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What can blockchain technology offer business?

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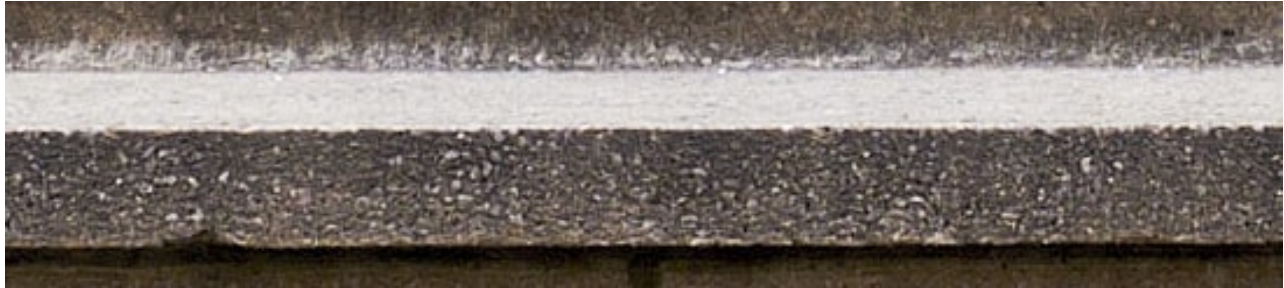
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Blockchain tech is being used to build traceability systems for materials and products that pass through business supply chains CREDIT: BLOOMBERG FINANCE LP/TJ KIRKPATRICK

By **Jon Card**

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Business owners and experts discuss the challenges and opportunities that this distributed ledger technology presents.

If you've heard of the crypto-currency, Bitcoin, then you may know that behind it sits a giant public and decentralised ledger called the blockchain. It records and stores all Bitcoin transactions, ensuring that each virtual coin is spent only once.

For businesses, blockchain technology can be used to monitor and track products as they pass through a supply chain. As an item

passes from one hand to another, a digital token can be exchanged between the parties. Supply chains can therefore be monitored in real-time by all participants, providing a sturdy check on fraud and malpractice.

Some savvy entrepreneurs have taken note of this, as the following applications and examples show.

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Transparency and traceability

Jessi Baker is the chief executive of **Provenance** (<https://www.provenance.org/>), a software company that uses blockchain technology to build a traceability system for materials and products. She founded the 10-strong business in 2013 and has 500 clients, including Co-op supermarket.

“We connect systems in different businesses and create digital handshakes as the goods are passed down the supply chain,” says

Ms Baker, whose clients want to be sure that their purchased goods come from reputable and sustainable sources.

“As goods are passed from one firm to another, the records held by both companies will be identical, as they're using the same blockchain.”

Provenance recently began a “transparency and traceability project” with three major firms involved in the production of tea and its packaging. Sainsbury's, Unilever and paper and packaging company, Sappi, are all taking part in the project to connect their supply chains to one of Provenance's blockchains.

“We're working along two supply chains,” says Ms Baker.

“One for the tea itself, which is being sourced from farmers in Malawi. It proves certain social and sustainability claims about the tea production, such as land ownership by the farmer.”

The packaging, meanwhile, comes from Finland, and proves the sustainability of the wood source.

“Blockchain technology can establish that you’re looking at a true representation rather than its altered copy”

Professor Andrei Kirilenko, Imperial College Business School

She says that this technology can help to make supply chains more transparent, accountable and less risky, and has managed to persuade three major banks to offer cheaper finance to companies involved in the project.

“For banks lending money along the supply chain, this increased traceability makes it a much lower-risk product,” explains Ms Baker.

There’s a lot still to be done to connect long and complicated systems into a single database, and Provenance aims to use as much of the existing digital infrastructure as possible. But while it’s desirable to improve the sustainable credentials of a supply chain, businesses want a return on investment.

“There’s lots of inertia in a supply chain, so we’re trying not to make too many changes. We want to be like a strain that goes throughout the chain, and use mechanisms that make business sense,” she adds.

The challenges

It’s early days for blockchain adoption, but academics have also spotted its potential.

Professor Andrei Kirilenko of the centre for global finance and technology at [Imperial College Business School](https://www.imperial.ac.uk/business-school/) (<https://www.imperial.ac.uk/business-school/>) thinks that supply chains are ready for an overhaul.

“If someone in the supply chain isn't integrated into the system, you lose a lot of the blockchain's value”

Adi Ben-Ari, Applied Blockchain

He suggests that the best solution would be to take all the standardised, paper-based documentation used for import and export, and make them all digital by “stringing” them along a chain.

“The main issue that blockchain technology can help solve is to establish that you’re looking at a true, digital representation, rather than its altered copy. In other words, the ‘tracking number’ really does correspond to the unaltered, physical object.”

But he adds that blockchains need to be all encompassing, so all participants need to use them and be granted access.

Adi Ben-Ari, founder of software company, [Applied Blockchain](https://appliedblockchain.com/) (<https://appliedblockchain.com/>), works on projects with start-ups, as well as global companies such as Shell and Sita.

He agrees that blockchains need to be truly global and that all participants in a supply chain must be integrated with it: “As you go down your supply chain, you’re probably going into countries that are less technically developed, so you run into more challenges.

“If you have someone in the supply chain who isn't integrated into the system, or who goes through a proxy, you lose a lot of the value of the blockchain.”

There are also technical issues, adds Mr Ben-Ari, such as integrating legacy systems that exist across large supply chains.

He suggests that consortiums of interested companies may be formed to take advantage of the technology's benefits, but he also predicts that there will be a lot of talks before the blockchain's potential is fully realised.

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