingerprint', 'digest' or 'checksum'.



Cryptographic hash function - Simple English Wikipedia, the free ...
https://simple.wikipedia.org/wiki/Cryptographic_hash_function

Blockchain & Distributed Ledger Technology

INTEGRITY



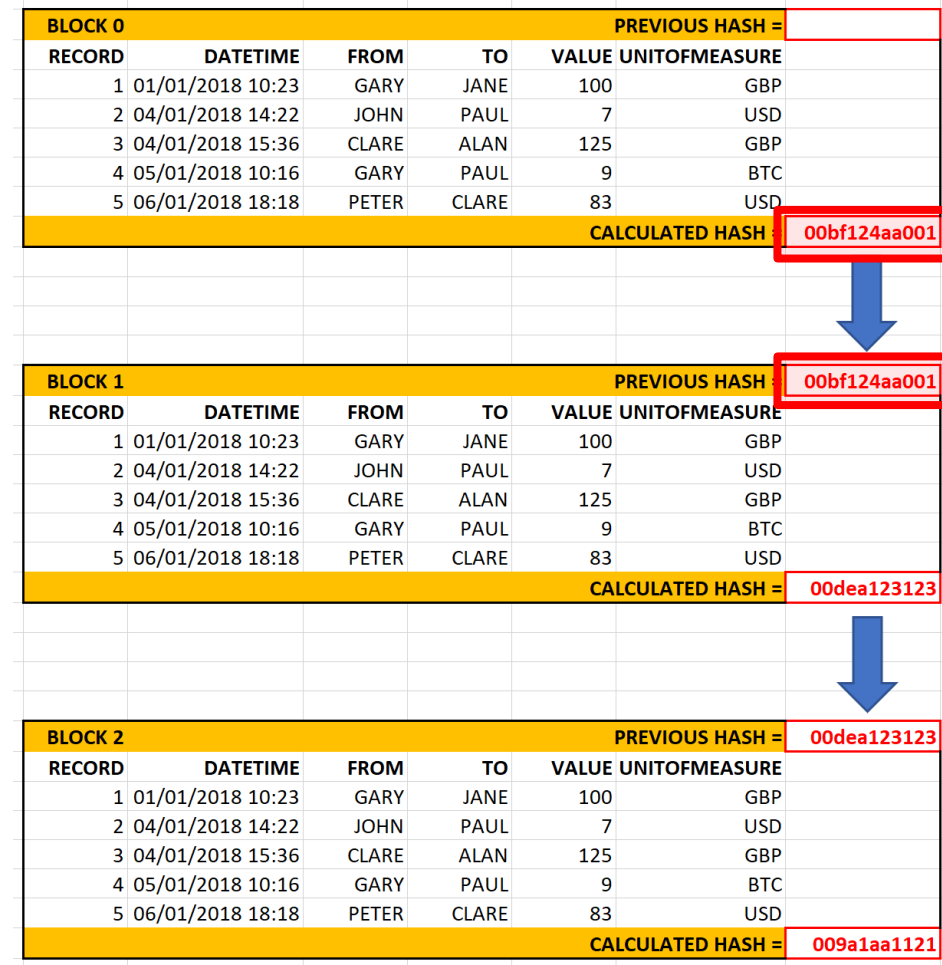
Imagine a physical ledger, with pages in it

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



Blockchain & Distributed Ledger Technology

INTEGRITY

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 = 00bf124aa001
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
1	01/01/2018 10:23	GARY	JANE	100	GBP	
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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 = 00dea123123
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 =						009a1aa1121

Miners compete to solve a cryptographic hash for the block (every 10 minutes)

A miner is awarded 6.25 BTC for winning the race to find the answer.

This is how a cryptocurrency is created

Every four years the reward is halved (BTC decreased to 6.25BTC in May 2020).

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

↓

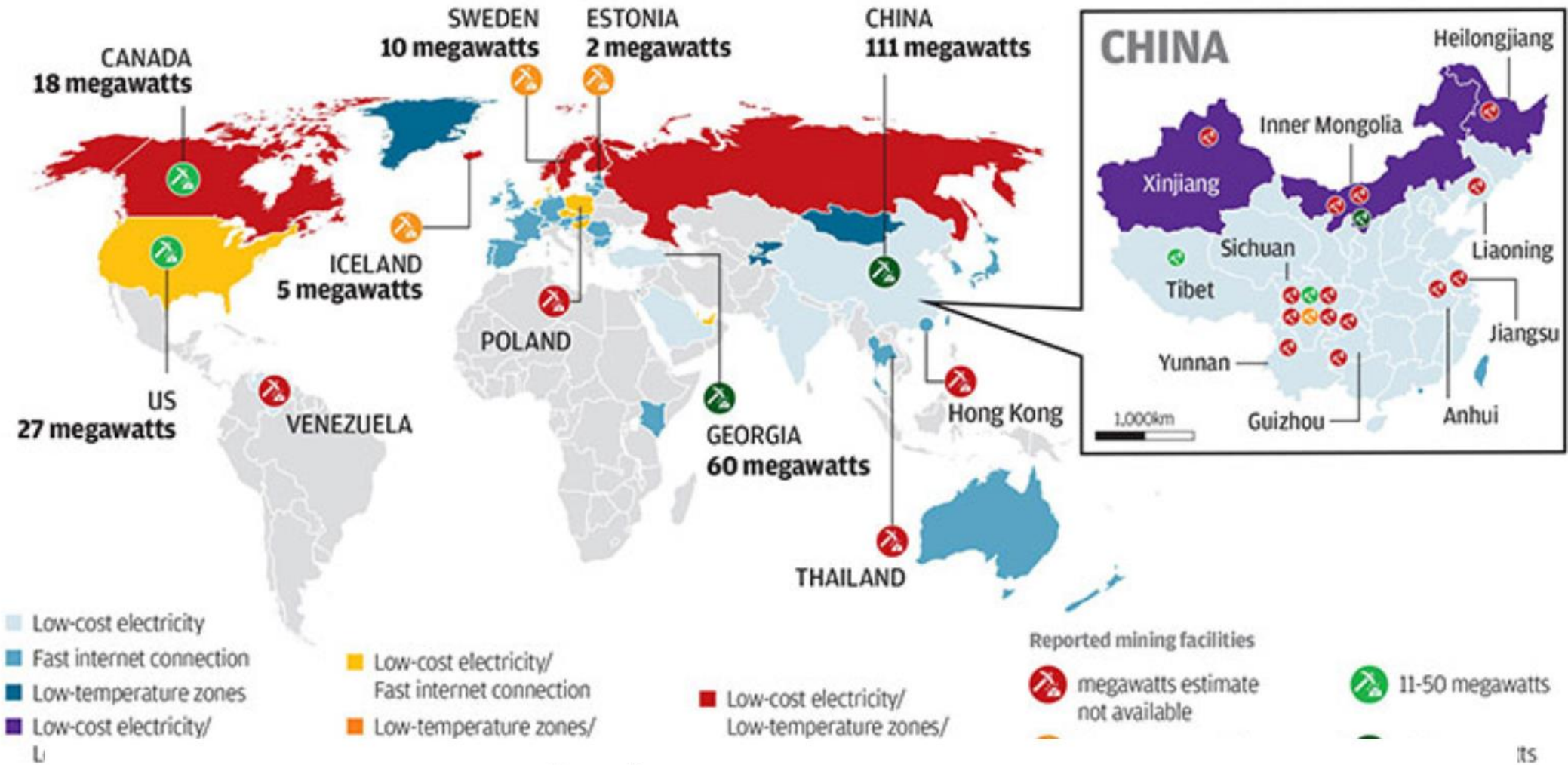
BLOCK 1						PREVIOUS HASH = 00bf124aa001
RECORD	DATETIME	FROM	TO	VALUE	UNITOFMEASURE	
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3	04/01/2018 15:36	CLARE	ALAN	125	GBP	
4	05/01/2018 10:16	GARY	PAUL	9	BTC	
5	06/01/2018 18:18	PETER	CLARE	83	USD	
CALCULATED HASH =						00dea123123

