

**EXECUTION OF JUDGMENTS ON THE BLOCKCHAIN: A  
PRACTICAL LEGAL COMMENTARY**

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**I. SETTING THE STAGE(S)**

We start the discussion by forming a mental framework of what we can refer to as “stages” of involvement of blockchain in the process of executing judgments cross-border (here, “judgments” is used generically and can refer to court judgments as well as arbitral awards). Generally speaking, these stages ascend in terms of extent of integration with blockchain, but there is overlap between the stages and this is simply a logical starting point.

- a. **Stage 1:** The judgment is issued by a traditional court and specifies payment in cryptocurrency. There is no particular integration with blockchain. Parties will have

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to get the judgment recognized in the execution jurisdiction via the traditional recognition process. Available execution methods in the foreign jurisdiction are traditional.

- b. **Stage 2:** The judgment is issued by a traditional court and specifies payment in cryptocurrency. The orders made in the judgment are recorded on the blockchain. The judgment can be more easily recognized in the execution jurisdiction using blockchain evidence of the judgment. Available execution methods in the foreign jurisdiction are traditional.
- c. **Stage 3:** The judgment is issued by a traditional court and specifies payment in cryptocurrency. Parties entered into a dispute resolution smart contract that automates execution of the judgment. The orders made in the judgment are communicated to the smart contract. (The orders may either be stored on an external off-blockchain source, or already be recorded on the blockchain.)
- d. **Stage 4:** The judgment is issued on blockchain, pursuant to a blockchain dispute resolution process that may be overseen by the court. Parties' original transaction that is the subject of dispute was likely also recorded through a smart contract on the blockchain. There is either already a dispute resolution protocol in that smart contract that prompted the court's involvement, or parties enter into a new one that automates execution of the judgment.

While each of the stages will be touched on, the main focus of this paper is on automatic execution of the judgment (i.e. Stages 3 and 4) because automatic execution is a unique feature of smart contracts on blockchain.

## II. STAGE 1: JUDGMENT SPECIFIES PAYMENT IN CRYPTOCURRENCY – TRADITIONAL EXECUTION; STAGE 2: BLOCKCHAIN EVIDENCE AND AUTHENTICATION OF FOREIGN JUDGMENT

Before layering on more complexity, we start off with the basic scenario where Court X has issued a judgment for payment by Adam to Barney of 100 tokens of a given cryptocurrency. We assume here for simplicity that Court X is both applying a law and within a jurisdiction that is “friendly” to cryptocurrencies.

How do we execute this judgment when faced with a resistant judgment debtor who does not pay up as intended?

With variations in form between jurisdictions, some traditional modes of execution of money judgments involve seizure and sale of property, garnishment and even a committal order against a resistant judgment debtor. These avenues remain possible, even here, for a judgment for payment of cryptocurrency. Property seized and sold could be paid for in cryptocurrency/equivalent and cryptocurrency/equivalent debts could be garnished. Further, where the judgment is pursuant to a proprietary claim for restitution of cryptocurrency, it is conceivable to compel production of a resistant debtor's private key, perhaps with the assistance of committal orders for non-compliance.<sup>1</sup> Similarly, if the claim is against a cryptocurrency exchange which holds cryptocurrency for traders in wallets, it can be compelled to produce private keys under pain of contempt of court orders against their officers.

So, while not the focus of this piece, it is important to recognize at the outset that "brute force" and traditional execution techniques are available. However, there are many pain points in these methods. Applications for execution-related orders can be costly, expensive and frustrating.

This pain is exacerbated where a judgment is obtained in one jurisdiction but sought to be executed in another. Before applications for execution orders may be made, there would be formality hurdles to cross in order to have the judgment recognized in the new jurisdiction. Here is where a Stage 2 integration of blockchain into cross-border execution may be helpful. If certification and authentication of judgments/arbitration awards can be tracked and verified on the blockchain, this may speed up the step of recognition of judgments in cross-border execution. Dubai's Court of the Blockchain task force is exploring this as a preliminary issue.<sup>2</sup> However, I would argue that this is indeed really just a preliminary, ancillary administrative improvement that does not get to the heart of the matter, which is effective execution. We would still hit a roadblock if there is no applicable mutual recognition of judgments treaty (say, for political reasons). If the execution jurisdiction has an

