STEP response to the Law Commission call for evidence on smart contracts

About Us

STEP is the worldwide professional association for those advising families across generations. We help people understand the issues families face in this area and promote best practice, professional integrity and education to our members.

Today we have over 22,000 members in over 100 countries and over 8,000 members in the UK. Our membership is drawn from a range of professions, including lawyers, accountants and other specialists. Our members help families plan for their futures: from drafting a will or advising family businesses, to helping international families and protecting vulnerable family members.

We take a leading role in explaining our members’ views and expertise to governments, tax authorities, regulators and the public. We work with governments and regulatory authorities to examine the likely impact of any proposed changes, providing technical advice and support and responding to consultations.

Purpose of the Paper

In this paper, STEP makes a submission in response to the Law Commission call for evidence on smart contracts as part of the scoping study into smart contracts, which were published on 17 December 2020.

Response

1. Bilingual contacts have two languages set side by side in a contract, with usually one language being the stronger one in case of dispute. Similarly, a smart contact can be prepared with the written real world agreement on one side, and on the other side, the code of the smart contract.

2. However, not every smart contract will be accompanied by comprehensive legal terms. In the same way as how when a trust deed is silent in a particular area then we can rely on the provisions of the governing trust law, there should be an underlying legal foundation that can be referred to for smart contacts. Potentially English law, if clear and commercially appropriate, can become the underlying smart contract law that everyone can rely on and that can handle smart contract disputes.

Question 9: In what ways can parties reach an agreement through their interactions on a distributed ledger?

3. This will depend on the type of transaction that is being undertaken.
Cryptocurrency transfer

4. Here the agreement is made off chain and the blockchain provides a mechanism for the discharge of the obligation to transfer the cryptoasset. So, if Alice agrees to sell 1 ETH to Bob for £1,300, Bob must provide his consideration in money and Alice will instruct her wallet or custodian to send 1 ETH to Bob.

Coin offerings

5. Here, again, the agreement is made off-chain, although in a more automated fashion. If there is an initial coin offering, generally the person seeking to acquire the new tokens will connect a crypto wallet to the system, describe how much is being spent and then the tokens may or may not be available for delivery. This is an offer by the purchaser to buy the tokens, which might be accepted by the issuer. Provided the purchaser satisfies certain criteria, for instance as to residence or nationality and as to identity, the offer can then be made and will generally be successful, without the intervention of any human.

Simple conditional flow

6. The earliest smart contracts imposed conditions on transfers of cryptoassets. For instance, a smart contract for the sale of a train ticket will transfer a coded right to travel of a train if 0.1 is transferred to the address of a contract account. If Alice transfers 1 ETH to that address, the contract will run in the EVM and the ticket will be sent to Alice's wallet to be shown to the appropriate machine at the gate to the train's platform. Here there is an offer, by the train company, to use its smart contract to purchase a ticket and transferring the cryptoasset is the acceptance.

Decentralised Autonomous Organisations

7. These systems might be permissioned or permissionless and the nature of the agreement will depend on how it is structured. There is more than one aspect to the agreement. The first important system was known as The DAO, which was a crowd funding set of smart contracts but the model has been followed, with variations, and is popular as a governing body for automatic business systems running on other smart contracts on the blockchain.

8. With The DAO, ETH was to be sent to the address of a smart contract account on the Ethereum blockchain and DAO tokens were to be issued in return. There were no limitations placed on the number of tokens to be created and offered by the smart contracts and anyone was eligible to purchase them, so long as they transferred ETH to the smart contract. All of the ETH raised in the offering was pooled in an Ethereum blockchain address for use in funding projects that were approved by the members.

8.1. The advertising materials of The DAO (in a "white paper") described the structure of the system and provided the source code that would run on the EVM of the Ethereum blockchain. In a document entitled "Explanation of terms and disclaimer" it was stated that:

"The terms of The DAO Creation are set forth in the smart contract code existing on the Ethereum blockchain at 0xbb9bc244d798123fde783fcc1c72d3bb8c189413."
Nothing in this explanation of terms or in any other document or communication may modify or add any additional obligations or guarantees beyond those set forth in The DAO’s code.

"When you click the “I Accept” button or check box presented with the terms you are agreeing that you are taking part in The DAO’s Creation under the terms set forth in The DAO’s smart contract code at your own risk."

"By Creating DAO tokens through interaction with The DAO’s smart contract code, you expressly agree to all of the terms and conditions set forth in that code."

The code was not written in formal legal terms and it is suggested that the agreement was contained in the way in which the system operated, as discovered from an evaluation of the code; the parties agreed to that structure and operation.

8.2. Even if the code of the smart contracts was capable to constitute the terms and conditions of the operation of the system, it is suggested that those operated on-chain and would not have affected the formation of the agreement between vendor and purchaser before a contract was made and that an offer by the promoter, Slock.it, was accepted by a purchaser transferring ETH to the relevant smart contract address. Even though a purchaser could be identified only by their Ethereum blockchain address pseudonym, it is suggested that this would not affect the validity of the contract, and any difficulty would arise only if legal action was to be taken against the purchaser, but that was unlikely to be an issue because he would have had to pay the price before receiving the tokens.

8.3. It is suggested that a further aspect of the agreement between the parties, as determined from the operation of the system, was that the DAO holders were carrying on a business in common with a view to profit, within sections 1 and 2 of the Partnership Act 1890 with all the implied terms of that Act, insofar as they were not excluded by the words of, or the implications to be drawn from, the code (see section 19 of the Act). Some modern DAOs are incorporated (for instance The LAO).

DeFi protocols

9. A DeFi protocol generally operates by offering to apply certain defined and predetermined processes to cryptoassets that are transferred by a user to the protocol system. This might be a return of income or capital or an exchange for some other cryptoasset. The aim of the promoters of these protocols is to use automated processes, including the payment of a reward for depositing value or taking a fee for extracting value.

9.1. It is arguable that there is no counterparty to the deposit or extraction, which occur automatically with predictable results.

9.2. Another argument is that there are two parties to a transaction: the user and the controller of the protocol. Even protocols that are running without any intermediary in the process are subject to the adjustment of their operations. This adjustment is carried out on the instructions of a DAO controlled by its members according to the
value of their holding of the DAO tokens. Their involvement in the transaction will depend on the structure of the DAO, whether it be a partnership or a company.

Uniswap and other Automated Market Makers

10. In cryptoasset exchanges that were common until recently, the exchanges of cryptoassets operate as market makers in an order book system, buying and selling on their own accounts and thus providing liquidity for trades. Automated Market Makers operate a system under which holders of cryptoassets deposit two or more types of cryptoassets to provide liquidity pools in those assets, collecting a fee for doing so, and persons wanting to exchange tokens send their tokens to a smart contract, which interact with the liquidity pool and calculate the rate at which the exchange will be made. The smart contracts cannot be altered and so, either there is no counterparty to someone exchanging a cryptoasset, or it is the collection of persons who have contributed to that pool.

11. One of the questions is what happens when someone deposits tokens into a liquidity pool. It is suggested that those tokens are merged into a fund that is held proportionately for the liquidity providers and the trustees of that fund are the liquidity providers themselves. The alternative argument is that they are converted into some kind of debt, like a bank account, but the identity of the debtor is problematical.

Non Fungible Token purchases

12. Whereas cryptoassets are generally fungible, in that one token is interchangeable for another of the same type, developers are now creating tokens that are non-fungible and represent something else that is tied to the token on the blockchain. The most common examples of these non-fungible tokens (NFTs) are in the form of digital art, where the original artwork can be seen only with a wallet-like program and ownership (or control, or possession) can be proved by reference to the blockchain. The aspiration is for BFTs to represent real-world items, such as motor cars and houses, with the trick being to tie the tangible asset to the token so that ownership can be proved without reference to sale and purchase documentation.

13. NFTs can be sold by individuals by transferring the tokens using the blockchain, in the usual way, and in such cases the agreement will be off-chain, between buyer and seller. Generally, however, NFT artwork is sold through web businesses acting as art galleries, displaying renderings of the artworks and inviting offers. Here, the agreement is between agency and buyer and the agent will have a separate agreement with the seller.

Question 22: Do you consider that a deed recorded partly or wholly in code can satisfy the statutory formality requirements applicable to deeds and address the implications of the Mercury decision?

14. For an instrument to be a deed, it must make clear on its face that it is intended to be a deed and be validly executed as a deed (Law of Property (Miscellaneous Provisions) Act 1989, s.1(2). If it is being executed by an individual, it must be signed by him in the presence of a witness who attests the signature and be delivered as a deed (s.1(3)).
15. In the Mercury case, the issue before the court was whether there were any reasonable grounds to suspect tax fraud in the carrying out of a tax avoidance scheme. Part of the fraud alleged by the Commissioner of Revenue and Customs were that documents had been signed by clients in draft and the signature pages had been transferred to the final versions, containing different details. On the question of the allegations relating to signature, Underhill J said that there was a common understanding among the parties that the document would exist as a discreet physical entity, whether in a single version or a series of counterparts, at the moment of signing.

16. We take as an example an electronic document in a file containing natural language content relating to the transaction in question (including intention). Passing this file to a smart contract that records the file on the blockchain will be initiated by the user clicking a representation of a button in his wallet software and it is suggested that such an action could be interpreted as the signing of the document. After the file has been sent to the smart contract, there is no on-chain signing; the smart contract takes the file and runs, using the file as its input data. It is suggested, however, that there are the following difficulties:

16.1. It is arguable that the file written to the blockchain is not the document signed by the person executing the deed. It is a copy. We do not think that this is a correct argument; the original stored in the wallet that was sent to the smart contract was what was signed.

16.2. The question of proper attestation is, however, more substantial. Once the smart contract has run, a copy of the original file has been stored on the blockchain. If the witness sends another copy of the file to the smart contract, after pressing the usual button, that does not constitute an attestation of the original. Attestation requires the witness to be present at the signing and then to sign a statement on the deed to that effect (see per Sir J Romilly, MR in Wickham v Marquis of Bath (1865-66) LR 1 Eq 17, at 24). It also falls foul of the Mercury decision.

