



Blockchain in Pharmaceutical



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Preface



The market value of counterfeit drugs in the pharmaceutical industry has reached billions of dollars annually. It is currently the most critical worldwide issue, especially in the developing countries that need to be resolved. Apart from the mentioned above, interoperability, drug traceability, and data security are amongst the urgent issues that have put the pharmaceutical industry under tremendous pressure.

Blockchain has the potential to bring substantial changes in the industry by making the processes more transparent and easier to trace. Here are some of the advantages that blockchain can bring to the table.

- **Increase Trust** – Blockchain will make it easy for the manufacturers, wholesalers and retails to track the complete supply chain. This will not only provide better visibility but will also maintain the high trust factor amongst the parties.
 - **Enhanced Security** – The immutable ledger is considered amongst the most secure system worldwide. Blockchain will ensure the drug information stored on the ledger remains safe and unmodified, for instance, patient's medical records.
 - **Added Visibility** – Visibility and privacy are amongst the top concerns for pharma supply chain. Blockchain, being a distributed ledger, is the best technology to make the stored data visible to every party.
 - **Prevent Drug Counterfeits** – Registering drug information on blockchain will allow manufacturers and regulatory authorities to track, trace, and authenticate drugs at any stage. It will make impossible to counterfeit goods.
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Thinking of adopting blockchain in your business?

Just like any other technology that has emerged, blockchain comes with advantages as well as disadvantages. If you are looking for ways to adopt blockchain to your current business model, it is important to consider both the advantages it offers, as well as be aware of the disadvantages it has.

The logo for Akeo, featuring the word "akeo" in a white, lowercase, sans-serif font on a dark blue background.

Akeo AS is a Norwegian concept and development company specializing in emerging technology. With multiple blockchain projects in the portfolio, the team at Akeo has built up an in-depth understanding of what blockchain is, how it works and how to build tailored applications to meet your business requirements.

Contact us if you are interested in learning how to leverage the benefits of the technology.

Blockchain in Pharmaceutical ●

According to “Healthcare rallies for blockchain” a survey conducted by IBM, 56% of the entire healthcare industry will shift to blockchain solutions by 2020, while 16% had solid plans for implementation already in 2017.



Supply Chain Management

Companies are suffering from a lack of visibility in maintaining the inventory level to meet the demand. Despite the constant efforts, managing the supply chain in the pharmaceutical industry has been a challenging task.

Blockchain can assist the manufacturers by providing better visibility and creating an effective flow of products. This will not only help the manufacturers to meet the demand but will also minimize futile expenses.

Blockchain Application in Supply Chain Management

MediLedger is a project started by Chronicled in 2017 to optimize the overall operations of the supply chain by using Blockchain technology.

Clinical Trial Management

Clinical Trial Management has been facing numerous challenges related to the design model and the security of the personal data of the enrolled patients. While there are several other obstacles that clinical professionals are still facing, blockchain technology can be a key to addressing these challenges, making the clinical trial

management more secured and streamlined.

Blockchain could help to improve the design model and help researchers and investigators to map the entities and processes in clinical research efficiently. The distributed ledger technology will also keep the personal data of the patients in encrypted form and away from the reach of the hackers.

Blockchain Application in Clinical Trial Management

Patientory INC is a fine example of the use of Blockchain to empower patients, researchers, and healthcare organizations to store and access data safely.

Provenance

The global counterfeit drug market size ranges from \$75- 200 billion and raising at a tremendous rate. The issue of counterfeit and fake medicines is a problem that the Pharma industry has failed to solve. Blockchain can help to reduce to the problem to a great extent by allowing the manufacturers and consumers to track the medicine from its source to the point of sale. A unique code can be given to the package that would be stored on blockchain, making it easily traceable on the entire supply chain.

Blockchain Application in Provenance

Dokchain is a platform that enables the industry people, and the consumers to keep transactions, access the data, and automate the paperwork by using blockchain technology.

Drug Safety

Tracing an active pharmaceutical ingredient while a drug is manufactured can be a difficult process. The pharmaceutical industry has continuously been on the radar for how drugs are manufactured. Detecting drugs that do not contain the intended active ingredients can even lead to death of patients relying and trusting the prescribed medications. The number of deaths related because of false claims of active ingredients has increased in the recent years.

Blockchain as decentralized technology can encrypt, share and control the data across a broad range of industry participants. Blockchain can also provide the consumers with significant access and control over their healthcare information.

Blockchain Application in Drug Safety

Checamed, a mobile app developed in 2017, allows the consumers to check the medicine provenance and general details by scanning a QR code.



Benefits of Blockchain Technology in Pharmaceutical

Pharmaceutical industry, a branch of healthcare industry is a distributed sector with many stakeholders and actors. Data is of utmost importance here which needs to be processed and managed in an adequate manner.

Blockchain can help improve Pharma by offering:

- Knowledge of drug ingredients.
- Improved data security.
- Interoperability of records within the healthcare ecosystem.
- Better drug supply chain management.

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Glossary

Blockchain – Blockchain is an immutable digital ledger that is programmed to record transactions and anything that has a value.

Clinical Trials - Clinical trials are scientific studies conducted to find efficient ways to prevent, screen for, diagnose, or cure diseases.

Decentralized - To transfer the control of an organization or government from a single entity to several smaller ones.

Interoperability – Ability of a product or a system for an unrestricted sharing of resources and exchange information.

Provenance – The chronology of the origin, ownership, custody or location of a product.

Supply Chain – Supply Chain is the sequence of processes involved in the production and distribution of goods from the manufacturers to consumers.

Traceability - Ability to verify the history and location of an item using documented recorded identification.

The logo for 'akeo' features the word in a white, lowercase, sans-serif font. A small green circle is positioned above the letter 'o', with a thin green line extending from it to the right and then down to the right, ending in a small green circle. The background consists of several overlapping, semi-transparent geometric shapes in shades of blue and green, creating a layered, abstract effect.

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