↓

BLOCK 2						PREVIOUS HASH = 00dea123123
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 =						009a1aa1121

Blockchain Primer: Blockchain

Global cryptocurrency mining sites

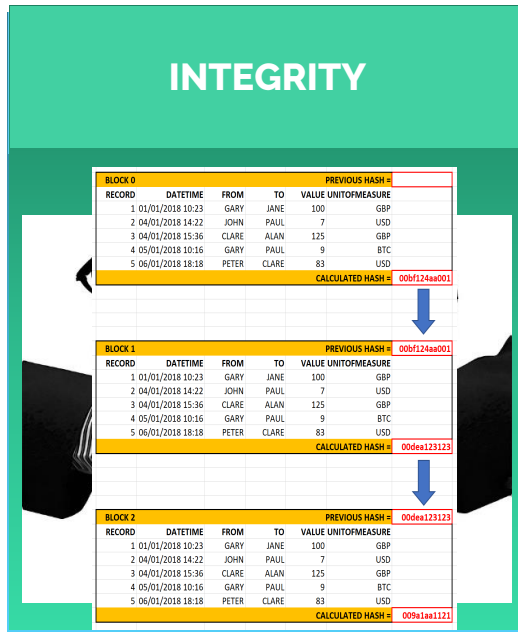


<https://bitcoinexchangeguide.com/list-of-the-biggest-bitcoin-cryptocurrency-mining-areas-in-the-world/>

Blockchain Primer: Blockchain



Blockchain & Distributed Ledger Technology



A Ledger can be a record of ownership:

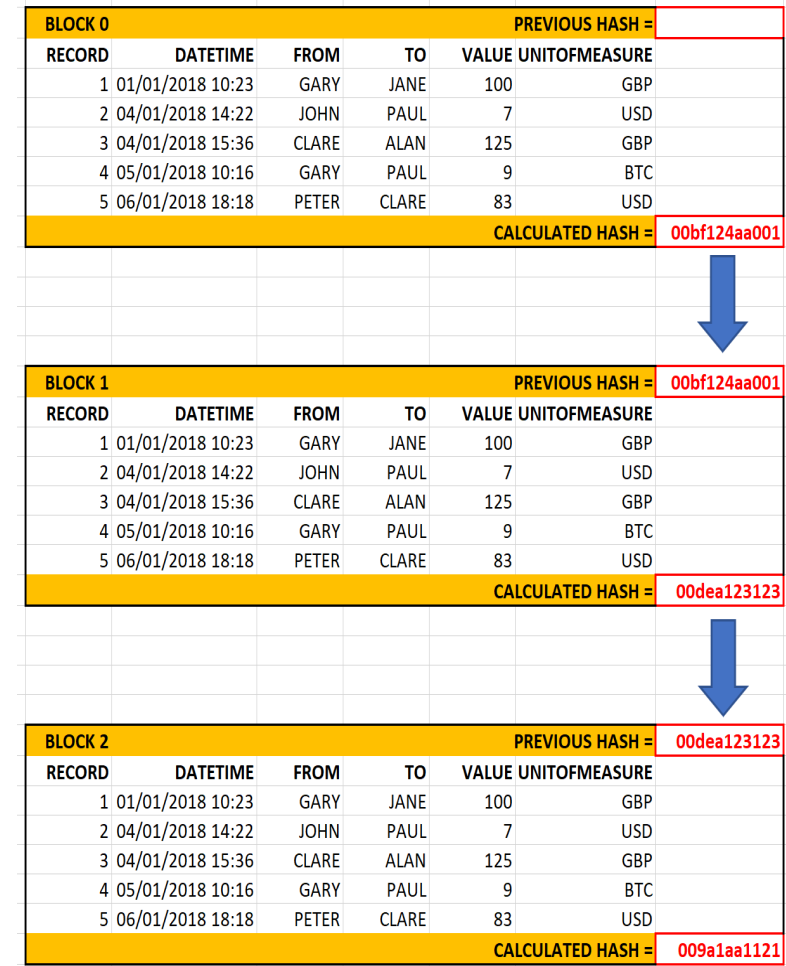
- Money
- Valuables (Gold, Silver, etc)
- Vehicle
- Property
- Land

Or link to documents:

- Certificate of marriage
- Bill of Lading
- Identity
- Certificate of Testing

Some blockchains can execute code:

- Smart Contracts



Blockchain & Distributed Ledger Technology

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 & Distributed Ledger Technology

