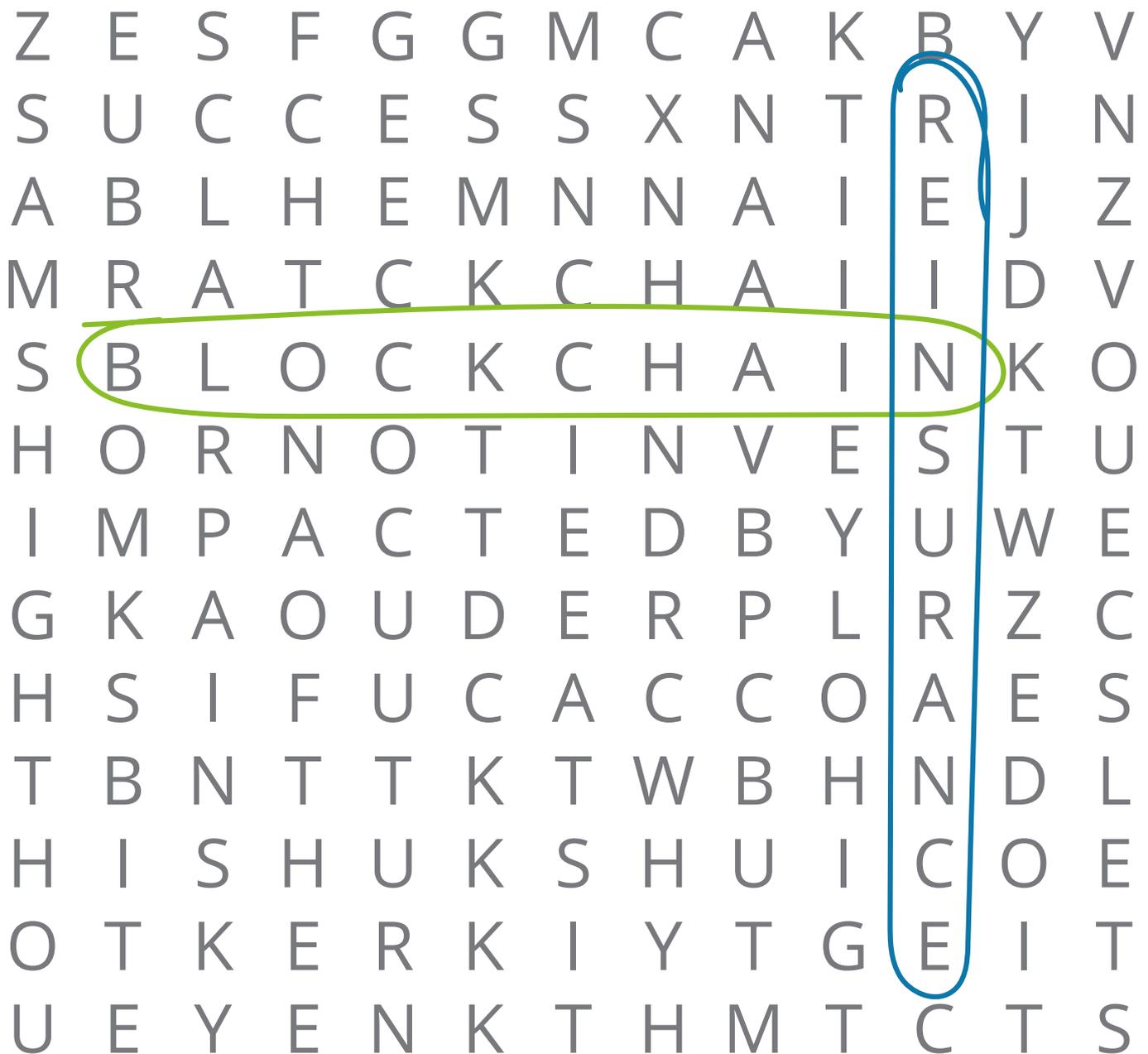


Blockchain meets reinsurance - A contract management system solution

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T B N T T K T W B H N D L
H I S H U K S H U I C O E
O T K E R K I Y T G E I T
U E Y E N K T H M T C T S



Dirk Siegel

Partner
Consulting
Deloitte

Peter Wiedmann

Senior Manager
Consulting
Deloitte

Christopher McDaniel

Specialist Leader
Consulting
Deloitte

Global financial companies continue to explore the new opportunities blockchain technology could offer, while continuing to evaluate the possible paradigm shift that it can trigger on their business. After an era of proofs-of-concept, the technology is now moving to the stage of live production and wide adoption.

