

How Blockchain Could Upset, Facilitate Business

It could turn out to be the most disruptive technology since the Internet. But what is blockchain, and why does it belong on boardroom agendas? By Jesse Rhodes

Blockchain—perhaps the most well-known form of distributed ledger technology—has been a recurring news item over the course of 2017. In July, Delaware became the first state to allow businesses incorporated there to use blockchain for record-keeping purposes—including maintaining lists of shareholders and issuing stock. This development is significant because at least 60 percent of U.S.-based corporations are incorporated in Delaware. Before signing the bill into law, Gov. John C. Markell Jr. launched an initiative to use blockchain to improve government efficiencies. In October, J.P. Morgan Chase & Co. announced a new blockchain-based payment processing network that's expected to speed up transactions between global banks while reducing associated costs. In addition, blockchain is the technology that underpins cryptographically secured digital currencies like Bitcoin—which recently became the subject of a Chinese regulator crackdown on account of its perceived ties to money laundering and other fraudulent activity.

Although its applications have primarily been in the financial sector, the impact of blockchain technology may rival how the Internet reshaped business in the mid-1990s. Yet integration of the technology into existing business models remains limited. According to a recent survey of financial institution executives by Bain & Co. in collaboration with Broadridge Financial Solutions, 80 percent of respondents said that blockchain will have a major impact on that sector and anticipate their organizations will be using the technology before 2020. Yet 38 percent are taking a wait-and-see approach, while others are doing nothing at all—partially because the newness of the technology won't help deliver near-term results.

Blockchain is gaining traction, however, making it imperative for directors to gain a fundamental understanding of the technology and the ways in which it could disrupt the organizations they serve.

The Basics

Broadridge has been investing in its own blockchain initiatives for more than two years and recently announced two successful pilot projects designed to streamline the proxy voting and the securities lending processes.

Horacio Barakat, vice president of corporate strategy, and Lyell Dampeer, corporate vice president, U.S. Investor Solutions, at

Broadridge recently spoke to *NACD Directorship* to explain the wide-reaching implications of blockchain. Simply put, blockchain is a ledger of transactions that are independently confirmed by computers connected by a peer-to-peer network. Transactions are stored in blocks, and once all elements of the network confirm that the transaction is valid, the blocks of data are locked into a chain, making them unchangeable.

Dampeer offered the following scenario to illustrate how blockchain simplifies the transaction process by eliminating the middle man: “If I’m in the streets of New York and I want to buy a pair of sunglasses and I see a street vendor, I can see the glasses in front of him and the vendor can determine that I have the cash in my hand to pay for them. We don’t need a bank, a credit card company, or anybody else in the middle of that transaction. I take the glasses, hand over the money, and we’re done. But in most transactions, there’s somebody that sits in the middle of that to validate that the seller of goods and services has them to sell and in turn they validate that I have the ability to pay for it. In a distributed ledger environment, you don’t need someone to do that: you give me the key to determine that you actually have what you say you have and you have the ability to determine that I have what I say I have. And, if you think about it that way, you could argue that the technology is incredibly disruptive to many things that are done today. At the same time, it’s hard to understand the rate at which that’ll happen, and it does seem to require fairly wide adoption by everyone to make this an efficient process.”

How blockchain is being received and utilized in Delaware, Dampeer said, illustrates the application of the technology beyond financial transactions. “A simple example would be property records being kept on a blockchain as an immutable record of ownership of property,” he said. “Let’s talk about real estate as an example. You would no longer need title searches and title insurance, for example, because there would be this immutable record accessible in controlled ways to anyone looking to acquire a piece of property. I could determine that you were the sole and rightful owner of a piece of property without having to engage a third party to do that work for me, which is the current process. If you tie that in with the concept of a cryptocurrency like Bitcoin, I could determine that you own the property and pay you with cryptocurrencies in a direct transaction, removing the need for a bank, a mortgage

company, a title search company, and title insurance company in the process.”

In short, the human intermediaries that facilitate those transactions in our current business processes stand to be disintermediated, resulting in potentially radical changes in companies’ business models.

The Element of Risk

One revolutionary quality of blockchain may also be its most perplexing: the idea of having valuable information accessible to mul-

iple parties. It’s a paradigm shift from age-old systems of central record keeping, where assets are kept under one lock and one key, either physically or digitally. Generally speaking, new systems contain unforeseen flaws. And, in the case of cryptocurrency applications, there have already been incidents that raised questions about whether blockchain technology introduces new vulnerabilities.

