PEER PRESSURE

The demise of cold, hard cash is looming on the horizon thanks to Bitcoin and other digital currencies being pioneered through the internet, says Lesley Meall

"Money is about to change for ever," says Mark Hale, head of payments and transactional banking at KPMG Management Consulting. In the same way that the dull thuds of clay tokens and tally sticks were slowly but surely replaced by clinking metal and rustling paper, these have slowly but surely been replaced by something significantly less tangible: digital currency – and the demise of cold, hard cash is now looming on the horizon.

As most of our money already exists as bits and bytes in the computer systems of banks, and electronic payments are increasingly the norm (for even micro-transactions), the transition from tangible currency to something more 'virtual' can seem just a hop, skip and a jump away. "Digital currencies such as Bitcoin may not yet be the mainstream money of choice," says Hale, "but the direction is set and it is only a matter of time and circumstance before cash is materially displaced."

Although there are a number of digital currencies (see More Questions than Answers box, opposite), recent interest in Bitcoin has been phenomenal. In 2008, when the Bitcoin protocol was created by the mysterious Satoshi Nakamoto (who may be an individual or a collective), describing it as a maths-based crypto-currency was enough to keep it esoteric. But during the past year it has gone mainstream, grabbing headlines, venture capital and the attention of bankers, consumers, consultants, economists, investors, regulators – and treasurers.

Most organisations do not yet accept Bitcoin-denominated payments. Exceptions include an Anglican church (donations), a Las Vegas casino (for various bills and purchases, but not for gaming), a university in Cyprus (for student fees) and a food-ordering website (for pizza and other takeaways). Online retailer Overstock.com, a recent addition to the list, may signal wider acceptance: with annual sales of $1.3bn (£789m), it is the first large operation to accept bitcoins for sales transactions.

"Bitcoin is well suited for online transactions," says Overstock.com chairman and CEO Patrick M Byrne. "Providing this convenience for the cult-following Bitcoin customer is the smart thing to do," he explains, and it positions the retailer for broader consumer adoption of digital currencies. But Byrne doesn't just have an eye on the bottom line; he is making a political statement. "Bitcoin attracts me because it is a form of money that no government mandarin can will into existence."

The Bitcoin 'peer-to-peer' infrastructure operates independently of established banking and money transfer systems, and supply of the crypto-currency is not controlled by central banks and governments. It's nearly free, nearly instant and transactions are semi-anonymous (which excites libertarians almost as much as it excites criminals), so it provides a 'near-frictionless' digital payment system that can circumvent banks, borders and many (but not all) government controls.

Reactions from regulators vary. In March 2013, the Financial Crimes Enforcement Network of the US Department of Treasury issued guidance that provided some clarification by defining 'virtual currencies', as well as when they would be categorised as 'money services businesses' and be subject to all of the associated legislation. Internationally, there is no consistency: many jurisdictions can't decide on the legal status of bitcoins (or any other

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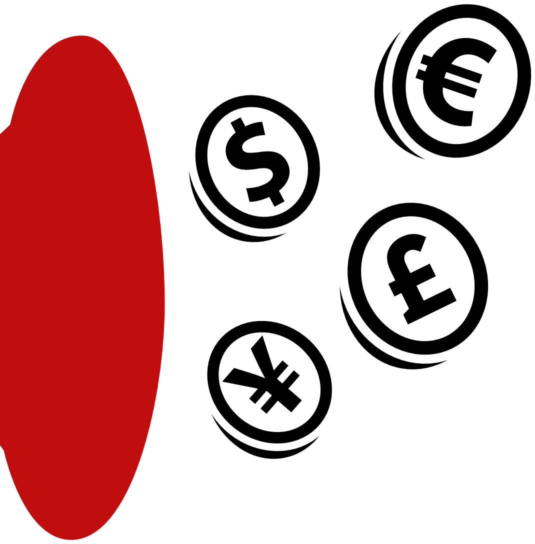

virtual digital currency), let alone how to regulate them.