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<sup>1</sup>Koji Takahashi, *Implications of the Blockchain Technology for the UNCITRAL Works*, 4 MODERNIZING INTERNATIONAL TRADE LAW TO SUPPORT INNOVATION AND SUSTAINABLE DEVELOPMENT 21–22, (July 2017)

<https://www1.doshisha.ac.jp/~tradelaw/PublishedWorks/BlockchainUNCITRALworks.pdf>

<sup>2</sup>Annuar Nabilah, *Dubai's Court of the Blockchain Explained*, ZAWYA, (May 16, 2019),

[https://www.zawya.com/mena/en/story/Dubais\\_Court\\_of\\_the\\_Blockchain\\_explained-SNG\\_146941751/](https://www.zawya.com/mena/en/story/Dubais_Court_of_the_Blockchain_explained-SNG_146941751/)

undependable or inefficient court system, this adds another layer of difficulty.

Therefore, automatic execution of court judgments on blockchain against digital assets (e.g. cryptocurrency) are a new hope in the inconvenient world of cross-border execution. It suggests the possibility of execution without the need to consider borders and without the need for assistance from or for rubber-stamping by a foreign court. This is why we are interested in how judgments in cryptocurrency may be executed more directly and automatically on the blockchain.

### III. STAGE 3: EXECUTION VIA DISPUTE RESOLUTION SMART CONTRACT

We now consider what executing a court judgment or award on the blockchain may look like, in practical terms.

- a. Scenario 1 - The judgment debtor (Adam, in our earlier example) is compliant, and initiates a transaction to transfer the 100 cryptocurrency to the judgment creditor (Barney). This is uncontroversial since it flows from the debtor's own initiative, post-judgment.
- b. Scenario 2 – By the time the court judgment is issued, Adam and Barney have already agreed to and activated immutable smart contract code on the relevant blockchain, in relation to the dispute resolution process. This is the dispute resolution smart contract. The code holds instructions to self-execute cryptocurrency transactions between parties when conditions are met (most likely, when a court judgment is made for payment of a certain amount of cryptocurrency from Adam to Barney). This can be very helpful because judgment satisfaction will be automated via smart contract. Also, because of the smart contract's immutability, satisfaction is not vulnerable to the delay or resistance of the judgment debtor.

If the court judgment in Scenario 2 is made off-blockchain, an oracle/oracles may receive data on the judgment from off the blockchain and feed that to the dispute resolution smart contract in order to activate the execution.<sup>3</sup> If the judgment is made through blockchain dispute

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<sup>3</sup> *Blockchain Oracles*, BLOCKCHAINHUB BERLIN, <http://blockchainhub.net/blockchain-oracles/> (last modified July, 2019).

resolution and/or is already entirely tracked on the blockchain, there may be no need to receive data from off-blockchain to activate execution. We will discuss issues surrounding receiving judgment data from off-blockchain later.

#### IV. STAGE 3, CONTINUED: MECHANICS, PROCEDURE AND SUPPORT STRUCTURES FOR EXECUTION ON BLOCKCHAIN OF THE COURT JUDGMENT

It is easy to theoretically say that parties will have implemented smart contract code before the issuance of the judgment (Scenario 2), but more important to explore how this may happen practically.

##### A. PROCEDURE AND CODE

When parties commence their dispute in court, any uncertainty as to applicability of systems of law should first be cleared up through a conflict of laws analysis. This is in case a blockchain-executable judgment cannot be validly issued under that law. Assuming this is clear, they should be given access to a dispute resolution protocol run on smart contract code at the earliest. They should then implement and provide evidence of implementation of this, early in the court process. We want to do this early to lock in the certainty of automatic execution. This guards against resistant judgment debtors, and against the risk of dissipation increasing nearer to the date of issuance of the judgment, perhaps influenced by parties' assessment of their chances based on the progress of the case thus far. If we do not do this early, executing a judgment for cryptocurrency would be subject to a lot of the uncertainties of any other post-judgment execution process.