In 2014, Mt. Gox, a Tokyo-based company that at the time was the world’s largest Bitcoin exchange, lost \$460 million to hackers and was put out of business. In 2016, Hong Kong cryptocurrency exchange Bitfindex similarly lost \$72 million worth of Bitcoin.

Blockchain Technology

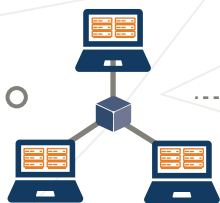
WHAT IS IT?

Blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without the need for a central certifying authority.

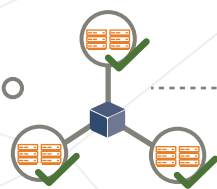
HOW IT WORKS



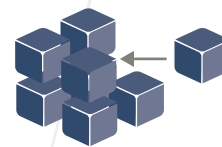
Someone requests a transaction.



The requested transaction is broadcast to a peer-to-peer network of computers.



The network of computers validates the transaction.



Once verified, the transaction is combined with other transactions to create a new block of data for the ledger.

The transaction is complete.



The new block is then added to the existing blockchain. Once added, it is permanent and unalterable.

POTENTIAL APPLICATIONS

HEALTHCARE

By having a patient’s health records in a blockchain environment, all physicians in that person’s healthcare provider network have access to view and update the same, single record of that person’s health history—a process that stands to radically improve healthcare services.



HOME BUYING

Putting real estate information that is already in the public record—such as titles and deeds—in a public ledger could not only streamline and accelerate the home purchase process, but it could also reduce the associated costs, as transactions could be relegated to just the borrower and the lender.



PROXY VOTING

Blockchain can be used to conduct an annual meeting in several ways, including reconciling records from banks and brokers to ascertain voting rights, capturing and reconciling votes cast, and delivering voting results in an immutable form.



Source: The Burnie Group

Earlier this year, Coinbase, an exchange based in San Francisco, was subject to an attack where hackers assumed control of customer phone numbers to burgle their Coinbase accounts. It may seem a bridge too far at this point to reconcile these incidents with the hype of blockchain's imperviousness. But here, the distinction between a product or service and the technology that drives it is critical.

"Think about the Bitcoin technology as two layers," Barakat explained. "You look at the bottom layer, which is the blockchain protocol. And the second layer—you can think about it as the on-ramps and off-ramps to that protocol—could be Bitcoin exchanges that take advantage of the underlying blockchain protocol. That layer on top is the one that is susceptible to hacking. The blockchain protocol has never been hacked. For that you need immense computing power that is not available today. So, if you own your Bitcoins yourself and not through an exchange, those Bitcoins could never be hacked. Once you put them on or do transactions through an exchange or a website, that exchange or website has the potential to be hacked."

Evolving With Change

While directors may not need to understand the digital nuts and bolts of blockchain, from a risk management and opportunistic strategy perspective, they need to have a well-informed view of how blockchain stands to disrupt existing business models.

Directors of companies that stand to be impacted by blockchain may be well served by getting involved in industry groups that have

committees pitted against blockchain, how it may both benefit and negatively affect businesses and overall industries. And some companies, like Broadridge, may determine that they are best served by investing in blockchain research and pilot projects.

"We are primarily investing in specific-use cases to do two things," Dampeer said. "Number one is to better understand the technology, make sure that we have the technical capabilities and people who can deploy blockchain in real-life scenarios, and make sure that we have those core competencies within our industry. We think this has the potential to be very disruptive, therefore we have to develop strong skills and knowledge.

"The second reason to do these use cases is to understand what the best instances of blockchain deployment are and where real value is being created," he continued. "In the financial services industry as an example, there are very efficient ways to process all kinds of financial transactions. Before that is removed or replaced, everyone touching that ecosystem will want to have confidence that the distributed ledger creates new levels of transparency, reliability, and cost efficiency, but also that it actually works properly. In other words, that there is value being created. It isn't going to do anybody any good to create another system that simply replicates what was already there."

"Transformation can be both good and bad, but the fact is you can't overstate the impact on society, but nor can anyone say when this will happen," Dampeer said. "I don't think we'll be at that point in five years, but I think it's entirely possible that in 10 years many things will look very differently."

