

Industries, Looking for Efficiency, Turn to Blockchains



The shipping company A.P. Moller-Maersk will start a joint venture with IBM this year to use a blockchain instead of the masses of paper that it now employs to manage its supply chain. *Ilvy Njiokiktjien for The New York Times*

By Laura Shin

June 27, 2018



If some financial institutions had used blockchains before the last recession, we may not have had one. After all, banks sometimes didn't know which company's books held bad mortgages, and a blockchain is essentially a single time-stamped ledger transparent to all its users.

Since that time, companies in a wide variety of industries, such as health care, government, food, supply chain management and trade finance, have begun exploring blockchain technology. The problems they're trying to solve mostly come down to inefficiency and fraud.

Gartner, a research firm, projects the global business benefits of blockchain technology will total \$5 billion in 2018 and more than quadruple to \$21 billion by 2021.

IBM is helping many companies adopt blockchain technology.

"We've already seen over 400 client engagements, and we're starting to see the results of those in the commercialization of those efforts," said Marie Wieck, IBM's general manager for blockchain, contrasting it with 2016, when she saw "blockchain tourism — everyone was sightseeing," she said. IBM emphasizes that a blockchain works best as a network, so she's now seeing more initiatives focusing on getting a minimum number of companies on a blockchain.

However, blockchains for businesses are mostly still experiments, said David Furlonger, a Gartner vice president.

“There’s a lot of proof of concept work being done in pretty much every industry and government, and the interest remains extremely high from all those participants,” he said. “The focus is very much on research and development work, not massive implementation.”



A blockchain network was just announced for Microsoft’s Xbox that will enable companies to execute digital contracts with one another, focusing on digital media content, rights and royalties. Mark Kauzlarich/Bloomberg

Whether the testing is taking full advantage of the technology’s capabilities is another matter. Noting that one of the core advantages of blockchains is decentralization — the ability for a network to decide by group consensus, not top-down authority — Mr. Furlonger said: “Many of the enterprise initiatives are heavily centralized replatforming initiatives, not reimagining the way business can be conducted. That doesn’t mean they’re necessarily bad if you’re able to produce savings, improve efficiency. But it could, to some extent, reinforce the prior paradigm, which was a very heavily centralized model.”

One product, called a distributed contracting network, was just announced for Microsoft’s Xbox. Paul Brody, blockchain global innovation leader at EY, which helped create the product, said it was “a blockchain-based tool for enabling companies to execute digital contracts with each other — and very specifically, the primary focus is on digital media content, rights and royalties around everything from video games to media and entertainment — music, movies, etc.”

Xbox, which features games by publishers around the world, has traditionally tracked and calculated the royalties its content creators were owed manually and with spreadsheets, said Rohit Amberker, director of royalties and content operations at Microsoft. The process typically took 30 to 60 days. The new system is transparent, cutting down costs by a projected two-thirds, Mr. Brody said.

[*Read more: [Confused about blockchains? Here’s what you need to know.](#)*]

One of the first to use it will be Ubisoft, a game publisher, though once it is in use across Microsoft’s gaming ecosystem, it will encompass thousands of content partners, Mr. Amberker said. Eventually, the goal is for the blockchain to also handle payments and for it to be useful to anyone dealing with intellectual property or digital asset rights, including authors, songwriters and developers, he said.

The financial services industry is further along than other. Insurwave, a marine insurance program created by seven companies, started at the end of May for more than 1,000 ships. Shaun Crawford, the global head of insurance for EY, which is building the program with GuardTime, said insurance for ships has traditionally been a paper-intensive business.

It uses historical data and standard estimates to quantify insurance coverage divorced from the reality of any one ship's particular risk. That can vary based on a vessel's age, service history, the routes it travels (whether it passes through conflict zones where ships are more likely to be hijacked) and other factors. With Insurwave, insurers can, for instance, increase a premium on a ship set to sail through a dangerous zone, which might in turn prompt it to choose another course. Everything is signed through the blockchain.

The blockchain is in place across the shipping company A. P. Moller-Maersk's vessels. The insurance companies Willis Towers Watson, XL Catlin and MS Amlin are also on the platform.

"It's a very sleepy old industry — insurance — and we're shaking it up a bit," Mr. Crawford said. In building the product after working on proofs of concept, he said: "We realized we're not digitizing existing processes, but transforming the way we do business. We had to re-architect our proposition two or three times to really get the blockchain thing working, so there's a big difference between a proof of concept and the reality of blockchain."

[A Guide to the World of Blockchain](#)

When the original blockchain arrived in 2009, it was a ledger for Bitcoins. Now the databases have spread to many companies and governments.

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Another blockchain-based product in use is at the bank Northern Trust, which began automating the paper-intensive process of investing by pensions and endowments in private equity.

Peter Cherecwich, president of corporate and institutional services, likened the traditional process to buying a house. "You have to have all the contracts, pass them back and forth, everyone has to sign them at the same time, you move the money at the same time," he said. All this is automated, and the auditing firm PwC audits the ledger in real time, as opposed to after the fact.

By year's end, a joint venture between Maersk and IBM will use a blockchain instead of masses of paper to manage the movement of goods on ships from suppliers to consumers. This blockchain is complementary to Insurwave. A shipper of avocados from Kenya to Rotterdam, the Netherlands, for example, needs a certificate of origin signed by authorities in Nairobi, another document stating the fruit has been inspected, and a bill of lading, packing list and

commercial invoice. All the documents, which have to be certified by the authorities, are often shuttled by motorbike in Kenya for signatures.

After traveling on a ship, those documents are sent by courier to the Rotterdam customs broker. It takes four to six weeks to validate the documents, so the cargo is released under bond; if anything doesn't check out, it can be drawn upon to pay penalties. That single shipment involves 30 entities encompassing more than 100 people, requiring more than 200 exchanges of documents, said Mike White, chief executive of the joint venture. A problem anywhere along the line causes a delay, a drawback with perishable food.

"All those documents are digitized, available electronically, and with the government authority, the customs agents, the shippers, the carriers and the terminals," Mr. White said of the blockchain. "Everybody has access to the documents they need to see, and everybody involved in that transaction can identify immediately if there's been changes made."

The venture aims to have more than 50 percent of the major trading routes connected to the platform in three years, but will have competition from Foxconn Technology Group's coming blockchain-based supply chain software.

Brian Behlendorf, executive director of Hyperledger, an open source blockchains project managed by the Linux Foundation, says companies that work in transactions or that serve as a system of record for an industry will have to adapt.

The technology, he said, "does force them to transform in the same way that companies that were information-centered have had to transform with the rise of the internet. That same kind of thing will hit any company about transactions or about being a system of record for an industry. If they transform themselves before their competitors do it, they'll have a future."