Future Facing Disputes

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Disputes and Smart Contracts: traditional solutions to modern problems?

The technology to create so-called smart contracts has been around since computers were invented. Until relatively recently smart contracts were largely rudimentary with limited take-up and use, but as attitudes change towards a more widespread use of smart contracts driven by more recent innovations, the risks associated with them need to be understood.

This article outlines the fundamentals of smart contracts and their legal implications, before exploring likely areas for future disputes.

What is a Smart Contract?

Coined in the early 1990's by computer scientist Nick Szabo,[1] a smart contract is a self-executing contract; with the terms of the agreement between the parties to the contract being written into computer code. The code will contain a number of conditions, and when these conditions are met, the contract will execute automatically. The code underlying the agreement may be recorded in a simple programme or in a blockchain or alternative distributed ledger. The potential advantage with the latter is that it can result in an immutable contract, which (in theory) can never be changed, tampered with or broken. Mr Szabo likened smart contracts to a vending machine:

"the machine takes in coins, and via a simple mechanism… dispense change and product according to the displayed price. The vending machine is a contract with bearer: anybody with coins can participate in an exchange with the vendor. The lockbox and other security mechanisms protect the stored coins and contents from attackers sufficiently to allow profitable deployment of vending machines in a wide variety of areas".[2]

Potential benefits of smart contracts include allowing parties to

— **automate** payment or enforcement terms;

— **lower** performance/enforcement costs (by eliminating the need for certain third party intermediaries); and

— **reduce** the risk of fraud.

[1] https://nakamotoinstitute.org/formalizing-securing-relationships/
[2] https://nakamotoinstitute.org/formalizing-securing-relationships/

What is the legal status of smart contracts?

For a contract to be binding under English law, it must contain the four elements of **offer, acceptance, consideration and the intention to create a legally binding relation**. Does a smart contract fit these criteria? In short, yes. Indeed, there are no laws or regulations specifically establishing a framework or requirements for smart contracts. However, there have been some recent developments providing some clarity.

In November 2019, the UK Jurisdiction Task Force published a legal statement on cryptoassets and smart contracts (the "**Legal Statement**"). The Legal Statement concluded that a smart contract can satisfy the four elements of a contract under English law. Although the Legal Statement is not binding, it is likely to become an important reference point not only for courts, tribunals and regulators, but for parties considering using smart contracts. In January 2020, the English Commercial Court in *AA v Persons Unknown* [2019] EWHC 3556 (Comm), handed down one of the first judgments considering the legal status of cryptoassets as personal property under English law. The Court concluded that cryptoassets are property, consistent with the position adopted in the Legal Statement, which the Court found compelling. CMS has reported on the judgment in detail in its Law-Now updates, available here.

Future disputes and challenges presented by widespread adoption

With the legal landscape surrounding smart contracts only just taking shape, there are a number of challenges that present potential areas for dispute. Smart contracts can broadly be divided into three categories;

1. a contract in natural language that calls for performance to be executed in code;
2. a contract primarily in natural language that includes some terms in code; and
3. a contract solely in code.

At present, most smart contracts probably fall within the first two categories, making it possible to apply established principles of contract law to any potential disputes. As use of the third category of contract rises, new approaches may be required.

'Bad' transactions

Inherent in the immutability of certain smart contracts is the notion that terms cannot be amended and void contracts cannot be reversed. This means that potential errors or vulnerabilities in the smart contract may exist forever and the outcome of the transactions may not be as one or more of the parties intended. This raises an issue that the Courts have had to address with traditional written contracts. The starting point under English law is that the written contract is binding on the parties. It is the Court's role to interpret the contract and only in exceptional circumstances is the Court permitted to deviate from the ordinary and natural meaning of the words used. A specific exception is rectification, permitting the Court to order changes to be made to the contract, usually as a consequence of a mutual mistake. The difficulty with immutable smart contracts is that whatever the Court concludes, it may simply be impossible to change the contract without potential disruption to a far wider group (for example changing a block in a blockchain transaction). Such an approach is simply not realistic. Thus, the Court may be called upon to identify alternative remedies where a case for 'traditional' rectification is made out. Other remedies offering potential solutions include restitution, recognising the concept of unjust enrichment, allowing the Court to give effect to the intended end result of the contract, even where the contract failed. This assumes, however, that the identities of the relevant actors and the flow of funds can be identified.

GDPR

Smart contracts are likely to qualify as a form of solely automated data processing under Article 22(1) of the GDPR. However, the decentralised nature of blockchain means data cannot be controlled in the traditional manner envisaged by the regulation. It is not clear how data controllers can be identified or how the right to erasure can be exercised when using distributed ledger technology, giving rise to potential data protection disputes. Moreover, it is arguable that any party inputting personal data into a blockchain loses sufficient control of that data to comply with their GDPR obligations. This may operate as a restriction of certain types of smart contract (particularly those involving a quasi-escrow release mechanism of anything other than money). It may also be a significant disincentive in the use of traditional permission-less decentralised blockchains (a system accessible to anyone with no restrictions). An alternative, which is likely to be favoured by large technology and financial services institutions are

permissioned systems that maintain some form of control layer, allowing only certain identified participants to perform certain functions. However, some participants might challenge this as undermining the many advantages of a decentralised blockchain since a permissioned system requires the involvement of third party.

Governing Law and Jurisdiction

Smart contracts utilising blockchain or similar platforms raise potentially significant questions as to which courts would have jurisdiction to deal with any disputes, and what applicable laws would apply. Blockchains typically have a decentralised architecture with no central governing body (permission-less blockchains). The nature of smart contracts incorporating blockchains allows parties to transact seamlessly across multiple jurisdiction. If the overall legal framework of a smart contract does not identify governing law and jurisdiction, this could pose significant challenges to a party looking to pursue their rights through the Courts.

