What is blockchain technology and how is it changing the manufacturing industry?

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Blockchain can simply be defined as record-keeping database technology that stores blocks of information on a chain.

The information is constantly reconciled into the database, which is stored in multiple locations and updated instantly. That means the records are public and verifiable. Since there's no central location, it is harder to hack or manipulate since the info exists simultaneously in millions of places.

The below two minute video gives a good, simplified description of how the technology works.

Why use Blockchain?

Because blockchain relies on a decentralised, networked system, it means it is harder to corrupt. If the information on one of these blocks is edited, all others viewing that block can see the edits that have been made. This means that blockchain technology can help prevent issues such as fraud and counterfeiting.

How could Blockchain benefit manufacturing?

The adoption of blockchain technology could help the manufacturing industry by making the supply chain more secure, with the processes more transparent. It can also be used in B2B scenarios with the creation and implementation of smart contracts.

How is blockchain already being used within the manufacturing sector?

Mobility Open Blockchain Initiative (MOBI):
MOBI is a group founded by a large selection of automakers including Renault, Ford, GM and BMW. The consortium includes blockchain and other technology startups, and their first project aims to "build a vehicle digital identity prototype or car passport that can track and secure a vehicle's odometer and relevant data on distributed ledgers".

This would create more accountability within the market, as vehicle information could be uploaded and tracked using a system that would be difficult to infiltrate and fabricate data within. The hope of this project is to reduce fraud and allow people purchasing secondhand cars to have access to an honest and accurate vehicle history.

OriginTrail:
OriginTrail aims to make supply chains more transparent by allowing interested parties the ability to track an item's origin and process. The technology has worked with companies such as the vegetable producer Natureta and dairy producer Celeia to allow consumers to view the process of how their food ended up on their plate.

OriginTrail allows for product information to be exchanged across multiple company supply chains, using a "zero-knowledge" system which employs the use of encryption for sensitive data. There are currently over 200 companies in the adoption process for OriginTrail technology.

IBM Blockchain:
IBM Blockchain is another initiative that has been created to promote transparency and accountability in the supply chain. Working with TradeLens, those involved with shipping and logistics can now use a shared ledger that can automatically update a process as it occurs. Maersk has also teamed up with IBM to promote more efficient shipping, using a platform based on the IBM Blockchain. Check out this short video below to see more about how IBM Blockchain aims to change supply chains: