

03

USE BLOCKCHAIN TO SECURE THE SUPPLY CHAIN



Blockchain is not confined to financial services. With the continual waves of digital transformation and the exponential rise of data utilization, security and transparency have become core concerns for all companies. Blockchain technology creates new opportunities that procurement departments should seize to improve the traceability and the security of product sourcing and supply chains.

Blockchain structures data in a way that makes it possible to create and share a digital journal in which all forms of transactions are recorded

What is Blockchain?

Although Blockchain technology, which emerged in 2008, was initially used in financial services such as BitCoin, it can now be used to serve procurement as well.

Blockchain structures data in a way that makes it possible to create and share a digital journal in which all forms of transactions are recorded. This technology relies on cryptography to enable all users to add new information in a secure manner, with no need for a “central” authority.

A specific characteristic of this type of information storage is that data in the blockchain cannot be altered after being recorded.

What are the supply-chain applications?

As a whole, the technology guarantees both data authenticity and integrity.

Applied to procurement and supply chain, blockchain can be used to introduce hitherto unattainable transparency in sourcing and distribution channels. Currently, such information will be partial, unverified, unauthenticated, and most importantly, held

by each of the numerous players in the supply chain. Data quality thus degrades with every transaction, and the end user has but a tiny pixel of the full picture on the purchased product.

Blockchain can be used not only to track product origin and manufacturer, but also all of the components and raw materials that compose it, as well as all of the intermediaries who have handled, transformed, and transported it, thus breaking down the informational silos of traditional supply chains. Some large corporations have begun to test this technology in their own supply chain:

- IN THE US, WALMART AND IBM ARE WORKING JOINTLY to develop a blockchain system to trace pork from producer to consumer. Blockchain technology is used to inalterably record every step in the meat’s journey. For the retail distributor, the ability to collect all this information (right down to details such as storage and shipping temperatures) from farmer to store shelf creates a major competitive advantage in terms of product quality, food safety, and consumer confidence.
- THE MINING GIANT, BHP BILITON, IS TESTING THIS TECHNOLOGY to track the movements of rock-drilled shafts and fluid samples. Blockchain technology allows all involved parties to share sample location data in real time, gathered from suppliers on every continent.