Essentially, parties are agreeing to a dispute resolution process, with that agreement to be recorded by the court. This has some similarity to the blockchain dispute resolution system of Kleros, which generates a separate preprogrammed transaction to manage the compensation of one party by another when there is a dispute over the original transaction, save that in this case this hypothetical protocol is loaded when the dispute comes before the court and not at the point of the original transaction.<sup>4</sup>

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<sup>4</sup> Bronwyn Howell, *Blockchains: Distributed ledgers but centrally controlled processes?*, AMERICAN ENTERPRISE INSTITUTE, (June 10, 2019), <https://www.aei.org/technology-and-innovation/innovation/blockchains-distributed-ledgers-but-centrally-controlled-processes/>.

Most seamlessly, it makes sense for courts to provide template code for the commonly-used blockchain systems. This would work well for simple payment or transfer-of-title situations, especially where title is already recorded on blockchain. If on initial assessment the case may require more complex remedies (e.g. a process of many steps that depends on prior confirmations of fact) or is expected to involve more interim orders, this would not necessarily rule out template code because an advanced court system that is supportive of blockchain can build a repository of code to support most of its typical orders. In the early stages of building this repository however, new cases can benefit from custom-built code that can subsequently be standardized for the repository, for use in later cases. Steps such as potential post-judgment appeals can be dealt with through coding in a stay of execution tied to the procedural time limit for the filing of appeals, subject to extension-of-time orders from the court. Another interesting point to consider is that in “normal” cases with international elements or parties, suits are occasionally begun and run in different jurisdictions concurrently. This sometimes necessitates an antisuit injunction issued by one court against a party who instituted a competing court action. But within this new structure where parties agree upfront to a dispute resolution process, with code that ties execution to the outcome of that specific process, the likelihood of concurrent suits is lowered. In a way therefore, this functions somewhat like a practical exclusive jurisdiction clause. It makes sense to say that the court of first impression – or rather, first commitment (by parties) – prevails.

Parties can pay fees according to scales of protocol administration/drafting depending on the complexity and/or quantum of their matter, not unlike court administrative fees today. All these preliminary matters can be discussed between the Court and parties at an early-stage administrative case management conference.

The code itself can be prepared by government-vetted professional organisations which establish effective bilingualism in legal drafting and code, and can be audited from time to time for completeness, effectiveness and accuracy. There are, for example, already calls for public

accountants to develop expertise in auditing smart contracts and oracles.<sup>5</sup>

This raises the question of potential liability if there are any deficiencies in the code that cause loss to parties. This is relevant particularly where additional parties such as the court and programmers are involved in preparing the execution frameworks of the judgment. Generally, courts and government units enjoy some immunity. As for private service providers such as programmers, there are ways to price in risk. Programmers can obtain professional indemnity insurance. That said, in any case traditional execution methods also bring in uncertain elements that can potentially generate delay, such as additional Court involvement, action by bailiffs and requested action of third parties (e.g. garnishees).

For completeness, there is a possible alternative structural modification to what has been discussed above. That is, when the judge/arbitrator is appointed, they can be empowered to transfer assets between wallets on the blockchain, especially in a permissioned setting.<sup>6</sup> This is worth keeping in mind, but does not seem to be very value-adding in practice. Instead of relying on the occurrence of smart contract conditions and the receipt of institutional information from oracles to execute a judgment, a judge goes in and transfers the money. It is akin to paying the money into Court, with the Court paying it to the parties post-judgment. Other than this not being particularly helpful or foolproof, we may not want adjudicators to step across that barrier and “get their hands dirty”, so to speak.

## B. JUDGMENT DATA

The automatic execution of the judgment would be made more straightforward if the court judgments were tracked and recorded on the blockchain itself, such that data on the judgment can be fed to the dispute resolution smart

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<sup>5</sup>William Bible et. Al., *Blockchain Technology and Its Potential Impact on the Audit and Assurance Profession*, TORONTO: CHARTERED PROFESSIONAL ACCOUNTANTS CANADA 11–13 (2017).

<https://www.aicpa.org/content/dam/aicpa/interestareas/frc/assuranceadvisoryservices/downloadabledocuments/blockchain-technology-and-its-potential-impact-on-the-audit-and-assurance-profession.pdf>.

