How blockchain technology could help to prevent child labor in global supply chains

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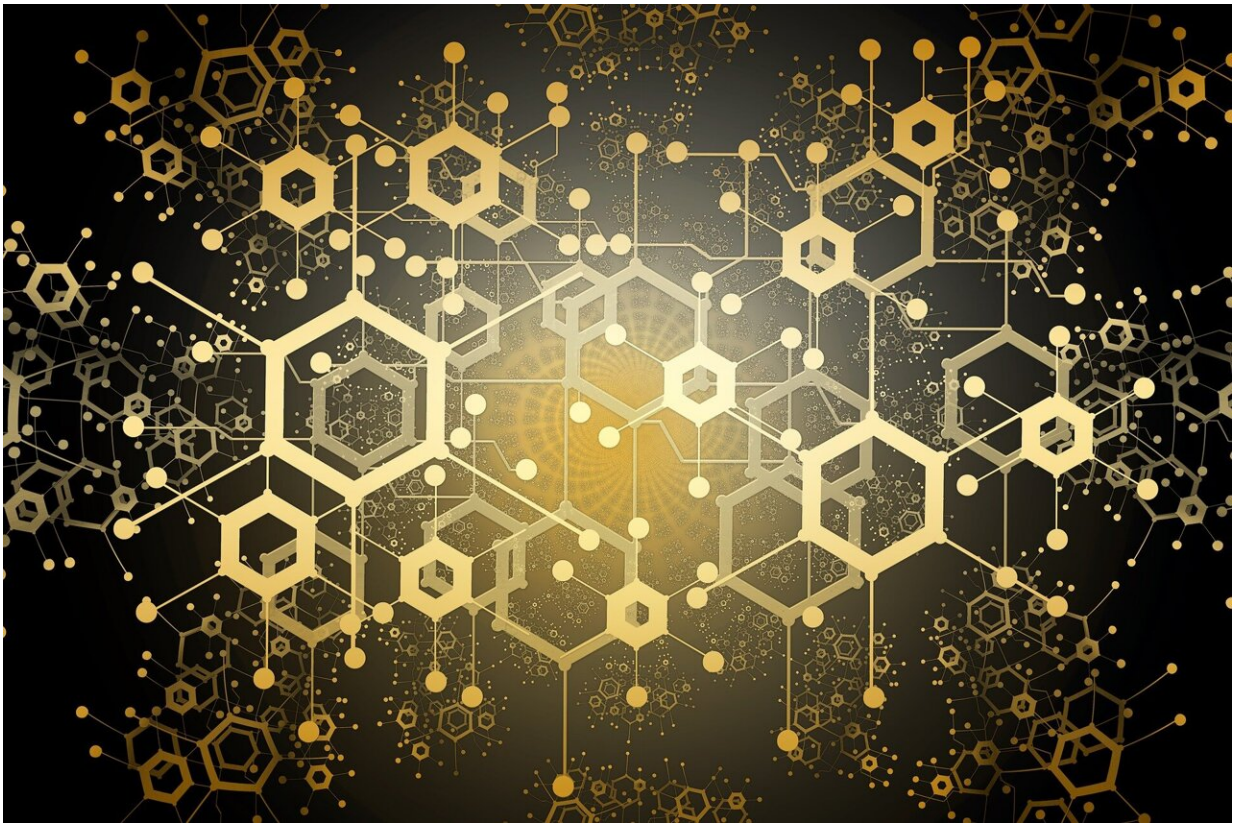

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How would you feel if the phone in your pocket or the chocolate treat you just enjoyed was made using child labor? The idea might appall you, but the truth is that child labor is lurking behind the manufacture of

familiar everyday products including electronic devices and food.

It is particularly prevalent in industries such as cobalt mining and cocoa production. And as a recent BBC investigation revealed, it can also be found in the supply chains of well known cosmetics brands.

Despite big companies attempting to implement zero-tolerance policies, they may be unaware that child labor is a feature of their complex manufacturing processes. But research suggests it is widespread in international supply chains. UN figures from 2021 suggest the number of child laborers in the world is around 160 million.

So what can be done? Various attempts have been made to address the issue, including audits, due diligence policies and efforts to secure responsible sourcing, albeit with varying degrees of success.

One potential solution could be found in blockchain technology.

Blockchains are a kind of digital database most often used in cryptocurrency transactions. The technology is essentially a way of storing and sharing information along a global supply chains—like a virtual ledger which ensures that data is secure and transparent.

But it could also be used to make sure that products are made ethically and without child labor by keeping track of transactions.

This is how it could work: whenever a product is harvested or mined, it is immediately assigned a digital ID and its details are recorded, like a digital birth certificate. This is the first part of the chain.

Then, each time the product is transported or processed, a new "block" of information is added to its ID. Each additional block gradually forms the blockchain—a clear trail of where the product has been and what has

been done to it.

If big companies had access to all of this information, supply chain transparency would be vastly improved. And because the technology records a product's journey from start to finish, it would be hard to hide any unethical practices—such as child labor.

It would also include contracts written in programming codes (known as "smart contracts") which help to verify whether or not labor standards have been met—triggering audits, or recording ethical practices.

If there's a dispute along the supply chain between buyers and sellers, the blockchain provides a digital logbook that settles arguments. Workers can also use secure digital IDs to ensure that only people who are legally allowed to work are employed, preventing child labor.

Another advantage would be the secure recording of all payments, meaning workers get the pay they are promised, and companies who don't pay fairly can be held accountable.

Tech support

But my research suggests that implementing blockchain technology would not be an easy fix. For while it could help improve tracking and accountability, large companies may be able to adopt it in ways that benefit their operations and reputation. They can set the rules and standards, and decide who gets access to the data it generates.

Closed blockchain systems would make it hard for smaller suppliers to benefit from the technology potentially resulting in giving more power to large firms instead of improving working conditions.

Also, in developing economies, many small-scale farmers and suppliers

do not have the technological infrastructure—like smartphones or reliable internet connections—required for blockchain technology to be implemented. Recent research suggests that one possible solution to this would allow transactions to be recorded by text messages.

In this way, transactions between farmers and buyers could be documented using basic mobile phones. Information about the farmer's ID and the amount of cocoa being sold, for example, would then be securely recorded in a blockchain (perhaps via an app or web page), ensuring transparency.

Such a system would allow farmers with limited access to technology to participate in secure and trustworthy transactions—and to engage in fairer and more accountable supply chains that reduce the amount of child labor across the world.

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