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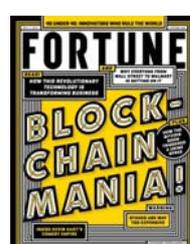
Blockchain – an Emerging Technology with Wide Potential Application for Insurance

Richard Phipps, Swiss Re

21 November 2017



Blockchain is big news...



*“Reinsurers are in line to build some of the biggest Blockchain applications outside the payments sector, which will enhance risk understanding and open up a **\$5-10 billion cost saving** opportunity through faster, more efficient and more accurate placement, claims settlement and compliance checks such as sanctions.”*

PWC, 2016

Source: <https://www.pwc.com/gx/en/industries/financial-services/publications/blockchain-the-5-billion-opportunity-for-reinsurers.html>



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1. Blockchain

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Expertise
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 Thought leadership
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 Community
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 Learned society
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Blockchain

Why is Blockchain unique? 4 technologies in 1

Distributed Ledger	<ul style="list-style-type: none"> ▪ Decentralized, peer-to-peer network ▪ Append-only distributed database ▪ Replicated to all participants on the network ▪ Shows current status as well as status over time
Cryptography	<ul style="list-style-type: none"> ▪ Ensures that transactions are secure, authenticated & verifiable ▪ Verifies participants' privacy while the ledger is shared
Consensus	<ul style="list-style-type: none"> ▪ Consensus is the process by which transactions are verified ▪ Decentralized consensus ensures agreement on "single-version-of-the-truth" (allows for consistency among distributed ledger)
Smart Contracts	<ul style="list-style-type: none"> ▪ Programmable contracts which contain the business logic that is automatically executed when pre-defined conditions are met ▪ Ideal for arrangements that are: tailored, verifiable, signed, self-executing, embedded in blockchain networks



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2. Industry Challenges

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Industry Challenges

Challenges facing the Insurance Industry

-  ...High costs due to **administrative friction**...
-  ...Increasing number of **complex contracts**...
-  ...**Regulatory reporting** requirements...
-  ...**Digital world** difficult to manage with paper processes...
-  ...**Trust concerns** with respect to digital contracts and data...



Industry Challenges

A future Blockchain-enabled landscape

High Administrative Costs Due To Friction...	<ul style="list-style-type: none"> ▪ Reduced friction through secure, shared version of the truth (contracts & data)
Increasing Number Of Complex Contracts...	<ul style="list-style-type: none"> ▪ Codified logic ('Smart Contract') where feasible. Enforced version control.
Regulatory reporting requirements...	<ul style="list-style-type: none"> ▪ Opportunity to redefine which data is exchanged
Digital world /paper processes...	<ul style="list-style-type: none"> ▪ Future ready, standardized data exchange with multiple participants ▪ Access to rich data set to assist modelling
Trust / digital contracts and data...	<ul style="list-style-type: none"> ▪ Trust through immutability, contract certainty and transparency of data ▪ Seriatim data access whilst preserving privacy



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3. Industry Solutions

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Industry Solutions

Insurance Solutions across the Value chain

- Know your customer
- Contract certainty
- Reduce administration costs (Bilaterally or collaboratively)
- Product development: Parametric, Trade Finance, Cat bonds, ...
- Payments



Industry Solutions

Blockchain activity

- A new project each week!

Blockchain technology successfully piloted by Allianz Risk Transfer and Nephila for catastrophe swap

- Smart contract technology facilitates and accelerates the triggering process of catastrophe swaps and bonds
- Allianz Risk Transfer (ART) pilot is one of several test applications of Allianz's Disruptive Technologies division to explore future blockchain opportunities

PRESS RELEASE, New York/London/Munich, June 15, 2016.

AIG sets up blockchain policy for Standard Chartered



Fintech Start-Up fidentiaX Introduces World's 1st Marketplace for Tradable Insurance Policies

PR Newswire October 15, 2017

EY, Guardtime and industry participants launch the world's first marine insurance blockchain platform
London, 6 September 2017

AIG and TradelX partner for blockchain trade finance transactions

8th October 2017 - Author: Steve Evans
Insurance giant American International Group (AIG) has partnered with specialist technology firm TradelX to enable firms to access trade finance using a blockchain-enabled platform.