<sup>6</sup>Adam Sanitt, *Blockchain dispute risks for banks*, J. OF INT’L BANKING AND FINANCE L., (Oct. 2019),

<https://www.nortonrosefulbright.com/en/knowledge/publications/3fb55e09/blockchain-dispute-risks-for-banks> (Reproduced on NRF’s website).

contract on-blockchain. This is particularly important where there are updates to judgments (e.g. appeals or costs orders). The record would reflect the most current information.<sup>7</sup> Certainly, there would often be interest in keeping any identifying details or sensitive information confidential (particularly if we are talking about arbitration awards), as well as in keeping confidential the minute procedural steps of the case that may be too context-sensitive for Courts to want them to be inadvertently studied for precedent value. The technicalities of how confidentiality is protected is not this piece's focus – suffice to say that there are layers of privacy and confidentiality that can be added.<sup>8</sup>

But feeding the dispute resolution contract on-chain data is not always possible, whether because the information is recorded on a different blockchain ecosystem or because of non-adoption of blockchain recordkeeping. At least in initial stages, there will need to be information received from external sources. If information on court judgments is maintained off-blockchain, oracles (themselves smart contracts) that are sponsored<sup>9</sup> by the relevant judiciary (and verified to be so) can receive information from the Court's secured database. As always, where there are more intermediating steps, the risk of hacking increases. These risks exist both in and out of the blockchain world – in fact some would argue that the overall risk of loss seems lower on blockchain<sup>10</sup> – and could be addressed using cyber-insurance for blockchain providers, for example.<sup>11</sup>

### C. ORDERS MADE IN JUDGMENTS

It should be pointed out that while reasons for judgments may be complex, a large proportion of orders in

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<sup>7</sup> Di Graski and Paul Embley, *When Might Blockchain Appear in Your Court?*, TRENDS IN STATE COURT 2018 (2018) <https://www.ncsc.org/~media/Microsites/Files/Trends%202018/When-Might-Blockchain-Appear.ashx>.

<sup>8</sup> *Busting the Myth of Private Blockchains*, CONSENSYS, <https://consensys.net/enterprise-ethereum/best-blockchain-for-business/busting-the-myth-of-private-blockchains/> (accessed Apr. 6, 2020).

<sup>9</sup> John R. Kosinski, *Ethereum Oracle Contracts: Can We Trust The Oracle?*, <https://www.toptal.com/ethereum/oracle-contracts-tutorial-pt3> (accessed Apr. 6, 2020).

<sup>10</sup> Ian Allison, *This Blue-Chip Crypto Insurance Consortium Lacks One Thing – a Sizable Loss*, COINDESK BUSINESS, (Jan. 13, 2020), <https://www.coindesk.com/this-blue-chip-crypto-insurance-consortium-lacks-one-thing-a-sizable-loss>.

<sup>11</sup> Shaohan Feng et. al., *On Cyber Risk Management of Blockchain Networks: A Game Theoretic Approach*, IEEE TRANSACTIONS ON SERVICES COMPUTING, (Oct. 18, 2018), <https://doi.org/10.1109/TSC.2018.2876846> and <https://arxiv.org/pdf/1804.10412.pdf>.

most final judgments are ultimately for simple payments, changes in ownership and/or for other specific performance. In other words, the outcome is easy and often easy to execute on blockchain. Payments and changes in ownership (if title record is kept on the blockchain) are straightforward to execute, whereas orders that relate to delivery of off-blockchain assets or property are best handled off-blockchain in any event.

Where there are “mixed” judgments – for example, those that require fulfilment of an off-chain condition before payment is made on-chain and/or those that need to take place in phases – these will still be doable under this automatic execution framework. This may be done through a more multi-functional dispute resolution smart contract that stays or phases out execution subject to confirmation of off-chain facts about the fulfilment of a condition. However, take note that the more off-chain conditions need to be fulfilled pursuant to the judgment, the more points of potential failure and delay there will be in the automatic execution of the judgment by the smart contract. There is also the last-mile issue for verification of physical conditions. If, for example, parties have to wait for paper share certificates to be delivered from a law firm’s safe to a corporate officer, that is not just a matter of checking an off-chain digital ledger, but ensuring physical objects have been transferred. So while “mixed” judgments can probably be accommodated, parties have to be prepared for more inherent uncertainty there.

