

Built in a distributed manner that advocates say make it unbreakable, the technology behind Bitcoin promises to create disruption in commercial fields

PROJECT BLOCKCHAIN

Blockchain will disrupt business in ways not seen since the invention of the web.

The term is used to describe a database whose information is stored on multiple machines rather than just one. An online, distributed version of the old fashioned ledger, it is best known as the technology underpinning Bitcoin, a digital currency.

Unlike traditional money, Bitcoin is circulated online using peer-to-peer technology with no central authority or, crucially, bank involvement.

But currency is only the start. "Bitcoin is just the first application of the blockchain," says Luis Pastor, blockchain specialist with Grant Thornton in Madrid.

"Already we have different kinds of blockchain used for other purposes, including Ethereum and Hyperledger."

Ethereum is a decentralised platform that runs smart contracts. These are applications which, according to its developers, "run as programmed without any possibility of downtime, censorship, fraud or third-party interference".

As with Bitcoin, these apps run on a custom-built blockchain – a shared global infrastructure that can move value around and represent the ownership of property.

It enables developers to create markets, store registries of debts or promises, move funds in accordance with instructions – from wills to futures contracts – and many other things not yet invented. And, again like Bitcoin, all is done without recourse to a middleman.

Hyperledger, which is backed by the Linux Foundation, is looking to blockchain technology to transform the way business transactions are conducted globally, describing it as an operating system for marketplaces, data sharing networks, micro-

Case study Bank of Ireland

"At the moment blockchain is still very much like the early days of the internet. But if 2015 was about exploring the concept, and 2016 was about moving into proof of concept stage, 2017 will be all about production," says Stephen Moran, innovation manager at Bank of Ireland.

Among the area most likely to be of interest to businesses is in relation to regulatory technology, or "reg tech", he says.

"For example, it raises the prospect of public companies being able to report in real time via the blockchain, rather than the traditional quarterly report – increasing trust among investors and saving institutions money," says Moran.

While Bitcoin is a good example of a public blockchain, he believes the area likely to see most growth is in relation to private blockchains used by enterprises, including banks. It is at enterprise level that most investment into blockchain development is being made, he points out.

This is because of the prospect it holds to save money. "For banks it offers the holy grail of being able to transfer money instantly, meaning you don't have to tie up capital to effect a transaction. And reducing risk reduces cost

because it means you don't have to hedge against that risk."

Blockchain enabled transactions will therefore require less of the traditional administrative work that goes into executing transactions.

"The blockchain offers banks the possibility of increased speed, reduced counterparty risk and reduced back-office cost – and that's in relation to moving money alone. We also see it as a potential disruptor in relation to asset management in so far as anything you currently need a notary or solicitor for. When things can be done instantly in real time, much of the middleman work will be done away with."

There are also applications in relation to shared identity. "Identity is something banks take very seriously, both in terms of knowing your customer and in terms of money laundering," says Moran.

"It is possible that the blockchain could enable people to link their identity details securely to their bank account. In health-care we could see people's records held securely in the blockchain.

"Anything that removes friction in existing back or middle-office processes takes less people to manage and so reduces cost."

currencies and decentralised digital communities, with "the potential to vastly reduce the cost and complexity of getting things done in the real world".

Those real-world applications are getting closer. "We will see it come into play in the financial services and insurance sectors first but blockchain can play the role of being a single source of truth in a number of ways," says Pastor.

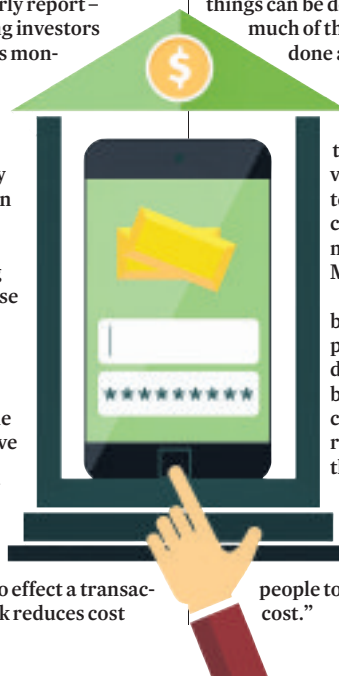
"For example, we could see it in relation to proof of ownership for properties. If you register a house on the blockchain to prove that you are the owner of the property, people can also use it to check previous owners of that house, or the prices a property achieved, and create intelligence that way. Or we can use it to create contracts – using the blockchain I will sell you a house when it realises a certain price. In this way we can see that it does away with intermediaries, perhaps even estate agents, and while the land registry will still have a role as a validator, it too will be disrupted."

Core function

Right now one of the core functions of banks is to act as clearing houses for the execution of payments. That too is ripe for blockchain disruption, reckons Pastor: "Such transactions involve mirror entities which can be done away with. The blockchain could help reduce money laundering too."

The construction industry is also readying itself for blockchain involvement, where applications for major projects, backed by consortia of businesses, are likely to emerge. These could ensure that all parties have accurate, up to date, verifiable information in relation to the supply of various construction processes or the execution of staged payments.

It has enormous applications for consum-





Blockchain is best known as the technology underpinning Bitcoin

ers too. “Take healthcare for example. A person buys medicines from a pharmacy but does not know the origin of those medicines, or that they haven’t been purchased online from somewhere they shouldn’t have. How do you know the medicines you are taking come from a trustworthy source? At Grant Thornton we have developed a blockchain system to track such goods from production and packaging through to distribution and the pharmacy, to avoid counterfeiting and to ensure the drugs followed the right flow,” says Pastor.

Forays are already being made into the area of peer-to-peer energy supply, using the blockchain. “In a neighbourhood in New York people who have excess energy can sell it to their neighbours,” says Pastor.

This pioneering work is being carried out by US company TransActive Grid, on an exchange built on blockchain technolo-



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gy from partner firm ConsenSys, using Ethereum.

The blockchain has other implications for utilities companies. “We are seeing smart meters being installed more and more. These are more accurate and will allow for smart contracts that pay automatically [when a certain metric is reached]. What this means for consumers is that you will never be overcharged. Of course, it is still a new technology. It has been proven but the blockchain is still at a very embryonic stage. For now these are predictions, but ones that are likely to reach usage in a matter of years.”

A computer engineer by profession who left his own blockchain start-up to set up Grant Thornton’s global blockchain practice, Pastor is well placed to understand public fears about the security of blockchain technology. Here too Bitcoin provides a good example.

“The way Bitcoin was designed it is impossible to hack the data, so the security of the data is good,” he says. “After seven years it has never been hacked.”