America's relationship with technology is conflicted: we can't get enough of it, until it becomes so good that our human talents become obsolete. Many have assumed that those jobs manned by highly educated professionals—like lawyers—will be safe. A computer can't effectively present a closing argument to a jury, can it? Maybe not. But what if a computer made a lawsuit unnecessary in the first place? What if contracts could enforce themselves?

The concept of a self-enforcing "smart contract" is not a new one. Smart contracts have existed in our everyday lives for decades. When you slide a dollar bill into a soda machine, you enter a contract to buy a soda. The soda machine determines whether your dollar is legit, and drops you a Coke and a smile if it is satisfied. Sure, it is possible the machine won't work correctly, but the binary "if this, then that" technology has dramatically limited the chances of a soda dispute.

Technologists are now taking this concept to the next level. Rather than a physical machine controlling a transaction, computer code can facilitate more complex transactions. The efforts to use smart contracts in complex transactions have faced two major hurdles: (1) how does the computer control the assets to be transferred; and (2) what computer can be trusted by both parties to a deal. Many believe those two hurdles can be cleared by something called "blockchain" technology.

Blockchain Technology

The digital currency bitcoin was the first applied use of blockchain technology. Many startups and large financial services companies are trying to improve and expand the technology to allow for the exchange of digital assets without the cost of a central authority. The use of blockchain is one way that smart contracts can become a reality in many kinds of commercial transactions.

A blockchain is a ledger of data arranged in batches called blocks that are linked together. The ledger is not stored in a centralized master location. Rather, it is distributed among multiple computers at the same time. In the Bitcoin blockchain, a small subset of people with access, called "Miners,"
Self-Enforcing Smart Contracts Will Change Your Life

compete to be the first to decrypt and verify new blocks successfully and they are literally rewarded with bitcoin for their efforts. The entire blockchain then reaches consensus within a few minutes on the authenticity of a new block before making it immutably part of the chain. Old transactions are permanently preserved on each computer on the network, and new transactions are irreversibly added. All of this prevents tampering.

A simple bet on a football game provides a nice example of a smart contract utilizing this technology. Let's say I bet you the Cleveland Browns will win the Super Bowl and we agree to have a computer scientist write a smart contract using code. Under the contract, you pledge your bitcoins, I pledge my bitcoins and the code-based contract is set-up to automatically transfer the currency to the winner after the results of the Super Bowl are verified via data collected from the NFL website. Voila! When one of us wins, neither of us needs to chase after the other to collect or file a lawsuit.

The Future Role of Lawyers

Some have predicted that smart contracts spell the beginning of the end for the legal profession. While these predictions make a good headline, the truth is that lawyers aren't going the way of the blacksmith. Lawyers will still be lawyering, but they will be doing it differently. There can be no doubt that smart contracts will not only change business practices, but the way law is practiced by both transactional lawyers and litigators.

On the transactional side, attorneys will still be needed to negotiate and draft term sheets that list the provisions that technologists will convert into self-enforcing programs. While some smart contracts may not require any legal document whatsoever, others will involve a traditional legal document coupled with an attached application that enforces certain digital terms. The computer scientist will likely be focused on those "if-then" terms that trigger certain agreed upon events. The lawyer will fill in the gaps, with their knowledge of certain terms of art, practical legal hurdles, and drafting boilerplate or negotiating specialized terms that do not necessarily trigger an event, but still spell out the parties' rights.

With respect to litigation, there will continue to be contract disputes and lawsuits. However, when assets are transferred automatically, a party's ability to intentionally breach a contract is limited. Also, certain kinds of smart contracts will immediately pull the plug on a deal the moment the other party breaches an agreement, thereby limiting damages and sometimes resolving the dispute the moment it arises. So, as smart contracts become more common, we can expect more disputes to be resolved without litigation and the number of commercial trials to continue to decrease. Litigators with the necessary skill set will be able to quickly analyze disputes related to digital terms and provide services in new agreed upon forums designed to resolve smart contract disputes.

Business Applications Today

While smart contracts are attracting more attention as cryptocurrencies develop, there is no reason smart contracts cannot be created today using traditional assets and currency. Here are some examples:
1. **Smart Leases:** The traditional lease agreement can very easily utilize technology to automatically enforce payment terms. One can imagine a program that monitors monthly payments on a lease of real estate, vehicles, or equipment. In the event of a failure to pay the required rent, the parties could agree that the doors to the leased facility automatically are locked or the ability to use a vehicle or piece of equipment is automatically shut down. Many states allow a landlord to exercise self-help remedies where there is no breach of the peace and a smart contract could be the ultimate tool for exercising this remedy quickly and peacefully.

2. **Smart Loans and Forbearance Agreements:** The most common default on a loan is the simple failure to pay, and executing on a borrower's collateral can be costly and time consuming. A smart contract could be created to immediately transfer or repossess the collateral in the event of a failure to pay, or immediately freeze a bank account if it dips below a certain required dollar amount. Lenders might be more willing to give borrowers a second, third and fourth chance or work out a solution if they have greater control and know the terms are self-enforcing.

3. **Smart Purchase Agreements:** The purchase of real estate or personal property often requires an escrow agent. A smart purchase agreement could remove the middle man and allow for assets to be transferred and documents to be recorded immediately upon digital verification of the agreed-upon contingencies. A seller could also gain power and leverage during the due diligence phase by limiting a buyer's ability to back out of a deal in the event certain data points are met. For example, a computer program could be created to complete closing immediately upon digital verification of environmental test results that meet certain agreed-upon standards.

4. **Smart Settlements:** Parties who desire to resolve a legal dispute could forego drafting and negotiating a traditional settlement agreement and opt for a smart settlement. The most basic smart settlement would involve the immediate transfer of assets upon the dismissal with prejudice of a lawsuit. A smart settlement with a standard dismissal notice could be digitally executed at the courthouse or at the close of a mediation and immediately end a case without further fees and costs.

These are just a few examples of ways that lawyers and computer scientists can work together today to develop smart contracts in common commercial transactions. At Frost Brown Todd, we are analyzing opportunities for utilizing these technologies and engaging with technologists familiar with smart contract languages. If you have any questions or comments, please reach out to the Blockchain team at Frost Brown Todd.

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