



# CUMMINGS PEPPERDINE ON BLOCKCHAIN, DLT AND SMART CONTRACTS

## WHAT IS BLOCKCHAIN?

Blockchain, or distributed ledger technology, known as DLT for short, is a comprehensive, always up-to-date ledger which is created by combining cryptography and database distribution. Once created, it cannot be changed, it is immutable. Though there are those who believe that this may one day be possible with the necessary computer power, this seems some way off at the moment. It also raises the question of whether DLT will become more complex and unbreakable at the same time.

This leads us to ask what cryptography does. In brief, it is a tool for the authentication of the various stages of creating and maintaining a blockchain in the following sequence:

1. first, it authenticates the identities of the parties' identities and creates immutable hashes, or digests, of each ledger record;
2. then it authenticates the current page of records, which is the block; and
3. finally, it authenticates the binding that links each block to the earlier ones in the database. These links are known as chains.

Once it has been created, the blockchain database is distributed to network participants, or miners and it is the miners, through different means, who keep the blockchain up to date.

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## IS BLOCKCHAIN A REVOLUTION?

Well, some say yes. Why don't you try the game that we play, the Cummings Pepperdine Blockchain Imagination Game: think about the records you keep in your life and ask whether having them stored in an immutable format would be possible, and then think about whether it would be beneficial.

It's an interesting exercise and can take you in some interesting directions.

Those who say it is a revolution also say it may be the most transformative technology since the internet.

Going back to the Cummings Pepperdine Blockchain Imagination Game and taking that thinking further, do you think that it has the potential to change how businesses in a range of unconnected and diverse industry sectors operate and carry out transactions?

One example, which has both a legal and personal starting point, is how the digitisation of land titles, intellectual would work. Then add other asset classes – maybe intellectual property, patent rights, cash. Would it work and would it be needed? And, crucially, would the use of blockchain deal with the security concerns that exist in the ownership of assets?

## WHAT ARE THE CHARACTERISTICS OF DLT?

This is best illustrated by contrasting DLT with traditional data storage.

The traditional format is for a single entity to control contributions to the database as holder of a single version of the truth. In DLT, it's different. Each of a number of participants hold a copy of the database. They can then contribute to it, with actions overseen by governance and consensus mechanisms which are designed to ensure database accuracy and the common version of the truth wherever the ledger is held.

The contributors can be anyone or a chosen set. Where anyone can contribute, the mode of the platform is known as permissionless and is usually public. Where only certain entities, which are permissioned, can take part, the DLT platform is private and contributions are limited.

These contributors, either permissionless or permissions, are known as miners. Where consensus is achieved by way of mining, a cryptoasset or token is required for value exchange.

## AND WHAT ARE SMART CONTRACTS?

Smart contracts are contracts. However, they have a characteristic which distinguishes them from traditional contacts in that they are programmed to be self-executing arrangements which a computer will make, verify, execute and enforce automatically, in accordance with an event-driven conditions which are set in advance.

They are part of blockchain, or DLT. Initially, smart contracts were the software tool that a database would use to govern consensus about changes to the underlying ledger. Their use has developed and now they can be used to make and execute chains or bundles of contracts linked to each other. It all happens autonomously and automatically.

They are another candidate for a game of imagination – play the Cummings Pepperdine Smart Contract Imagination Game and think about all the manual actions you take each day and whether it would be helpful if they were replaced by autonomous and automatic processes. And what the downsides and security issues might be.

Some take the view that smart contracts have the potential to reduce error rates and costs and promise benefits from rapid data exchange and asset tracking. This can be particularly useful where the user is involved in high volume, lower value transactions. And to take things a step further into the world of artificial intelligence,



DLT-based smart contracts combined with machine learning and cloud-based, “as a service” processing could open up new operating models and businesses.

But first, make sure they are programmed correctly.

## THE TEAM

Cummings Pepperdine is a leading advisor in crypto. We are one of a select few that advises a large and diverse global client base in the crypto space and the only to provide a complete crypto solution building on the three key areas of law, tax and FCA with legal underpinning at every point.

In law, we have a team of qualified and regulated solicitors and barrister who retains right of audience.

In tax, we have one of the only crypto tax advisors who is both a qualified solicitor and qualified chartered accountant.

In regulation, our team comprises specialists in crypto compliance monitoring structures and governance oversight who are known to the FCA for the quality of their work.

The team is led by Claire Cummings, a leading solicitor specialising in crypto law and the current and evolving regulation. Claire is on the advisory boards of a crypto exchange and an NFT gaming guild and is also a member of the Global Digital Finance working group on



**Claire Cummings**

stablecoins. Claire has also acted as compliance officer, MLRO and director of an FCA regulated fund manager and qualified under SIB to trade derivatives. As a leading expert in crypto, Claire is a sought after speaker and has published multiple articles on the legal and regulatory issues surrounding cryptocurrencies and the crypto eco-system. Claire is named at the Top 10 influencer in London for hedge funds (2&20, 2022) and is included in the CityWealth Crypto Top 100

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The Cummings Pepperdine Online Training Programme, includes sections focussing on blockchain, DLT and smart contracts, has been designed by a specialist board of compliance consultants, solicitors, chartered accountants, tax advisors and regulatory consultants. We believe that we are the only firm which offers training created by this range of qualified advisors.

[Click here now to make it all work](#)

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