HOW THE BLOCKCHAIN TECHNOLOGY CAN CHANGE THE VALUE CHAIN IN THE INSURANCE MARKET

https://doi.org/10.47743/jopafl-2022-24-29

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Abstract: *When we talk about blockchain technology, including in the insurance market, we look at this whole situation from at least three perspectives: decentralization, transparency and security and possible more competitive costs in conducting transactions. Another perspective is that of smart contracts and the elimination of intermediation in the value chain. In this article we will show the challenges that arise in the insurance market, what is the impact of the blockchain, how to change the value chain including by changing traditional business models and we will give an example of new types of insurance and business models and how they can be managed such new situations, in a new paradigm. We will also refer to how blockchain technology can be used in an insurance company by referring to the underwriting process, damage management, the relationship between insurers and reinsurers etc.*
Keywords: *Blockchain; valuechain; insurance; decentralization; business models, reinsurers.*
JEL Classification: *O33, O38, G22, G28*

Introduction

The international insurance industry today faces many challenges - from changing demographic and risk distribution patterns, to managing an ecosystem of new and growing players, to changing value chains, to meeting customer expectations. The Covid-19 pandemic has led to accelerating digitisation and innovation in various industries, including the financial market. We often associate blockchain with the cryptocurrency industry, but this type of technology is used in areas ranging from education to the automotive industry to the healthcare industry etc. As we will show below, the insurance industry can also develop close links with the area of technology, digitisation and blockchain technology.

Table 1.

Real-World Blockchain Applications

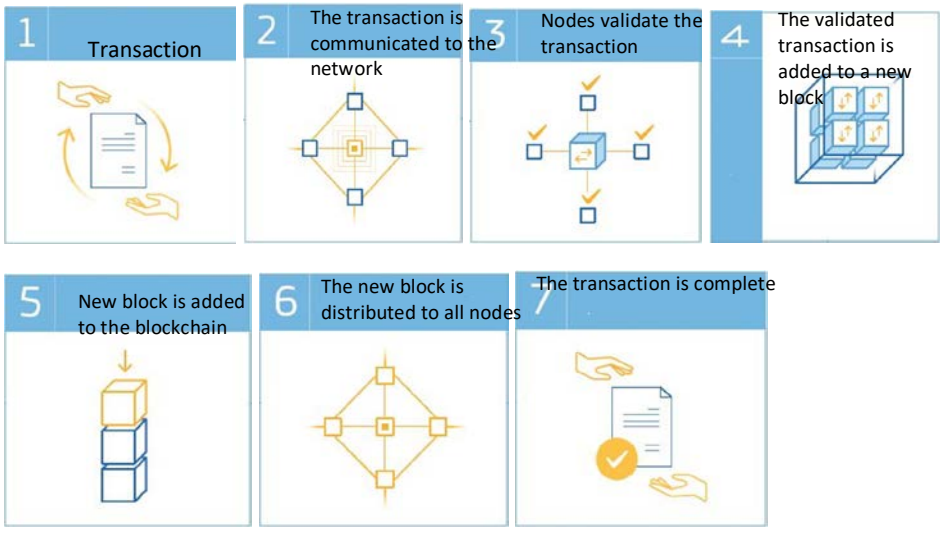
Industry	Organization	Singular Idea
Automobile sales	Visa and Docusign	Blockchain to build proof of concept for car leasing: click, sign and drive.
Accounting	The American Institute of CPAs, ConsenSys, Balanc3 (Deloitte, Ernst & Young, KPMG and PwC consortia)	Triple-entry accounting on blockchain.
Banking	R3 (consortium of more than 70 major banks)	Corda synchronizes financial agreements between members.
Education	Holbertson School, Sony Global Education	Recording students' results on blockchain.
Energy	LO3, ConsenSys	Paid energy trade using blockchain.
Entertainment	Disney	Disney develops its blockchain: the Dragonchain.
Healthcare	IBM, Food and Drug Administration	IBM and FDA use blockchain to improve public health.
Internet of Things	Chronicled, Amazon	Chronicled launches Internet of Things Registry.
Social media	Steemit	Steemit uses blockchain to create new social media network that pays for content.
Supply chain management	Walmart	Walmart tests supply chain management using blockchain.

Source: How the Blockchain will revolutionize Insurance, Patrick G. Schmid, p. 5

Blockchain technology – pillar of the process of digitisation

All these new models can bring challenges, including from technological progress and increased digitisation. Although the concept of insurance has not changed, the insurance paradigm is different today, the way insurers understand to tailor the product architecture is different. Digitisation, the internet, new business models, are all consolidating and setting new milestones in the insurance market. Today the financial industry is creating new synergies with technology leading to process and product innovation.

