

# Blockchain is here – a brief overview of this exciting technology and its implications for smart contracts

Update prepared by Chris Duncan (Senior Associate, Guernsey)

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Guernsey has just held its first ever blockchain conference 'How Blockchain Technology could change the world'. The message from this sell out event was clear: Guernsey is keen to embrace blockchain technology (and any other technology, including artificial intelligence or AI) and to become a world leader in the adoption of blockchain, leveraging off its existing depth of resources in the financial services and legal markets, its regulatory flexibility and its relative stability in a climate of global political instability.

This update attempts to explain some of the basic concepts behind blockchain technology, the launch of the world's first private equity blockchain in Guernsey and to highlight some of the interesting applications associated with it, including smart contracts and bitcoin.

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## Blockchain (briefly) explained

Blockchain is a type of distributed ledger or decentralised database of digital transactions. Unlike most databases that have a central administrator (think financial institutions), a distributed ledger has a network of replicated databases which communicate via the internet and are visible to anyone within the network. Blockchain networks can be private with restricted access like an intranet, or public, like the internet. Digital transactions are grouped together in a cryptographically protected 'block' with other transactions that have occurred within the same 10 minute window and circulated to the entire network. Miners (members in the network with high levels of computing power) then compete to validate the transactions within a block by solving complex coded problems. Upon solving the problem in question, the first miner to do so will receive a reward (in the context of the Bitcoin blockchain network that miner would receive Bitcoins). Or put another way, the founder of cryptocurrency network Ethereum, Vitalik Buterin, described blockchain as 'a magic computer that anyone can upload programs to and leave the programs to self-execute, where the current and all previous states of every program are always publicly visible, and which carries a very strong crypto economically secured guarantee that programs running on the chain will continue to execute in exactly the way that the blockchain protocol specifies'.

Bitcoin (or BTC) was the first and most publicised use of blockchain technology with the primary purpose of facilitating peer to peer payment transactions without the need for intermediaries (like a bank). Bitcoin is a digital currency which utilises an open source or public blockchain. Technology reporter Sally Davies explained the difference between bitcoin and blockchain using the analogy that '[Blockchain] is to bitcoin, what the internet is to email. A big electronic system, on top of which you can build applications. Currency is just one'.

Guernsey's blockchain conference comes hot on the heels of the launch by Northern Trust in Guernsey of what is said to be the world's first private equity blockchain network. This private blockchain has been designed and implemented with the stated goal of transforming private equity administration, which is generally inefficient both in terms of time and cost whilst also lacking in transparency (through sheer number of moving parts and complexity). The finished product is said to 'create an innovative private equity ecosystem designed to deliver increased efficiency, security and transparency – all of which are longstanding challenges'.

## Application/implications

One interesting application of blockchain technology is the ability to generate 'smart contracts', a means by which (in simple terms) parties agree on a certain set of parameters and commercial terms which are then written onto the blockchain framework. Once encoded onto the blockchain, a smart contract can then be definitive in the sense that if one party performs their end of the bargain, the other contracting party's performance is automatic and guaranteed. This might be best illustrated in a conveyancing context where a purchaser and a seller agree on the terms of a sale, recorded by written contract and upon completion (once all conditions of the transaction are satisfied) the purchaser transfers to the seller the purchase sum and thereafter the seller transfers title to the property to the purchaser. This process is conventionally facilitated through the parties' respective lawyers but comes with the inherent problem (amongst others) of what happens to the purchaser if they transfer the purchase price and, for whatever reason and even if undertakings have been provided, the seller does not fulfil their side of the bargain and transfer title. A smart contract can potentially resolve this issue and simplify matters greatly. In the same transaction, facilitated by smart contract, the commercial terms would be recorded and stored on a blockchain such that the moment the purchaser transferred the purchase price, title would be transferred without any possibility of interference by the seller.

The implications of smart contracts are enormous, however it will force parties to think very carefully at the outset on the terms of any contract as once those terms are agreed and a transaction is set in motion, neither party will be able to interrupt it. This may present a risk for a party to the smart contract if they overlook something in the process of agreeing terms, however, that risk is very likely to be outweighed by the clear benefits in reducing or removing the ambiguity of contracts and the uncertainty of their implementation.

As for the downsides, some commentators have questioned the risk of hacking blockchain technology. This is a fair but ultimately misguided concern. Existing and centralised databases (like those used by intermediaries such as banks) are far more susceptible to hacking attacks than blockchain (though banks are inherently hackable!). If someone wanted to hack into a particular block in a blockchain, a hacker would not only need to hack into that specific block, but all of the preceding blocks going back the entire history of that blockchain. And they would need to do it on every ledger in the network, which could be millions, simultaneously!

## Guernsey's place in the blockchain world

Guernsey's existing legal framework provides the flexibility to allow technologies like blockchain to flourish. In particular, the Electronic Transactions (Guernsey) Law, 2000 (the **ET Law**), is widely drafted and provides that information, documents and contracts (or any provision thereof) shall not be denied legal effect, validity or enforceability solely because it is in electronic form. Similarly, evidence of a contract (or provision thereof) shall not be denied admissibility solely because it is in electronic form and electronic signatures are also expressly permitted. The net effect of the ET Law is that it provides a lot of latitude for new technologies meaning that new legislation should not be necessary to enable new products and services to be developed.

For the local legal industry, blockchain raises a wide range of issues including data protection, document retention, changes to participants and service providers once a blockchain is launched, to name a few. Legal advice will also be critical to the process of development and launch of blockchain products. Corporate service providers will also be required to manage and administer encryption keys and access to blockchains as Guernsey's status as a jurisdiction of security and stability means that it will likely be viewed as a suitable place to store encryption keys.

## Conclusion

Mourant Ozannes, with its depth of resources as the largest legal practice in Guernsey and its wide ranging knowledge and experience (across multiple jurisdictions), is well placed to be at the forefront of blockchain technology on the Island and to offer assistance to those businesses and individuals looking to develop products and solutions in the blockchain space. With any new technology there is a range of variables to consider, including regulatory issues and Mourant Ozannes can help navigate through the process.

## Contacts

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