The starting point is to look at how Courts will approach the questions of jurisdiction and governing law. There is nothing preventing existing regimes being applied to determine jurisdiction. In the absence of choice, the starting point is that the Courts where the defendant is habitually domiciled are likely to accept jurisdiction. That is effective if the identity of the defendant is known. Where a choice has been made, Courts around the world largely respect that choice. With governing law, again Courts largely accept parties' express or implied selection. In the absence of choice, although there will be differences in approach and some specific exceptions, a close connection with the contract, or the habitual place of the party effecting the characteristic performance of the contract is often the starting point. This may, however, be more difficult to determine if the characteristic performance is largely digital.

One solution is for blockchain or other platforms to pre-specify the jurisdiction and applicable law for any transaction operating on it. That in turn creates the incentive for countries to offer a favourable regime for the determination of disputes under blockchain or other platform transactions. An alternative is for arbitration to step in and offer a mechanism less attached to any specific jurisdiction, and a few innovative models (beyond the scope of this note) are already in operation, which offer – at least in theory – an entirely 'on platform' dispute resolution model. It is too early to say whether such processes will also offer a 'real-world' enforceable solution that could be applied to significant commercial smart contracts.

Emerging usages of Smart Contracts

At present, usage of smart contracts is conservative, not yet realising the technology's full potential on a large scale. Transactions that use basic smart contract code are often supplemented by a wider, more traditional legal framework. However, there is significant ongoing interest and investment into use of smart contracts in the following areas:

Energy

A wide range of pilots are ongoing trialling small-scale concepts such as an electricity supplier releasing energy to a consumer following receipt of payment to the large-scale facilitation of peer-to-peer energy distribution networks that seek to displace traditional energy suppliers. However, detaching utilities from the operators and creating systems that focus on costs-savings runs the risk of shifting focus away from security and leaving vital services exposed to potential attacks. Regulatory requirements probably present the biggest obstacle for widespread growth in the energy sector.

Intellectual Property

IP rights stored on a blockchain have the potential to make ownership of rights easier to identify. The IP can be stored in an encrypted format with only authorised parties able to decrypt the information. The software offers opportunities to streamline licensing and collections, enabling royalties to be paid automatically to the correct recipient. Difficulties may arise in this sphere due to the uncertainty surrounding who owns blockchain. The US Chamber of Digital Commerce, amongst others, has observed that blockchain has attracted patent trolls and the Chamber has even launched the Blockchain Intellectual Property Council in a bid to create an industry-led defensive patent strategy to combat such trolling.

Real Estate

Smart contracts could fully automate end-to-end commercial and domestic real estate transactions allowing the different stages of the conveyancing transaction to occur within seconds. Ongoing pilots are trialling a blockchain-based transaction system to eliminate the need for individual data verification by the multiple intermediaries involved in a conveyancing transaction. HM Land Registry has an ambitious digital transformation strategy and has fully endorsed the use of blockchain to streamline the property market. Despite these progressive steps, HM Land Registry itself is likely always to be subject to human oversight and controlled, as Land Registry acts as a gate keeper, checking and controlling the ownership of land. Thus, this model would be quite distinct from a decentralised permission-less system. Ironically, that oversight might encourage earlier adoption of smart contracts, given the ease with which oversight and control, and potential Court intervention, could be deployed.

Supply chains

Many supply chains around the world are still document-based and those that are in digital form present issues with different participants using different data systems. Smart contracts in their simplest form could automate supply chains using a formula of "if **X** happens, then do **Y**", for example, to provide immediate payment to suppliers upon automated confirmation of delivery of products to a specific location by a set date. UK medtech company MediConnect has recently announced a pilot platform that connects manufacturers, retailers, wholesalers and patients to distribute PPE. The platform shares transaction records between the parties, verifies them using MEDI tokens and utilises Stratis blockchain to execute smart contracts. However, when contemplating the future use of smart contracts in supply chains, the potential disadvantages must also be considered. For example, the impact of a cyber-attack on an entirely automated supply chain could be disastrous. Organisations would need to maintain effective cybersecurity, with robust contingency plans available. Counter-party identification and validation is also an area where further advancement is expected as smart contract supply chains dramatically accelerate the transacting process. This will be especially critical in any regulated sector where "know your client" requirements are a pre-requisite of any transaction.

Conclusion

Whilst in its infancy, smart contracts harbour the potential to transform some of our most established industries and markets. Whilst recent statements by the UKJR, the BSI and the High Court have begun to give some well-needed clarity on legal issues, some questions remain, and unanticipated issues are almost certain to arise. As alluded to above, blockchain and the use of smart contracts present a regulatory dilemma. Regulators, regulated entities and courts around the world will have to evolve to ensure regulation and law supports but does not stifle the growth of what might otherwise be very beneficial technology. Some jurisdictions, such as Gibraltar, have already developed system of regulation for blockchain, however distributed ledger technology providers have reported that it is extremely time consuming and challenging to meet those regulatory requirements. A balance will have to be found.

Contacts

Ben Trust
Partner
T +44 20 7524 6234
E ben.trust@cms-cmno.com

Guy Pendell
Partner
T +44 20 7367 2404
E guy.pendell@cms-cmno.com

Louise Pearce
Associate
T +44 20 7367 3596
E louise.pearce@cms-cmno.com

Zoe Homer
Associate
T +44 20 7367 3618
E zoe.homer@cms-cmno.com