Blockchain accelerates insurance transformation

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The promise of blockchain

> Blockchain technologies could help enable greater efficiency, growth and competitive advantage.

These days, it seems everyone wants to talk about blockchain. Major insurance companies are investing into it; industry consortiums are forming around it; investors are pouring in capital. But — only 4 years ago — nobody had heard of blockchain. And only a very few understood the concept of a digital ledger, let alone its application to the insurance sector. How things have changed.

The hype suggests that blockchain will revolutionize the industry, enhance trust, disrupt the value chain and create massive new growth opportunities. Yet the evidence suggests that few (if any) insurers have developed a full-scale blockchain capability.

The reality is that these are still 'early days' for blockchain in the insurance sector. However, clear evidence from across the financial services industry strongly suggests that blockchain technologies could help enable greater efficiency, growth and competitive advantage. It will not be long before the insurance sector starts to rapidly focus, invest and deploy blockchain technologies. Insurers who ignore this new architecture will end up playing catch up with higher costs.

At KPMG, we think of blockchain as an architecture for open innovation. It is one of the key delivery technologies that could help connect enterprise technology systems with new-age technologies such as wearables, drones and Internet-of-Things (IoT) connected devices.

Insurers are no strangers to disruption. Even now, the impact of catastrophe bonds (CAT) bonds on the reinsurance market is having unexpected consequences on direct insurers. And we believe that blockchain architecture will accelerate this type of disruption across distribution, insurance and capital distribution.

Blockchain may not be driving competitive advantage today. But it will certainly underpin the sector's growth in the future.

Blockchain snapshot

What is blockchain?

Blockchain is essentially a permanent and immutable record of transactions within a network. At the root of the blockchain are 'digital ledgers' that are distributed amongst all network participants to serve as a common source of truth.

When a transaction is conducted, it is recorded in sequence in the digital ledger and these 'blocks' are then tied together into a blockchain. Since the system relies on references to other blocks that are cryptographically secure within the digital ledger, it is almost impossible to falsify. Most observers therefore believe the system to be immensely more trustworthy and transparent than traditional approaches to sharing data across a value chain or even within an enterprise.

Since blockchain provides the mechanism to establish a single version of the 'truth' that is shared in near real-time within a trusted framework, it creates the conditions to enable faster, more accurate and efficient processes. Yet it also has the potential to disrupt existing business models by eliminating the need for intermediaries and more efficiently connecting counterparties in a way that allows them to transact without the need for a trusted central authority.

Who is investing?

While blockchain technology can be applied within virtually any industry, financial services organizations have been the most active innovators. In fact, since early 2014, more than 40 financial services firms (or their strategic investment arms) have invested in a blockchain or related startup. And this is spreading to other areas of finance like insurance (supported by initiatives such as B3i)[1] and investment management (with the Nimbrix consortium). The real economy is getting in on the act too, with significant activity in the government, healthcare, supply chain and real estate sectors[2].

[1] http://www.econotimes.com/five-major-insurers-and-reinsurers-team-up-for-blockchain-initiative-b3i-355513

[2] https://btcmanager.com/news/business/fintech-startup-nimbrix-partners-with-microsoft-and-kpmg-to-launch-asset-management-blockchain-consortium/

How is the insurance sector responding?

Some of the most proactive insurers are looking to blockchain to help drive their wider transformation agenda within the context of the 'data-driven fourth industrial revolution'. These first and second-movers see the value in participating in the broader financial services blockchain ecosystem. But they also see blockchain as an opportunity to improve efficiency, lower the costs of transaction processing, enhance the customer experience, improve data quality, increase trust between parties and support auditability, among other benefits.

Many have been investing to support their vision. AXA Strategic Ventures (along with other partners) invested around US$55 million into a blockchain startup in February 2016[3]. USAA invested around US$75 million into a digital currency platform in 2015[4]. And Lloyd's London Market has included blockchain as part of their target operating model modernization plan[5]. Other players — including Allianz, AIA, New York Life, Mitsui Sumitomo Insurance Group (MSIG), Swiss Re, John Hancock and Manulife Financial — are testing potential applications of blockchain in the insurance market.