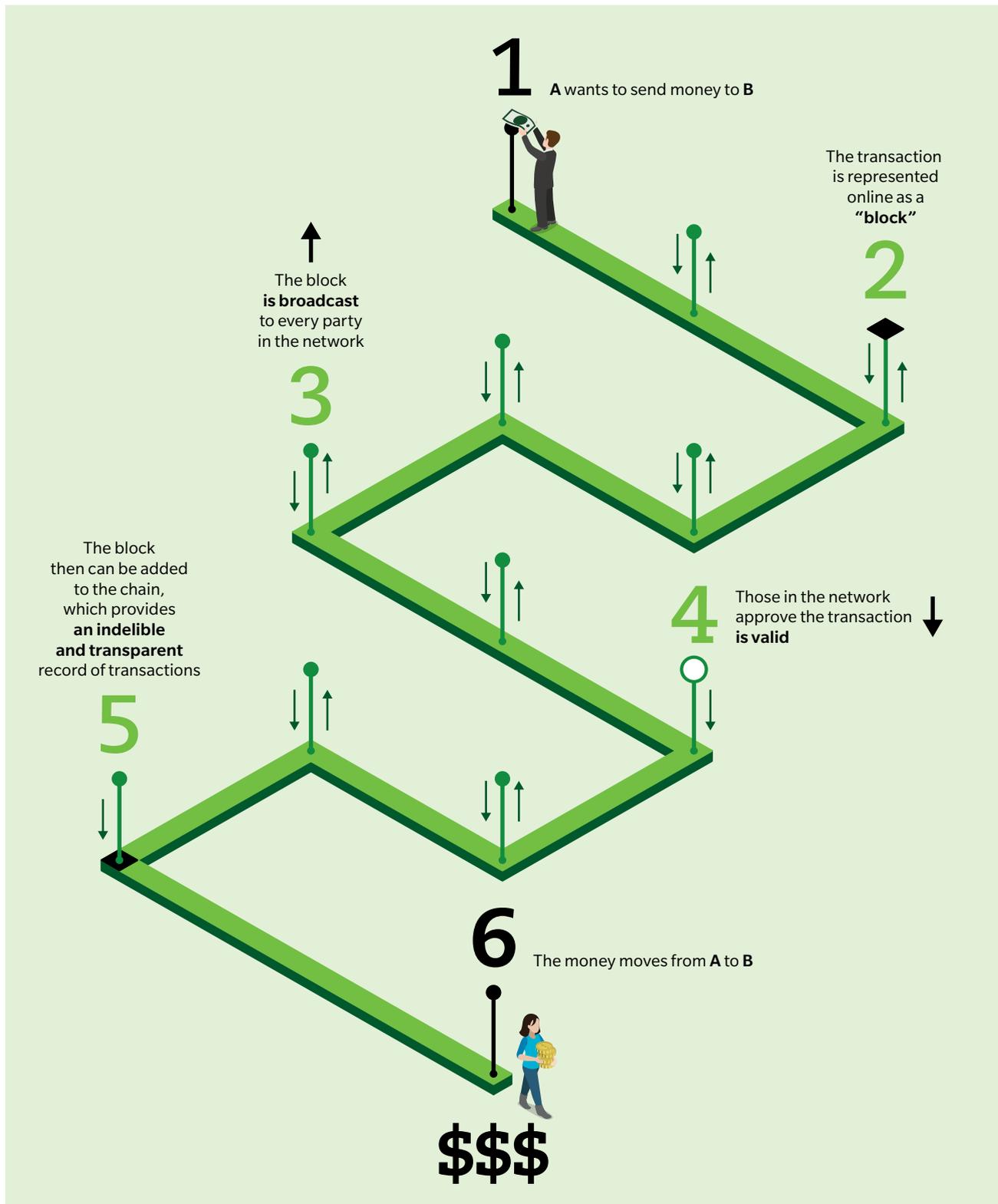
WALMART IS
ONE OF IBM’S



400

clients
currently
testing the
application
of blockchain
technology
on the supply
chain

EXHIBIT 6: HOW A BLOCKCHAIN WORKS?



CASE STUDIES

PROVENANCE

A London-based startup founded in 2013, Provenance proposes solutions based on blockchain technology to trace the origin of products (such as food and manufactured products).

In 2016, a conclusive test was conducted on the Indonesian tuna supply chain (among the most opaque in the world, and containing great risks of human slavery practices among suppliers) integrating blockchain into preexisting audit systems.

During the pilot phase, fishermen simply sent an SMS to identify each catch, enabling the identification of the person who made the catch, the fishing location, and the characteristics of the catch.

Using an RFID tag or a QR code, this information can follow the product through every step of the supply chain. All new information (that is, transformation) is then added to the blockchain.

Integration into existing auditing systems enables integration with company data, creating end-to-end information with no need for complex interfaces among the different steps of the chain.

BLOCKVERIFY

Founded in 2015 and also based in London, BlockVerify uses blockchain technology to track counterfeit products and spot fraud.

In particular, BlockVerify has developed applications for the pharmaceutical industry, luxury products, diamonds, and electronics.

Its objective is to identify counterfeit products, products diverted from their initial destination, stolen merchandise, and fraudulent transactions.

Each product is labeled with a virtual "BlockVerify" tag recorded indelibly in the blockchain.

Where does blockchain technology stand? What will the impact be on data?

Although blockchain technology has been proven to work for financial transactions, which rely solely on the exchange of information, its use is less advanced for material transactions. However, maturation has accelerated since 2016.

IBM, for instance, has established a test platform for companies to try the service and assess the advantages to be gained from blockchain. Blockchain is also available in the cloud as well as on private servers, specifically IBM blockchain-certified LinuxONE servers.

IBM also originated the joint initiative with Walmart, which has moreover announced the creation of the Food Safety Collaboration Center in Beijing, and is working jointly with Tsinghua University to improve the tracking of food products intended for Chinese consumers. If Walmart decides to adopt blockchain to track food supplies on a global level, this could become the largest-scale deployment ever observed for this technology.

The collateral impacts on data are also huge, because blockchain-type databases can contain much more information than retail distributors currently possess, the door is open to the next generation of data analytics.

KEY TAKEAWAYS

- The blockchain technology is expanding from the financial services world to the supply chain.
- It offers an unprecedented opportunity to secure supply chains and gain end-to-end transparency of physical flows, and will support the enhancement of analytics.
- Technology/Business partnerships with both startups and major technology players (e.g. IBM) are essential to succeed.