Blockchain, bitcoin and banking

By Peter Alkema

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Blockchain technology will become a new and necessary normal in our lives, just like the internet, and its disruptive nature is likely to have a profound effect on traditional financial services' way of doing business.

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Changing the way we transact

Farzam Ehsani, leader of RMB's blockchain initiative, believes the way we store and exchange content was completely democratised by the internet and so too will blockchain completely change the way we store and exchange value using digital currencies like bitcoin.

In 2015, the global payments industry was worth $1,7trn, and comprised 40% of total banking income, because they are the trusted third party in most payments transactions. Banks play an important role in the exchange of value, often cross border and involving a variety of complex financial instruments, different currencies and payment mechanisms.

Sending R1m to New York might cost you R1,000 and take a few days, but it could be done in 10 minutes with blockchain and cost you only R6. Such a process would also not go through a financial institution and thus represents a huge threat to the global banking system. Through the blockchain, payments have become significantly quicker and cheaper.

How it works

It's worth understanding how such a disruptive concept actually works. Although its end-user experience is simple and quick, the underlying technology is extremely complex. The blockchain is a series of connected "blocks" of data containing records of transactions, the most common type in use at present is bitcoin transactions.

These interconnected blocks form a "chain" of data which is effectively a database that is decentralised, fully distributed and publicly visible. It therefore acts like a ledger and is open for scrutiny. In a traditional non-blockchain transaction, usually there is a trusted third party - such as a bank - that independently verifies the transaction, with blockchain, the third party becomes irrelevant as the network authenticates the deal.

Changing the business model

Parties in the current global financial system would need to change their business models if bitcoin or a more popular digital currency becomes widely used. If this happens it could reduce the use of sovereign currency, and the central and consumer banks in a country would need to include it as a legitimate form of exchange.

In South Africa, consumers are already adopting these cheaper alternatives to making payments. There are already bitcoin exchanges and websites that can accept bitcoin payments through Payfast and money can also be sent from other countries to a local account holder.

Another reason for adoption is the democratisation of trust. Bitcoin transactions are validated by other people using their own computers rather than big institutions. This is the genius of the blockchain. Validating other people's transactions is called mining and is the process by which transaction records are added to the blockchain, or the bitcoin public ledger.

Proof of work

Bitcoins are thus not actually created or printed like real cash, they are "discovered" when computers compete with each other to successfully add transactions to the blockchain. This is done through a computational process of trial and error called proof of work to find a particular number that satisfies an equation for a particular block, which is rewarded through issuing the bitcoin and transactional fees. The public scrutiny of a peer network of multiple computers using the same calculation for a series of interlinked blocks creates the tamper-proof integrity of the blockchain.

Bitcoin mining is incentivised with 12,5 bitcoins or R127,000 (at the current exchange rate) for every successfully created block, which contains a set of transactions.

Customer security

Blockchain also changes the way customer data is handled in transactions and could provide a more secure approach than regulating current banking processes. Customer data does not have to be stored in the blockchain, and its use does not violate any data privacy laws in South Africa.

Data in the blockchain can also be encrypted and users have different types of bitcoin wallets that offer varying levels of security protocols, such as desktop, mobile, online. Users still have to manage their own passwords for their wallets, but it is virtually impossible to deduce the ownership of bitcoin accounts from information on the network.

Additionally, no-one owns the bitcoin network. Everyone who uses it has shared ownership, so it doesn't require oversight from a governing body, as there is no vested interest in manipulating the network. You can think of bitcoin in the same way as email - a useful digital service which can be secured and enables users to send and receive private information in the form of messages.

Store and exchange any digital asset

Bitcoin is the first major user of the blockchain protocol, but it can use applied to store and exchange any digital asset.

Honduras in Central America is building a land-title registry using blockchain. The country's current system has been hacked and corrupted so they are turning to the tamper-proof nature of blockchain, and the project should be complete by the end of the year.

The technology is also being explored and adopted by major entities. The UK government is exploring how it could enable public services and Nasdaq announced last year it would be recording stock exchange trades.

There can only be an upside for consumers. AS Ehsani concluded in his talk: "Imagine being able to buy or sell your house in a matter of minutes. Blockchain is not some crazy theory, it will be a reality in the not too distant future."

ABOUT PETER ALKEMA

Peter is the CIO of FNB Business and has spent 15 years in IT. He is a key driver behind developing and implementing innovative IT solutions in CRM, procurement, finance and HR. His professional career spans various IT leadership roles across consulting and lines of business mainly in financial services. Peter is currently busy with his PhD at Wits University researching the impact of senior leadership on agile software development teams.

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