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# Block-chain Reaction: Why Development of Blockchain is at the Heart of the Legal Technology of Tomorrow

**Overall Winner, Justis International Writing Competition 2019 by Kimberley Rust of the University of Sheffield**

## BLOCKCHAIN

Blockchain, arguably the most discussed and promising of FinTech trends,<sup>1</sup> has incredible potential to transform legal technology. Infamous as the technology behind cryptocurrencies, distributed ledger technology (DLT) has developed far beyond these origins<sup>2</sup> and may prove far more valuable than the currency it supports.<sup>3</sup> As a form of DLT, blockchain allows for secure decentralisation of peer-to-peer, irreversible exchanges, providing a transparent and irrevocable record as these occur. The technology is already used across the legal industry and a plethora of opportunities to extend its application bubble beneath the surface, under development, waiting to break into the current market.

Yet in spite of its infallible potential, the technology which by its inherent nature should engender trust,<sup>4</sup> is shrouded in uncertainty. Questions of jurisdiction, liability, security and privacy have not been addressed in regulation, leaving instead a dangerous vacuum in legislation on the subject. Logistical barriers also stand in the way of

blockchain's widespread adoption. In light of this, what makes blockchain worth investing in, and what hurdles must overcome to successfully transpose it into new legal technologies?

## THE IMPORTANCE OF BLOCKCHAIN

Across the globe blockchain has been recognised as the future of legal technology. The EU has recognised its innate importance, in its expressed ambition to be a world leader in DLT.<sup>5</sup> Similarly, the Law Society has recognised that in-place, in-progress, and envisioned innovative applications of blockchain have the capacity to revolutionise the legal industry, potentially reducing time, cost and risk<sup>6</sup> in provision of client service. DLT already manifests itself in an array of technologies, including smart contracts, cryptocurrencies and protection of intellectual property; ideas under progress include blockchain-founded governance mechanisms<sup>7</sup> and mapping stock trading onto a blockchain-based system.<sup>8</sup>

## So, how does blockchain differ from other forms of legal technology?

The potential blockchain has to remove the need for third-party intermediaries in exchanges has a far greater potential effect than the capacity of AI to digitalise legal work. AI's application in rendering more efficient formerly time-intensive projects such as due diligence or document storage and sharing, has altered the day-to-day role of the practicing lawyer and employment trends in firms.<sup>9</sup> Blockchain, by contrast, transforms the infrastructure of exchanges. Enabling parties to directly link with one another, blockchain allows exchanges to pass from one party to another digitally, without an intermediary. Such technology is seen in smart contracts, being digitally accepted upon the fulfilment of specified criteria. Other forms of exchange include IBM's TRusted Anonymous Data Exchange (TRADE) which utilises blockchain to produce a record of anonymous intelligence shared on a private thread, using smart contracts to ensure the relevant anonymity, reputation and extent of access permissions of parties.<sup>10</sup>

Whilst AI therefore implores us to utilise man and machine to consider what makes a 'good lawyer'<sup>11</sup> and deliver this to clients, blockchain demands that we consider how man and machine can be used to transform the way in which law is practiced. Blockchain not only renders practice more efficient, but revolutionises the dynamics in the legal industry, introducing greater independence for clients and inducing confidence and transparency into areas of law which have long-since cried out for this.<sup>12</sup>

## THE FUTURE OF BLOCKCHAIN

In spite of the above, which suggests that blockchain does have a great capacity to change and advance legal technology, current developments have not been subject to a DLT-revolution. Why is this?

It would be foolish to claim there are no barriers to blockchain's development, or that the technology is perfect. Logistically, energy consumption and a lack of technical knowledge impedes the evolution of DLT. Energy requirements have reached astonishing levels, with one academic suggesting that that bitcoin mining necessitates a comparable amount of energy to the whole of Ireland's electricity consumption.<sup>13</sup> Not only does this

affect the cost of blockchain-supported technology, but makes this technology fragile to fluctuations in energy prices, with nodes likely to be located in jurisdictions with favourable energy prices, eroding the concept of decentralisation.<sup>14</sup> The relative novelty of blockchain has also meant a general lack of expertise to develop technology specifically for the legal industry.

