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
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 ***
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)
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
...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
## Protocol

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP</td>
<td>1980's</td>
</tr>
<tr>
<td>HTTP</td>
<td>1990's</td>
</tr>
<tr>
<td>Blockchain</td>
<td>2008</td>
</tr>
</tbody>
</table>
**Blockchain Primer**

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Commonly used for</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP (1980’s)</td>
<td>Internet</td>
</tr>
<tr>
<td>HTTP (1990’s)</td>
<td>World Wide Web</td>
</tr>
<tr>
<td>Blockchain (2008)</td>
<td>Distributed Ledger</td>
</tr>
</tbody>
</table>
## Blockchain Primer

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Commonly used for</th>
<th>Enables</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP (1980’s)</td>
<td>Internet</td>
<td>Data sharing</td>
</tr>
<tr>
<td>HTTP (1990’s)</td>
<td>World Wide Web</td>
<td>Displaying information</td>
</tr>
<tr>
<td>Blockchain (2008)</td>
<td>Distributed Ledger</td>
<td>Transfer of value</td>
</tr>
</tbody>
</table>
(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
Blockchain Primer: Distributed Ledger

Transferring value

£500

Barclays

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

<table>
<thead>
<tr>
<th>JOURNAL-ID</th>
<th>DATESTAMP</th>
<th>FROM</th>
<th>TO</th>
<th>CURRENCY</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/01/2016 08:35</td>
<td>BARCLAYS</td>
<td>HSBC</td>
<td>GBP</td>
<td>500.00</td>
</tr>
</tbody>
</table>

Barclays → HSBC

£500
Blockchain Primer: Distributed Ledger

...usually lots of transactions
### Everyone has a copy of their own ledger

- **Barclays Journal**
  - Date: 01/01/2016
  - Time: 08:35
  - From: Barclays
  - To: HSBC
  - Currency: GBP
  - Amount: 500.00

- **Barclays Journal**
  - Date: 01/01/2016
  - Time: 09:45
  - From: Barclays
  - To: Santander
  - Currency: GBP
  - Amount: 4,250.00

- **Barclays Journal**
  - Date: 01/01/2016
  - Time: 11:35
  - From: Santander
  - To: Barclays
  - Currency: GBP
  - Amount: 2,215.00

- **HSBC Journal**
  - Date: 01/01/2016
  - Time: 08:35
  - From: Barclays
  - To: HSBC
  - Currency: GBP
  - Amount: 500.00

- **HSBC Journal**
  - Date: 01/01/2016
  - Time: 13:35
  - From: HSBC
  - To: Santander
  - Currency: GBP
  - Amount: 105.00

- **Santander Journal**
  - Date: 01/01/2016
  - Time: 09:45
  - From: Barclays
  - To: Santander
  - Currency: GBP
  - Amount: 4,250.00

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  - From: Santander
  - To: Barclays
  - Currency: GBP
  - Amount: 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...

<table>
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</tr>
<tr>
<td>2</td>
<td>01/01/2016 09:45</td>
<td>BARCLAYS</td>
<td>SANTANDER</td>
<td>GBP</td>
<td>4,250.00</td>
</tr>
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<td>SANTANDER</td>
<td>BARCLAYS</td>
<td>GBP</td>
<td>2,215.00</td>
</tr>
</tbody>
</table>

A Mutual Ledger...Less reconciliation
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

<table>
<thead>
<tr>
<th>JOURNAL-ID</th>
<th>DATESTAMP</th>
<th>FROM</th>
<th>TO</th>
<th>CURRENCY</th>
<th>AMOUNT</th>
<th>HASH</th>
<th>BLOCK</th>
<th>BLOCK HASH</th>
<th>START BLOCK</th>
<th>START HASH</th>
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</thead>
<tbody>
<tr>
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<td>0</td>
<td>110111</td>
<td></td>
<td></td>
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<tr>
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<td>SANTANDER</td>
<td>GBP</td>
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<td>101</td>
<td>0</td>
<td>1001</td>
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<tr>
<td>3</td>
<td>01/01/2016 11:35</td>
<td>SANTANDER</td>
<td>BARCLAYS</td>
<td>GBP</td>
<td>2,215.00</td>
<td>100011</td>
<td>0</td>
<td>100011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>01/01/2016 13:35</td>
<td>HSBC</td>
<td>SANTANDER</td>
<td>GBP</td>
<td>105.00</td>
<td>111000</td>
<td>1</td>
<td>111000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