Smart Contracts

```
contract GavCoin
{
  mapping(address=>uint) balances;
  uint constant totalCoins = 1000000000000;

  /// Endows creator of contract with 1m GAV.
  function GavCoin(){
    balances[msg.sender] = totalCoins;
  }

  /// Send $((valueInmGAV / 1000).fixed(0,3)) GAV from the account of
$(message.caller.address()), to an account accessible only by $(to.address()).
  function send(address to, uint256 valueInmGAV) {
    if (balances[msg.sender] >= valueInmGAV) {
      balances[to] += valueInmGAV;
      balances[msg.sender] -= valueInmGAV;
    }
  }

  /// getter function for the balance
  function balance(address who) constant returns (uint256 balanceInmGAV) {
    balanceInmGAV = balances[who];
  }
};
```

Regulatory considerations:

- Jurisdiction
- Legal recognition
- Remediation
- Testing
- Irrevocability (can't be reversed)
- Immutability (can't be deleted)
- No buffer

May not exactly replicate original contract

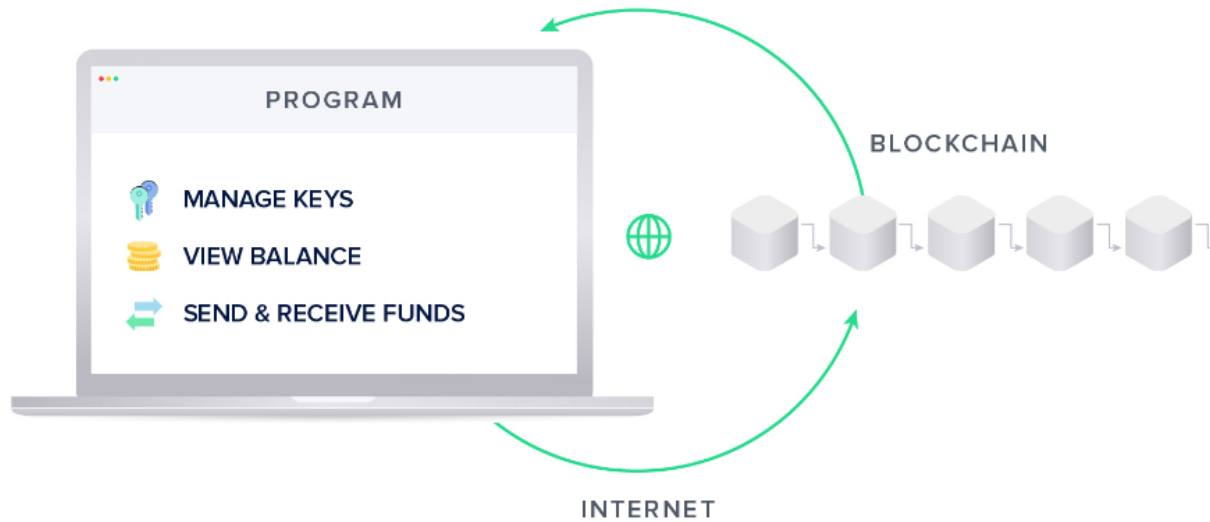
Not all contracts can be converted into programmable form

Codified market manipulation

Blockchain & Distributed Ledger Technology

Crypto Wallets

WHAT A WALLET DOES



Piece of software that helps you with interacting with Blockchain



Blockchain

So, back to the definition....

It's a software protocol (an agreed set of rules)

Running on a network of computers that have an incentive mechanism to avoid abuse

With an append-only database

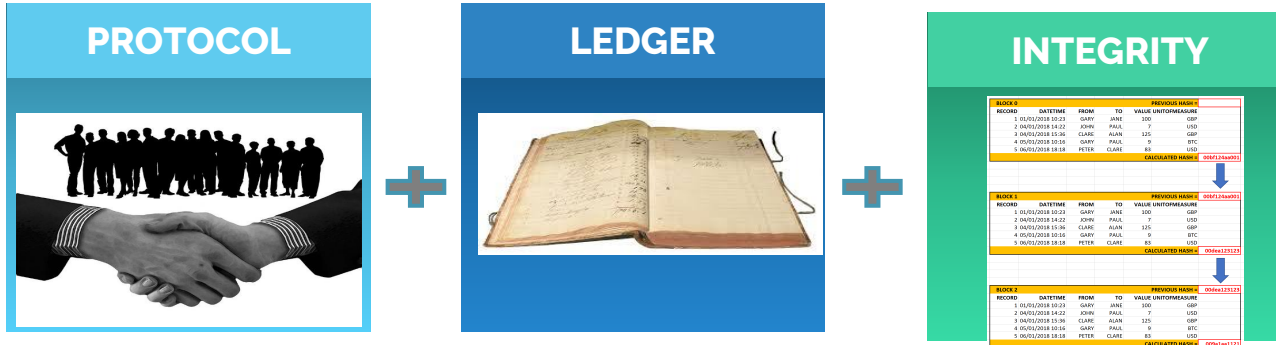
That everyone has an identical copy of

With all entries timestamped

The data is cryptographically secured

And it provides a trusted, programmable, system

Blockchain & Distributed Ledger Technology



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 (!)

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

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

Cryptos: 2.2M+ Exchanges: 709 Market Cap: \$1.63T ▼0.51% 24h Vol: \$44.72B ▲51.69% Dominance: BTC: 51.1% ETH: 16.9%










- As a Cryptocurrency platform

#	Name	Price	1h %	24h %	7d %	Market Cap ⓘ	Volume(24h) ⓘ	Circulating Supply ⓘ	Last 7 Days
1	 Bitcoin BTC	\$42,586.54	▼0.44%	▼0.47%	▼0.85%	\$835,514,326,478	\$18,824,321,151 442,191 BTC	19,619,212 BTC	
2	 Ethereum ETH	\$2,295.25	▼0.36%	▼0.14%	▼0.19%	\$275,850,885,414	\$7,788,377,750 3,394,212 ETH	120,183,226 ETH	
3	 Tether USDt USDT	\$0.9989	▲0.02%	▼0.07%	▼0.11%	\$96,125,384,858	\$31,175,367,671 31,204,431,166 USDT	96,231,343,353 USDT	
4	 BNB BNB	\$300.77	▼0.10%	▼1.66%	▼2.86%	\$44,979,521,202	\$861,850,878 2,864,862 BNB	149,546,249 BNB	
5	 Solana SOL	\$95.57	▼0.69%	▼1.23%	▼4.36%	\$41,686,713,068	\$1,707,258,341 17,872,892 SOL	436,209,423 SOL	
6	 XRP XRP	\$0.5074	▼0.97%	▼0.45%	▼5.03%	\$27,621,040,276	\$828,629,775 1,633,209,189 XRP	54,436,190,886 XRP	
7	 USDC USDC	\$1.00	▲0.01%	▼0.00%	▼0.00%	\$27,038,477,343	\$4,517,743,551 4,517,013,313 USDC	27,033,960,001 USDC	
8	 Cardano ADA	\$0.4933	▼0.47%	▼1.77%	▼4.51%	\$17,480,672,024	\$281,939,821 572,227,731 ADA	35,432,688,535 ADA	

