

Smart Contracts, ODR and the New Landscape of the Dispute Resolution Market



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1 Introduction

Like any complex phenomenon, dispute resolution can be observed through different lenses. We can look at it from a public law perspective, scrutinizing the nature and the limits of the power that adjudicators exert, be them State judges, or private arbitrators. Conversely, we can analyze it from the vantage of private law, focusing on the role of private autonomy, the importance of party impulse, and the relationship between procedural remedies and individual substantive rights. Taking one step back, however, it is also possible to observe the dispute resolution landscape in its entirety, as a market where different actors offer competing services, according to the pattern of monopolistic competition.¹ Looking at dispute resolution from this point of view, State court litigation and commercial arbitration are two of the many options that users are presented with, and invited to choose from; dispute resolution, in fact, is an ever-growing market, as the recent proliferation of international commercial courts demonstrates.² In this type of market, competing “products” undergo a process of progressive differentiation, aimed at enhancing their attractiveness in

¹Chamberlin (1962).

²Bell (2018), pp. 193–216.

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the eyes of the users. Technology can be an important differentiating factor, maximizing the efficiency of a given dispute resolution service and, as a consequence, highlighting its desirability, as opposed to the available alternatives. In light of this, it is particularly interesting to investigate the potential impact of new technologies (and, in particular, of blockchain technologies) on dispute resolution, while observing the latter as a market. The aim of this short contribution, hence, is to highlight the different ways in which technology may alter (or disrupt) the dispute resolution market, with a particular focus on Online Dispute Resolution (ODR).

2 The Persistence of Non-Deterministic Lawyering

The narrative of blockchain technologies and smart contracts “taking over” the law, and progressively making all legal services obsolete, is so simplistic as to be almost comically inadequate. While on the one hand smart contracts follow a technologically deterministic logic, on the other hand a contract functions, as an intellectual construct, precisely because it is *not* deterministic. The existence of a margin for interpretation,³ one would be tempted to conclude, is inherent to how law works. Therefore, if it is true that not all aspects of a commercial transaction can be translated into an if-then logic, then the resolution of disputes arising out of a contract will normally require human intervention. Lawyers die hard, despite the rise of the *lex cryptographica*.⁴ counsels, judges and arbitrators seem to resolutely resist obsolescence. And yet, if we scratch the surface, things are more complex than they may initially seem.

Over the course of five years of research on the topic of blockchain and dispute resolution,⁵ I have made a bet of sorts. First, I observed the meteoric rise of Bitcoin, and the ever-growing amount of transactions verified on the Bitcoin blockchain. While many of those transactions were of a purely speculative nature, niches of users do deploy Bitcoin as a currency, within specific communities.⁶ It is reasonable to assume that a certain minority of those transactions, unavoidably, will result in a dispute. My initial hypothesis, hence, was that the increase of transactions denominated in Bitcoin would be followed, a few months or years down the line, by a specular increase in the amount of Bitcoin-related court cases. In other words, I expected a rise in the number of litigations where a plaintiff requested the enforcement of a contract denominated in Bitcoin. The assumption underpinning my hypothesis, of course, was that the degree of automation inherent to the Bitcoin

³See Santosuosso’s chapter in this volume.

⁴Filippi and Wright (2019), pp. 193–204.

⁵Ortolani (2016a), pp. 595–629.

⁶Ortolani (2016b), pp. 569–627.

protocol would prove insufficient to prevent or resolve disputes; court cases, hence, would unavoidably start cropping up.⁷

To put it bluntly, my initial hypothesis was wrong. I started counting US court cases mentioning the word “Bitcoin”, but I failed to observe the rise in litigation that I was expecting. As my research on the topic shows,⁸ if there has been an increase in Bitcoin-related civil and commercial litigation, it has been a very timid one. Thus, I started asking myself why: how was it possible that such an important volume of transactions would result in almost zero disputes? Had dispute resolution really been made obsolete, after all? An answer, of course, is that the majority of users buy Bitcoin for merely speculative purposes. However, this answer is only partially satisfactory: Bitcoin is used (or at least, it has been used, for a certain period of time) to purchase goods and services too. In sum, things did not quite add up. I started looking for alternative hypotheses.

3 Escrow Mechanism and the Potential of Self-Enforcing ODR

An important part of the answer was hidden in Satoshi Nakamoto’s white paper.⁹ One sentence, in particular, struck me as highly instructive, if somewhat mysterious: “routine escrow mechanisms could easily be implemented to protect buyers”. Despite its enormous impact, this aspect of the white paper has remained largely overlooked: from the very beginning, the Bitcoin white paper takes dispute resolution into account. Implicitly, the paper makes a reference to a specific type of adjudication, based on an escrow wallet. Nakamoto’s paper, in a nutshell, contains a specific proposal concerning self-enforcing ODR, and the solution that it proposes has been adopted within the Bitcoin community, as well as on other blockchains.

