

Blockchain for in-house counsel

BY [JULIE SOBOWALE](#) June 16, 2017

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Jillian Friedman, Digital Banking & Fintech Legal Counsel, National Bank of Canada

Jillian Friedman fell into the Bitcoin world three years ago. After finishing her articles, she started taking notice of the cryptocurrency and began working with the Bitcoin Embassy in early 2014.

"I started reading a lot about Bitcoin and went down the rabbit hole," says Friedman. "I'm not a libertarian but I was intrigued by the application of libertarian philosophy to a technology and economic system."

Friedman quickly became an expert in blockchain and the National Bank of Canada took notice. The bank hired her in 2015 to focus on technology law. She believes blockchain will have a big effect in commerce.

"I'm far more involved in the business side of things," says Friedman. "I've been working closely by tech people for two years. It makes my job to identify risks a lot easier. I learn how things work."

Blockchain is the legal tech darling of the year. Beyond the hype, blockchain is revolutionary technology that could change how we interact with one another. From financial transactions to health records, blockchain promises to be the next major legal tech frontier.

Blockchain 101

Before we discuss the benefits and risks of blockchain, let's start with technology itself. Blockchain is a shared distributed ledger within a decentralized system. The digital ledger can be public or private and different computer nodes help to verify information placed in the blockchain. The "blocks" are bits of information. With each transaction, a new "block" of information is added to the chain.

The power of blockchain lies in decentralization and immutability. In traditional financial markets, transactions go through third parties (i.e., banks) for verification and are posted to ledgers. This system prevents double spend so digital dollars can't be copied and spent again. In blockchain, because the ledger is decentralized, everyone has access to the shared data. When a new transaction is posted to the ledger, the network verifies the information through consensus. Once data is added to the blocks, it cannot be changed and it's very difficult to create fraudulent transaction.

"What you need to know about blockchain is that at its core, it is software and database technology enabling a new way of interacting with information," says Joseph Guagliardo, a partner at Pepper Hamilton LLP who leads the Technology and Blockchain Group. "The technology will enable business, government and individuals to transact in ways that are not possible now. It has the potential to have a major impact on how we do business and practice law."

Canada is experimenting with blockchain technology. Last year, the Bank of Canada launched Project Jasper, a research initiative used to test distributed ledger technology and how blockchain can manage clearing and settling large value payments. Most of the major banks including CIBC, RBC, Bank of Montreal and TD along with Payments Canada and financial innovation firm R3 Lab and Research Centre are involved in the project.

"We are also all thinking to the future," says Anne Butler, Vice-President, Policy, Research, Legal and General Counsel at Payments Canada. "We want to ensure that as distributed ledger experiments transition to live production, our central systems are ready for them so that new platforms can connect to the core clearing and settlement systems of the future."

While most conversations about blockchain revolve around FinTech, the technology also has big ramifications in healthcare. The healthcare industry is experimenting with blockchain through MedRec, a program that creates electronic health records through blockchain in hopes to create more secure health records. Other innovative uses of the technology include the State of Delaware creating "smart records" at the Delaware Public Archives.

While all these innovations are very forward thinking, you can't mention blockchain without Bitcoin. The cryptocurrency is by far the most famous application to use blockchain. Launched in 2009, Bitcoin was the first digital currency to use a decentralized ledger. According to the Cambridge Centre for Alternative Finance, Bitcoin has 72% of the market share. Through blockchain, Bitcoin is able to bypass traditional financial systems, which use third parties.

"There are different layers of technology and not everyone needs to understand every layer," says Dave Bradley, a Bitcoin and blockchain broker and consultant. "Most people don't know how to set up an email server but they are perfectly comfortable sending an email. Down the road people will be using application powered by Bitcoin or blockchain technology and won't even know what's under the hood."

Bradley, who describes himself as a serial entrepreneur, is also a firm believer in Bitcoin. The cryptocurrency is one of many, with Ethereum, Ripple and Litecoin also in the market. However, Bitcoin is the most successful and received the most valuation in part because of its anonymity and openness.

"People are not solving real-world issues with blockchain alone but they are solving problems already with Bitcoin," says Bradley. "People who sell digital items for computers game have a problem. Teenagers will use their parents' credit card and the parents will just take it back. Now some sellers only use Bitcoin. In Colorado, it's hard to handle payments of medical marijuana because it's not legal under federal law and it's hard to get financing. Bitcoin is a safe way to solve that problem."

The rise of smart contracts

What makes blockchain so important within the legal world is the use of smart contracts. Would you like to have a contract that issues payments automatically? Smart contracts use blockchain to automatically fulfill different obligations, allowing for better monitoring of contracts. For example, a contract for purchase of a product could electronically identify when the product is finished from the manufacturer and trigger payment, or when a title deed is entered into a ledger, payment would automatically be paid.

"Efficiency and certainty in the execution of contracts, any complex multi-party transaction that is repeated with frequency, has great potential to benefit from this new approach," says Butler. "The technology is still evolving and there will be new use cases every month that get tried and tested. We need to keep an eye on this space to see what use cases are successful, learn from them, and inform how we adapt it moving forward."

Testing is underway. This year, JP Morgan Chase, Microsoft, Intel along with a few start-ups and non-profits founded the Enterprise Ethereum Alliance (EEA), a consortium working to create blockchain applications for the financial market, and smart contracts are part of the process. The R3 Consortium, founded in 2015, is also working with member organizations to create new FinTech applications. In March, the Illinois Department of Financial and Professional Regulation became the first U.S. regulator to join R3. Delaware will begin having "smart UCC" filings this year and is developing a distributed ledger for public shares.

"Not all the use cases will be viable business models but many will and we need to understand how it all works if we are going to advise our clients," says Butler. "Our work will be transformed as our business partners get their jobs done in new and innovative ways. We need to keep up."

The major legal concerns are privacy and security. Bitfinex, a cryptocurrency exchange in Hong Kong, was hacked last year and thieves took off with \$68 million. In June 2016, the DAO, a venture capital using the Ether digital currency, had \$60 million worth of currency taken from the fund by exploiting a weakness in the code.

"There was a hole in the code so it was exploited," says Friedman. "In legal terms, we would think of the hole in the code as using a loophole in a contract. It's the truth in the code, so they exercised the loophole and took advantage. One school of thought in the crypto community contends that if the majority says you left \$100 on the counter with the door open and someone took it, that's okay because you left the \$100 on the counter and there's nothing in the smart contract that says that the person can't take it. I don't think lawyers would see it that way because there is principle that considers the intention when drafting the contract that goes against the philosophy of 'code is law.'"

If your organization decides to participate in any blockchain projects, look for rules and regulations in managing the system. Private organizations provide more security than the public ledgers. When looking at the risks, take a close look at the governance structure. Because transactions can't be changed once posted to the ledger, there should be agreements in place to deal with settlements for any errors.

"You want to ask, 'What are we looking to replace?'," says Friedman. "If you're using the financial markets, then what are the rules now? You might just be replacing infrastructure but it might be more complicated than that. How will the ledger work? What about industry-wide agreements?"

Now you should have a good grasp on blockchain but if you're still a bit puzzled, don't be discouraged. YouTube videos abound with simplified explanations. And as Blockchain is still in its early stages of development, you have time to catch up.

In the meantime, remember this simple advice from Friedman: "Follow what's happening in the market. Where it's necessary, be well versed in the details."

Julie Sobowale is a regular contributor based in Ottawa. This article was initially published in the [Summer 2017 issue of CCA Magazine](#).

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