Bitcoin, Blockchain - the next big thing?

Blockchain is a set of rules and codes to enable a database or ledger to be securely copied and synchronised on millions of computers all over the world.

When the last page is written on the bizarre Bitcoin story, many people believe the conclusion will be that the world was changed... but changed by the Blockchain, not by Bitcoin!

Blockchain promises a way for people to record transactions, for example, currency, information, deals or anything else that can be digital, using a ledger that doesn't need to have a trusted central body to oversee it.

That could enable significant changes to the way that information and business happens and, more broadly, to the way that information and identity are managed.

What are you talking about? Bitcoin? Blockchain? I'm already lost.

OK, let's rewind to the beginning...

Bitcoin was invented in 2009 in a mysterious story that geeks love. It's probably best understood as a currency, though some sticklers would call it an asset instead.

In many ways there's nothing new about digital currencies like this – think Tesco points or Air Miles. We're all very used to vouchers that are like currencies but don't have the Queens head on them.

But Bitcoin is different because a key part of the scheme is a clever ledger, called the Blockchain.

The Blockchain has special rules and maths embedded in it to allow all the users to track the deals without relying on a central authority.

That's right... no one is in charge!

Obviously, if you want to know how many Air Miles you've got, you phone the Avios helpline or check your app; or if something goes wrong you call their complaints department. They are the central authority who oversee the system and ensure it's working smoothly.

FREEMAN CLARKE

With Bitcoin transactions (or anything else based on Blockchain) every user has access to a perfect version of the ledger so you don't need to rely on a central body at all. The ledger is secure and reliable.

Now of course nothing is perfect, perhaps there are flaws in Blockchain that have not yet been discovered, or new kinds of maths or computers will make it hackable. You could distort the system by taking control of huge numbers of computers but it just isn't practical. To all intents and purposes, the Blockchain is secure and reliable – in 10 years of Bitcoin there have been no interruptions, corruptions or errors.

And now there are a slew of other cryptocurrencies like Bitcoin. Arguably some of them are technically superior to Bitcoin but none of them yet has the foothold that Bitcoin does. Only time will tell which will prove to have long-term value as a currency (or asset, if you prefer!).

However, all of these cryptocurrencies run on the same kind of rails – Blockchain! Blockchains are the ledgers for all of them.

Blockchained to the rhythm

Very simply, the Blockchain is a set of rules and codes to enable a database or ledger to be securely copied and synchronised on millions of computers all over the world.

If you want to record something in the Blockchain database then you change one copy and this change gets replicated in all the copies. There are extremely clever rules that govern this process to make sure that only valid changes get accepted onto the Blockchain and replicated.

And once a change has become fact in the database then it's impossible to undo it. If you want to check the data then you can do it on any of the copies, and if there were any doubts about one copy then it's easy to see if it matches the others.

It doesn't matter if any of the computers has a problem because there are so many others still running the system keeps going. It's effectively impossible to tamper with the database because you would have to simultaneously tamper with millions of copies.

Critically, none of these databases is the master copy. They are all synchronized copies of the whole database.

Bitcoin transactions are recorded in a Blockchain ledger which ensures that there is an unequivocal record of buys and sells. There is no central bank, organisation, or government overseeing the system.

Now nothing is entirely secure, but there is no practical means to hack the Blockchain, so for the purposes of this Briefing we'll assume it's secure and un-hackable – because it probably is.

So why does Blockchain matter to business?

Well Blockchain could matter to business because it could allow disparate companies and people to work together even if they don't know each other, or even trust each other. And it could allow this without the need for a central body to oversee the initiative.

It addresses problems such as: "I sent it", "No you didn't", "Yes I did". The Blockchain is an unambiguous shared record of what happened and when.

Commonly quoted example of this is are supply chains, perhaps where consumers want a high degree of visibility or where companies demand precise knowledge of the quality and origin of raw materials or components.

For example, in food manufacture each part of the manufacturing process could be

> It's not hard to imagine a future where keeping records in Blockchains like this is normal, expected, and potentially required by law.

recorded in a Blockchain starting with the originators of all the ingredients, through the successive steps in the supply chain to the consumer.

So you could check exactly which farm, and even which cow, went into in your Steak and Ale Pie. And you can check whether it actually went moo or neigh.

A real-life example is the tracr Blockchain register designed by De Beers to track diamonds "from mine to finger". Every event in the value chain, each time the diamond is cut, polished, graded or traded - these are all recorded with images, and certificates uploaded to the ledger so everyone can have trust and confidence.

Of course, an unscrupulous user can make false statements or upload false records, but this can be traced precisely back to him so the scope for fraud is much reduced.

There are endless examples of ideas for Blockchains, particularly in areas like asset management, real-estate, accounting, insurance and health-care. Some of these examples are about publicly available Blockchains, some will be closed or privately run Blockchains. Wherever people and organisations work together Blockchains could enable streamlined, automated record-keeping.

Are these Blockchain ideas actually practical for business?

Right now we are probably at the start of the Blockchain story and quite what this tech can be for is not at all clear. Many of the business ideas that experts offer as Blockchain examples feel like solutions looking for problems.

But radical new tech can often seem pointless until it has matured to the point that it is practical and useful. As each new tech matures, becomes viable and is gradually adopted so attitudes change - and, what used to be slightly pointless, quietly become a necessity!

We are surrounded by, and reliant on, tech that looked pointless when raw, early ideas were first developed.

But imagine an accounting system that not only handles double entry, but creates a 3rd entry in a Blockchain ledger. And imagine if banks kept details of some transactions on Blockchains. This could create an entirely new culture of auditability and confidence and eliminate many kinds of dispute and fraud.

