

# Blockchain: A brave new world?

**B**lockchain is a technological revolution that some say promises astounding benefits with relatively few drawbacks. Blockchain, better described as distributed ledger technology, has “immense potential ... to positively transform the industry and benefit customers,” according to B3i, one of the insurance industry’s several exploratory initiatives. However, blockchain may also bring uncertainties and unintended consequences.

Some of the commonly cited benefits include:

- Self-executing, or ‘smart’ contracts allowing automatic payments when agreed ‘parametric’ triggers occur.
- Reduced overhead because smart contracts reduce the need for claims staff, lawyers and extensive paper trails.
- Fewer disputes because payment triggers will necessarily be specifically defined in computer program language.
- Contract certainty because the evidence of a commitment is immediately and permanently established and cannot be forged or removed.

B3i and similar groups’ work to move blockchain from concept to reality are important initiatives. The technology does indeed hold out potential to transform the insurance industry. While these changes should be embraced and developed, insurers and their regulators must recognise the many uncertainties associated with digitally based contracts, and the unintended consequences that may result. This article highlights some of them, but is certainly not an exhaustive examination of all the ramifications flowing from blockchain.

#### What does it mean?

One issue is the lack of a uniform definition of blockchain. *Forbes Magazine*

defined blockchain as “a public register in which transactions between two users belonging to the same network are stored in a secure, verifiable and permanent way.” Technology publisher ZDNet.com defines it as “an algorithm and distributed data structure for managing electronic cash without a central administrator among people who know nothing about one another.” The professional services firm PwC states simply that blockchain “is the technology that enables the existence of cryptocurrency (among other things).”

Because the term has many definitions, there can be confusion in regulating and integrating the technology into current legal frameworks. Then there is the frequent assertion that blockchains are ‘immutable,’ unchangeable for all time. However, this may be misleading. ‘Soft forks’ and ‘hard forks’ – changes to the open-source code that either restrict the ruleset to previously valid blocks (soft) or result in a permanent divergence from the previous blockchain so that nodes running the previous version will not be accepted (hard) – are made to modify or radically change a blockchain, for example to prevent hacking of cryptocurrency.

Attempts to establish blockchain contracts that meet traditional legal requirements for contracts has led to misconceptions about the technology. Blockchain agreements exist as computer code, not in the common language of traditional contracts. The use of code-based agreements has raised concern sufficient for some US states to enact legislation recognising their legality (including Arizona and Illinois). Regrettably, some state legislators’ inaccurate understanding of the technology is creating more legal questions. For example, in March 2017 the State of Arizona enacted a blockchain statute that officially recognises the legal standing of blockchains. However, in defining ‘blockchain technology,’ Arizona law states “the data on the ledger is protected with cryptography, is immutable and auditable and provides uncensored truth.”

The inclusion of the phrase ‘uncensored truth’ has been roundly

criticised as not based in fact. Recent attacks on blockchain networks prove this. Known as ‘51% attacks,’ they let an organisation control the majority of the network mining power. Once thought a mathematical impossibility, the attacks show that blockchain is not beyond coordinated malicious efforts which could potentially lead to something other than ‘uncensored truth.’

State legislators’ efforts to dispel questions about blockchain agreements’ legality are beneficial to furthering the implementation of the technology but lack of clarity in statutes may cause litigation by contracting parties whose expectations were influenced by them. If individual states are adopting different interpretations, imagine the impact of international cross-border uncertainty.

#### Is it airtight?

Beyond basic foundational questions about blockchain’s legal status, challenges remain in the implementation stage. For example, human error may have unexpected results. A blockchain contract is computer code, and the code’s development is dependent (at present) upon human programmers. Errors in code development must be anticipated. For example, if an insurer and policyholder agree that an insurance policy will pay claims if the loss exceeds \$50,000, but \$5,000 is inadvertently entered into the blockchain, the contract will automatically pay out at the erroneous level. It will be difficult to prevent the smart contract from executing on an erroneous basis unless ‘multisig’ transactions are used and trusted third parties are effectively given the role of arbitrator. Clearly this would create scope for old-style disputes, evidence gathering and delay.

Removing claims handlers from the claim process, while reducing overhead costs, also removes the interpretive skills that claims staff provide in deciding whether to pay an insurance claim. Critically, as blockchain contracts provide for immediate, automatic payment transfers when claims satisfy predefined criteria, insurers will not

have time to file a legal action to prevent the payment. Instead, they will need to seek reimbursement, perhaps through an unjust enrichment claim more akin to the practice in banking where letters of credit and guarantees may pay first and dispute later. In this sense, the most immediate scope for smart contract-based insurance seems likely to be in the world of parametric triggers: “if this occurs, then that happens.” If a payment is to be made in certain specified conditions, irrespective of actual loss, then they seem ideal. If payment is geared to provable loss in the absence of non-compliant behavior, automation seems harder to achieve but this also opens up the possibility of new and exciting replacements for traditional insurance concepts of contingency and loss.

“The technology does indeed hold out potential to transform the insurance industry”

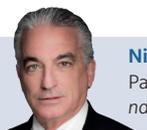
As the US National Institute on Standards and Technology (NIST) stated earlier this year:

*Countless news articles and videos describe the ‘magic’ of the blockchain ... There is a high level of hype around [their] use ... yet the technology is not well understood. It is not magical; it will not solve all problems ... blockchain technology is not a silver bullet, and there are issues that must be considered such as how to deal with malicious users, how controls are applied, and the limitations of any blockchain implementation. That said, blockchain technology is an important concept that will be a basis for many new solutions.*

Blockchain technology could undoubtedly transform the insurance industry and the ability of business and individuals to displace risk. However, as with any revolution, a balance of caution and innovation is essential. The blockchain panacea will arrive with its own problems to solve and regulators, insurers and insureds will find these equally challenging.



**Christopher R. Barth**  
Partner, Locke Lord, Chicago  
cbarth@lockelord.com



**Nick J. DiGiovanni**  
Partner, Locke Lord, Chicago  
ndigiovanni@lockelord.com



**Nigel Montgomery**  
Consultant, Locke Lord, London  
nigel.montgomery@lockelord.com