Sources:
<http://www.aocs.allianz.com/about-us/news/blockchain-technology-successfully-piloted-by-allianz-risk-transfer-and-nephila-for-catastrophe-swap/>
<https://www.reinsurancene.ws/aig-tradelx-partner-blockchain-trade-finance-transactions/>
<http://www.sv.com/uk/en/newsroom/news-releases/news-ey-guardtime-and-industry-participants-launch-the-worlds-first-marine-insurance-blockchain-platform>
<https://finance.yahoo.com/news/fintech-start-fidentia-x-introduces-worlds-053009697.html>
<https://www.ft.com/content/00ea1b88-511b-11e7-a12c-bb19572361b0>



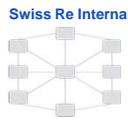
Industry Solutions

Swiss Re Proof of concept – Intra-Group Retro

1 Internally: Blockchain for internal retrocession

- Automate internal retrocession process on blockchain platform with smart contracts.
- Integrated retrocession, combining Cat XoL with Quotashare: Create contract, process statement, compute cession, generate payment instruction, record settlement.

Swiss Re Internal

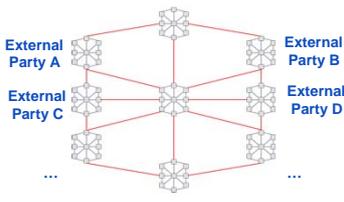


Network of retrocessionaires and retrocedents within Swiss Re group (Intra-Group Retrocession: IGR)

2 Externally: Extend to the industry (B3i)

- Once proven, extend network across insurers, reinsurers, retrocedents, retrocessionaires.
- Most natural fit for proportional contracts, e.g. non-life quota shares, as well as simple excess of loss structures.

Swiss Re



Within the reinsurance market covering cessions between insurers, reinsurers and retrocessionaires

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Industry Solutions

B3i – Insurance Industry Initiative

- Founded to enable industry collaboration

B3i, a true industry collaboration



- 15 members established B3i in January, 2017
- ~60% of the reinsurance market share
- B3i's vision is to jointly explore the potential of Blockchain technology in industry-wide use cases to better serve end-clients
- The starting point is to develop a first Prototype for Property Cat XL reinsurance contracts management named **Codex1** (Completed by July 2017)
- B3i presented Codex1 at the 2017 Monte Carlo RVS and added 23 new market participants
- B3i has the capabilities to drive the reinsurance case and other use cases to a production level in a large industry network


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Industry Solutions

B3i's Unique Position

- How B3i is moving the insurance industry differently...

High involvement of business SMEs in addition to IT

Through engaging "Bootcamps", we are able to share knowledge and experience gained, align on common B3i objectives and build industry standards on insurance smart contracts.

Market Leadership in Collaboration

Collaboration is a pre-requisite of distributed ledger technology. B3i's approach to collaboratively create a solution for insurance, by insurance people has proven to be a right one.

Successful Prototype leveraging Blockchain Technology

Prototype leveraging Blockchain, different from client server database, can decouple data ownership and transaction administration, offering different model of trust that does not rely on legal arrangements and resource intensive audit processes.

Phenomenal Membership Growth

B3i grew from 5 to 38 within 12 months, representing ~60% of the global reinsurance supply.

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Industry Solutions

B3i's First Product: The Idea

- We have a fully functional prototype to solve current industry challenges

Positive Impact on:

- Operational Efficiency and Risk Reduction
- Quality and Integrity of Data
- Working Capital Improvement
- Foreign Exchange Management

Operational Risk Combined Ratio
Cash Flow Acceleration
Capital Requirements

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4. Industry Hurdles

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Industry Hurdles

Key Challenges

Available skills	<ul style="list-style-type: none"> Competition from projects across many industries
Technology Maturity	<ul style="list-style-type: none"> v1.0 of platforms in place
Market participant priorities	<ul style="list-style-type: none"> Insurers, Reinsurers, Brokers, L&H, P&C, Commercial, Primary
System Integration	<ul style="list-style-type: none"> Use and development of common language(s)
It's not just product development	<ul style="list-style-type: none"> Decentralised processes, Collaborative working, Benefits scaling adoption.



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5. Outlook

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Outlook

Outlook

- The industry can work together!
- Majority of Industry participants and trade bodies working together on various use cases
- Technology leading to re evaluation of existing business processes
- Opportunity to streamline data flows to reduce rework and process steps where back and forth communication is commonplace
- Many areas of personal and corporate life can benefit ...although it's likely that the technology will be 'behind the scenes'
- I encourage everyone to be prepared by learning a little about the basic premise of this transformative technology.





Questions



Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.



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