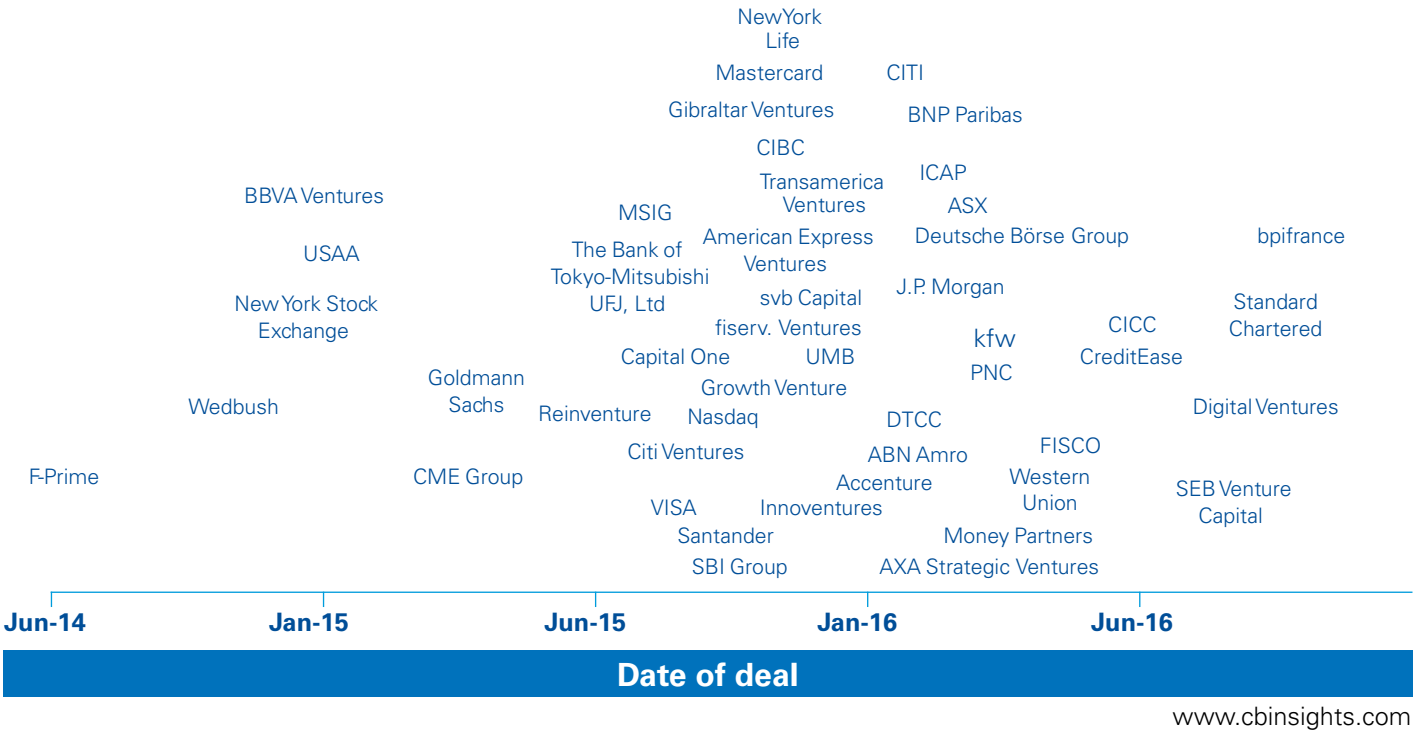
Blockchain use cases may fall into two broad categories:

1. Internal use cases: These do not rely heavily on network effects but typically aim to improve internal efficiency in order to reduce cost to serve. But our experience suggests that these initiatives can also deliver significant top-line revenue growth. Indeed, our work with leading organizations suggests that the top-line growth generated by internal process simplification may exceed the expected operating cost reduction.
2. Industry use cases: These typically rely more on network effects and require wider industry or cross-industry buy-in. Within insurance, the most influential blockchain consortia is currently B3i, announced by Allianz, Aegon, Munich Re, Swiss Re and Zurich in October 2016. This initiative is aimed at sharing ideas, testing use cases and pursuing concepts related to the wider insurance sector.

Blockchain can help insurers drive value through:

- more efficient processes
- improved pricing and risk management
- enhanced trust via better claims experience
- greater financial inclusion
- demand for new insurance products and services
- use of new 'smart' contract models.