…now users can only access their own data

Which decreases Security Auditing overhead

### Diagram

```
Barclays

<table>
<thead>
<tr>
<th>JOURNAL-ID</th>
<th>DATESTAMP</th>
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<th>TO</th>
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HSBC

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<td>SANTANDER</td>
<td>GBP</td>
<td>105.00</td>
</tr>
</tbody>
</table>
```
You can restrict access only to members…

…Giving a Private, Permissioned Ledger
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.

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

<table>
<thead>
<tr>
<th>Journal ID</th>
<th>Datestamp</th>
<th>FROM</th>
<th>TO</th>
<th>UNIT</th>
<th>IDENTIFIER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/01/2016 11:45:00</td>
<td>ATRIUM</td>
<td>LUFTHANSA</td>
<td>EUR</td>
<td>POLICY123</td>
</tr>
<tr>
<td>2</td>
<td>01/01/2016 11:45:01</td>
<td>BEAZLEY</td>
<td>FARMER MCGREGOR</td>
<td>GBP</td>
<td>POLICY234</td>
</tr>
</tbody>
</table>

**POLICY123**

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**
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
Imagine a physical ledger, with pages in it.
Imagine a physical ledger, with pages in it.

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

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 **CHAIN**ed together.
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 Primer: Blockchain

Other things could go onto a ledger…such as assets

<table>
<thead>
<tr>
<th>Journal ID</th>
<th>Datestamp</th>
<th>FROM</th>
<th>TO</th>
<th>UNIT</th>
<th>IDENTIFIER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/01/2016 11:45:00</td>
<td>MRS JENKINS</td>
<td>BARRATT’S</td>
<td>GBP</td>
<td>£455,123.00</td>
</tr>
<tr>
<td>2</td>
<td>01/01/2016 11:45:01</td>
<td>BARRATT’S</td>
<td>MRS JENKINS</td>
<td>HOUSE</td>
<td>21 ACACIA AVENUE</td>
</tr>
<tr>
<td>3</td>
<td>02/01/2016 10:35:00</td>
<td>MR SMITH</td>
<td>BMW DEALER</td>
<td>GBP</td>
<td>£35,455</td>
</tr>
<tr>
<td>4</td>
<td>02/01/2016 10:35:01</td>
<td>BMW DEALER</td>
<td>MR SMITH</td>
<td>CAR</td>
<td>BMW X3 (LS16 ABC)</td>
</tr>
</tbody>
</table>
Blockchain Primer: Blockchain

Links to other things….such as documents

<table>
<thead>
<tr>
<th>Journal ID</th>
<th>Datestamp</th>
<th>TYPE</th>
<th>REFERENCE</th>
<th>CLASS</th>
<th>IDENTIFIER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/01/2016 11:45:00</td>
<td>KYC</td>
<td>PASSPORT</td>
<td>PDF</td>
<td>ABC123</td>
</tr>
<tr>
<td>2</td>
<td>01/01/2016 11:45:01</td>
<td>KYC</td>
<td>DIR CHECK</td>
<td>PDF</td>
<td>ABC124</td>
</tr>
<tr>
<td>3</td>
<td>02/01/2016 10:35:00</td>
<td>CLAIM</td>
<td>FNOL</td>
<td>EMAIL</td>
<td>DEF124</td>
</tr>
<tr>
<td>4</td>
<td>02/01/2016 10:35:01</td>
<td>CLAIM</td>
<td>ASSESS</td>
<td>WORD</td>
<td>DOC121</td>
</tr>
</tbody>
</table>
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.....

