

Smart contracts... and the law!

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Abstract:

Smart contracts are not new, nor the opposite of idiotic contracts. To tell the truth, they are not even contracts. They are a way of encoding a contract and making its application automatic, therefore, easier, faster and surer. Smart contracts rely on blockchain technology, which interests several branches of the economy: finance, music, and services involving middlemen, depositories or trusted third parties. Like any technique, smart contracts have advantages, but they also raise questions. What about security? And programming errors?

A smart contract is not a contract; it is an automated, secure way to execute a contract.¹ The problem is, therefore, not to make a more “intelligent” or less “idiotic” contract; but to make its implementation more efficient. This implementation — what is called contract management — is as important as the contract itself, if not more important. A contract’s provisions and clauses are important, but what are they worth if they are not (well) applied?

Contract management software for following up on a contract often does little more than keep track of deadlines (*e.g.*, for renewing the contract), issue automatic reminders (*e.g.*, to forward certain documents for executing the contract) or monitor indicators (such as the service-level agreement, SLA, or key performance indicator, KPI). The promoters of smart contracts want to move up a notch, or better yet, ten notches.

Besides using blockchains and “coding” their contents, what is special about “smart contracts” is that they are automatically executed when the necessary, preset conditions have been met.

With a smart contract, nothing has changed, but everything is different. No change in negotiations: the parties still have to reach an agreement. No change of the contract as such: it still formalizes an offer and its acceptance. But everything is different with respect to the execution of the contract’s terms: the concerned parties no long need to intervene since the contract is automatically executed.

Smart contracts represent a new El Dorado for attorneys, like me, specialized in technology. Nonetheless, smart contracts, like any major innovation, have, despite their clear-cut advantages, weaknesses. They clearly interest many people, but much thought must be devoted to their implementation.

¹ This article has been translated from French by Noal Mellott (Omaha Beach, France). The translation into English has, with the editor’s approval, completed a few bibliographical references.

Advantages

For jurists of all sorts, smart contracts have undeniable advantages.

Automation is a major strong point, since it mechanically reduces the risk of (human) errors during a contract's execution and, as a consequence, the risk, later on, of litigation. Since smart contracts execute automatically, there is no longer the risk of an engagement not being kept and, as a consequence, the risk of being accused of a breach of contract or the risk of missing an entitlement or benefit. A blockchain does not forget... anything. The feature of automatic execution ensures a better management of the provisions of the contract or of the law.

In addition, a smart contract "facilitates" the execution of the contract. These essentially digital contracts can, on their own, launch instructions or formulate queries (for example, to verify the publication or notification of accounts, to request the transmission of documents, etc.). A blockchain can interact with the whole system of information.

But a blockchain cannot be halted! So, a smart contract helps prevent the unjustified cancellation of a contract. Contracts can thus be made that involve several parties and carry several provisions. A blockchain makes it impossible to rescind the contract except for reasons that do strictly fall under the categories preset in the contract and encoded in it.

Based on cryptography, a blockchain ensures the integrity of transactions. What is of utmost importance for attorneys is to be able to prove beyond any doubt the existence of an agreement and of its engagements. As a "register" (or ledger), a blockchain can be used to trace the actions and their dates. No more need to discuss whether or not an engagement has been kept!

The blockchain is also an archive of nearly unlimited duration. It happens often enough that a contract (or executory document) is lost — but not with a blockchain, which never loses anything. On the contrary, you find everything on the blockchain, and everyone has access to it.

In this regard, an open (public) blockchain "naturally" serves the purpose of giving public notice of a contract and of the engagements made. By its very nature, it fulfils the obligations of notification or publication as they apply to certain legal instruments.

Beyond its legal effects, a smart contract is a literal business-maker, since facilitating the execution of a contract facilitates business. More time can be devoted to presale activities and less to contract management.

Weaknesses

Since it relies on a blockchain, a smart contract carries all the limitations and weaknesses of blockchains.²

A first criticism regularly formulated against smart contracts is that they tend to increase the risk of fraud. However specialists have replied that a blockchain is a highly secure environment that, to be breached, requires a computing power so great that it is nearly impossible to achieve. They seem to have forgotten the attack in 2016 against DAO³ for an estimated \$50 million. But the attack was crude, and the countermeasures adopted (in particular, about latency time) staved off the worst-case scenario. But what will happen once smart contracts are normal?

² É. BARBRY & A. MERVANT, "Blockchain, un nouveau champ d'études pour les juristes", *Télécom*, 183, pp.37-38, December 2016. Available via:

<https://www.telecom-paristech.org/article/revue-telecom-183-blockchain-un-nouveau-champ-d-etude-pour-les-juristes/10/01/2017/2331>

³ <http://www.20minutes.fr/high-tech/1868399-20160618-pirates-derobent-50-millions-dollars-monnaie-virtuelle>

The act of coding calls for special attention since human beings are always needed to code the contract and set its parameters. This phase is, by human nature, fallible. Litigation is likely to shift away from the execution of the contract toward the way it has been coded and its parameters set. Currently, judges read the contract. Will they soon have to read lines of code?

For judges, proof and, more broadly, liability are two major issues to settle in lawsuits.

- How much weight will a blockchain carry as evidence or proof in a courtroom? Legal experts have already run into steep difficulties with producing computer logs or connection data. Will matters be any easier with blockchains?
- The absence of someone in charge, of governance and, therefore, of someone legally vested to represent a blockchain is a characteristic of this technology and, too, a source of problems with respect to liability.

On a blockchain, everything is... open, public. Forget about the right to be forgotten; forget about deleting bad deals. Whoever wants to keep a contract's terms confidential will have to find "private models" of smart contracts.