16.3. Delivery might also be a problem. The file stored on the blockchain is not the original, so delivery of it (by some other code in the smart contract) cannot be considered to be delivery of the deed.

17. Whereas with a contract a copy may be as good as an original, a deed on the other hand is a separate beast, with the power to bind parties without consideration, and therefore has a number of formalities. It would seem a stretch to say that the current smart contract protocols resemble that. A smart contract code could sit alongside a deed that somehow meets the main formalities (i.e. calls itself a deed and is signed and witnessed) or potentially the code could be constructed to resemble a deed, although we have not seen a smart contract like that yet.

**Question 56: Are there any issues we should be considering on smart contracts beyond those we discuss and ask about in this call for evidence?**
18. STEP believes that the Law Commission should also consider the legal position around
smart contracts in circumstances involving death, incapacity, and potential trusts.

Smart Contacts and Death

19. Where a person enters into a smart contract that meets the definition of a contract in
English law, but dies before the contract executes, the ordinary rules of contract law will
apply. If the deceased person’s estate is still bound by the legal contract, then (provided
the smart contract accurately gives effect to the terms of the legal contract) there is no
reason why the smart contract should not execute.

20. However, the position is different where no legal contract exists, as in cases where no
consideration is provided. For example, Alice sets up a smart contract whereby upon
registration of Alice’s death, 10 Ether tokens are transferred from Alice to Bob. Bob has
provided no consideration, and Alice has not executed a deed, nor is Bob otherwise due
to inherit under Alice’s existing Will or intestacy.

21. Possible legal analyses of the situation could include:

21.1. The smart contract serving as a Will or Codicil – this would not be possible
given the current requirements of the Wills Act 1837, but if the law were
changed to permit electronic Wills, or to include a dispensing power (as the
Law Commission is considering in another project) this might become relevant.

21.2. Considering the gift already complete, based on the principle in Re Rose
[1952] 1 All ER 1217 that Alice had done all that she could to transfer the tokens
– however, as she never intended to make a lifetime gift of the tokens to Bob,
it is not clear that this could apply.

21.3. Donatio mortis causa – provided Alice was acting in contemplation of
impending death when she set up the smart contract, Bob could argue that it
was a donatio mortis causa, although he would have to argue that the smart
contract could be considered a constructive delivery of the tokens to him.

21.4. Unjust enrichment/resulting trust – if Bob is not able to prove any of the
alternative analyses apply, then Alice’s personal representatives may be
obliged to recover the Ether tokens on behalf of the estate, by means either of
a claim for restitution for unjust enrichment, or that Bob holds the tokens on a
resulting trust for the estate.

Smart Contracts and Incapacity

22. Similar considerations are relevant in cases of incapacity. Again, the problem does not
arise in cases where the incapacitated person has entered into a genuine legal contract,
which would still be binding on them despite subsequent incapacity. The problem would
arise where a person has created a smart contract to part with tokens at some future point
without consideration (or a supporting deed), and then loses capacity such that at the point
the smart contract is to be executed, they no longer have the capacity to make such a gift.
23. In such a situation, the recipient might try to argue that the gift was completed while the donor still had capacity to make it, as described above, but otherwise the donor’s attorney or deputy might be obliged to recover the tokens from the recipient.

**Smart Contacts and Trusts**

24. There does not appear to be any reason in principle why trustees of an existing settlement could not enter into a smart contract if they thought it was in the interests of the settlement. However, it is possible to imagine situations where smart contracts might be used in novel ways where trust law is arguably relevant.

25. For example, Alice transfers 10 Ether tokens to an address known only to Alice’s smart contact program, which has been set up to transfer the currency to Bob if Bob is living on Bob’s 21st birthday, or else to Carol. Has Alice made a gift at the point she sets up the smart contract, or only once it executes? This could be relevant for various tax purposes.

26. There could potentially be a trust in such circumstances: the 10 Ether tokens would be the trust property, and the terms of the smart contract code might be drafted so as to provide all the certainty needed for a trust. However, there are no trustees. Possibly Alice might be considered a trustee, if she is still alive, or else the Court might exercise its jurisdiction to appoint a trustee. There would still be a problem though in that any ‘trustee’ in these circumstances would have no actual control over the trust fund. For example, if an Inheritance Tax charge was to arise on the tenth anniversary of the smart contract’s creation, the Trustees would have no means by which to pay the tax liability out of the trust funds.

27. Of course, it is also possible to imagine other situations where a smart contract is drafted much more like a conventional trust, giving a trustee the necessary powers in practice to properly administer it, and in such cases there would seem to be no problem with the trust having been embodied in and implemented via a smart contract.

**Conclusion**

28. STEP therefore believe that the Law Commission should take this opportunity to consider how smart contracts fit in to the law concerning death, incapacity and trusts. These are not purely hypothetical concerns, since fintech companies are already seeking to become involved in the business of inheritance (e.g. https://safehaven.io/). STEP, and in particular the Digital Assets Global Special Interest Group that brings together thought leaders in this field, will be happy to assist further should the Law Commission wish to pursue these points.

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Submitted by STEP Digital Assets Special Interest Group dated 31 March 2021