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitcoin</td>
<td>Crypto payments</td>
</tr>
<tr>
<td>Ethereum</td>
<td>Programmability</td>
</tr>
<tr>
<td>NEO</td>
<td>Programmability</td>
</tr>
<tr>
<td>Quorum</td>
<td>Programmability</td>
</tr>
<tr>
<td>Hyperledger</td>
<td>Programmability</td>
</tr>
<tr>
<td>Corda</td>
<td>Crypto transactions</td>
</tr>
<tr>
<td>Monax</td>
<td>Ecosystem</td>
</tr>
<tr>
<td>Ripple</td>
<td>Crypto transactions</td>
</tr>
<tr>
<td>Symbiont</td>
<td>Ledger</td>
</tr>
</tbody>
</table>
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
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.

[https://www.everledger.io/industry-applications](https://www.everledger.io/industry-applications)

**IBM + MAERSK**

Transforming supply chains using blockchain technology

[ibmblockchain]

**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

https://www.ft.com/content/631af8cc-47cc-11e8-8c77-ff51caedcde6
### Blockchain Mega Cases

- **As a Cryptocurrency platform**

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Market Cap</th>
<th>Price</th>
<th>Volume (24h)</th>
<th>Circulating Supply</th>
<th>Change (24h)</th>
<th>Price Graph (7d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bitcoin</td>
<td>$110,738,628,317</td>
<td>$6,380.45</td>
<td>$4,218,274,440</td>
<td>17,355,925 BTC</td>
<td>0.10%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>2</td>
<td>Ethereum</td>
<td>$20,613,262,023</td>
<td>$200.21</td>
<td>$1,453,952,823</td>
<td>102,956,695 ETH</td>
<td>0.77%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>3</td>
<td>XRP</td>
<td>$18,496,956,741</td>
<td>$0.460000</td>
<td>$430,948,559</td>
<td>40,205,513,967 XRP*</td>
<td>1.62%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>4</td>
<td>Bitcoin Cash</td>
<td>$8,129,003,660</td>
<td>$466.21</td>
<td>$486,375,248</td>
<td>17,436,338 BCH</td>
<td>10.06%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>5</td>
<td>EOS</td>
<td>$4,848,018,701</td>
<td>$5.35</td>
<td>$668,030,673</td>
<td>906,245,118 EOS*</td>
<td>1.68%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>6</td>
<td>Stellar</td>
<td>$4,316,357,254</td>
<td>$0.228215</td>
<td>$38,982,082</td>
<td>18,913,564,571 XLM*</td>
<td>2.21%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>7</td>
<td>Litecoin</td>
<td>$3,042,619,807</td>
<td>$51.58</td>
<td>$349,851,089</td>
<td>58,991,852 LTC</td>
<td>2.79%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>8</td>
<td>Cardano</td>
<td>$1,856,197,858</td>
<td>$0.071593</td>
<td>$15,686,723</td>
<td>25,927,070,538 ADA*</td>
<td>2.03%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
<tr>
<td>9</td>
<td>Tether</td>
<td>$1,766,752,520</td>
<td>$0.994557</td>
<td>$2,345,942,773</td>
<td>1,776,421,736 USDT*</td>
<td>-0.23%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
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<tr>
<td>10</td>
<td>Monero</td>
<td>$1,752,666,108</td>
<td>$105.98</td>
<td>$12,844,607</td>
<td>16,538,358 XMR</td>
<td>2.82%</td>
<td><img src="https://via.placeholder.com/50" alt="Graph" /></td>
</tr>
</tbody>
</table>
Blockchain Mega Cases

- As a Cryptocurrency platform
Blockchain Mega Cases

• To provide Digital Identity

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

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.