Figure 1. How blockchain technology works



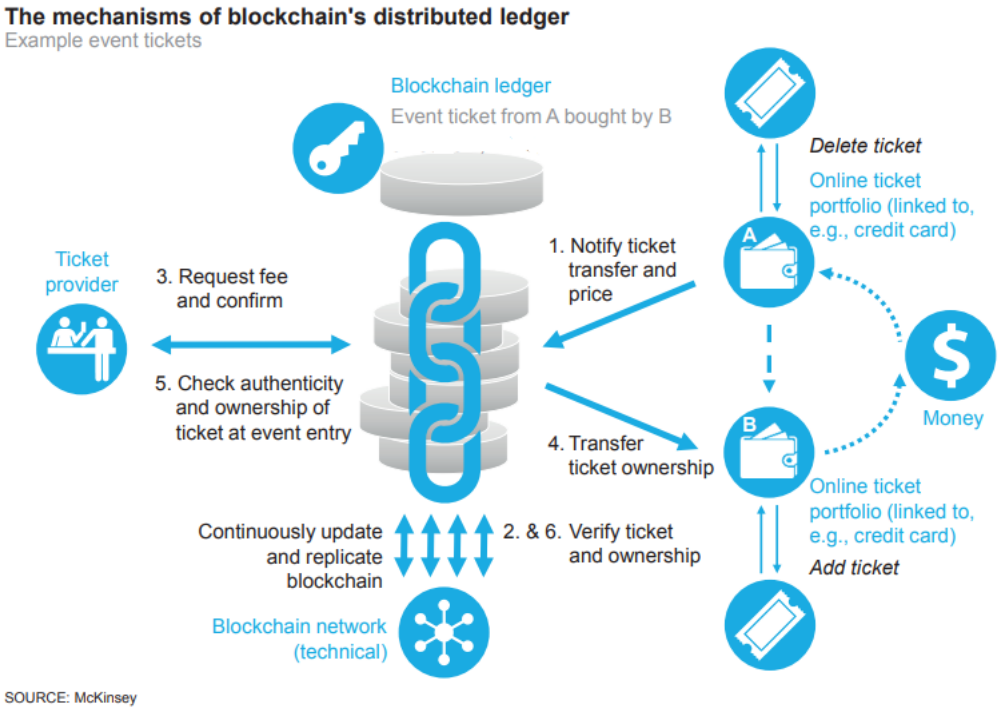
Source: Blockchain Now And Tomorrow: Assessing Multidimensional Impacts of Distributed Ledger Technologies, Publications Office of the European Union, Luxembourg, 2019

Blockchain technology can be assimilated to the process of digitisation and technologisation in various business sectors and in the financial market, including insurance. Blockchain is a distributed data system in which the related records, verification does not imply a certain control, is based on consensus. It is precisely these characteristics that contribute to transparency of transactions, speed of processing and low costs.

Basically, in the insurance market, players (sellers, intermediaries, insurers and other entities) can interact with each other and reach consensus through a blockchain platform or network. In summary, the basic attribute of blockchain networks and technology at large is decentralisation. As with other industries, blockchain is helping to make smart contracts in the insurance industry a reality.

Blockchain technology has the potential to transform the functioning of many sectors of the economy, being applied to increase efficiency, reduce costs, decrease the need for intermediation and increase transparency as well as to increase the security of transactions and operations.

Figure 2.



In insurance, Blockchain technology and Smart contracts can be used for (for example):

- claims management in a transparent and efficient way;
- better risk assessment;
- lower administration and underwriting costs;
- more accurate pricing,
- automated claims submission and processing;
- earlier and more effective fraud detection;
- automatic payments etc.

Extending this and taking into account the consumer perspective, it can be considered that Blockchain technology can improve the consumer experience through automation but also the development of new products and services offered by insurance companies and especially their suitability to the real needs of customers. Blockchain is a technology that is assimilating the process of accelerated digitization and can develop strategic points for insurers by facilitating strong collaboration with major technology players aimed at operational and commercial value chain transformation. As we showed earlier, from the insurers' perspective, an important element is Smart Contracts that can be based on blockchain technology - deterministic IT programs that are built on the blockchain system/network and are able to carry the terms of an agreement between the parties without the need for human intervention.

