



Cryptocurrencies: A paradigm shift

By Claudine Cassar

There are currently over one thousand different cryptocurrencies in circulation, of which Bitcoin is the oldest and most well-known. A cryptocurrency is different from traditional currency in that it has no physical form. There are no notes or coins that a person can hold on to physically as proof of ownership. It is not issued by a government nor managed by a central authority such as a central bank.

At the core of it, a cryptocurrency consists of a unit of value, often pegged to a traditional currency such as US Dollars, whose ownership is recorded in a decentralised database. It is this decentralised database, known as the blockchain, which is key to it all.

The blockchain is a distributed ledger where cryptocurrency transactions are validated and recorded in a distributed peer to peer (P2P) network extending across the globe. All the computers participating in this P2P network are known as nodes and have a very important role when it comes to verifying each transaction and generating and saving a permanent record of it.

When one of the users on the network wants to make a payment, they trigger a transaction and sign it with their private key, the equivalent of a unique digital signature. The transaction is then broadcast to the entire P2P network. All the peers, acting as miners, then process complex algorithms in order to validate the transaction. The miner that completes the validation first, completes a new block of data that is added to the blockchain, permanently and unalterably. This data is then replicated throughout the network.

The nature of cryptocurrencies is totally different to that of fiat or “traditional” currencies:

1. The distributed ledger means that there is no single point of failure. If one of the nodes on the network fails, the network is not impacted and no information is lost. All the data remains available with no downtime. The data in the distributed ledger cannot be changed, which prevents internal fraud and cyber threats.
2. Once a transaction is validated and finalised, there is no way of reversing it. When the money is sent, it is not possible to get it back. It could be a case of your child spending a fortune buying in-game purchases without your permission – once it’s done, it’s done. There is no central authority to complain to and no way to get a refund.

3. It is not always possible to link real world identities to the originators or recipients of funds. This has made cryptocurrencies very interesting for those who want to transfer funds gained through illicit means. The most well-known example of this was the online drug market known as the “Silk Road”, where users often broke laws by buying and selling controlled substances, requiring anonymity in order to evade the law. The payment mechanism of choice consisted of Bitcoin and when the FBI shut the site down and arrested its founder they seized \$3.6 million in Bitcoin, while also alleging that the cryptocurrency had been used to launder around \$1.2 billion in sales.
4. Transactions based on cryptocurrencies are processed fast and funds can be transferred anywhere within a matter of minutes. Distance and geography do not impact the speed of the transaction.
5. It is very easy to get started. A user just downloads the required software for free and can start receiving and sending funds immediately. There are no accounts to be opened and no documentation to be submitted.

These properties make cryptocurrencies a paradigm shift – they are free from political influence and therefore proving to be an important tool for citizens who have lost trust in a central authority. Their value fluctuates according to the markets and they have become a great store of value, so they are a target for investors and speculators. They are anonymous and can be used as a means of payment in criminal activity. They are fast and low cost – useful for those who need to transfer funds across geographies rapidly and without paying high intermediary costs.

Although there is clearly an image problem and an accessibility issue that cryptocurrencies have to overcome, there can be no doubt that they are here to stay. Technology giants and major banks are investing heavily in blockchain technology, and the race is on to create blockchain-based products for banks as well.

Cryptocurrency payments are not only being used for P2P payments online, but are increasingly being accepted as a standard method of payment by reputable and well known merchants worldwide, both for online and mobile payments and also for purchases made in bricks and mortar stores. These include household names such as Dell, Subway, Expedia, Amazon, Microsoft and Target.

Financial regulators are also looking at the technology more closely, although it is expected that their focus will be on the cryptocurrency exchanges, targeting the introduction of regulation aimed at confirming the identity of people using the exchanges and transacting in cryptocurrencies in order to prevent money laundering. This will constitute an important step towards resolving some of the issues that have plagued cryptocurrencies so far, paving the way for them to become the future defacto payment method for day to day trading.

For more information, please visit <http://www.deloitte.com/mt/blockchain>

About the author

Claudine Cassar is the leader of Deloitte Digital Malta. Deloitte has invested heavily worldwide in the development of blockchain resources and is well established as a thought leader on blockchain, cryptocurrencies and Bitcoin, charting how they will constitute a cultural paradigm shift, allowing us to move from today's sharing economy to a definitive “trust democratisation” for the common good.

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