The march of fin services firms into blockchain startups
(10/20/2016)[6]



www.cbinsights.com

[3] https://www.axa.com/en/newsroom/news/axa-strategic-ventures-blockchain

[4] http://www.businessinsider.in/Bitcoin-Startup-Coinbase-Is-Raising-75-Million-In-New-Funding/articleshow/45956614.cms

[5] http://www.coindesk.com/lloyds-sees-blockchains-potential-insurance-markets

[6] https://www.cbinsights.com/blog/financial-services-corporate-blockchain-investments/

Applying blockchain to insurance

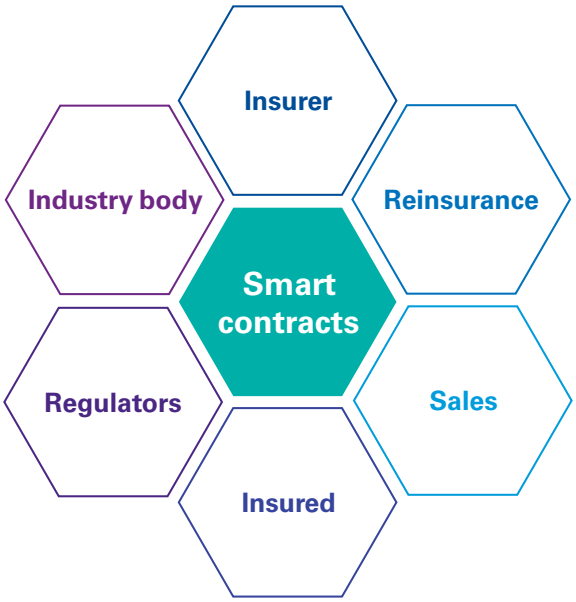
> “Proactive insurers are looking to blockchain to help drive their wider transformation agenda.”

Smarter solutions for smarter insurance

We believe that blockchain will play a major and disruptive role right across the insurance value chain. From customer onboarding and ‘Know Your Customer’ (KYC) requirements through to claims processing and adjudication, the potential use cases for blockchain in the insurance sector grow each day.

One of the more disruptive applications of blockchain is the development of ‘smart contract’ models. Smart contracts contain self-executing protocols that work with a blockchain to enforce the performance of a contract across all counterparties. Claims data is shared across all counterparties. Identities and contract provisions are immediately verified. Payments are automatically made. And, as a result, less adjudication and negotiation is required and costs are minimized.

Blockchain projects involving traditional bond issuance already envisage smart contracts that pay interest automatically, in addition to using the blockchain architecture to distribute capital. It would be a simple matter to extend this capital markets applications to areas such as CAT bonds in insurance — whereby claims are automatically paid if an event occurs.



Popular use cases for insurance

— **Travel and life insurance:** Develop a ‘pay as you travel’ insurance model that provides immediate payouts in the event of delays or cancellation.

— **Personal accident insurance:** Create a transparent and seamless claims journey that dramatically improves customer satisfaction.

— **Record keeping:** Leverage blockchain to create, organize and maintain company records in a single, reliable and accessible repository.

— **Digital identities:** Use blockchain data and digital ledgers to digitize and validate customer information and improve compliance.

— **Claims management:** Automate the verification of coverage and streamline claims settlement to improve operational efficiency and remove costs.

— **Reinsurance claims:** Allow for the automation of straightforward claims triggered by smart reinsurance contracts and models.

— **Surety insurance:** Create a ‘golden source’ of information on surety bonds that is available in real-time to all participants.

— **Peer-to-Peer insurance:** Build a peer-to-peer network to establish smart contracts without the need for an intermediary or administrator.

What is going to change?

At KPMG our teams have spent time mapping the impact of blockchain across the insurance operational ecosystem and have identified key areas of change for activities throughout the enterprise, see table below.

Illustration of insurance key activities

Insurance processes	Current activity	Future activity
Policy sales	— effect sales — coordinate sales by establishing sales territories, quotas and goals — establish training for reps — determine potential customers	— policy as a smart contract sale — sale for oracles, innovative coverage, riders and payout triggers — more insight into customer for coverage insights
Incident management	— capture NOL — determine liability for loss or damages — correspondence management — benefit calculation — customers interactions	— accident notifications by smart contract oracle initiated prevention and recovery workflows
Claims management	— information gather for purpose of setting claim — settled claims review — report irregularities — legal counsel consultation	— claims validation and loss determination by smart contract, oracles, smart underwriting and/or blockchain insight
Reserve calculation	— forecast risk and liability for payment of future benefits — ascertain premium rates and cash reserves	— real time data flows and claims determination provide faster insights for reserve calculation impacting support processes
Reinsurance	— reduce exposure to loss — risk transfer for higher limits — income smoothing by diversification — surplus relief, arbitrage, expertise	— industry consortiums to assess retrocessions in an automated manner using smart contracts
Underwriting	— evaluate risk and exposures of potential clients — determines risk, coverage and premium	— risk liability reduced along with premiums and claims payout. Multiple underwriting models to evolve
Fraud, risk determination	— special Investigation units to determine insurance fraud — determine falsifying facts of an accident — internal fraud determination	— claims fraud determination with quicker turnaround reducing recovery risks

Some impact Moderate impact Significant impact

The evolution of claims management in the blockchain environment

— **Today:** Claims data is inefficiently shared within the insurance organization, with agents and third parties such as repair shops. Processing typically involves significant manual data entry and duplication across the value chain. Human error and differences due to data timeliness are constant challenges.