Blockchain is one of the most promising innovations for financial services companies. According to the World Economic Forum,¹ financial services will be transformed by blockchain technology, with the expectation that at least 10 percent of the global GDP will be processed by blockchain platforms by 2025.

Over the last few years, the hype around blockchain has been growing. From its emergence as a technical experiment, blockchain now reaches toward wider adoption, ready to brandish its full potential. More than US\$2 billion has been invested by venture capital companies and the number of blockchain technology-related startups are on the rise, with the more established companies starting to mobilize

resources in an attempt to identify the full impact of blockchain on their business models. Some use cases are already live and many are awaiting their move into production.

Given that the advantage of the new technologies are greatest in a multi-player situation, numerous companies have entered into industry consortia to align on standards for implementation and identify areas of the value chain where blockchain technology can be applied to its greatest ability. Following the R3 consortium that gathered over 80 banks and was launched in 2015, the insurance and reinsurance industry has set up the B3i consortium as well as the RiskBlock consortium in the US.



1. The Future of Financial Services – How disruptive innovations are reshaping the way financial services are structured, provisioned and consumed. World Economic Forum June 2015

B3i consortium²

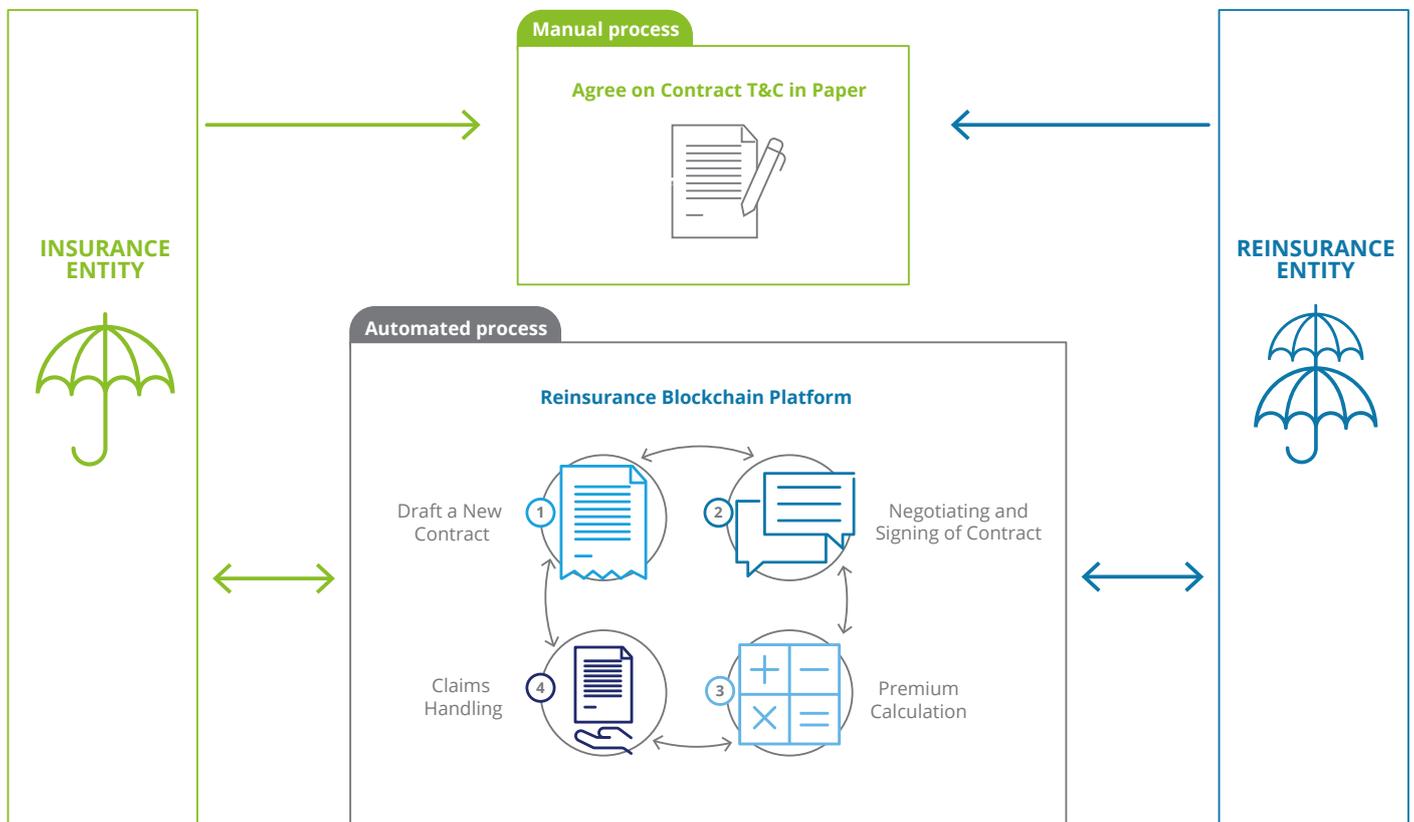
The Blockchain Insurance Industry Initiative (B3i) is a collaboration of insurance and reinsurance companies created in October 2016 to explore the potential use of blockchain and to increase efficiency in the exchange of data between reinsurance and insurance companies. Originally composed of five members (Aegon, Allianz, Munich Re, Swiss Re, and Zurich), the consortium welcomed ten new members at the beginning of 2017 (Achmea, Ageas, Generali, Hannover Re, Liberty Mutual, RGA, SCOR, Sompo Japan Nipponkoa Insurance, Tokio Marine Holdings, XL Catlin). 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 was to develop a first proof-of-concept for Property Cat XL reinsurance contract management.