Blockchain Mega Cases

- To provide Digital Identity



1997		e-Governance
2000		e-Tax
2001		X-Road
2001		Digital ID
2005		i-Voting
2007		Public safety
2008		Blockchain
2008		e-Health
2014		e-Residency

Blockchain Mega Cases

- **Trusted Programmability**



Flight Delay Insurance

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



Demo video

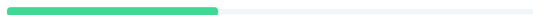
Licensed



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.

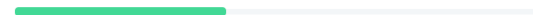
Designed



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




FLIPSIDE FRIDAY FACTS

MOST POPULAR TOP SHOT

This Cole Anthony Moment Has Been Sold **9x**

Most Moments Have Been Resold Just **1x**



GXIP

Welcome to the new way of protecting and monetizing your intellectual property.

The world's first NFT application for minting copyright registrations. Powered by Ethereum blockchain. Trade, collect, and collateralize your intellectual property rights.

<https://www.theverge.com/2021/3/11/22325054/beeple-christies-nft-sale-cost-everydays-69-million>

Agenda

- Introductions
- Blockchain(s)
- **Cryptoassets**
- Insurance
- Wrapup / Q&A

Cryptoassets

What gives money its “value” ?



Cryptoassets

The value of a cryptoasset is determined purely by open market pricing of the crypto or what it represents

DEFINITIONS

- Are fluid
- Are ambiguous
- Vary from jurisdiction to jurisdiction and different regulators have different definitions

Regulators tend to define Cryptocurrencies, Cryptotokens and Cryptoassets differently

CRYPTOCURRENCIES





















BITCOIN



<https://coinmarketcap.com/currencies/bitcoin/>

CRYPTOCURRENCIES

“The Rest” (aka “Altcoins”)

#	Name	Price	1h %	24h %	7d %	Market Cap ⓘ	Volume(24h) ⓘ	Circulating Supply ⓘ	Last 7 Days
☆ 1	 Bitcoin BTC	\$41,645.12	▲ 0.11%	▲ 0.17%	▼ 3.11%	\$816,428,630,295	\$9,810,405,719 235,551 BTC	19,604,425 BTC	
☆ 2	 Ethereum ETH	\$2,472.83	▲ 0.10%	▲ 0.54%	▼ 2.48%	\$297,177,378,730	\$4,654,651,523 1,881,322 ETH	120,176,936 ETH	
☆ 3	 Tether USDt USDT	\$0.9997	▼ 0.01%	▼ 0.08%	▼ 0.00%	\$94,901,041,088	\$22,952,675,747 22,964,851,445 USDT	94,929,347,997 USDT	
☆ 4	 BNB BNB	\$319.09	▲ 0.09%	▲ 1.43%	▲ 4.21%	\$47,719,312,940	\$706,168,478 2,213,841 BNB	149,548,690 BNB	
☆ 5	 Solana SOL	\$92.40	▲ 0.47%	▲ 1.10%	▼ 8.38%	\$40,012,382,657	\$958,186,476 10,355,813 SOL	433,029,001 SOL	
☆ 6	 XRP XRP	\$0.5517	▲ 0.27%	▲ 0.71%	▼ 4.96%	\$29,977,725,185	\$557,412,567 1,010,052,615 XRP	54,339,837,528 XRP	
☆ 7	 USDC USDC	\$1.00	▲ 0.00%	▼ 0.09%	▲ 0.02%	\$25,783,431,178	\$2,294,111,543 2,293,861,671 USDC	25,774,762,661 USDC	
☆ 8	 Cardano ADA	\$0.514	▲ 0.44%	▲ 1.02%	▼ 6.12%	\$18,199,750,477	\$246,234,439 479,127,788 ADA	35,404,640,175 ADA	
☆ 9	 Dogecoin DOGE	\$0.08676	▲ 0.82%	▲ 8.94%	▲ 5.78%	\$12,385,344,527	\$1,351,535,538 15,572,590,223 DOGE	142,745,886,384 DOGE	
☆ 10	 Avalanche AVAX	\$33.16	▲ 1.36%	▲ 2.35%	▼ 11.27%	\$12,162,299,944	\$327,561,386 9,859,021 AVAX	366,796,636 AVAX	

<https://coinmarketcap.com/charts/>

CRYPTOTOKENS

- “Programmable Money”
- Execute on top of a blockchain platform (e.g. Ethereum, NEO, EOS)
- Non-Fungible Tokens (NFT’s) – Digital ownership
- Used for fundraising projects (ICOs)

CRYPTOASSETS

- Digital shares
- Property Investments
- Gold / commodities / currencies
- Fractional ownership schemes

CURRENCIES, TOKENS & ASSETS

WHAT'S THE DIFFERENCE ?

- Cryptocurrency = Decentralised digital money
- Cryptotoken = Programmable digital money
- Cryptoasset = Digital share / title of fractional ownership

Often all traded on the same crypto exchange!

Cryptoassets

- Money
- Cryptocurrencies, assets and tokens
- **Regulation**
- Risks and Opportunities

REGULATION



Guidance on Cryptoassets

Feedback and Final Guidance to CP 19/3

Policy Statement

PS19/22

July 2019

FCA CP19 Interim guidance issued:

E-Money
Security Tokens
Utility tokens

Anti-Money Laundering (AML/CTF)
Know Your Customer (KYC)
Market Abuse Directive (MAR)

<https://www.fca.org.uk/publication/policy/ps19-22.pdf>

REGULATION




The Financial Services Register



Individual prohibitions

Fund search



Other registers

Data and downloads 

Registered Cryptoasset firms

From 10 January 2020, firms carrying out specific cryptoasset activities in the UK will need to comply with the amended Money Laundering, Terrorist Financing and Transfer of Funds (Information on the Payer) Regulations 2017 (MLRs) and register with the FCA. This list below shows the registered cryptoasset firms and their details which the FCA is responsible for registering, supervising and enforcing, for anti-money laundering and counter terrorist financing purposes.