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

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

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

As-Is

To-Be
Blockchain Use Cases – INSURANCE

NUFEXHIBIT

Potential
- Digital verification of claims
- Automated claims processing
- Secure and transparent transactions
- Enhanced fraud detection

Potential use cases
- Use blockchain as a digital ledger for insurance transactions
- Use blockchain for efficient claim processing
- Use blockchain for security and authentication
- Use blockchain for fraud detection

Key benefits
- Enhanced transparency
- Reduced fraud
- Increased efficiency
- Lower costs

Examples
1. Allianz
2. Qantas
3. AXA

McKinsey & Company

Applicability of Blockchain across Insurance value chain

Product Management
- Actuarial Data
- Policy Information

Marketing
- Customer Data
- Sales Data

Sales & Distribution
- Policy Distribution
- Claims Management

Underwriting Business
- Risk Assessment
- Loss Data

Policy Services
- Policy Management
- Claims Settlement

Claim Management
- Claims Processing
- Fraud Detection

Potential uses for blockchain in insurance
- Contact Lifecycle
- Documentation
- Claims Management
- Inter-Firm Accounting
- Proof of Insurance
- Excess of Loss Reinsurance

Source: Z/Yen/PwC 2016
<table>
<thead>
<tr>
<th>Category</th>
<th>Line of Business</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>Policy Admin +</td>
<td>End to End Insurance</td>
<td>Blocksure* (due disclosure), Chain-B, Zhong An (Non-Life P&amp;C)</td>
</tr>
<tr>
<td>Operations</td>
<td>Accounting &amp; Settlement</td>
<td>ChainThat, R3, Surematics, Consensys/I-Chassis</td>
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<tr>
<td>Marketplace</td>
<td>P2p + matching Insurance</td>
<td>Fidentiax, Wekeep, TeamBrella, LenderBot, Nexus Mutual, Akinova, Ixledger (GenRe), Shanghai Insurance Exchange</td>
</tr>
<tr>
<td>Alternate risk</td>
<td>Prediction Market</td>
<td>Gnosis, Augur</td>
</tr>
<tr>
<td>IoT</td>
<td>Trade Finance</td>
<td>EY/Maersk/IBM (MS-Amlin, XL-Catlin, Willis), Bancassurance (AIA), AlGang</td>
</tr>
<tr>
<td>Smart Contract</td>
<td>Flight Delay</td>
<td>InsurEth, Etherisc/Atlas Insurance (Malta), Fizzy (Axa)</td>
</tr>
<tr>
<td>Reinsurance</td>
<td>Retrocession</td>
<td>B3i (Property Cat XOL), XLRAS</td>
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<tr>
<td>Parametric</td>
<td>Cat Bond, Weather</td>
<td>Allianz, Rainvow</td>
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<tr>
<td>Captive</td>
<td>Prof Indemnity &amp; property</td>
<td>Allianz</td>
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<tr>
<td>General</td>
<td>Motor</td>
<td>Travel Ezee (Allianz)</td>
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<tr>
<td></td>
<td>Unemployment</td>
<td>DynamisApp</td>
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<tr>
<td></td>
<td>Marine</td>
<td>Microsoft/R3/Maersk Insurwave</td>
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<tr>
<td></td>
<td>P&amp;C</td>
<td>Riskblock Alliance</td>
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<tr>
<td></td>
<td>Life</td>
<td>LIMRA/BAC</td>
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<tr>
<td></td>
<td>Surety Bond</td>
<td>Zurich/Accenture</td>
</tr>
<tr>
<td></td>
<td>Industry Loss Warranty</td>
<td>Cognizant/CordaInsur</td>
</tr>
<tr>
<td>Insurance firm + [technology provider]</td>
<td>Product</td>
<td>Date &amp; Link</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
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.
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 Aids / Home
27 April 2017

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 we 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.

Introducing BITRUST: The Cryptocurrency Insurance

INSURANCE COMPANIES SEE BIG OPPORTUNITY IN UNREGULATED CRYPTOCURRENCY MARKET

GIFCOIN
ICO Just Started
Get 60% Bonus
Buy Tokens NOW

BIT PARK

BITTRUST
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
Gary Nuttall

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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.