The proof-of-concept was announced during an insurance summit in Monte Carlo in September and opened for market testing.

We are confident that blockchain will play a pivotal role in the insurance industry in the upcoming years. As outlined in various Deloitte publications, blockchain will form the foundation of the industry's next-generation infrastructure. It will redraw processes and call into question orthodoxies that are fundamental to today's business models. Deloitte has already started to build real enterprise focused cross-industry blockchain frameworks with several use cases, both for property & casualty and L&A insurance. Examples include subrogation, proof of insurance, first notice of loss, and parametric insurance.

It is in this context Deloitte supported a large global insurance company in the development of a proof-of-concept in the reinsurance business. The client had already done one proof-of-concept with blockchain before and was one of the first big insurance players exploring blockchain technology. In 2017, in addition to their participation in B3i, the large global insurance company and Deloitte agreed to work together in order to implement a smart contract platform for a complex reinsurance program, focusing on the overall contract handling processes between the reinsurance entity and the primary insurance operating entities.

Blockchain enabled Reinsurance platform



2. Reinsurance News. B3i to launch blockchain reinsurance platform at Monte Carlo RVS 2017. 20.07.2017

Reinsurance processes are famously inefficient. It is a complex business and still involves many manual processes. Blockchain technology offers great potential in initiating, processing, and settling transactions between primary insurers and reinsurers through its shared ledger, being able to track and trace every event and transfer value without needing a central database. For the proof-of-concept, the client identified several business objectives:

- Minimize the extent of manual collaboration required between the primary insurer, reinsurer, and retrocessionaires in creating contracts and claims
- Create transparency between the primary insurer, reinsurer, and retrocessionaires around contracts and claims
- Facilitate the processing and application of claims in real time
- Facilitate the automated processing of settlements
- Explore the capacity to interface with legacy platforms

In order to fulfill these functional requirements, the Deloitte team proposed and agreed on a series of technical requirements with the client:

- Build an extensible and modular platform for deploying blockchain-based reinsurance smart contracts
- Implement a user interface (UI) for the collaborative creation of contracts and the application of claims
- Implement connectivity of the UI to the blockchain through the use of application programming interfaces (APIs)
- Determine and assist the client in implementing an infrastructure to support the final proof-of-concept
- Build user profiles and capabilities for the primary insurer, reinsurer, and retrocessionaires

Smart Contract

A smart contract is a software algorithm integrated into a blockchain with trigger actions based on pre-defined parameters. The term can be misleading as it is not formally a contract (nor is it particularly smart). In this proof-of-concept, it is encrypted and time-stamped into a blockchain when created, and executes itself without the need for trusted third parties. This is one of the blockchain functionalities where companies see the highest benefit as it can drastically reduce the time and cost of actual contract processing. As an example, all terms and conditions of an insurance contract can be integrated as parameters of the algorithm and trigger reimbursement in the case of a claim.

In order to build this PoC as effectively as possible, an agile approach was formulated. The three sprints below were required to develop all defined functionalities and related interfaces:

- Sprint 1 focused on the creation of the contract processing module
- Sprint 2 developed the claims processing module
- Sprint 3 set up the multi-layer processing, settlement, and contract and claim exporting 

Reinsurance is a complex business and still involves many manual processes.