The automatic execution and integrity that are the strengths of a blockchain can turn out to be weaknesses, especially when a contract is to be broken before termination or when its terms are to be modified. Adding a rider is not very compatible with a smart contract.

Uses

The very concept of a smart contract was in the making for a good while. Nick Szabo, who "invented" it, cited as example, at the end of the 1990s, a car rental agreement that, easy to code, would stipulate that the vehicle will be immediately returned in case of an outstanding payment. The few currently "operational" smart contracts⁴ are limited to small circles of users; they can be better seen as proof-of-concept demonstrations of feasibility. Although everyone is talking about smart contracts, few have had to deal with one "for real". Nonetheless, blockchains are attracting interest in several sectors of the economy.

At the top of the list of business showing interest in blockchains are those, such as banking and finance, where many contracts are well-suited to automation given their fully foreseeable provisions. The cost of monitoring banking transactions worldwide has been estimated at \$40 billion/year.⁵

In addition, smart contracts are attracting interest in sectors that rely on registries for conducting "notarial" activities. Like other trusted third parties, notaries are paying close attention to the impact of smart contracts in their line of business.

Blockchain also interest persons and organizations whose core business is to distribute fees or royalties, for sure the music industry — in application of the principle "pick the tune and pay the piper". Blockchains could considerably lighten managerial overhead.⁶

⁴ Examples: www.codius.org, www.ethereum-france.com or www.slock.it

⁵ D. TOURRE, "Blockchain, smart contract, ou la promesse encore floue d'une révolution de la finance", *La Tribune*, 6 April 2017. Available at: www.latribune.fr/opinions/tribunes/blockchain-smart-contract-ou-la-promesse-encore-floue-d-une-revolution-de-la-finance-681096.html

⁶ M. SOULEZ, "La technologie Blockchain est-elle l'avenir de la musique?" available at www.alain-bensoussan.com/avocats/technologie-blockchain-avenir-musique/2016/09/23/

However, smart contracts might disrupt financial activities involving an escrow, since this function can be fully coded. They might also “disrupt disruptors”, since one of their main advantages is to serve as a “trusted third party”. Accordingly, the platforms serving as intermediaries might soon be upended that have flourished on the Internet during the past five years.

Investments are being made in studies on smart contracts with a focus on business-to-business (B2B) relations. Meanwhile, the representatives of consumer organizations are interested in the advantages of smart contracts for consumers. They have noticed that many contracts grant benefits that consumers “forget” to claim (for example, compensation in case of delayed delivery or late arrival by train or plane).

In practice, the potential uses of smart contracts are countless. Take the example of making bets. In this business, smart contracts could lead to an extremely simplified procedure: I bet, I win, I am automatically paid... I bet, I lose, I am automatically debited... nothing could be simpler!

Smart contracts are, therefore, well suited to managing contracts concluded in very large numbers. They impose clear obligations on the parties involved. They are also well suited to contracts in a cascade or with multiple engagements whenever their implementation can be programmed.

However not all contracts can be smart. Making business-to-customer (B2C) smart contracts will be more complicated since many clauses are sensitive and, by nature, arguable. It is also more complicated to use smart contracts in the stead of ordinary contracts when there are major risks of something unexpected or unknown happening. To make a last point obvious: contracts that have to be confidential will not find a place on an open (public) blockchain.

Deployment

At this point, no one can predict whether or not smart contracts have bright prospects. Meanwhile, several questions are cropping up.

A first question has to do with the legal problems barring the route to smart contracts. Several players have jumped into this adventure without even verifying whether laws, regulations or jurisprudence allow for smart contracts.

A second question concerns the proof-of-concept demonstrations being made without the least legal safeguards, even though smart contracts raise so many legal issues (for a starter: the permission to use personal data and the liability of the parties). These feasibility demonstrations must be conducted under fully controlled legal conditions regarding proof-of-concept contracts, protocols of experimentation, authorizations by regulatory authorities (such as the CNIL in France) etc.

A third question is about the opposability of smart contracts (in particular of information coming from the blockchain) on judges. The law (in France at least) is already prepared to handle this question through articles 1353 and 1368 of the Civil Code on “*conventions de preuve*”. These articles allow the parties to a contract to set the rules of opposability in matters pertaining to what a court admits as evidence. However an agreement on the evidentiary effect of a smart contract should, for sure, be concluded before the smart contract itself; and this agreement cannot be coded.

The question will eventually arise of whether or not it is worthwhile passing a law on smart contracts. As for blockchains or bitcoins, this question is sure to crop up. In France, lawmakers have already allowed “mininotes” transactions to be placed on a blockchain.⁷

⁷ On these mininotes (*minibons*), see the articles by Catherine Barreau, and by Malo Carton and Pierre Jérémie in the current issue.

Since the introduction of any new form of technology (radio, television, telecommunications, the Internet, robots, etc.) entails major legal changes, we might well know that lawmakers will soon be addressing this new form of technology and modifying the Civil Code's provisions on contracts — as was done in 2000 to recognize documents in an electronic format as being written and in 2004 to create a new category of contracts, namely “contracts in an electronic form”. Let us wager that the new arrangements thus made will spur smart contracts instead of bridling them.

Epilog

What if smart contracts were an attorney's worst enemy? After all, they risk disrupting the law business, in particular of attorneys in contract management — a business already disturbed by the introduction of legal technology (LegalTech). Legal experts, and attorneys, are taking time to realize that... their reflexes are slow. In many other businesses, professionals have not hesitated to start thinking about the potential impact of smart contracts on their business. Attorneys, who play a key role in contractual law, would be well advised to do as much...