

BUSINESS

DECODING THE BUZZ AROUND BLOCKCHAIN AND THE HONEY INDUSTRY

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There is a lot of buzz around blockchain technology, but what is it and how can it help New Zealand beekeepers? *The New Zealand BeeKeeper* spoke to technology consultant Erik Bast to find out more.

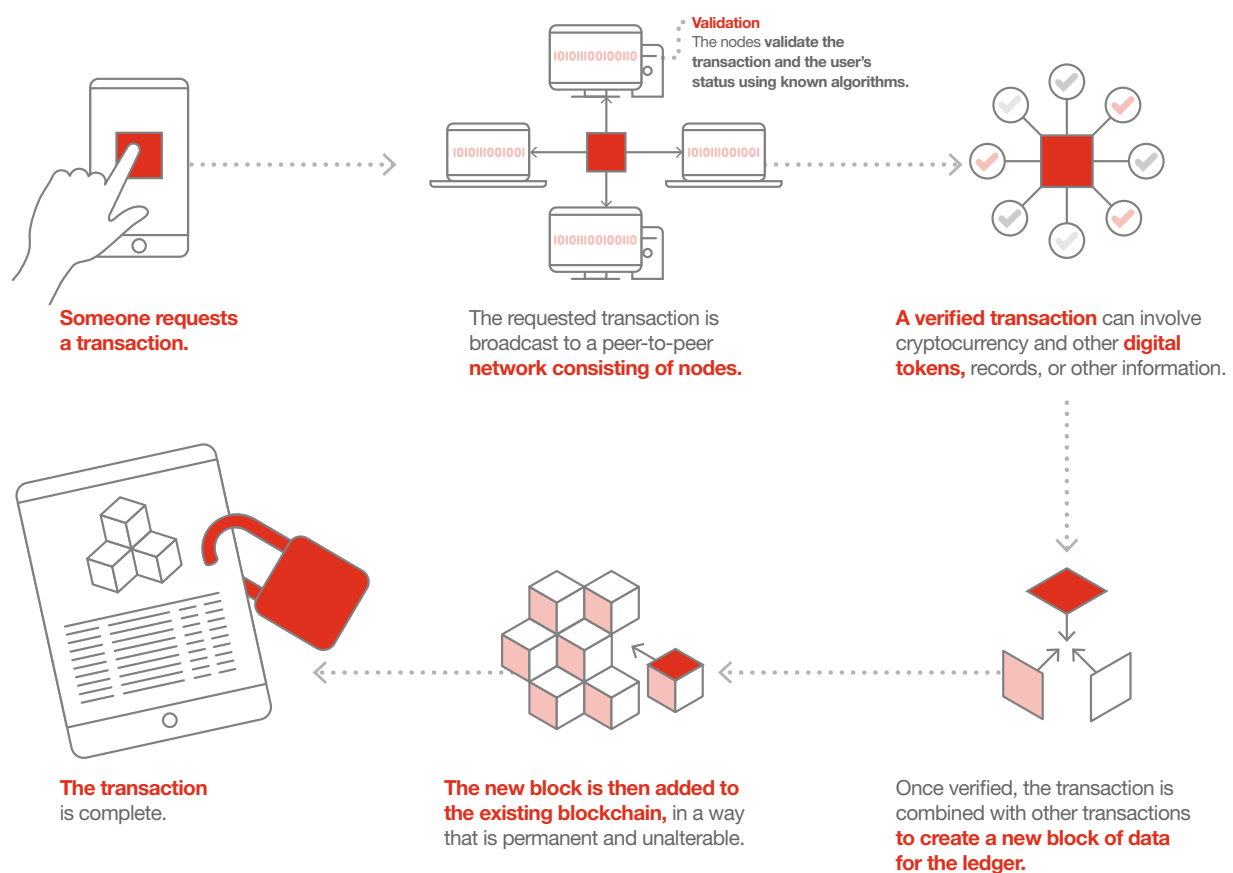


Figure 1. Blockchain essentials.

Source: excerpted from <https://www.digitalpulse.pwc.com.au/infographic-blockchain-essentials/>. Reprinted with permission.

What is blockchain?

Blockchain is the most prominent example of a type of technology called distributed ledger technology.

One way to explain distributed ledger technology is to compare it with traditional bookkeeping. In traditional bookkeeping, a financial transaction is stored in one centralised ledger system and if for any reason the centralised system is compromised, the transaction could be manipulated.

In blockchain, a transaction is recorded in a block of data and stored at multiple

computers distributed in a network at the same time. Any updates or changes to that transaction are added as new blocks of data and linked to the original block in a chain, creating a pathway of connected transactions (ledgers), otherwise known as a blockchain. These blockchains are kept stored across all computers in the network. The benefit of this, explains Erik, is increased trust of the data. "This means the transaction, and the transaction history, is stored on hundreds of thousands of computers, which makes it increasingly difficult to change or fake information. The benefit of having such a system is that it increases trust."

Industries could set up their own distributed ledger networks or use existing ones, explains Erik.