It's not hard to imagine a future where keeping records in Blockchains like this is normal, expected, and potentially required by law.

But the smart money is on Smart Contracts

If a Blockchain is used to record contracts between parties then it's not a great leap of thought to imagine that the contract is actually a programme that connects to the parties' systems, so automating the transaction.

For example, if one side needs to lodge some documents in return for a payment, then the smart contract could receive the documents electronically, validate them, and automatically trigger the payment. Or the smart contract could provide a code that unlocks access to a physical asset in return.

Complex contractual situations like royalties could be automated by lodging the rights-holding in a Smart Contract, and someone could simply make access to the asset through the Blockchain, automatically triggering their own payment and the onwards distribution of that payment to multiple rights-holders.

As more and more devices become connected to the internet we can envisage that transfers are automatically tracked through supply chains by scanning barcodes or NFC sensors and, as ownership changes, this is recorded immutably and payments are automatically triggered.

FREEMAN CLARKE +

> Blockchains will enable new ways to collaborate without existing intermediaries so there will be new opportunities for new entrants and threats to existing incumbents.

Will any of this actually happen? What are the blockers to Blockchain?

There are plenty of issues and complexities.

Firstly there are technical problems with Blockchains. The complex security mechanisms mean they struggle with high speeds and large volumes. And the encryption maths is so vastly complicated that it consumes huge numbers of servers, all drawing massive amounts of electricity - Bitcoin is already estimated to consume more energy than the entire nation of Austria! It's no surprise that many Bitcoin servers are located in Iceland and Canada where thermal and hydro power mean electricity is cheaper.

Although the Blockchain is secure, people have had their Bitcoins stolen because they don't exercise proper controls of their electronic wallets. Or more primitive blunders have included people losing fortunes by disposing of old computers containing their Bitcoin access codes.

Critically, no overseeing authority means there is no one to phone... if you forget your codes, don't use a proper password, or have some other problem then you're on your own.

But, more importantly, any venture involving multiple parties can be very difficult to mobilise. Although Blockchains don't need a central authority, widely-used standards generally gain traction as a result of sponsorship by well-known and trusted organisations.

Simple standards like EDI in manufacturing supply chains have never delivered to their potential and there are many different competing flavours and solutions. It's extremely difficult to get organisations to cooperate if there is no dominant force imposing uniformity.

And, finally, this tech is still very novel and is difficult to understand. It may just be too far ahead of the market and, to many people, it might just sound like techno-babble. The internet was invented in the 60's but it took decades to add other standards and other tech to make it usable, understandable and useful for both technicians and consumers.

So what's the practical effect of Blockchain and Smart Contracts on my businesses?

We see 3 specific areas of change in the coming years that mid-market business owners need to be aware of.

1. Shifts of power

Blockchains will enable new ways to collaborate without existing intermediaries so there will be new opportunities for new entrants and threats to existing incumbents.

Entrepreneurs who understand specific industry areas will be able to create new commercial models using Blockchain. Of course, gaining widespread usage will be a challenge, but there will be strong interest from investors and a whole new round of wild valuations as markets try to guess who will be the new winners.

At the same time, organisations that have long had control of information and supply chains may find themselves under pressure as new entrants arrive. Some traditional organisations will need to become Blockchain experts to avoid someone else eating their lunch.

The De Beers example may demonstrate how incumbents can further secure their position if they move quickly, but new companies will also find significant new opportunities and there will be shifts of power.

CEO's Briefing

> **Blockchain is yet another new tech that promises to change the business world and, not surprisingly, it's easy to be cynical about this.**

Consider, for a moment, how the last 15 years has seen new ecommerce retailers eclipse old-school bricks and mortar retailers. Debenhams' proud history of 200 years of retail didn't count for much!

2. Smart integration

New Blockchains and Smart Contracts will offer great opportunities but only to companies who can integrate their back-office systems quickly and effectively.

To win in the new world means having a well-structured business, including clean and well-organised data, processes and systems. IT staff will need to understand how to integrate up and down the supply chain rather than how to fix a laptop.

The opportunities for well organised, structured businesses will grow. Manual, admin-heavy businesses will find themselves further disadvantaged.

3. Increased Opportunities for the Mid-Market

There is no clear benefit to larger players and Blockchains may well undo some economies of scale. And, for many larger businesses, slow decision-making and complex back-office systems will make Blockchain integration more difficult.

So this revolution is likely to open up new opportunities for well-run mid-market businesses who understand their markets and clients.

Wherever auditability and transparency are of value, Blockchains could provide new opportunities. The future will likely favour nimble and intelligent mid-market business who can seize opportunities faster than lumbering corporates. Years of building trust and reputation for honesty will be challenged by this new low-cost technology that will provide a greater degree of trustworthiness at a lower cost.

Summary

Blockchains offer a radical new future where people and companies can interact and keep records in an unambiguous new way without central authorities overseeing the process. And these records could be automated Smart Contracts that could link back-office systems together to streamline activities that are currently manual and slow.

This opens up new vistas that are currently challenging to understand and describe.

As ever, with change comes both opportunities and threats. Opportunities to companies who position themselves well, are smart and engaged. And threats to companies who are slow to realise that they have built up value in models that will become obsolete.

Blockchain is yet another new tech that promises to change the business world and, not surprisingly, it's easy to be cynical about this. But we have to admit that the business world has, many times, been changed by new tech that was initially dismissed by cynics!

Freeman Clarke: We are the largest and most experienced team of fractional CIOs, CTOs and IT directors.

Phone
203 020 1864

Email
contact@freemanclarke.co.uk

Locations
London & South East; Thames Valley; Southern Home Counties; West Midlands; East Midlands; North West; North East, New York, Singapore