In Hong Kong, regulators view Bitcoin as a 'convertible virtual currency' that can be traded privately or online, but it does not represent an electronic currency or form of money. Germany has formally recognised Bitcoin as a 'unit of account' and aims to collect capital gains and transaction taxes – if it can overcome the challenging anonymity of Bitcoin transactions. Guidance in Thailand states that it should not be used in the country or exchanged for the Thai baht.

Governments have issued warnings aplenty about the volatility of Bitcoin and other virtual money surrogates, and the risk of becoming unintentionally involved in illegal activity, such as money laundering, and financing terrorism. Meanwhile, Japanese Bitcoin exchange Mt Gox filed for bankruptcy in February after losing around $473m worth of customers' bitcoins to what it claims was a hacking attack.

But entrepreneurs and venture capitalists can see beyond Bitcoin (early versions of new internet technologies rarely emerge as winners in the race for mass adoption) to the potential offered by the start-ups that are springing up around the emerging payments mechanism.

"As you no longer need to use the inefficient rails we use today, Bitcoin opens up the world of finance to everybody in a peer-to-peer manner," says Fred Ehrsam, a former currency trader and co-founder of Coinbase, which recently secured a $25m (£15m) investment from the Silicon Valley venture capital firm Andreessen Horowitz. Coinbase is one of a number of providers of 'virtual wallets' for Bitcoin, and it's the one that Overstock.com selected to process its Bitcoin payments.

Using a US bank account, Coinbase users can buy and sell bitcoins, send and receive them via email, and accept bitcoin payments as a merchant. The Coinbase platform for accepting bitcoins is free; a small fee is charged for converting bitcoins to fiat currency, and this can be done automatically. Coinbase sets an exchange rate before each payment is made, immediately converts the buyer's bitcoins to dollars, and then transfers those dollars to Overstock.com.

With no derivatives market to help it manage its Bitcoin bets, Coinbase uses its own hedging software. Overstock.com isn't taking any gambles. "Because we will not be holding any actual bitcoins, we're not exposed to any risks or unusual obligations," says Mark Harden, corporate treasurer at Overstock.com. "That may change if and when enough of our suppliers and employees indicate a desire to be paid in bitcoins. Until then, we'll be converting bitcoins to US dollars at transaction time," he adds.

Most corporate treasury teams do not yet need to engage in business-to-consumer or business-to-business transactions using Bitcoin. Who knows how long it will take regulators to update their rules and guidance to the extent required if Bitcoin or any other crypto-currency is to become integrated into the formal regulated financial system? But you will need to monitor developments; we could be on the brink of fundamental change. "Bitcoin is historic," says Byrne. "Digital currency will be an important part of the future."

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MORE QUESTIONS THAN ANSWERS

What is a digital currency?
There are many digital currencies. At one end of the spectrum are offerings from traditional financial service providers, such as Mondex (from RBS/MasterCard) and MintChip (from the Royal Canadian Mint), which use traditional currencies, traditional payment systems and the formal, regulated financial system.

What about virtual currencies?
At the other end of the spectrum are 'virtual' digital currencies, such as Ven, and crypto-currencies, such as Bitcoin, Litecoin, Peercoin and Ripple. They operate independently of established banking and money transfer systems; governments and banks do not control the currency, but it can be exchanged for 'real' money.

What is a crypto-currency?
This is a type of virtual digital currency based on cryptography and decentralised peer-to-peer networking. Crypto-currency has no physical form: it is just sequences of ones and zeros; bits and bytes that exist only as data. A proof of work scheme is used to create (or mine) and manage some crypto-currencies, such as Bitcoin.

How does Bitcoin work?
Bitcoin uses a peer-to-peer network of thousands of computers (some hijacked and enslaved). Mining bitcoins involves solving complex algorithms. Individual transactions using bitcoins are encrypted, logged by Bitcoin miners who verify the validity of each transaction, and then stored in a giant virtual ledger.

To make a Bitcoin transaction, you need a 'private key' (a long string of numbers and letters), which must be stored securely (on paper, your computer or using 'digital wallet' software, for example). Without that key it's well-nigh impossible for a thief to steal your bitcoins; with that key, anybody can.