#### V. STAGE 3, CONTINUED: IS AUTOMATING EXECUTION OF JUDGMENT USING A SMART CONTRACT WORTH IT?

So far, this structure is not looking too different from the traditional court process, save that much of the legwork and risk in execution is moved earlier in the process, in an arguably more paternalistic but comprehensive structure. But consider now the issue that in many established blockchains, such as Ethereum, cryptocurrency can be held only by wallets at addresses or by smart contracts. The ability of a smart contract to hold cryptocurrency, like an escrow agent, and then automatically release the currency to addresses upon fulfilment of certain conditions, is central to its attractiveness. Looking at this through the paradigm discussed above however, this means that in order for the certainty of

automated execution to take place upon issuance of a court judgment, all parties to a dispute should essentially be putting into escrow amounts up to the quantum of their counterparties' claim(s), plus additional provision for additional costs orders etc., at the beginning of the court process. They would not be able to otherwise transact with these funds. It is akin to granting security interests in the form of a blockchain-based smart contract, whenever you go to Court.<sup>12</sup> This restriction seems to fly in the face of usual commercial sensibilities, particularly where these are large amounts and the court process may take years (a very typical time frame, even in efficient court systems). It becomes more worrying when we consider that the value of cryptocurrency tends to be volatile. This concern about commercial sensibilities has been discussed occasionally in relation to smart contracts in general,<sup>13</sup> but is under-explored in the context of automating execution pursuant to the court process.

To understand how unusual this restriction is, we can look at what are perhaps the closest cousins to the abovementioned restriction, in the traditional court process. These, arguably, are early-stage interim security for costs orders and Mareva injunctions (freezing orders). In relation to the former, these are usually small amounts relative to the quantum of the claim that are ordered to be paid into Court, essentially to discourage the pursuit of weak claims. They are not as substantial as the restriction we discuss, and are not at risk of being automatically paid to the counter-party. The latter is more similar in the sense that a large amount of assets may be a subject of the order, and the party whom the order binds is likely unable to deal with the frozen assets particularly if the freezing order is notified to the financial institutions with whom the assets are held. The big difference between freezing orders and the restriction we discuss, however, is that freezing orders are sparingly made, and

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<sup>12</sup>Heather Hughes, *Blockchain and the Future of Secured Transactions Law*, 3 STAN. J. BLOCKCHAIN L. & POL'Y 22–24, (Jan. 2020), <https://stanford-jblp.pubpub.org/pub/blockchain-secured-transactions>.

<sup>13</sup>Stuart Levi, Alex Lipton and Cristina Vasile, *13 Legal Issues Surrounding the Use of Smart Contracts*, in CHAPTER 4, GLOBAL LEGAL INSIGHTS (2020), <https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/13-legal-issues-surrounding-the-use-of-smart-contracts>; Eliza Mik, *The Legal Problems Surrounding Blockchains*, 13 SING. ACAD. L. PRAC. para. 15 (Oct. 31 2018), <https://journalonline.academyPublishing.org.sg/Journals/SAL-Practitioner/Fintech/ct/eFirstSALPDFJournalView/mid/595/ArticleId/1317/Citation/JournalsOnlinePDF>.

across the common law world it is a general practice to grant them only when there is a high risk of dissipation. But in this context, to ensure automation of execution upfront, we would be asking parties to commit themselves to the equivalent of freezing orders from the beginning of the suit.

This is an odd proposition except, say, in phased projects that already adopt the escrow structure. In “normal” suits this upfront commitment is not expected, not even when you cannot clearly see the fund transactions of your counterparty (unlike on the blockchain, where these can be identified if you know the other’s address). It is of little comfort that both the parties are committing these funds upfront. And we certainly do not want to make the trade-off of giving more certainty to automatic execution while deterring the seeking of justice at the point of starting a suit because the restriction is too burdensome.

I argue that at its core, this comes down to the question of whether the benefits of the automation of execution (as juxtaposed against the uncertainties of cross-border traditional execution) and the blockchain-friendly dispute resolution process outweigh the disadvantages such as the opportunity cost of funds being restricted over the time spent litigating. By extension – if these are the trade-offs, then we can improve the value proposition for parties by improving the benefits and/or reducing the costs.