How can this technology be used in the honey industry?

As one example, beekeepers and honey producers can use distributed ledger technology as a traceability tool to store information on the journey of the honey from hive to extraction plant to jar. The consumer could then access this information via a link embedded in a QR code or a barcode on packaging.

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Another use case could be tracking ownership of assets (e.g. bulk honey) and to automate conditional sales and purchases contracts. For example, the financial settlement for bulk drum sales could automatically be triggered if certain conditions are met (independent laboratory test confirms honey quality, successful delivery confirmation by logistics company, etc.).

Currently, Erik says distributed ledger technology is not widely used in the beekeeping industry in New Zealand, but it is increasingly common in the financial and insurance sectors. Other primary high-value goods sectors, such as beef and wine, are beginning to experiment with blockchain as a data store to trace stock movements.

Blockchain has been touted internationally as a possible solution to honey fraud, as distributed ledger technology can be spread across countries, and international movements can be stored to the ledger. However, Erik cautions that it is not a fool-proof solution.

“The information that is put on a blockchain can still be flawed. The other computers (nodes) in the blockchain network are not actually confirming that the content or meaning of the information is accurate. They’re just making sure that once the information gets there, it gets copied onto a lot of different computers (block chain nodes) around the world, to make sure that no single person can change the information.”

Additionally, the meaning of the information stored on distributed ledgers can only be verified through real-world testing processes, and verification agencies (e.g., MPI or UMF™ Honey Association) would still need to police this information. This indicates that blockchain should only be one part of a multi-pronged approach to honey fraud, explains Erik.

Is this technology useful for NZ honey producers?

Like any technology, distributed ledger technology has the potential to be useful to honey producers, says Erik. “It definitely can add another level of trust to your product. If your brand is already trusted by customers then it can increase that trust, or it might be that your reputation is already strong, so it doesn’t make a great deal of difference. But if you are new to the market, or if you want to make a difference in attracting customers, then this technology could certainly distinguish you from competitors.”

The other issue worth considering is consumer understanding of blockchain.

Erik trialled the use of distributed ledger technology through one of his own companies three years ago. “My personal experience is that it takes a little while for consumers to pick up and understand that sort of authenticity feature. Personally, right now, I don’t see a massive demand for the actual technology from a consumer perspective; however, traditional food traceability or provenance from hive to jar is still in high demand, especially for high-value products.”

For this reason, he believes the greatest potential for distributed ledger technology lies within bulk trading or commercial honey trading. “If we’re trading drums of honey, for example, then it’s quite a different proposition, because firstly, the participants are all in the same trade and can share that understanding of the technology. Also, the quantity and value of the honey sold is much higher, so that traceability and authenticity guarantees have a lot more value. Lastly, the additional use cases such as independent verification or smart contracts are starting to be incorporated into this technology.”

What are the downsides to distributed ledger technology?

Erik says that before embracing distributed ledger technology, companies need to carefully weigh the time and financial commitment involved. “If you want to do it, you need to understand what is involved and that technology is constantly changing. You have to understand the trends and react if things change.”

“Also, blockchain is not free. From the very moment you put information on the blockchain, you have to pay for it in their virtual currency and typically that translates to real currency. Virtual currency can fluctuate quite a bit. From a pure cash perspective as a business, you probably need to have a much higher contingency or use advanced hedging mechanisms, in order to use blockchain effectively.”

He also warns that companies need to have strong traceability systems and accurate record keeping processes already in place before adopting distributed ledger technology. “You need to walk before you run. You have to make sure you can trace every drum to a batch and every batch back to the harvest declaration and to the beekeeping sites and all of that in fully automated computer systems and not spreadsheets. Once you have all that in place, then you can start thinking about taking it to the next level!”

What is the future of distributed ledger technology in New Zealand?

“It is not used a lot yet in the honey industry in New Zealand, but that does not mean people aren’t thinking about it or experimenting with it,” says Erik.

“Each company really has to decide for themselves how much they want to invest in future technologies. Ultimately it comes down to what do you really want to achieve and which problem you are trying to solve—do you need an extra layer of trust or do you want to use it as a distinguishing factor? And if so, it might be worth spending time on.”

Erik predicts that distributed ledger technology is here to stay and will be used more frequently, and because of this our industry needs to develop a coordinated approach. “The entire industry should follow the same standards in how we use distributed ledger systems. If a couple of players use blockchain, and then others use an alternative distributed ledger system, our commercial customers then have to use and understand different systems, and the technology overhead for honey traders and exporters increases. We’ll become fragmented and that’s probably worse than not doing anything.”

He also warns that blockchain is not the answer to all technological challenges. “There are some benefits, but I wouldn’t use it for everything. There are other tools out there and it’s worth investigating these innovations to see what works best for which situation.”



About Erik Bast

Erik is an independent strategy and technology consultant. He is also the managing director of Bee Intelligence, a company providing technology solutions for the apiculture industry with a focus on software that helps queen breeders, beekeepers, honey extractors and honey traders.