

Blockchain for Business

From finance to insurance, smart contracts have the potential to revolutionize major sectors and industries

By Stephen Obie & Harriet Territt

Organizations across every sector and of every size and complexity are being told that blockchain technology will revolutionize their business – both for the better (by reducing costs/transaction times or increasing security) and for the worse (by disrupting or even extinguishing entire business lines that can be replaced by the new technology).

The great strength of blockchain technology is its flexibility and adaptability to a range of business uses. However, this flexibility also presents a significant challenge to any organization wanting to implement the technology for the first time.

Key issues to consider are: (1) the overall design and control of the system; (2) potential liability for use (or misuse) of the data contained on it; and (3) the consequences that flow from being able to track data and transactions on an immutable, nearly real time basis.

There are other challenges – not the least of which is how to integrate

blockchain ledgers into existing systems and manage data transfer between those systems in compliance with laws and regulations.

What Is Blockchain Technology?

Blockchain is a technology for storing, tracking and processing information. At its simplest, a blockchain is a digital database of transactions.

As represented in the diagram on the next page, each transaction is stored in a block of data that is securely linked to the blocks containing previous and subsequent transactions (hence the name). The secure link between blocks makes it simple to track and audit the validity of the data, making blockchains much more difficult to hack or falsify.

Blockchain technology is also capable of running “smart contracts.” A smart contract is a piece of computer code using standard prewritten logic (e.g. if this happens, then that is the outcome). When a smart contract is stored on a blockchain, it can be made self-executing and self-enforcing. In other words, when the “if this” condition

in the smart contract is fulfilled, the “then that” transaction outcome is automatically put into place by the blockchain, without the need for any human intervention or approval.

Banks and Financial Institutions

There is a wide range of possible uses for blockchain, particularly in relation to financial transactions. The majority of the discussion to date has focused on banking and financial services – both because the technology has the ability to significantly disrupt the way that existing financial transactions are carried out and because it would allow banks to carry out current transactions more quickly and efficiently.

Trading, Clearing and Settlement

In the near term, the most active use case for the technology in banking will be in trading, clearing and settlement – i.e., the process of turning an executed transaction into value by transferring an asset in exchange for payment by a settlement date. Currently, clearing and settlement across a range of financial assets requires intermediary organizations that take on the role of processing and reconciling instructions and orders between transacting parties. Trade settlement is often done on a T+2, T+3 or T+5 basis, meaning that the buyer and seller are exposed to the risk of a significant market change in that two-, three- or five-day period.

Blockchain technologies offer the possibility of quicker and cheaper clearing and settlement using the traditional infrastructure, but they have also introduced a host of new market participants that offer settlement of transactions without even using traditional intermediaries.

Potential advantages: Quicker transaction times, reduced third-party costs, reduced collateral obligations on participants, reduced risk of information inconsistency/need for reconciliation between parties.

Loan Origination and Securitization

Efforts are also underway to apply blockchain technology to loan origination and securitization. The current process involves multiple market participants with extensive manual inputs. Originators, sponsors/issuers, servicers, rating agencies, trustees, investors and regulators evaluate and track data and create

various models that result in significant duplication of work and gaps that could create commercial and legal risks. In addition, originators could open their portfolios for investors to meet their risk appetite or to combine claims from different originators according to their risk profiles.

The Structured Finance Industry Group and the Chamber of Digital Commerce have partnered to advance the use of blockchain technology in the loan origination and securitization markets, and they have commissioned the auditing, consulting and tax services firm Deloitte to issue a white paper providing an overview. There are also various initiatives looking at the individual steps along the value chain in order to identify specific elements that are suitable use cases for blockchain and/or smart contract technology, either at the origination level (including know your customer requests) and/or at the node level to automate these processes.

Potential advantages: Lower costs, enhanced transparency, reduced risk of errors and fraud. Permits originators to move away from single large transactions and move toward more frequent granular and automated transactions (i.e., smart contracts) in accordance with their funding needs. Can open up funding opportunities for new market entrants, particularly in countries where funding via capital markets has not yet reached full potential, for example in parts of Africa.

