



Asia

The Future of Blockchain in Insurance

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Blockchain is a revolutionary technology that is likely to have a far-reaching impact on business – on a par with the transformative effect of the Internet.¹ Not surprisingly, the huge potential promised by blockchain has prompted a flurry of research activity across different sectors as diverse organizations race to develop applications.

In this article, we'll explore the many benefits blockchain could bring to the insurance industry and the different challenges that will need to be overcome.

Overview

Blockchain has strong potential in the short and long term in several different areas, particularly where it links with emerging technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI). But its potential for delivering new applications also depends on the development of blockchain technology itself. In the medium and short term, there are three categories where blockchain can be applied:

- **Data storage and exchange**
Numerous data and files can be stored using blockchain. The technology provides for more secure, traceable records compared with current storage means.
- **Peer-to-peer electronic payment**
Bitcoin (and other blockchain-based cash systems) is a cryptographic proof-based electronic payment system (instead of a trust-based one). This feature is highly efficient while ensuring transparent and traceable electronic transfer.
- **Smart contracts**
Smart contracts are digital protocols whereby various parameters are set up in advance. When pre-set parameters are satisfied, smart contracts can execute various tasks without human intervention, greatly increasing efficiency.

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About This Newsletter

Insurance Issues provides an in-depth look at timely and important topics on property/casualty insurance industry issues.

Data storage and peer-to-peer electronic transfer are feasible blockchain applications for the short term. At this stage, the technical advantages of blockchain are mainly reflected in data exchange efficiencies, as well as larger-scale data acquisition.

Smart contracts via blockchain will play a more important role in the medium to long term. By that time, blockchain-based technology will have a far-reaching impact on the business model of insurance companies, industrial management models and institutional regulation. Of course, there will be challenges to overcome and further technological innovation will be needed as blockchain's own deficiencies or risks emerge during its evolution. But just like Internet technology decades ago, blockchain promises to be a transformative technology.

Scenarios for blockchain applications in insurance

Macro level

Proponents of blockchain technology believe it has the power to break the data acquisition barrier and revolutionize data sharing and data exchange in the industry. Small- and medium-sized carriers could use blockchain-based technology to obtain higher quality and more comprehensive data, giving them access to new opportunities and growth through more accurate pricing and product design in specific niche markets.

At the same time, blockchain-based insurance and/or reinsurance exchange platforms – that could include many parties – would also upgrade industry processes. For example, Zhong An Technology is currently working closely with reinsurers in Shanghai to try to establish a blockchain reinsurance exchange platform.

Scenario 1 – Mutual insurance

Blockchain is a peer-to-peer mechanism, via the DAO (Decentralized Autonomic Organization) as a virtual decision-making center, and premiums paid by each and every insured are stored in the DAO. Each and every insured participant has the right to vote and therefore decide upon final claim settlement when a claim is triggered.² Blockchain makes the process transparent and highly efficient with secure premium collection, management and claim payment thanks to its decentralization.

In China, Trust Mutual Life has built a platform based on blockchain and biological identification technology.³ In August 2017 Trust Mutual Life launched a blockchain-based mutual life insurance product called a “Courtesy Help Account”, where every member can follow the fund. Plus the platform reduces operational costs more than a traditional life insurance company of a similar size.

Scenario 2 – Microinsurance (short-term insurance products for certain specific scenarios)

An example of short-term insurance could be for car sharing or providers of booking and renting accommodation via the internet. Such products are mainly pre-purchased by the service provider and then purchased by end users. However, blockchain makes it possible for end users to purchase insurance coverage at any time based on their actual usage, inception and expiring time/date. In this way, records would be much more accurate and therefore avoid potential disputes.

Scenario 3 – Automatic financial settlement

The technical characteristics of blockchain have inherent advantages in financial settlement. Combined with smart contracts, blockchain can be applied efficiently and securely throughout the entire process of insurance underwriting, premium collection, indemnity payment and even reinsurance.

Micro level

Blockchain has the potential to change the pattern of product design, pricing and claim services.

- **Parametric insurance (e.g. for Agricultural insurance, delay-in-flight insurance, etc.)**
Parametric insurance requires real-time data interface and exchange among different parties. Although it is an efficient form of risk transfer, it still has room for further cost improvement. Taking parametric agricultural insurance and flight delay insurance as examples, a lot of human intervention is still required for claim settlement and payment.

With blockchain, the efficiency of data exchange can be significantly improved. Smart contracts can also further reduce human intervention in terms of claim settlement, indemnity payment, etc. which will significantly reduce the insurance companies' operating costs. In addition, operating efficiency is increased, boosting customer satisfaction.

Some Chinese insurers are already working on blockchain-based agricultural insurance. In March 2018, for example, PICC launched a blockchain-based livestock insurance platform. Currently, the project is limited to cows. Each cow is identified and registered in the blockchain-based platform during its whole life cycle. All necessary information is uploaded and stored in real time in the platform. Claims are triggered and settled automatically via blockchain. The platform also serves as an efficient and reliable food safety tracing system.

- **Auto insurance, Homeowners insurance**

Blockchain has wider application scenarios in the field of Auto insurance and Homeowners insurance when combined with the IoT. There are applications from a single vehicle perspective as well as portfolios as a whole. From a standalone vehicle perspective, the complete history of each vehicle is stored in blocks. This feature allows insurers to have access to accurate information on each and every vehicle, plus maintenance, accidents, vehicle parts conditions, history, and the owner's driving habits. Such data facilitates more accurate pricing based on dedicated information for each and every single vehicle.

From the insured's point of view, the combination of blockchain and IoT effectively simplifies the claims service process and claim settlement efficiency.

