

June 18, 2024 26 comments

Blockchain In Supply Chain Management: Case Study

Informational Educational

Blockchain helps many companies to optimize their supply chain management. The technology lets to monitor a product's way from start to finish, ensuring each step's quality and safety. It's possible to collect live analytics and prevent disruptions using the blockchain, that is why more and more companies are implementing it in their work. In this article, we learn more about blockchain's role in the supply chain and tell which industries and companies have already made their business life easier using this technology.

What Is Blockchain?

Blockchain is a huge network or system that records all transactions in sets of blocks. Each block contains an encoded link to the previous one, creating a coherent chain this way. Due to this arrangement, the data in the blockchain is safe and completely protected from any tampering.

The blockchain is decentralized: there is no single "boss" over it that could control the whole system. Instead, the blockchain uses smart contract technologies, which are self-executing agreements with predefined rules. This automation speeds up the transactions' processing on the certain network and reduces the risk of errors.

Blockchain was initially used only in the cryptocurrency field, but over time, many other industries have realized that there are huge benefits to be gained from this technology. Blockchain in the supply chain plays a great role and performs as a distributed ledger

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technology that allows information to be stored openly and securely online. It is valuable for any business.

Advantages Of Blockchain For Business

Entrepreneurs have seen blockchain's potential to simplify workflows within companies. And one of those processes is supply chain management.

Let's take a look at the benefits of blockchain technology for companies:

- **Transparency.** Blockchain is an open registry of transaction records that every participant in the network can view. The openness of the blockchain is a great opportunity to establish trust between a company's employees and customers.
- **Improved efficiency.** Blockchain technology replaces traditional paper systems and ledgers because all transaction data is stored on the blockchain online. It offers automation of many processes that speeds up the company's work generally.
- **Security.** The decentralized nature of the blockchain is good as it is distributed across multiple servers (nodes). It equates to more than 51% of the nodes, so hackers can hardly access them. Moreover, once the data is verified by the network participants, it is added to the blockchain and encrypted there. It means that the information cannot be changed, which protects it from cyberattacks. That is why blockchain is also used for both data and [intellectual property protection](#).
- **Resilience to technical errors.** The distribution of the blockchain across a large network of nodes eliminates a single point of failure. It means that if one of the servers fails, the blockchain database will still be available and continue to operate thanks to the functioning of the other ones.

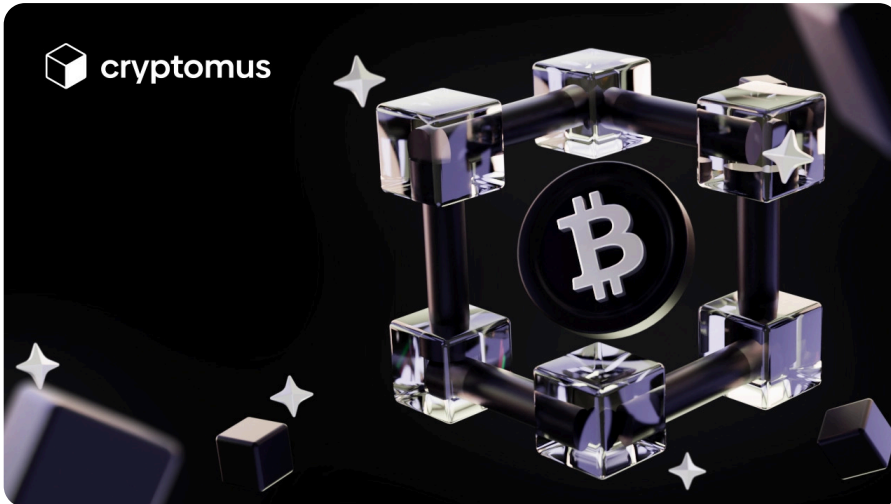
These advantages of blockchain are attributed to the supply chains' operation as well. Basing on a blockchain allows transaction records to be automatically updated when changes are made, and it, in turn, increases traceability for everyone in the network. The monitoring option allows one to react to problems in a timely manner, so the supply chain is reasonable and secure that way.

How To Implement Blockchain In Supply Chain?

To integrate blockchain technology into the supply chain successfully, it is important to do it gradually by developing a step-by-step plan beforehand. Here is the algorithm on how to make it right:

1. **Define goals.** First, you need to understand what you want to achieve using blockchain: for example, improve security processes or increase traceability.
2. **Evaluate the technical side.** Explore the pros and cons of blockchain for your business to understand whether the technology suits your requirements and performs as a right solution for your supply chain challenges.
3. **Choose a qualitative blockchain platform.** When choosing a crypto service to work with, evaluate its security, interoperability and scalability.
4. **Develop a pilot project.** Start your blockchain implementation with a small project - for example, internally. It will allow you to understand whether the technology has a good impact on your business, and will help you to get used to its working features.
5. **Ensure data accuracy.** Before implementing a major project, check all technical information properly to ensure the network's smooth operation.
6. **Take care of security.** In supply chain management, pay attention to the security measures of the nodes in the used blockchain: protect confidential data with passwords and codes to guard against unauthorized access.

7. Monitor the working process. Keep an eye on your blockchain functioning regularly to evaluate its implementation. It will help you develop adjustments or other measures to improve network performance.



It's also essential to stay up-to-date on the latest developments in blockchain technology, so it will allow you to test and integrate new features into your working process and improve it continually. For example, you can learn the information on [Cryptomus blog](#). Here you will find not only the latest news about blockchain, but also useful guides about working with cryptocurrencies.