Whenever cryptocurrencies are used to conclude e.g. a sales agreement, the funds are normally not transferred directly from the wallet of the buyer to the wallet of the seller. Typically, the funds are stored on a multi-signature wallet, which essentially works like a lock with two keyholes. Buyer and seller are both provided with a key, but one key is not enough to unlock the funds stored in the wallet. If the transaction runs smoothly and the goods are delivered to the buyer, the parties will agree to use both of their keys, and free the funds in favor of the seller. However, if a dispute arises, the parties have the possibility of appointing an adjudicator, who will hold a third key, and will conduct a (rather rudimentary) dispute resolution procedure. At the end of this procedure, he or she will give the key to the winning party. Therefore, not only is this adjudicator able to make an award: he or she will be able to

⁷In a similar vein see Rabinovich-Einy and Katsh (2019).

⁸Ortolani (2019), pp. 289–310.

⁹Nakamoto (2008).

effectively enforce the award, ensuring that the prevailing party receives the disputed funds.

The importance of this development can hardly be overstated. Traditionally, enforcement is the monopoly of the State: it is, more precisely, part of the State's monopoly over the use force. Now, within the niche of escrow-based dispute resolution, that monopoly largely comes to an end. Whenever the disputed assets are tokenized, self-enforcement of dispute resolution outcomes becomes a tangible possibility. Bitcoin, in other words, was just the beginning: it was a proof of concept, showing that self-enforcing ODR is possible. As blockchain technologies become ripe for exploitation, Nakamoto's intuition can percolate into different forms of dispute resolution, and we are currently witnessing the development of a number of promising projects, whose level of sophistication goes far beyond multi-signature escrow wallets.

What will this mean, for the dispute resolution market? Possibly, the market will undergo a process of fragmentation and increasing specialization. On the one hand, "traditional" arbitration (leading to *res judicata*) will continue to play a key role: self-enforcement may prove unsuitable for complex (and often cross-border) commercial transactions, as the mechanism of escrow (and the need to keep the funds stored until the contract has been performed) may be difficult to reconcile with high-value contracts. In this context, blockchain technologies can be used as case management tools, and there is certainly a lot of room for improvement and modernization, in these respects. Besides "traditional" arbitration, however, other types of private adjudication systems are currently being developed, often operating on the basis of game-theoretical incentives. This is a new type of out-of-court adjudication, which does not necessarily qualify as arbitration from the point of view of domestic law and of the 1958 New York Convention, but which can nevertheless have a fundamental practical effect. These systems can, in particular, meet a demand for dispute resolution that has so far remained almost completely ignored: the one arising out of low-value, high-volume transactions.

4 Conclusions: A Wider Offer of Dispute Resolution Services?

To go back to my initial contention against smart contracts "making lawyers obsolete", we should rethink the argument in more nuanced terms. For the time being, we are faced with a layered landscape, where different dispute resolution systems coexist and potentially compete: first of all, some simple disputes may be avoided through the deterministic enforcement of smart contracts. Besides that, whenever a certain amount of human interaction and "non-deterministic lawyering" is necessary, different options may be available, with a varying degree of technological embeddedness. In a nutshell, there may be more alternatives than State court litigation, or "traditional" arbitration.

Technology, thus, unleashes a process of progressive specialization of different dispute resolution fora and mechanisms, each of them covering a niche in an expanding, variegated market. The consequences of the use of different mechanisms, of course, may vary drastically: if, on the one hand, both litigation and “traditional” arbitration are meant to produce *res judicata* effects, private adjudication based on a blockchain-based escrow system may not prevent the *de novo* re-hearing of the case, at a later stage. Be it as it may, the use of blockchain technologies in dispute resolution seems to open unprecedented possibilities. In the near future, the demand for dispute resolution may be met in a richer, more nuanced and comprehensive fashion.

References

- Bell GF (2018) The new international commercial courts—competing with arbitration—the example of the Singapore international commercial court. *Contemp Asia Arb J* 11:193
- Chamberlin EH (1962) The theory of monopolistic competition: a re-orientation of the theory of value, vol VIII. Harvard University Press, Cambridge
- Filippi PD, Wright A (2019) Blockchain and the law: the rule of code. Harvard University Press, Cambridge
- Nakamoto S (2008) Bitcoin: A Peer-to-Peer Electronic Cash System. 11
- Ortolani P (2016a) Self-enforcing online dispute resolution: lessons from bitcoin. *Oxford J Legal Stud* 36:595–629
- Ortolani P (2016b) The three challenges of stateless justice. *J Int Dispute Settlement* 7:596–627
- Ortolani P (2019) The judicialization of the blockchain. In: Hacker P, Lianos I, Dimitropoulos G, Eich S (eds) *Regulating blockchain: techno-social and legal challenges*. Oxford University Press, Oxford
- Rabinovich-Einy O, Katsh E (2019) Blockchain and the inevitability of disputes: the role for online dispute resolution. *J Disp Resol* 47