A lack of regulatory clarity is possibly the greatest barrier to blockchain's development.<sup>15</sup> Conflicts between blockchain and privacy law, fears over cybersecurity and ambiguity of liability remain huge obstacles which fuel industry doubt and equivocality, prompting firms, legislators and developers to err on the side of caution and avoid investing in blockchain development.

An immutable and irrevocable record of exchanges seems contradictory to privacy law, notably the right to be forgotten, enshrined, for example, in the GDPR.<sup>16</sup> As party information is published in the chain, digital identity will increasingly become important, to preserve anonymity alongside transparency. Fears over money laundering and fraudulent activity are reasonable. Whilst the nature of a real-time<sup>17</sup> record should help identify anomalous changes to the chain, and in spite of a successful penalisation of fraudulent behaviour in ICOs,<sup>18</sup> the reality that a critical majority could change the record of a blockchain, regardless of the accuracy of newly inputted information, remains a concern which has gone without response. Finally, attribution of liability remains ambiguous. Whilst some have concluded that liability is unlikely to be attributed to everyday users, but might reasonably be enforced against particular users and developers,<sup>19</sup> regulatory silence on the position of the law has led even those associated in the promotion of blockchain technologies to be cautious, with Facebook and Google hesitant to permit publications of cryptocurrency adverts.<sup>20</sup>

Regulation is central to legitimisation of blockchain. An absence of regulation, even as a result of ambitions to promote unrestricted innovation<sup>21</sup> stifles confidence, and industry participants dare not invest in blockchain-centred progress. The aim of this article has been to demonstrate that blockchain is invariably one of the predominant routes of development for legal technology, and warrants substantial attention and investment and implore the legal industry as a whole to become increasingly participatory in the creation and implementation of innovative forms of blockchain across the legal technology market.

## Footnotes

<sup>1</sup> *Can blockchain shake up the legal sector for the better?*, The Guardian Labs, 17 October 2018, (at <https://www.theguardian.com/legal-horizons/2018/oct/17/can-blockchain-shake-up-the-legal-sector-for-the-better>)

<sup>2</sup> *Can blockchain shake up the legal sector for the better?*, The Guardian Labs, 17 October 2018, (at <https://www.theguardian.com/legal-horizons/2018/oct/17/can-blockchain-shake-up-the-legal-sector-for-the-better>)

<sup>3</sup> A. Berke, *How Safe Are Blockchains? It Depends*, Harvard Business Review, 07 March 2017 (at <https://hbr.org/2017/03/how-safe-are-blockchains-it-depends>)