To make more considered suggestions on how to improve this value proposition, it is helpful to first consider, for any useful learning points, the extreme case where the entire dispute resolution process, and maybe even the entire original transaction, takes place on blockchain.

## VI.      STAGE 4: EXECUTION ON BLOCKCHAIN PURSUANT TO BLOCKCHAIN DISPUTE RESOLUTION

There have been a number of attempts to move into full-on blockchain dispute resolution, where typically the original transaction, the adjudication, issuance of the judgment and the execution happen on blockchain itself. Among these are several private courts and arbitration systems such as Kleros, Jus, Aragon and Oath Protocol etc.<sup>14</sup>

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<sup>14</sup>Jenny Vatrengo, *The Lay of the Land in Blockchain Dispute Resolution and Governance Designs*, HACKERNOON BLOCKCHAIN GOVERNANCE (Jan. 16, 2019), <https://hackernoon.com/the-lay-of-the-land-in-blockchain-dispute-resolution-and-governance-designs-6e858004e444>.

Essentially, these systems run using blockchain jurors that get to decide cases by staking tokens or by building up credit. Many of these decisions stem from the spirit of communal decision-making, or perhaps a communal sense of what is fair and equitable.<sup>15</sup>

National courts are also entering the space. The Hangzhou Court<sup>16</sup> has a system dedicated to disputes over e-commerce, online contracts and internet copyright infringements. Interestingly, it offers an end-to-end judicial platform, where contracting parties who have been pre-identified as eligible execute a smart contract to record their original transaction. Upon certain triggering dispute conditions being met, the case is sent for mediation, then for trial. Blockchain evidence would have been recorded along the way, and parties can sign in through the platform to supplement the evidence (e.g. with time-stamped screenshots of, say, copyright-infringing websites),<sup>17</sup> that will also be tracked on the blockchain. The system analyses the critical risk points of the case, and then generates a final judgment which is sent to other systems such as China's credit system.

In the United Arab Emirates (UAE), both Dubai and Abu Dhabi are weighing in with their respective Court of the Blockchain, which we have already mentioned, and the Abu Dhabi Global Market Courts.<sup>18</sup> Not much light has been shed so far on what exact structures will be put in place. It has been said that, on a preliminary basis, the Court of the Blockchain will work on using blockchain in authenticating judgments for cross-border execution (Stage 2 of this paper's framework), but in the longer run is looking to have all applicable laws and regulations on the blockchain so that disputes can be resolved on the blockchain itself,<sup>19</sup> likely with minimal human involvement.

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<sup>15</sup>Gary Tse, *Blockchain dispute resolution: a better alternative for the decentralised world?*, ASIA L. NETWORK, (Mar. 26, 2019), <https://learn.asialawnetwork.com/2019/03/26/blockchain-dispute-resolution-better-alternative-decentralised-world/>.

<sup>16</sup>Miranda Wood, *Chinese internet court adopts blockchain smart contracts, processes 1.9bn transactions*, LEDGER INSIGHTS (Nov.2017), <https://www.ledgerinsights.com/chinese-internet-court-blockchain-smart-contracts/>.

<sup>17</sup>Mark Barley, *Chinese court launches blockchain evidence platform*, LEDGER INSIGHTS (2018), <https://www.ledgerinsights.com/chinese-court-blockchain-evidence-platform/>.

<sup>18</sup>David Savage, *Thoughts for the new decade: smart contracts, blockchain and construction dispute resolution*, THOMSON REUTERS PRAC. L.CONSTRUCTION BLOG (Jan.14, 2020), <http://constructionblog.practicallaw.com/thoughts-for-the-new-decade-smart-contracts-blockchain-and-construction-dispute-resolution/>.

<sup>19</sup>Nabilah, *supra* note 2.

What we can gather, particularly in relation to execution issues, are that full integration onto blockchain is a work-in-progress. Reliably coding law onto the blockchain is very ambitious, and comprehensive blockchain treatment start-to-finish is much more achievable if one identifies specific types of simple disputes in particular sectors to receive comprehensive blockchain treatment. Execution on the blockchain is more likely to be preceded by a traditional judgment rather than a full-fledged blockchain resolution process, for a while yet.