Why Blockchain Belongs in the Boardroom

Digital disruption takes on many forms, making it a formidable risk area to approach in boardroom conversation. Blockchain, due to its newness and technical complexity, may seem especially daunting, but its disruptive potential demands that it be addressed at the boardroom table. Stuart R. Levine, chair and CEO of international consulting firm Stuart Levine & Associates and a director of Broadridge Financial Solutions, spoke with *NACD Directorship* about his first encounters with blockchain and the implications of this quickly evolving technology.

How were you introduced to blockchain, and what were your initial reactions?

I learned about it through work I was doing in Silicon Valley a number of years ago. I started to study it a bit and realized the implications for recasting business models.

How would you explain blockchain to a fellow director? And how would you make the case that it's a board-level concern?

I would describe it as a decentralized ecosystem of technology that really defines the next generation of technology-driven business models. A director has a primary responsibility to the shareholder to participate in strategic conversations in an engaged way. A few goals are helpful here. Number one, educating yourself as a director about the potential of blockchain becomes a way of exercising your responsibility as a director so that you can participate in forward-thinking strategic conversations. Number two is understanding and getting a strategic road map for beginning to invest capital and implementing a blockchain system within the enterprise. Third, understanding what those digital skills and capabilities look like for the senior team.

The next generation of technology is a huge strategic discussion.

I think our responsibility as directors is to ensure that we're having those conversations on a regular basis. Some people are seeing it as a threat. You have to understand the opportunity that's implied in the blockchain and how it really can enable a reformation of data.

What are the risks of not talking about blockchain?

Companies today that do nothing about blockchain are at risk because you have consumers running hard on adopting new technology. You have legal issues that are implied in this conversation for business relationships and risk management of not being engaged in the right conversations with your customers. If you're not engaged in these conversations from a strategic point of view, there is a risk on the horizon of not understanding the changes that are coming.

Where can directors get their information?

Ask the CIO [chief information officer] so that you start to get blockchain conversations on the table—not just in an annual strategic report, but in regular conversations about what's going on and where are we. Remember, business transactions still are dependent on the ability to store data in a secure place and retrieve it. These are really important conversations to have. They imply investments of human and financial capital. If you're not familiar with blockchain, you may not be fulfilling your fiduciary responsibilities as a director.

What are some of the most effective ways that boards can initiate conversations about blockchain?

I'm a great believer in ongoing education for the full board. I think you start the conversation by calling in the CIO and the CEO and making sure there's content for the full board to see and understand. Broader conversations, in my experience, are better.

Some boards have ERM [enterprise risk management] committees. I think you could put it there. Based on my experience and talking with other directors, there's still not a broad understanding [of blockchain], so that tells me content distributed at the board level on blockchain is really helpful for directors.

Ask the CEO and the CIO to present at a board meeting to say how we as a corporation are reconfiguring our technology in anticipation of a strategic pivot in our customers' lives in the next two years. And ask those

people to share from a strategic point of view the implications of blockchain on the present business model. I think that's fair because eventually it will migrate to all businesses.

Are there other people in the company who could report on blockchain and its impact on the business?

Some corporations have chief strategy officers, some have chief learning officers. I always start at the top with the CEO. Whatever you think is appropriate. For me, if I have a question at a corporation, I ask the CEO, and in general he or she may say, you know, that's a good question, why don't we ask the chief learning officer or why don't we ask the chief technology officer. The titles may change, but it's the information that's important. Or, you can go to a third-party vendor. There are some very competent people out there who now specialize in this. Bring those people in for a special deep dive on blockchain. There are a lot of ways to get information. I think it starts with some reading. I don't think you have to go from zero to 60 in the first round, but starting to read about the technology prepares you as a director to participate more actively in a discussion about capital deployment for the company you serve.

What hazards could blockchain introduce that directors need to be wary about?

Anybody who tells me they have a perfect line of sight on blockchain makes me nervous. I think there's always risk, and one significant risk in my mind is deploying capital. There's always a responsibility to get a return on that investment, right? You're going to acquire talent or you're going to reconfigure your talent leadership to pursue blockchain. To me, that's a risk component.

The most dangerous risk is just to sit there and get consumed one day by a tsunami of change. I don't think there's a perfect solution yet, but I think participating and getting your hands around the technology is really important. The greatest risk is not understanding blockchain and its implications for new business models.

Any parting advice for directors?

The most invigorating part of my life's journey is asking questions about things I may not be comfortable with. So I would say get educated. That will help inform your decision-making potential on strategy issues and fulfill your fiduciary responsibilities. ■