As most cryptoassets are not specified investments under the Financial Services and Markets Act 2000 (FSMA), it is unlikely that you will be protected by the Financial Ombudsman Service or the Financial Services Compensation Scheme. The firm should provide you with information about the potential risks and whether their products and services are covered by these protections.

Please visit our webpages on [cryptoassets AML/CTF regime](#)  and [cryptoasset registration](#)  for more information.

<https://register.fca.org.uk/s/search?predefined=CA>

REGULATION



HM Revenue
& Customs

Policy paper

Cryptoassets: tax for individuals

Updated 20 December 2019

<https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-for-individuals>

HMRC Guidance issued December 2018 & 2019 for individuals on:

- What cryptoassets are
- Income Tax
- Capital Gains Tax
- Earnings
- Record keeping

REGULATION



HM Revenue
& Customs

Policy paper

Cryptoassets: tax for businesses

Updated 1 November 2019

<https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-tax-for-businesses#contents>

HMRC Guidance issued November for 2019 Business on:

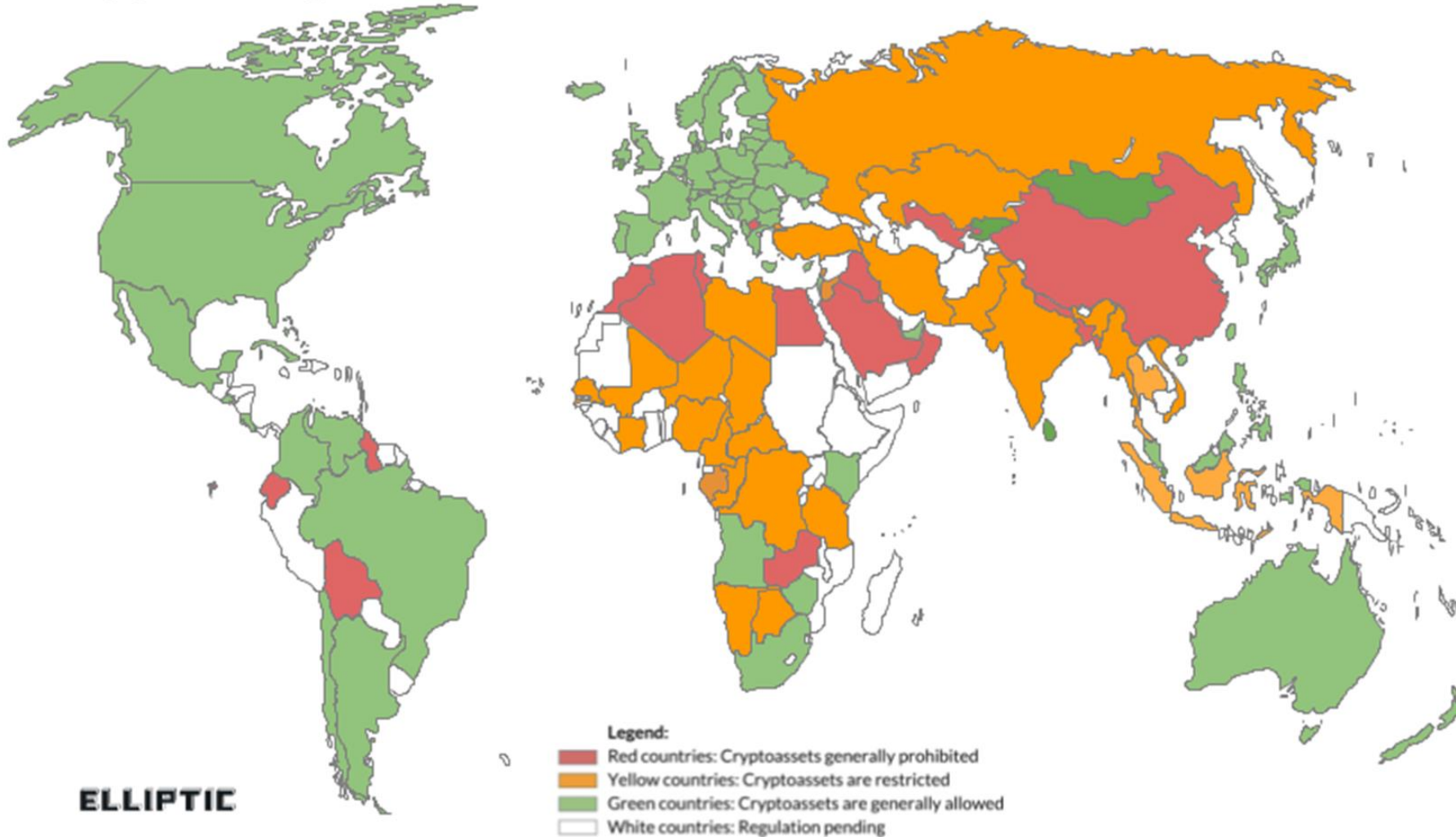
- Corporation Tax
- Investments (chargeable gains)
- VAT
- Venture Capital Schemes and capital relief
- Paying employees in cryptoassets
- Stamp Duty

REGULATION



REGULATION

Crypto regulation in 2023



ELLIPTIC

<https://www.elliptic.co/blog/a-world-of-crypto-regulation-at-a-glance>

Cryptoassets

- Money
- Cryptocurrencies, assets and tokens
- Regulation
- **Risks**

RISKS

Some are market risks and some are insurable:

- Liquidity
- Volatility

- Scams
- Loss & Theft
- Mistakes

Risks - Scams

PonzICO

Let's Just Cut to the Chase

We hope everyone had a good laugh :) But we have to shut down. This was a parody art performance/joke. I did not "run off" with the money, I never sold any of my PonziCoins, and the contract was drained from other users withdrawing. Please be careful when investing in shady cryptocurrencies, especially ones that look like pyramid schemes - it's a zero sum game and money doesn't appear out of thin air.<