## VII. CONCLUSION

I now tie the analysis together by making a few comments about how we should expect various stakeholders to be thinking about execution of judgments, in different situations and over time, and how they may make choices accordingly.

- (1) Courts issuing judgments for cryptocurrency or judgments that relate to records kept on blockchain, and the parties subject to such judgments, can benefit overall from easier access to more execution methods - both traditional execution methods and automated execution methods on the blockchain. It therefore makes sense to use blockchain to ease the traditional formalities for cross-border execution (Stage 2) while simultaneously developing capacities at Stages 3 and 4 in automatic execution. That said, the true value in blockchain authentication of judgments lies in sufficient network effects from other jurisdictions accepting such evidence and reciprocating on a similar level. An addition to existing international accords/treaties to introduce blockchain recordkeeping would be a good next step.
- (2) As stated, Stage 3-esque hybrid situations are likely to become quite common, and a competitive court system should be preparing to cater to that (as we will discuss further below). More parties are operating on blockchain, or may want to sue for cryptocurrency and other digital assets, particularly if automatic execution is offered. This would especially be the case for

those in or dealing with parties from jurisdictions with less developed or unpredictable court systems. At the same time, there remains both trust in and demand for traditional court processes (and one's "day in court") as well as established legal principles (e.g. English law, US law) as opposed to communally-aggregated common equitable principles. Full blockchain dispute resolution is limited, not yet mature and may not have the bandwidth to support reasoning through hard cases. It is also not yet clear how blockchain dispute resolution may affect the precedent value of cases. Further, parties' disputed transactions may not fully be on blockchain, which would therefore necessitate "mixed" judgments in any case.

- (3) Over time, I expect the territorial and jurisdictional approach to execution to weaken.<sup>20</sup> Arbitration's historical dependence on the court process for legitimacy at crucial stages such as enforcement, will decrease. We may see a flourishing of industry-specialised arbitrations that execute on the blockchain. Further, there will be a more level playing field, where a party may choose governing laws and jurisdictions based on their approach to blockchain-related disputes and the ability to facilitate automatic execution. Handling of execution issues may be central to the choice of court.
- (4) It is worth noting that the UAE and China seem to be at the forefront in terms of developing structural support systems for blockchain disputes and judgment execution, when they are not historically world leaders in a legal or dispute resolution sense. Perhaps there is room for nimble and/or younger Courts to learn and adapt from the progress made, and ride with these developments.

On this note, and harking back to our earlier question of whether the benefits of the automation of execution and a

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<sup>20</sup>Pietro Ortolani, *The impact of blockchain technologies and smart contracts on dispute resolution*, 24 UNIFORM L. REV. 1–3 (June 2019), <https://academic.oup.com/ulr/article/24/2/430/5490658>.

blockchain-friendly dispute resolution process outweigh the disadvantages of, say, restricted use of funds, I conclude with some suggestions on how to improve that value proposition for parties in a Stage 3-type hybrid situation.

- a. Introduce an early expedited mediation procedure parallel to court proceedings, to cater to parties' increased interest in settling the matter earlier. Any settlement can be recorded as a judgment and communicated to the smart contract for execution.
- b. Identify specific sectors and categories of disputes that we expect are likely to find automated blockchain execution attractive. Identify blockchain-friendly substantive laws. Develop judicial expertise and support structures (e.g. code) for these, to save time and long-run cost.
- c. Offer an expedited procedure of a few months (something akin to expedited arbitrations offered by leading international arbitration centres) for simpler cases, for example, where evidence is blockchain-tracked. Impose an early-stage procedural warning of potential substantial costs penalties if quantum of claims made are assessed not to have been made reasonably or in good faith, as a soft check on the potential amount of funds that have to be restricted. Explore some sort of automatic pegging system for the cryptocurrency that is secured pending resolution, to buffer against too much volatility in value. (This has complexities that should be considered further.)

Parties that have gone through the arduousness of a dispute and a dispute resolution process emerge with a judgment and often think, understandably, that this will be the end of it. With the assistance of blockchain and thoughtful procedures, it may just be.