

What blockchain really means

The nature of the construction industry makes it suitable for using blockchain. This is radical thinking, but history shows that those bold enough to change often push out those sticking with traditional ways.

WHAT DOES blockchain mean for the construction sector? Will it change the management of building assets? Will distribution and supply be altered by new digital technologies?

Exploring blockchain and construction

There is extreme hype around blockchain, and many sectors are looking at its implications. Early adopters like Maersk are demonstrating it can streamline complex business processes in the shipping industry, but what does it mean for construction?

One year into the 2-year research project ‘Chip of the new block(chain)’, we are working with industry to answer the question ‘how will blockchain impact the construction sector?’

First, an industry must understand a technology before it can make informed decisions about where it adds value. This is the first challenge for the sector - understanding what blockchain is and what it can do.

To achieve this, during 2019, we have run workshops with people from the construction sector. Participants had the opportunity to learn about blockchain - using LEGO - and



explore use-cases where blockchain might benefit their business. Use-cases are specific situations where a product or service could be used.

The workshops are aimed primarily at people with non-technical backgrounds. Participants who want to explore the

possibilities of blockchain and distributed ledger technologies and to consider the potential for change and disruption and the wealth of new scenarios and applications this technology might support in their business.

In the second year, the project will focus on detailed feasibility analysis of some of the

areas emerging from the workshops and wider conversations.

Why was blockchain created?

The simplest way to understand blockchain is summarising why it was created. In 2008, there was an unprecedented failure of international banking. Part of the problem was that only a few people in a country's central bank see the full record - the ledger - of how money is moving. A combination of extreme risk taking, corruption and limited oversight led to the catastrophic global banking failure.

Soon after, someone with the pseudonym Satoshi Nakamoto put forward this tantalisingly simple idea: 'If this problem was caused because only a few people can see the record of money transactions - the ledger - what if it was distributed automatically and everyone could see and check the ledger? This provides much more oversight, making corruption more difficult.'

Blockchain is essentially the technology that makes this possible, and the cryptocurrency bitcoin is an example of it in practice.

Created to develop trust

Simply put, blockchain was created so people could place trust in a distributed ledger of transactions - banking transactions - without the need for a central authority to keep the ledger accurate - the bank and bankers. If that is a hard idea to grasp, that's OK, it's quite difficult to think of an example.

Your bank, library, local government and even your place of work are all centralised with a hierarchical structure, while some other organisations are more decentralised, with people arriving at decisions through consensus. Most of human history, in fact, has been built on a combination of centralised and decentralised forms of governance and trust.

Blockchain forms the foundation for a distributed system of organisation, which at its heart is an entirely new and completely different way of coordinating people and resources.

The future is here, just not evenly distributed

Readers may be familiar with Uber and Airbnb - companies that have created digital platforms and disrupted industries across the world. Yet underneath, they are still centralised and hierarchical organisations.

Fundamentally different types of organisations - decentralised autonomous organisations (DAOs) - are emerging with the potential to be more disruptive. These business models are built on blockchain and use smart contracts to create a network that dramatically reduces duplication and bureaucracy and, even more importantly, incentivises people to contribute to the DAO's purpose.

No person or organisation controls the DAO. Instead, the DAO's members agree rules upon which it is run and must reach consensus to change those rules. There are various benefits. For example, the profits of the DAO accrue to its members. Further, depending on how the DAO is structured, anyone can offer suggestions for improvement or offer to contribute their services and if the network agrees, the contributor is paid for their work in improving the DAO.

This harnesses the knowledge and skill of a much wider pool of talent than normal organisations. So what does blockchain really mean? We are really talking about radical change.

What does this mean for the construction sector?

Most of construction is a combination of centralised and decentralised organisations,

systems and processes. In blockchain, we are talking about radically changing all of that by moving to a distributed model.

The idea of digital platforms and blockchain, potentially, is well suited to construction, which after all, coordinates a distributed network of people, entities and resources. These typically change from project to project, and main contractors subcontract in most of the people and equipment (much like Uber) to get things done.

Business is changing dramatically, and blockchain is one of the technologies that will power new forms of business and new ways of people working and cooperating.

If history has taught us anything, it's that, when new forms of business, such as Uber, enter the market, the old forms of business find it hard to compete.

Questions businesses should ask

Every day, the technical obstacles of blockchain are being overcome, and it is misleading to think the technical questions are the important ones.

Quite the contrary. These are important questions that businesses should be asking now:

- How and why might we use blockchain?
- Where are centralised and decentralised structures limiting or problematic for business?
- What would the implication of shifting to a distributed model be, and what opportunities could it present in those contexts?
- How does shifting trust from a central authority in our business to everyone in the business affect it?

These are very hard questions to answer, which is why BRANZ funded us through the Building Research Levy to help construction understand and transition into new forms of business. ◀