Risks - Scams

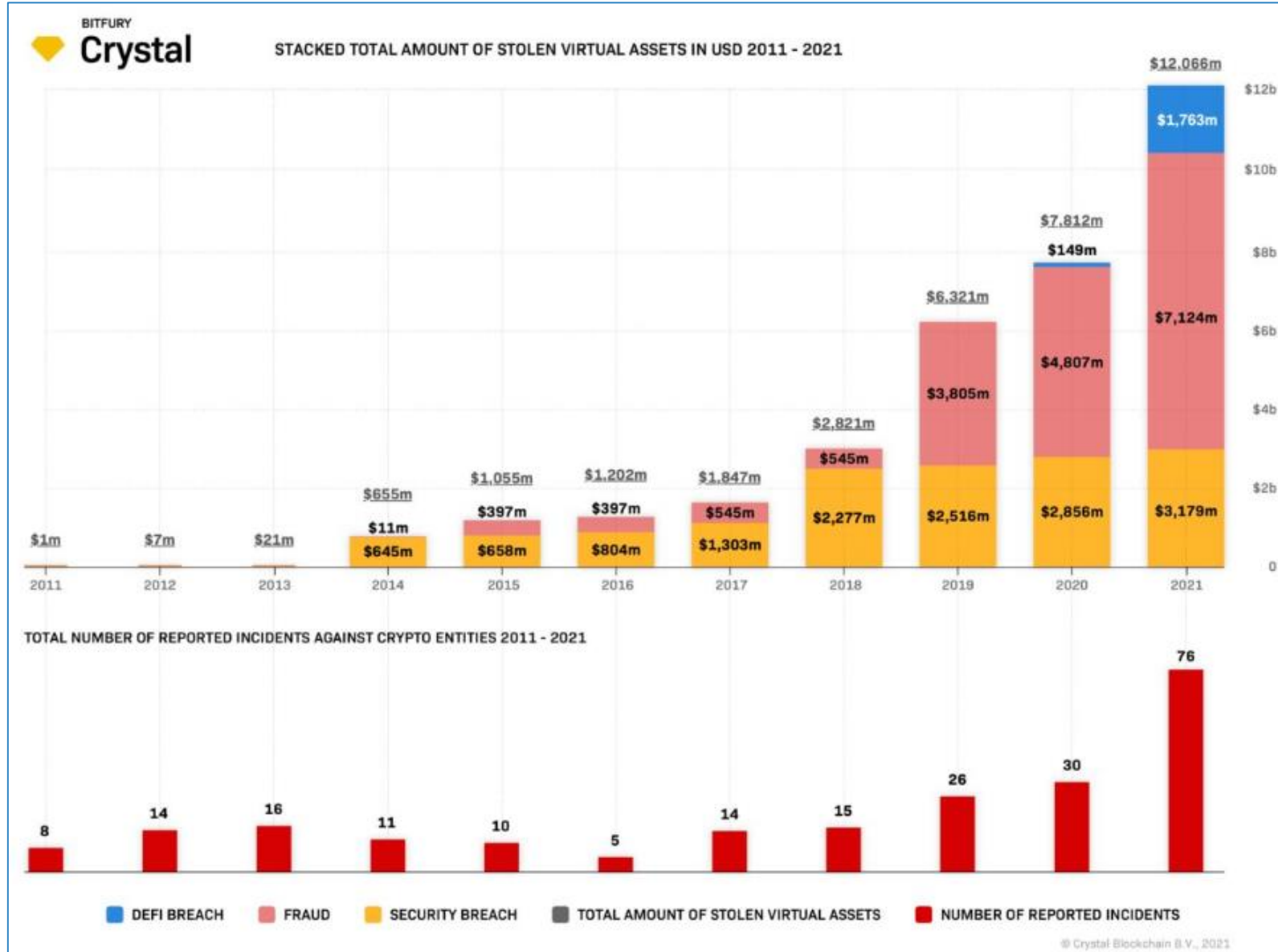


The image is a screenshot of a BBC News article. At the top, the BBC logo is on the left, followed by a 'Sign in' button and a notification bell. A navigation bar contains links for 'News', 'Sport', 'Weather', 'iPlayer', 'Sounds', and 'More'. Below this is a red header with the word 'NEWS' in white. A secondary navigation bar lists categories: 'Home', 'UK', 'World', 'Business', 'Election 2019', 'Tech', 'Science', 'Health', and 'Family & Education'. The main content area starts with the word 'Stories' underlined. The article title is 'Cryptoqueen: How this woman scammed the world, then vanished' in large, bold black font. Below the title is the date '24 November 2019' and a row of social media sharing icons for Facebook, Messenger, Twitter, Email, and a 'Share' button. At the bottom of the article preview is a red-tinted image of a woman's face with a blue circuit board pattern overlaid on it.

More than €4bn
was invested in
dozens of
countries

<https://www.bbc.com/news/stories-50435014>

Risks – Loss & Theft



<https://thefintechtimes.com/12-1billion-in-crypto-assets-have-been-stolen-over-ten-years-crystal-blockchain-analysis-finds/>

Risks - Mistakes

Fat Finger Sheds Light on Crypto Concerns

On Saturday, the sudden flood of stablecoin into the market spooked investors. The trading error reportedly happened when the crypto firm was helping exchange Polonix conduct a chain swap, in which it was moving tethers from the Omni to the Tron blockchains, per [CoinDesk](#). Tether CTO Paolo Ardoino explained the error as an “issue with the token decimals,” when preparing the issuance for the swap.