From the perspective of the overall vehicle, blockchain and IoT can drastically lower big data acquisition barriers, especially for small- and medium-sized carriers. This will have a positive impact on pricing accuracy and new product development in Auto insurance.

Taking usage-based Auto insurance (UBI) as an example, it's technically possible to record and share the exact time and route of an insured vehicle, meaning that UBI policies could be priced much more accurately. Of course, insurers will have to consider how to respond in situations where built-in sensors in the insured vehicle break or a connection fails. Furthermore,

insurance companies also have to decide whether or not an Umbrella policy is needed on top of the UBI policy, in order to control their exposure when such situations occur.

- **Cargo insurance**

Real-time information sharing of goods, cargo ships, vehicles etc. is made possible with blockchain and the IoT. This will not only improve claims service efficiency, but also help to reduce moral hazards to a degree.

In this regard, Maersk, EY Guardtime, and XL Catlin recently launched a blockchain-based Marine insurance platform cooperation project.⁴ Its aim is to facilitate data and information exchange, reduce operating costs among all stakeholders, and also improve the credibility and transparency of shared information.

- **International Program placement and premium/claims management**

Blockchain-based technology allows insurance companies, brokers and corporate risk managers to improve the efficiency of international program settlement and daily management, at the same time reducing data errors from different countries and regions and avoiding currency exchange losses.

- **Coping with claim frauds**

Blockchain is already being applied to verify the validity of claims and the amount of adjustment. In Canada, the Quebec Auto insurance regulator (Québec Auto Insurance) has implemented a blockchain-based information exchange platform.⁵ Driver information, vehicle registration information, the vehicle's technical inspection result, auto insurance and claims information, etc. are all shared through the platform. The platform not only reduces insurance companies' operating costs, but also effectively helps to reduce fraud.

All insurance companies that have access to the platform receive a real-time notice when a vehicle is reported to be stolen. Insurance companies have full access to every vehicle's technical information, which promotes more accurate pricing for individual policyholders.

- **Claims settlement**

Using a smart contract, the insured will automatically receive indemnity when conditions in the policy are met: human intervention will not be needed to adjust the settlement. In the future, some insurance products will effectively be smart contracts whereby coverages, terms & conditions are actually the parameters of the smart contract. When the parameters are met, policies are triggered automatically by the smart contract and a record stored in the blockchain.

Business models like this will not only build higher trust in the insurance company, but will also greatly increase its operational efficiency, reducing costs; it will also help to reduce moral hazard.

From a more macro perspective, “localized blocks” of data will be inevitable in the early phase of development in line with the pace of technical development and regulatory constraints.

In theory it is impossible to hack blockchain but data protection will be an issue for localized blocks. Therefore higher cyber security protection will be required to protect these localized blocks.

The interaction of blockchain with other technologies could mean that existing intermediary roles are replaced by new technologies in different sectors. If the insurance industry wants to ensure the continuous development of the intermediary it should address the possible disruptive risks to existing distribution business models posed by blockchain.



- **Internal management systems**

Internal management systems could be automated through use of blockchain and smart contracts, helping to improve management efficiency and reduce labor costs as well as the efficiency of compliance audit.

Challenges and problems

Decentralization strengthens information sharing and reduces the monopoly advantages that information asymmetry provides. Under such circumstances, insurance companies have to pay more attention to pricing, product development, claims services, and even reputation risk. All this adds up to new challenges for the company management.

At the same time, every aspect of the insurance industry must be more focused on ensuring the accuracy of original information at the initial stage of its business. Knowing how to respond to false declarations from insureds will be crucial.

The necessary investment (both tangible and intangible costs) associated with adopting blockchain technology is a big consideration for many companies at this stage. Insurance companies and reinsurance companies operate numerous systems and the decision to integrate blockchain based technology/platform shouldn't be taken lightly. At the current stage of blockchain evolution, this could be one of the biggest obstacles facing insurers.

Overall, blockchain is an inspiring prospect and there is every reason to believe that this technological breakthrough will bring positive effects to individual insurers everywhere. But at the same time, we need to understand the mutual challenges that lie ahead and work together to promote our industry's development in what promises to be an exciting new era.

Further reading

《区块链革命：比特币底层技术如何改变货币、商业和世界》，中信出版社，[加] 唐塔普斯科特(Don Tapscott)，[加] 亚力克斯·塔普斯科特著，凯尔·孙铭，周沁园译

Bitcoin: A Peer-to-Peer Electronic Cash System, Satoshi Nakamoto

Understanding the blockchain, William Mougayar, 16 January 2015

Allianz France Crée une nouvelle direction Big Data-Intelligence Artificielle, Presse communication of Allianz France (<http://www.lassuranceenmouvement.com/2017/02/09/allianz-france-cree-une-nouvelle-direction-big-data-intelligence-artificielle/>)

Assurance : les premières offres fondées sur la blockchain font leur apparition, Les Echos, 18 September 2017

Blockchain et Assurance entre Ambition et Réalité : les Erreurs à ne pas commettre, 2 January 2018, www.insurancespeaker-wavestone.com (<https://www.insurancespeaker-wavestone.com/2018/01/blockchain-assurance-entre-ambition-realite-erreurs-a-ne-commettre/>)

Endnotes

- 1 Please note that the blockchain discussed in this article does not involve any kind of digital or crypto currencies such as Bitcoin.
- 2 For example, a Russian insurer Teambrella: <https://teambrella.com/>
- 3 Website: <https://www.trustlife.com/>
- 4 Hélène Stanway, Digital Leader of XL Catlin, 23 November 2017
- 5 La Société de l'Assurance Automobile du Québec, <https://saaq.gouv.qc.ca>

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