- <sup>4</sup> See for example widely quoted: Jessi Baker, CEO of Provenance, has been widely quoted in her declaration that “At its heart, a blockchain is a system that allows people who don’t trust each other, to trust each other.” –see: *Blockchain regulation and the future of the industry*, AtoZForex, 08 May 2017, (accessed at <https://atozmarkets.com/news/blockchain-regulation-industry-future/>); see also *How will regulation impact the development of blockchain technology?*, FinExtra, 6 May 2017 (accessed at <https://www.finextra.com/blogposting/14054/how-will-regulation-impact-the-development-of-blockchain-technology->)
- <sup>5</sup> European Parliament resolution of 3 October 2018 on distributed ledger technologies and blockchains: building trust with disintermediation (2017/2772(RSP)); see also H. Eddis and S. Treacy, *European Parliament calls for progressive regulation on blockchain technology*, Linklaters, 15 October 2018, (at <https://www.linklaters.com/en/insights/blogs/fintechlinks/2018/october/european-parliament-calls-for-progressive-regulation-on-blockchain-technology>)
- <sup>6</sup> *Blockchain, The Legal Implications of Distributed Systems*, Law Society, August 2017, p.7
- <sup>7</sup> Origin Energy Limited won the 2017 Best Use of Technology Global Award for this, in their use of blockchain through application “BoardRoom” which provides a complete blockchain governance platform. See G. Lygoiris, *BoardRoom’s Innovative App wins 2017 Global Award*, BoardRoom, 28 April, 2017 (at <https://boardroomlimited.com.au/posts/2017/04/28/boardrooms-innovative-app-wins-2017-global-award/>) and BoardRoom official website (at <http://boardroom.to>)
- <sup>8</sup> See *Blockchain, The Legal Implications of Distributed Systems*, Law Society, August 2017, pp. 5–6 for a more detailed list of developments.
- <sup>9</sup> See Research Paper: Internationalisation of the Legal profession 2018 Report, Sheffield University (to be published imminently at <https://www.sheffield.ac.uk/law/exchange/internationalisationlegalprofession>)
- <sup>10</sup> See S. Muppidi, *TRusted Anonymous Data Exchange (TRADE) Threat Intelligence Sharing with Blockchain*, SecurityIntelligence, 26 September 2018, (at <https://securityintelligence.com/trusted-anonymous-data-exchange-trade-threat-intelligence-sharing-with-blockchain/>) and Tradelens IBM official page (at <https://www.tradelens.com>)
- <sup>11</sup> Patrick Alexander Hum, *Artificial Intelligence and the Legal Industry: Making Sense of AI for Aspiring Lawyers*, 18 May 2018 (at <https://www.justis.com/artificial-intelligence-and-the-legal-industry/>)
- <sup>12</sup> Transparency in the secondary bond market for example has long-since been called for. See *Battle is on to make bonds more transparent*, Stephen Foley, Financial Times, 1 May 2013, (at <https://www.ft.com/content/66874224-b206-11e2-9315-00144feabdc0>)
- <sup>13</sup> Karl J. O’Dwyer and David Malone, *Bitcoin Mining and its Energy Footprint*, Hamilton Institute, National University of Ireland Maynooth, 2014
- <sup>14</sup> A. Berke, *How Safe Are Blockchains? It Depends.*, Harvard Business Review, 07 March 2017 (at <https://hbr.org/2017/03/how-safe-are-blockchains-it-depends>)
- <sup>15</sup> See *Regulatory uncertainty and trust are barriers to blockchain adoption amongst businesses*, pwc, 28 August 2018, (at <https://www.pwc.co.uk/press-room/press-releases/regulatory-uncertainty-trust-barriers-to-blockchain.html>)
- <sup>16</sup> Article 17, GDPR, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016; See also D. Steinbeck, *How New EU Privacy Laws Will Impact Blockchain: Expert Take*, Cointelegraph, 30 March 2018, (at <https://cointelegraph.com/news/how-new-eu-privacy-laws-will-impact-blockchain-expert-take>)
- <sup>17</sup> In reality there is approximately a ten-minute delay in updates between the time of exchange and the time at which this appears on the record, which is a limiting factor in fast-paced exchanges such as those on the stock market. See A. Berke, *How Safe Are Blockchains? It Depends.*, Harvard Business Review, 07 March 2017 (at <https://hbr.org/2017/03/how-safe-are-blockchains-it-depends>)
- <sup>18</sup> See *SEC v Jeffrey James* (No. 2:18-mc-00135 (C.D. Cal. filed October 5, 2018) for example; see also <https://www.linklaters.com/en/insights/blogs/fintechlinks/2018/october/us-sec-successfully-halts-fraudulent-ico>
- <sup>19</sup> See Z. Anderson *US Commodities Regulator Suggests Potential Liability for Derivatives Smart Contracts Developers*, Linklaters, 31 October 2018, (at <https://www.linklaters.com/en/insights/blogs/fintechlinks/2018/october/us-commodities-regulator-suggests-potential-liability-for-derivatives-smart-contract-developers>)
- <sup>20</sup> See Z. Anderson, *Google Eases ban on crypto ads in US and Japan*, Linklaters, 11 October 2018, (at <https://www.linklaters.com/en/insights/blogs/fintechlinks/2018/october/google-eases-ban-on-crypto-ads-in-us-and-japan>)
- <sup>21</sup> Para 65, European Parliament resolution of 3 October 2018 on distributed ledger technologies and blockchains: building trust with disintermediation (2017/2772(RSP))