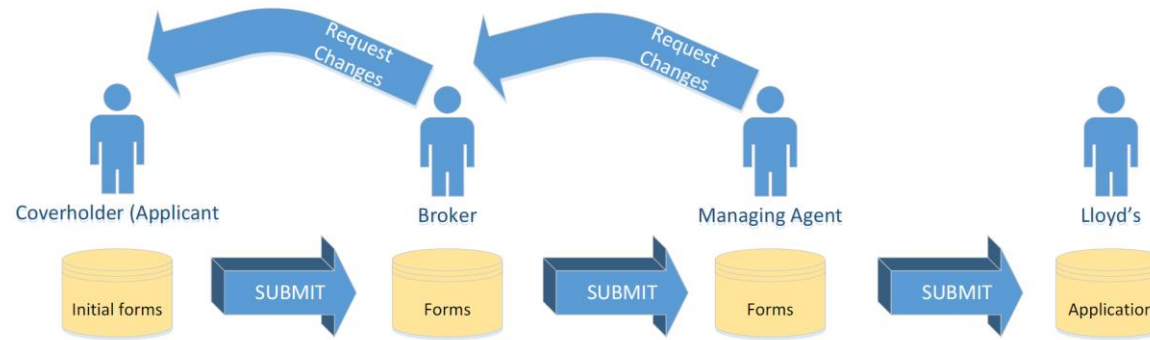
<https://www.investopedia.com/how-a-usd5-billion-fat-finger-trade-is-rattling-the-crypto-world-4693287>

Agenda

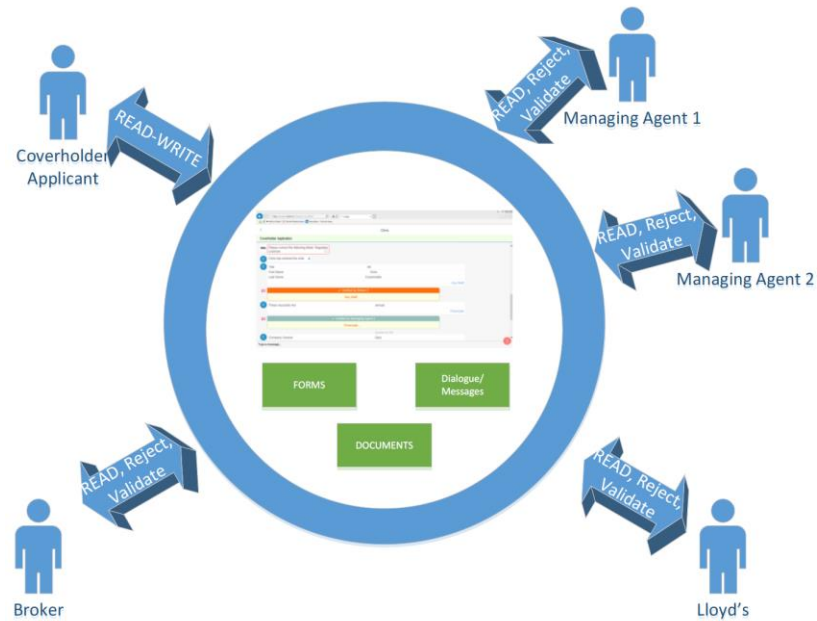
- Introductions
- Blockchain(s)
- Cryptoassets
- **Insurance**
- Wrapup / Q&A

Blockchain Use Cases – INSURANCE

As-Is



To-Be



Blockchain Use Cases – INSURANCE

- Policy Administration
- Accounting & Settlement
- Parametric Insurance
- Coverholder Management (including KYC)
- Motor Fleet Management
- Expense Management
- Claims
- Subrogation
- Peer 2 Peer Insurance / Mutualisation v2.0

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) – no longer available
	Crop Protection	Achmea, AoN/Etherisc/Oxfam
Reinsurance	Retrocession	B3i Property Cat XOL (consortia insolvent), XLRAS
Parametric	Cat Bond, Weather	Allianz, Rainvow
Captive	Prof Indemnity & property	Allianz
General	Motor	Travel Ezee (Allianz), USAA/State Farm (Subrogation)
	Unemployment	DynamisApp
	Marine	Microsoft/R3/Maersk Insurwave
	P&C	Riskblock Alliance
	Life	LIMRA/BAC
	Surety Bond	Zurich/Accenture
	Industry Loss Warranty	Cognizant/Cordalnsur

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
- E&O, Professional Indemnity/D&O Cover
- Exchange protection
- Counterparty (Trade) Risk
- Mutualisation/p2p
- Custodial Services
- Ransomware/Cyber
- Mining Operations (P&C)

Crypto Insurance

Evertas

Insurance for **Crypto** and **Mining Infrastructure**

Evertas is the world's first crypto insurance company: A – rated coverage for new risks, based on timeless principles.

We are philosophically dedicated to seeing crypto custodians and miners succeed. We provide true risk transfer products and professional services specialized to meet your unique needs.



Mining Property

Protects mining hardware for up to \$345 million against physical damage.

[LEARN MORE](#)



Platform Failure

Protects - up to \$10m - against losses due to technology errors.

[LEARN MORE](#)



Crime Theft/Loss

Protects digital assets and cash for up to \$345m against theft, loss, or damage by external bad actors and attacks.

[LEARN MORE](#)



Insider Theft/Loss

Protects digital and physical assets for up to \$345m against theft, loss, or damage caused by insiders.

[LEARN MORE](#)



Directors and Officers

Protects - up to \$10m - crypto company leadership against third-party legal action.

[LEARN MORE](#)



Digital Property

Protects - up to \$345m - against loss or theft of digital possessions such as NFTs.

[LEARN MORE](#)