Know Your Customer (KYC)

KYC requests are a significant cause of delay in consumer, retail and commercial banking transactions. In addition to the time that KYC takes, current processes require duplication of effort between banks and other third-party institutions and have significant cost implications. If a customer can provide its KYC information to a blockchain in a form that a group of banks agrees is acceptable to them all (perhaps with a level of third-party verification), each bank could rely on the ledger as the basis for its KYC rather than having to conduct its own checks. The customer has to supply or update the information only once and can have confidence that the information is disclosed only once for the purposes of checking and verification.

However, this use case raises another issue that banks will need to consider



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carefully – the safety and security of information stored on a blockchain. Although the very nature of a distributed ledger makes it significantly more difficult to hack, secure storage of customer data, particularly consumer data, will be a key issue for regulators. **Potential advantages:** Better customer experience, greater access to financial services for consumers and other users, lower costs, enhanced transparency and auditability for banks, better security and reduction in fraud risk, enhanced compliance with KYC obligations.

Payments

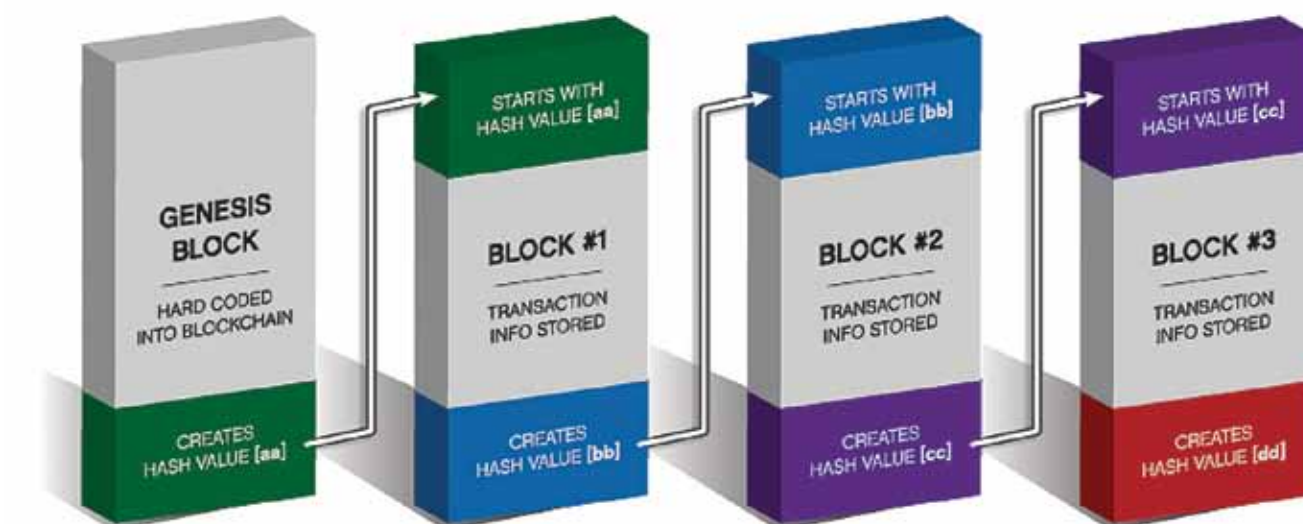
One of the most high-profile, active examples of blockchain technology is the bitcoin cryptocurrency system, which can be used to make or receive payments to third parties. While it is unlikely that any business-to-business payment blockchain will replicate the way that bitcoin works (e.g. it will not be acceptable for big businesses to allow users of a payment system to remain anonymous), the transfer of value always has been complicated and slow, and the process has not changed significantly since the early 1980s. This is particularly true for cross-border payments. Organizations such as SWIFT and R3 (a banking industry consortium) are developing payment systems using blockchain technologies that will allow bank-to-bank, business-to-bank and business-to-business payments and promise quicker and cheaper transactions. Just as an example, a blockchain payment system could allow a bank to process payments continuously, 24 hours a day. However, a significant issue that those projects will need to address is that of scalability – no blockchain has yet been able to process billions of transactions a second in the way that current bank payment systems can.