Main Use Cases Of Blockchain In Supply Chain

Blockchain in the supply chain performs a number of essential functions due to its transparency, traceability, and speed. These application ways are otherwise known as use cases. Among them are regulation of transportation, reduction of counterfeiting, regulation of product recalls, reduction of costs, and providing after-sales service. Let's see in more detail:

- **Regulation of transportation.** It is the first thing the blockchain is being implemented in the supply chain for. It helps control and manage the transportation of goods, simplifying the entire logistics process.
- **Reduction of counterfeiting.** Product traceability means that goods are checked properly at every stage, and rejects can be detected in time due to it. In this way, blockchain technology helps reduce counterfeiting and also prevents document fraud.
- **Regulation of product recalls.** Controlling the logistic aspect allows for the determination of the products' location. It makes the process of recalling substandard products less time-consuming.
- **Reduction of costs.** Blockchain provides cross-border transactions, so businesses can avoid any intermediaries. As a result, it saves time and money.
- **Providing after-sales service.** Digitization of product information makes after-sales services, such as warranties and maintenance, more reliable and controllable. For example, the warranty period starts automatically after the product is purchased.

All of these blockchain use cases in the supply chain work in relation to any retail business. It simplifies business operations and saves its resources.

Use Cases By Industry

Depending on the business field, use cases vary. But all of them categorize processes and improve supply chain security. Let's take a closer look at how blockchain operates in the supply chain, using different business sectors as examples.

Logistics

Blockchain is actively used to control logistics chains. The technology allows, for example, employees to track shipments in real time and fix problems at certain stages. Moreover, blockchain automates transportation processes through smart contracts - it is seen as the reduction of paperwork and administrative tasks. Thanks to this automation, the risk of tampering with logistics data records and the risk of fraud are reduced to zero.

One more advantage for network participants is better coordination between each other. For example, carriers, shippers, and customs authorities can perform their functions more proactively and efficiently because of having access to the chain.

Cross-border Trading

Containers of goods for cross-border trading are often moved by multiple modes of transportation. The players are also multimodal: shippers, truck fleets, shipping companies, customs officials, and even governments are also involved in the chain. To avoid mistakes, cross-border trading has begun to utilize blockchain technology that "forces" each participant to comply with the rules. It significantly simplifies the procedures: for example, smart contracts automate customs clearance.

As part of this type of trading, blockchain also works with cross-border payments. You can learn more about it in our [guide](#).

Pharmacy

One of the most popular blockchain applications in the supply chain is in the pharmaceutical industry. The technology helps fight counterfeit drugs and ensures the products' authenticity and quality. Thanks to blockchain, counterfeit drugs are removed from the chain before reaching consumers.

The high level of traceability also helps to identify and fix problems such as contaminated packaging or mislabeling quickly. The technology's automation, in turn, reduces the administrative tasks of pharmaceutical companies and other network participants.

Food

The most curious use case for blockchain in the supply chain is its utilization in the food field. The blockchain here ensures food safety. The technology traces a product's way from the production stage to the store counter, as well as ensuring that transportation is done under the right temperature conditions.

In cases of product contamination or other problems, they can always be traced and the tainted product recalled in time. The increased security of blockchain technology makes it difficult for fraudsters to access the network, and it protects shipments from fake labeling.

Finance

Due to the blockchain's option of providing immutable and secure transaction savings, the technology is being actively used by financial institutions. With the help of blockchain, banks and other organizations keep records and report to regulators. So, organizations have the ability to do fast calculations or improve certain types of financial services. In this case, blockchain acts as a "ledger".

The same situation exists in the cryptocurrency field. In this case, the blockchain stores all information about a person's financial data and transactions with a particular cryptocurrency. All the owner's data is safe thanks to the technology's encryption and enhanced security. It is also essential to choose a reliable platform for crypto transactions which keeps users' data and wallet secure.

List Of Companies That Use Blockchain

A large number of companies around the world have already adopted blockchain technology in their supply chains. They range from food to automobile industries. Let's take a look at some of the most well-known brands that are already optimizing their operation processes using blockchain:

- **Walmart.** This grocery retailer is one of the first companies that use blockchain in its supply chain. The company tracks the production of food from its farmers, offering its customers the opportunity to verify its origin before purchasing. This detailed product tracking lets the company identify and recall low-quality goods before they even arrive at the warehouse.
- **Unilever.** Food and household product manufacturer Unilever is also a user of blockchain. It is now actively adopting this technology to manage its tea industry as well. The company is emphasizing supplier tracking to maintain the quality of goods at every stage of production.
- **IKEA.** The furniture retailer utilizes blockchain to track materials and products. The brand also shows its customers where and how products were made.
- **De Beers.** It is a diamond mining company that tracks the place and the method by which a diamond was mined, as well as its path to the store. Using careful tracking, the company ensures that all diamonds are original and certified.
- **Ford.** The company tracks the raw materials coming into the factories, mostly cobalt. Brand owners want to make sure they're getting an authentic product to maintain the quality of the vehicles produced.

Among other companies that use blockchain in their supply chain are Alibaba Group (an e-commerce platform) and Home Depot (a building materials supplier). There are also corporations that apply blockchain technology to only some of their brands: for example, Nestle is extending it to its Zoegas coffee brand.

Blockchain technology offers increased transparency and supply chain security, which, in turn, will improve process efficiency. It may seem difficult to implement the technology but the benefits of blockchain outweigh these challenges. For companies that are looking to grow in a rapidly changing world, a blockchain is a must-have.

We hope this guide has helped you understand what blockchain is, and now you see the benefits of this technology in the supply chain. If you still have questions, feel free to ask them in the comments.

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Blockchain is helping so many businesses to scale, helping them to become decentralised and more secure. I 'm super bullish for projects like AIwork because they are trying to build a safer online world by using AI to generate automated metadata. This is required.
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