Although the concept of smart contracts can be linked or integrated into a broader context such as digitisation, blockchain technology has refined and streamlined all these processes. Thus, agreements are recorded and validated in the blockchain network and can then be automatically executed and enforced usually with the "if-then" instruction: if something happens (e.g. the flight is delayed) then certain transactions or actions are triggered (e.g. payment for ensuring the flight delay is automatically transferred). As a general consideration, blockchain can be used across the insurance value chain, automating underwriting and claims management through the use of smart contracts. A Smart Contract allows 2 or more parties to conduct a secure transaction without the need for intermediaries in a fast, secure and cost-effective way. Transactions are verified and are added to Blockchain safeguards that reconcile conflicts or mismatches so that at the end only one valid transaction remains (no duplicate records). They can be an effective way to automate certain rights and obligations in the insurance contract. Verification of the fulfilment of the conditions of the contract is done with the request for security data (input).

EIOPA - the European Insurance and Occupational Pensions Authority has identified increasing complexity in the way insurance distribution is carried out, with new types of distributors and new types of products emerging, with technology getting in the way of the traditional sales or distribution process. One of the challenges could be the emergence of platforms and ecosystems, which can significantly "disrupt" existing production and distribution. Advances in technology, blockchain and their adoption are creating opportunities for insurance companies to modernise and reinvent themselves through new product and service offerings and by evolving their business models. This whole process complements the new framework in which insurers operate.

In this context, several transformation vectors are identified, each of which plays a key role, as follows:

a) Positioning of companies at international level

In recent years, the main insurance providers have been looking for an international market share and are no longer content with their traditional domestic and therefore limited distribution markets, the international horizon being the one in which the new business models that are based on wide exposure are set. Insurers want to enter markets where there are fewer players and/or a larger population where there are business opportunities. The Indian insurance industry, for example, has seen a number of new private entrants in the last decade, attracted by the large population and a high percentage of young people. All this has led to the insurance market in the region taking on a different dimension, both in

terms of size and business profile. Many leading international insurance providers, global financial groups have partnered with Indian counterparts for a market presence and to identify a growth vector. This is similar in several emerging economies, with this type of approach not necessarily existing in frontier economies. While the presence of insurance providers is good for the future viability of a country, the market is highly competitive, which can contribute to both quantitative (underwriting) and qualitative (product and after-sales service) development. Investment in technology can be the key to capturing a larger share of the market and to a good positioning in the medium and long term.

b) Financial inclusion in the context of access to insurance products and services

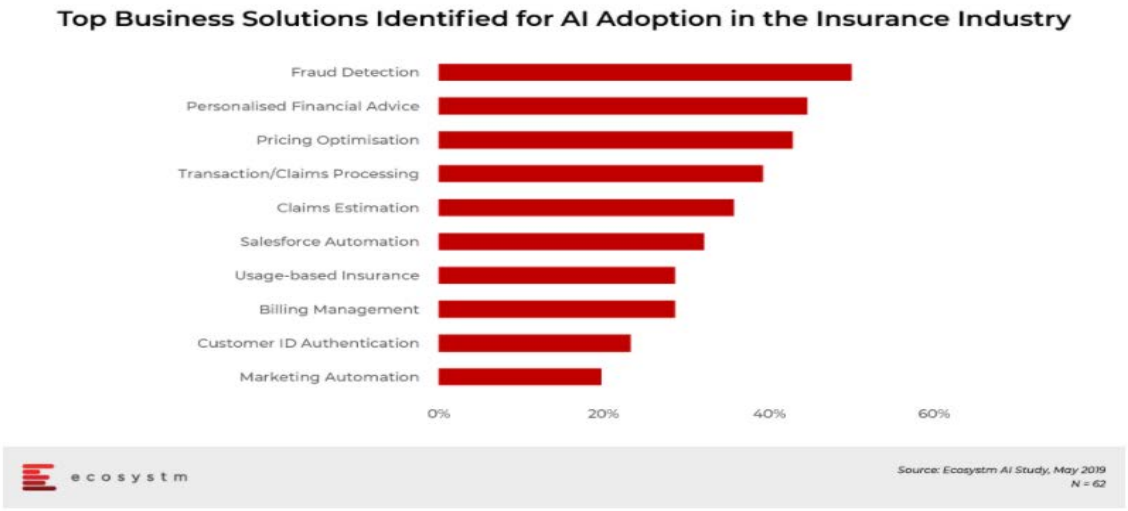
Today's customers/consumers are much more skilled and interested in technology and expect a certain level of service and easy access – financial inclusion. Consumers want easy access to products and in a way that is as fast as possible and the costs to be as low as possible. Moreover, rapid access to the internet and technology motivates consumers to do basic research to evaluate their best options, with comparative analyses of products, services and providers relatively simple to carry out. The Fintech/InsurTech revolution is also having an impact on the customer base, as they expect services such as instant approval and prefer to buy products and services only when they are absolutely necessary. This "on demand" market has fuelled the microinsurance industry and opened the door for smaller providers, which is growing. On-demand insurance is correlated with insurance cover, which is closely linked to the actual time spent „on risk" (e.g. kilometres driven). Also in this approach, technology, digitalisation allow consumers to buy insurance e.g. via smartphone or computer without interacting directly with a broker or insurer. Technology continues to evolve, bringing new opportunities, social change and new expectations for consumers. In response to technological dynamics, insurers and intermediaries are developing and reviewing business models. Third parties - BigTech companies, startups, etc. - are also intervening in this new situation. The most common application of „on-demand" insurance concerns vehicles (car, scooter, van, bicycle), consumer goods (e.g. electronics), travel and public liability (generally for those in lower risk professions/occupations).

