The Guardian

Bitcoin is a bubble, but the technology behind it could transform the world

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Sun 24 Dec 2017 11.05 AEDT

Blockchain poses as big a threat to banks as Facebook and Amazon did to conventional media firms

The price of bitcoin halved last week after soaring to $19,000. Photograph: Chesnot/Getty Images

Humanity's earliest, truly transformative general purpose technologies were the ability to cross-fertilise plants and cross-breed animals. Suddenly, it made more sense to farm than to hunt and gather. The surge in agricultural output meant humans could do other things than worry about survival; they could live in cities. Human civilisation began.

The story of the subsequent millennia has been how some 30 general-purpose technologies of equal power, ranging from the printing press to the steam engine, have driven similar leaps in transforming our economy, our lives and our civilisation. Today, we are living through another.

Digitisation is, if anything, even more powerful: it is a meta general-purpose technology. No area of human activity will be left untouched by the translation of the physical into digital data. Already, it has created astonishing new capacities: the chances are that you are reading this on a smartphone or tablet. But the adventure is only just beginning. Everything – from banking to health - is about to experience similar transformations.

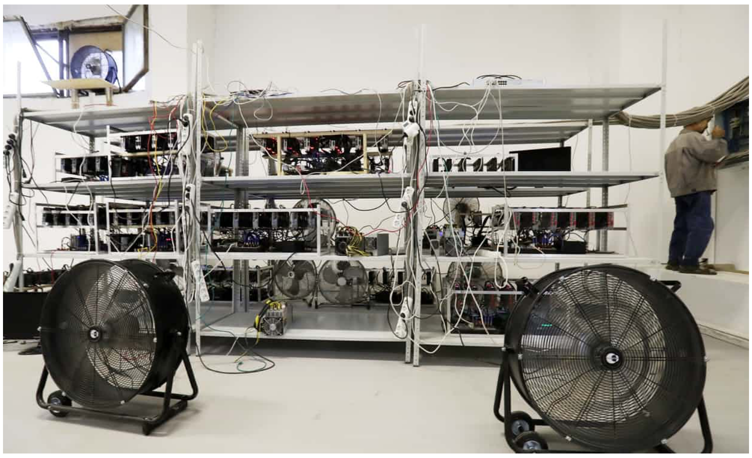
Last week, the growing impact of blockchain and the price of one of the crypto-currencies it underwrites - bitcoin - hit the front pages. Regulators stopped the US stock market trading in the Crypto Company (a tiny penny stock whose main asset is its name) after its shares jumped 2,000%, so that it briefly, and stunningly, joined the Fortune 500 with a value of $12bn. As extraordinary, when the Long Island Iced Tea Corp - yet to make a profit - announced that it was changing its name to Long Blockchain Corp, its shares jumped 500%. The price of bitcoin itself - $1,000 at the start of the year - briefly hit $19,000 per “coin” last week before falling to $11,000 and then recovering to $14,000 yesterday. A crazy wildness, emulating every financial bubble in history, has settled on US investors.

But bubbles don’t come out of nowhere. Peoples’ animal spirits are sparked by something real that collectively captures their imagination: blockchain and crypto-currencies are that something. Blockchain is a foundational digital technology that rivals the internet in its potential for transformation. To explain: essentially, “blocks” are segregated, vast bundles of data in permanent communication with each other so that each block knows what the content is in the rest of the chain. However, only the owner of a particular block has the digital key to access it.

So what? First, the blocks are created by “miners”, individual algorithm writers and companies throughout the world (with a dense concentration in China), who want to add a data block to the chain. There is no government or central direction; no permission is needed to create a block - and unless the law is broken, no government, regulator or police authority can close the block down.

Just as the web once promised freedom, so does blockchain. The chain is self-policing. Anyone who attempts to launch an exchange of data outside the protocols of the chain will immediately be spotted by the other blocks - and the exchange will be aborted. Suddenly, the world has acquired a system for the fast, trusted exchange of vast amounts of data without intermediaries or supervision.

In the way that Facebook, Amazon, Netflix and Google (the “Fangs”) replaced conventional media and communication companies, that prospect faces banks, insurance companies and many public services. Our health data can be given to the whole chain for it to assess, rather than an individual doctor, and the chain can then assess and price an insurable risk. No intermediary is safe. No wonder investors are salivating at the prospect of old, analogue organisations being driven out of business and mega fortunes being made by the companies replacing them, perhaps by the Crypto Company or Long Blockchain Corp. If you had bought Facebook 13 years ago you would now be very rich.



An array of computers in Siberia ‘mining’ for crypto-currency.
Photograph: Vyacheslav Prokofyev/TASS

One of the first casualties could be banking. Already, you can present your card to make a contactless payment in a store, pub or taxi. Cash has become digitised, although the payee wants to know that a bank has validated the creditworthiness of the payer before accepting the transaction.

But blockchain changes everything. It becomes a means to transfer digital cash - or crypto-currencies, of which the best known is bitcoin - in vast amounts, across any border, instantaneously. The blockchain makes sure bitcoin is spent once; indeed, blockchain was first invented by the originators of bitcoin to make sure there was no fraud. No £30 limits. No credit or debit card necessary; no central bank or government needed to guarantee the value of the money. Just buy your bitcoin from an online broker and you have buying power in your digital wallet: better still, it may go up in value, giving you more buying power still. The whole analogue apparatus of the financial system could be as severely challenged as newspapers and retailers are by online reading and internet shopping.

The question is whether banks are going to reinvent themselves using the blockchain as a key tool and become crypto-currency brokers before others. The trouble is that bitcoin, like other crypto-currencies, is not a reliable way of storing value - a key function of money - when its price can nearly halve in a week, as it did last week. Better not to think of bitcoin as money; rather, as a commodity that uses blockchain to make settlements faster, but it can’t - and never can - be a way for the mass of workers to get paid or make their purchases. It could take millions of transactions away from banks and badly wound them, but it’s unlikely to replace them.

But it could still represent a huge shock. Blockchain will administer similar shocks to insurance, healthcare and all mass payment systems. Intermediaries in the service industries will face a new world in which their routine functions will be performed by machines, programmed by artificial intelligence, while the blockchain becomes the new means to do business safely, faster and less riskily. There will be new concentrations of economic power because, like the Fangs, the blockchain economic model is more efficient and more effective the larger the network. Moving ever more economic activity into this universe, with its anonymised transactions and secret keys, may please the ultra libertarians - but there remains a public interest in ensuring accountability, justice and fairness. We have, in short, to understand and shape this new world before it shapes us. There are precious few signs of that.

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