Potential advantages: Quicker and cheaper transactions for customers, reduced costs and liquidity obligations on payment processors, greater transparency and traceability of payments, reduction in fraud.

Corporations

Trade Finance

One area of business that could be transformed by blockchain technologies is trade finance – the historic process that traces its roots back to 16th-century European merchants. Current processes normally require banks to issue letters of credit or other forms of



finance against shipped goods, which can be hard for smaller businesses to obtain at a reasonable cost, and can also lead to long delays in payment for the seller or exporter.

The ability of a blockchain to track real-world assets in real time and release payments automatically (via smart contracts) upon delivery of goods would make it easier for companies to agree to export goods and have confidence in receiving payment. It would also give the buyer confidence in delivery and reduce the risk of fraud involving goods that are stolen or substituted during the transport process.

In October 2016, Wells Fargo and the Commonwealth Bank of Australia used a blockchain to process a shipment of cotton from the United States to China for the first time, including a smart contract to execute the terms of the sale, transfer ownership of the goods on receipt and initiate payment to the seller.

Potential advantages: Transparency and visibility of the transaction at every stage of the process, reduced costs, reduction in fraud and disputes over transactions, greater access to cost-effective trade finance for smaller businesses.

Supply-Chain Management

In a similar way, blockchain technology will allow companies to securely and transparently track the permanent history of products they produce – from manufacture to sale – including any third-party components used.

A blockchain could be used to record the nature, quantity and transfer of assets; track purchase orders, receipts and shipment notifications; assign certifications or record properties of physical products, as well as link physical goods to serial numbers, bar codes or RFID tags. It is even being used by some companies to monitor and record the conditions

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in which perishable goods are stored as they move through the transport process, giving the end consumer farm-to-table visibility of the food items they are purchasing.

Potential advantages: Significant opportunities to reduce fraud, introduce manufacturing efficiencies, improve traceability of products, and improve the end-customer experience. An example is the successful startup Everledger, which has uploaded unique identifying data onto a blockchain ledger system to reduce crime and insurance fraud and help the jewelry industry comply with regulations barring “blood diamond” products.

Intellectual Property

Blockchain technology is already making it easier for people and companies to protect their intellectual property. Several startups enable content owners to create a permanent record of their work in a public database based on blockchain technology. This technology provides a time-stamped proof of creation that many content owners lack because they do not immediately register copyright of their work. Existing applications of the technology will allow people to authenticate artistic works and monitor the transfer of ownership between sellers and buyers. Content owners can also use the technology to publish their works, manage licensing options and control their digital rights.

Potential advantages: Enables content creators to prove ownership and control distribution of work, verify authenticity, and resolve problems of attribution.

Insurance

A number of the use cases discussed above are relevant to the commercial insurance industry. Blockchain technologies also have the potential to change the way that personal insurance products are written and managed. Blockchain-based personal identity schemes could be used by insurance companies to validate claims and make payments to people without needing to undertake significant adjusting activity. Many commentators and insurance companies have focused on the life insurance industry in particular, where registration and confirmation of death can be a time-consuming and upsetting process for families when they are at their most vulnerable. Blockchain-based insurance systems allied with smart contracts could enable claims to be processed automatically upon formal notification of death, with payments to the beneficiaries being made within days (rather than months). These features can also be applied to casualty insurance, such as car insurance.

Potential advantages: Reduced costs, better customer experience, reduced risk of fraud.

Legal Issues to Consider When Implementing the Technology

The precise legal issues that arise on any implementation of blockchain technology will vary, depending on the sector, product and use case. A manufacturer using blockchain to track third-party components incorporated into its products will have a particular focus on product liability issues, whereas a bank using blockchain to process customer payments will be highly focused on consumer regulation and data security. It is important to focus on the legal issues presented by the use of blockchain in the business you are attempting to develop, and we have been advising clients on a number of these fronts across various practices and jurisdictions.

The views here are the personal views of the authors; they do not necessarily reflect those of the law firm with which they are associated.