c) Challenges for regulators and regulatory requirements

In the wake of the 2008-2010 financial crisis, regulators have been concerned to bring greater accountability to financial markets, including the insurance market. Moreover, in most countries, regulations have incorporated business conduct guidelines aimed at consumer protection, and these issues are extremely important. The protection of consumers of financial products and services is one of the main objectives of regulators, with both reactive and proactive approaches. Essentially any change in the value chain, in the way consumers interact with insurance companies, can bring a number of risks and challenges and it is particularly important that the way in which they move out of the traditional area is properly managed and analysed. Insurance companies are still at an early stage in adopting AI and InsureTech specific technologies but the adoption process is accelerating. Cybersecurity has been a constant concern for many years (as it should be), a common concern in any area where technology creates new processes. The biggest challenge facing the insurance industry in adopting AI and other data-driven technologies is effective data management - from access to integration. An InsureTech implementation

should benefit multiple departments - underwriting, claims, sales and so on, basically the core business area of the insurance company should be based on digitization including blockchain approach. All these departments need to be prepared to deal with possible shocks or cyber attacks, especially as the frequency is likely to increase as the technology is increasingly adopted, with the adoption rate increasing.

Figure 3.



d) Platforms, insurance ecosystems and entities outside the traditional insurance system

Non-insurance platforms (those not in the business of offering insurance products) could offer insurance services as a complement to other online purchases. The growth of online distribution is expected to be boosted further as BigTech companies play an increasing role. Companies in other industries with a distribution network and a large pool of existing customers (e.g. supermarket chains, travel companies, airline companies, etc.) are also potential competitors to enter the insurance market as intermediaries.

From an insurance company perspective, financial platforms and ecosystems offer traditional insurers opportunities to use advanced analytics to evolve and expand their business models and align with new market trends or consumer behaviour. Financial ecosystems are growing in Europe. Some examples include dedicated insurance contracts offered by various suppliers in the purchase process (online or offline) for items such as optical glasses, flight and hotel bookings, car rental and mail order packages, as well as household electronics (e.g. electronics chains offer an extended warranty/insurance for smartphones, laptops or computers).

Examples of new approaches in the insurance market - through technology:

- In Germany there is a private health insurer that offers telemedicine to consumers. There are some indications that some insurers aim to create ecosystems;
- In the Netherlands, although the number of insurance policies is still limited, there are several car-sharing platforms offering coverage and there is a peer-to-peer (P2P) platform through which insurance products are sold;

• In Austria, some insurers have shown interest in expanding their pre-sales process through online platforms that allow cross-selling.

This new paradigm identifies challenges for regulators/supervisors to keep up with new business models, new distribution models and new approaches in general.

Conclusions

The insurance market can be expected to develop increasingly diverse synergies with technology, with the blockchain area in the paradigm of increased digitalisation. Certainly, technology brings multiple benefits, but as we have shown above, risks need to be handled carefully and there will be new challenges for regulators. Not all states have developed regulatory responses to new technologies but the supervisory process will obviously follow the blockchain area and digitisation in general.

Blockchain technology will contribute to the development of new business models with real-time risk management tools and will allow for both product sophistication and increased consumer accessibility. Although blockchain is present in the insurance market, the potential of this technology has not yet been reached.

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