After approximately two months of development, we delivered a fully functional proof-of-concept to the client. This PoC proved the hypothesis that blockchain can be very effective in managing complex and large reinsurance contracts. The smart contract platform implemented as part of the PoC allows insurers and reinsurers to interact securely and quickly across the contract lifecycle, utilizing a number of selected, pre-designed contract templates. Any one party can create a new contract on the platform and compile the various terms and conditions; negotiation over terms and conditions is handled directly on the platform, while providing a secure audit trail, guaranteed by blockchain technology. Upon contract signage, all information is directly saved in the blockchain, and can be “called upon” automatically once the relevant claims are applied against it, whereupon the payments resulting from the claim are then automatically redistributed to the participants in the contract.

The platform notably reduces the manual reconciliation efforts and applies a management-by-exception methodology for controlling activities. Looking forward, a full integration with core insurance systems, which was not part of this PoC, will undoubtedly benefit the overall management of reinsurance contract processes, guaranteeing increased security, transparency, and efficiency.

Blockchain for core insurance systems

Blockchain technology will act as the catalyst of a profound restructuring for insurers, as it will have a major impact on all steps of the core insurance value chain. We see the following three potential use cases as most relevant:

01. People: Based on Smart Identity, insurers can verify identity and enlist new customers much faster and at lower costs.
02. Contract: Through blockchain, all different parties of a contract will benefit from a joint platform that will reduce costs, errors, and the duration of the process.
03. Claim: The creation and processing of claims based on smart contracts ensures a transparent, responsive, and irrefutable process.

This PoC demonstrates that blockchain technology will have the potential to innovate not only the reinsurance business, but also the entire financial services sector through three mechanisms.

Blockchain technology will cause a paradigm shift for the financial services industry. Business data, rules, and processes relating to a single contract can be put integrally into a smart contract, which is audit-trailed by design. APIs interacting with the independent contracts can be set up, facilitating integration into a micro service architecture. This opens various new roles or changes existing ones within financial companies; so much indeed that over time, blockchain-enabled business could be the backbone of an industry-wide shared services center for selected processes.

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Despite the peer-to-peer nature of the system, validators will still be needed to authenticate participants and to be arbitrators in case of disputes. In a pure blockchain ecosystem, anyone could run the code and act as validator, but taking into account the current regulatory framework and existing trust models, we expect the emergence of regulated validators under the authority of existing entities, which financial companies best embody due to their market position.

An obvious trend is that customers lean toward more customized products and services. Blockchain, together with Big Data, artificial intelligence, and the Internet-of-Things, is one of the technologies that will be the driving forces for future innovation. In a blockchain-inspired insurance world, superior access to customers and risk assessment tools will continue to be key in running a successful business. Blockchain can serve as the infrastructure to orchestrate the complex ecosystem required in addressing specific needs of customers, which often go beyond the traditional insurance-focused business platforms. On top of this infrastructure, other innovative technologies might act as modules, e.g., create a tailored customer journey experience with artificial intelligence and the Internet-of-Things, balanced risk models for user based insurances with Big Data, or automated handling of business workflows with blockchain.

Adoption of Blockchain by Corporations



Technical progress is not yet fully satisfactory, both for public and private blockchains, especially over scalability, privacy and security.



Regulation authorities mainly adapted a wait-and-see approach. Although they are in principle open-minded about blockchain, global initiatives are not yet launched, i.e., intensive stakeholder management needed.



Legal enforceability continues to be uncertain, with special focus on e-signature acceptance and the true court value of smart contracts.



Social acceptance of such a new paradigm is all but certain, as significant and potentially painful disruption will need to occur, including job losses and failing businesses.

Blockchain technology is gaining momentum across all insurance market stakeholders. The technology is positioned to become a strategic imperative for large companies. Industry-wide consortia, such as B3i and RiskBlock, aim to maximize the potential benefit of blockchain. The presented blockchain proof-of-concept provides strong evidence that the technology is very effective in managing complex and large reinsurance contracts. Blockchain technology is positioned

to become the industry infrastructure backbone of the future, enabling a paradigm shift in many ways. It provides the opportunity to positively affect the products and services provided to the customer, improves business processing, and evolves the role of existing industry market players. The time when the blockchain initiative was mainly about proofs-of-concept and experimentation is over. The era of blockchain as a key strategic value creator is upon us now. ●

Sources:

Deloitte Germany Blockchain institute Point of View: "Banking on a public platform - How Blockchain can change banking"