— **Tomorrow:** Claims will be settled using smart contracts that streamline the verification of coverage and payment for repairs at authorized repair shops. Claims are filed and adjudicated using the coverage information recorded on the smart contract, thereby avoiding disputes and the need for additional reviews by claims adjustors. Claims payments will also be automated.

— **What changed:** Reduced administration costs, improved speed for claims payment and closure, greater customer visibility into claim information, new and innovative business models.

> Unlocking the value of blockchain must start with intense collaboration across the value chain.

Case study: Mobile insurance

When a regional insurer wanted to identify and qualify a mobile travel insurance use case for blockchain, they called KPMG to help create a robust business case and quantify the return on investment. Working with our ecosystem partners, we helped refine the use case and create a prototype that is currently being piloted within the organization. By digitizing their data and workflow and distributing it using blockchain architecture, the insurer expects to achieve a number of key benefits including:

- reduced incidences of fraud: The system allows for quick and easy external verification when an event has occurred
- quicker real-time payments: Invoices can be scanned and payments disbursed immediately
- enhanced customer experience and acquisition: Enables the direct mobile channel allowing the insurer to sell to last-minute buyers
- a superior claims experience: Trust in the brand is improved leading to additional sales and enhanced reputation.

Taking the next steps

Five actions executives can take now

1. Educate yourself, your executive team and your decision makers about the disruptive potential and threat posed by blockchain.
2. Develop a strategy and roadmap for implementing blockchain within the enterprise and with other third parties.
3. Nurture, foster, incubate, partner, invest or acquire blockchain and digital ledger skills and capabilities.
4. Get involved in industry blockchain and digital ledger partnerships, consortia, standard setting bodies and other collaborations as early as possible.
5. Identify and qualify the use cases based on a 100 percent focus on return on investment and a robust business case.

Start collaborating; start winning

There are many ways that insurers can start preparing for the disruptive impact of blockchain today. Some are already setting up incubators and joint ventures aimed at developing new concepts. Others are investing into supportive technologies and capabilities. Many are also investing resources and capital into pilot projects and proof of concepts.

While these are all important steps, we believe that unlocking the value of blockchain must start with intense collaboration across the value chain. Insurers will need to cooperate closely — sharing technology platforms and standards — to drive adoption. They will need to develop the ecosystem of technology providers, start-ups, investors and regulators. And they will need to work together to overcome the barriers slowing adoption.

They will also need to take a business-focused approach, both within their four walls and across the insurance ecosystem. Understanding the value and impact of other enablers, such as big data, digital labor and analytics, will also be key to maximizing the value of blockchain investments.

Those that start participating in these types of collaborations and focusing on business-led solutions and new technologies will be well positioned to take advantage of new opportunities as they emerge.

Return on investment: KPMGs approach

KPMG firms offers a lifecycle-based approach to the development and delivery of blockchain solutions in over 30 countries.

Our teams blend conventional business-based consulting applied through a blockchain lens to drive return-on-investment (ROI) and robust business cases. By combining the capabilities of our keen technical developers with a broad ecosystem, our teams create market-leading prototypes which can scale, industrialize and integrate into the existing organization.

Authors

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Eamonn leads KPMG's global digital ledger services practice focused on Capital Markets and regulatory requirements for client platform. He has more than 25 years of industry and consulting experience and has been prominent in assisting clients in the regulatory arena both domestically and globally.

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Michael has significant experience working with leading insurance companies to drive transformation leveraging digital, data, analytics, technology and best operational practices. He created and led the industry's first and leading practice around cognitive technology focused on financial services and insurance. Michael has a proven track record of delivering business value on large, complex transformation programs leveraging leading and innovative technology capabilities in conjunction with an insurers existing capabilities.

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Jan heads the Digital Village program at KPMG in Singapore. He is responsible for turning opportunities into customer-centric products and serves as an innovation partner for corporate clients. As part of KPMG's Digital + Innovation team, Jan helps to contextualize and commercialize start-up innovations to address new market opportunities. He brings international experience and knowledge of markets in the US, Europe, India and ASEAN. Jan is also a key mentor for Infocomm Investments and Singapore Management University's undergraduate program for innovation and entrepreneurship.

KPMG's Digital Ledger Services has Partners and professionals operating in more than 30 countries to provide life-cycle based blockchain consulting combined with technical prototype development.

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