<https://www.evertas.com/>

Crypto Insurance

superscript

Resources About Contact **UK** | NL  Login 0333 772 0759

Who we cover ▾

What we cover ▾

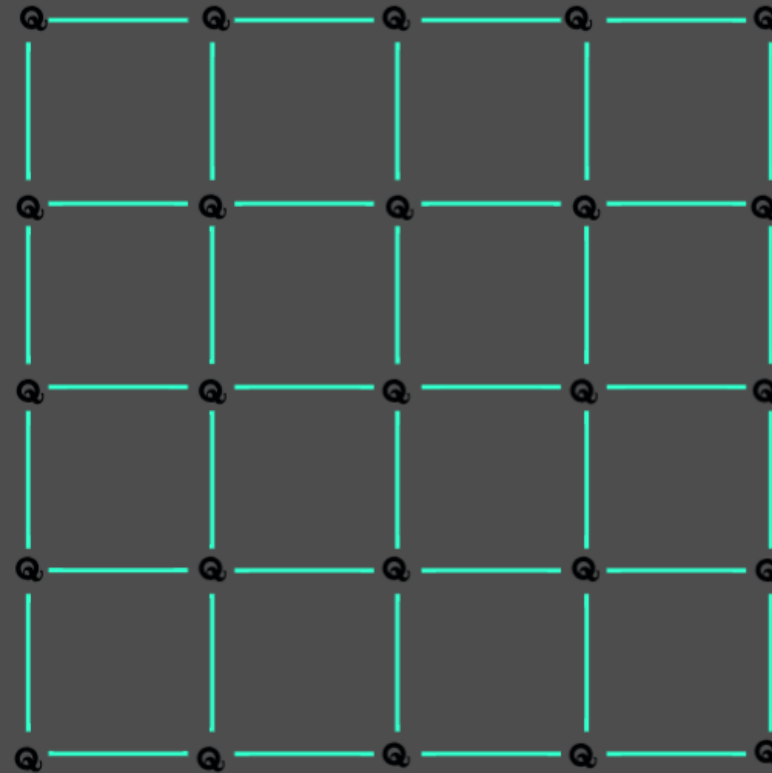
Broker service ▾

Web3

Landlords ▾

Blockchain and crypto insurance

[Book a call back](#)



<https://gosuperscript.com/advised/blockchain-insurance/>

Crypto Insurance



Products

Solutions

Knowledge Hub

Company

Developers 

Contact us

New research from over 16,000 consumers – Download now →

The Blockchain Protection Company

Creating a safe ecosystem that enables innovation without constraints.

Get in touch

300+

Partners worldwide

\$30bn

Transactions checked

5m

Protected crypto wallets

<https://www.coincover.com/>

Agenda

- Introductions
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- **Wrapup / Q&A**

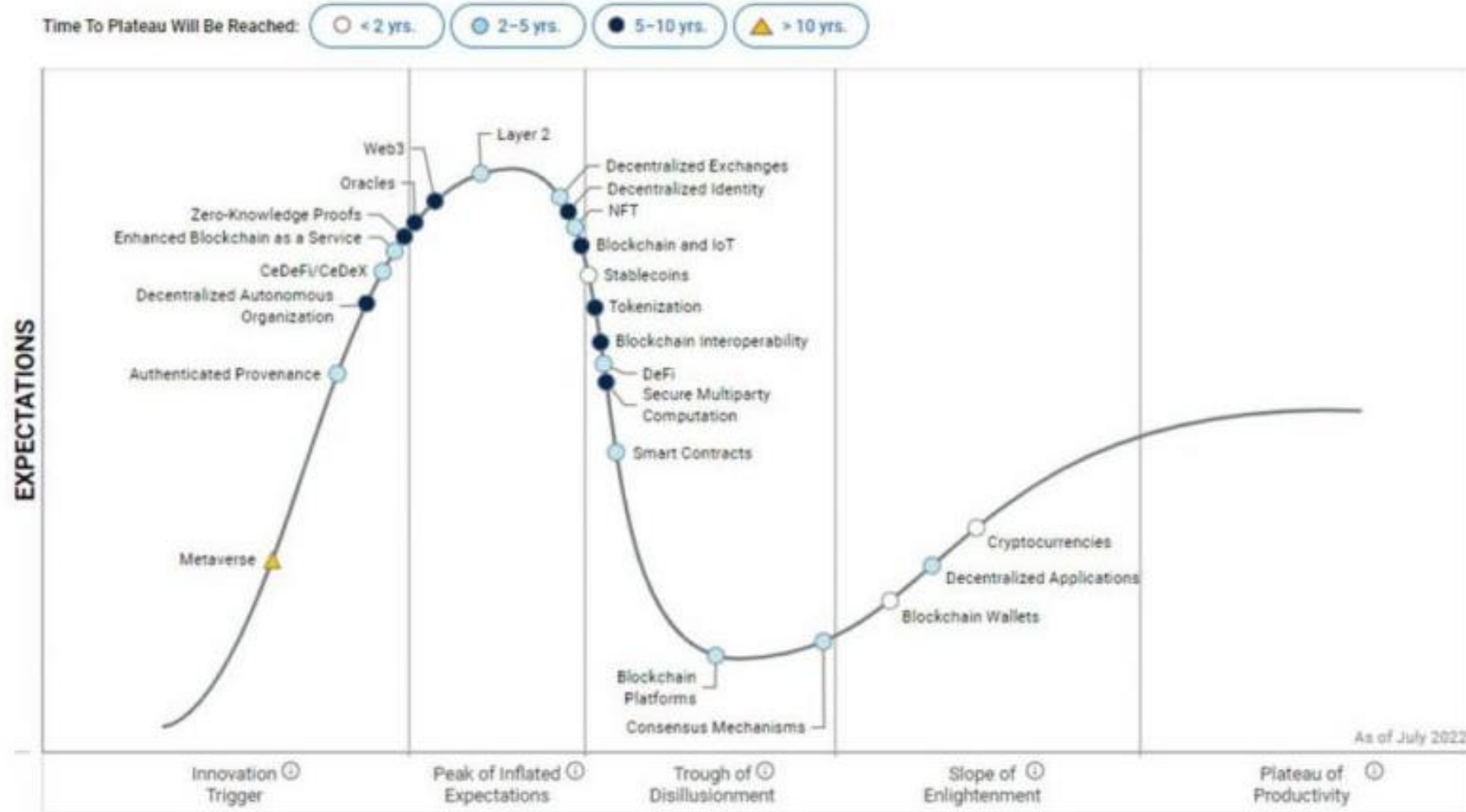
Wrapup

What's next ?

- Government acceptance & regulation
- Project Libra / DIEM / Paypal / Twitter
- Central Government adoption (CBDC's are not cryptocurrencies!)
- Crowdfunding platforms
- Growth in “Crypto Financial Services”
- “DeFi”
- ETF's (Exchange Traded Funds)

Wrapup

Gartner blockchain, web3 hype cycle 2022



<https://www.ledgerinsights.com/gartner-blockchain-web3-hype-cycle/>

Source: Gartner

Wrapup

Learning objectives

By the end of this event, delegates should now:

- Understand what a Distributed Ledger is
- Be aware of examples of how blockchain is being used across a range of industries
- Know how blockchain is being used in Insurance
- Be aware of the main insurable risks
- Understand what cryptoassets, cryptotokens and cryptocurrencies are

Any questions ?



Gary Nuttall

Contact details:

eMail: gnuttall@distlytics.com

Skype: @gpnuttall

Mobile: +44 (0) 787 614 1273

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.