

How Will Blockchain Revolutionize Biotechnology?

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Blockchain is a ledger-based technology which connects, stores information and makes it's sharing very efficient. Blockchain has come to limelight because of it being a cornerstone in the establishment of cryptocurrencies like Bitcoin. These premier developments have left the mankind running their brains to incorporate blockchain in their respective fields. In other words, Blockchain has paved paths for another revolution.

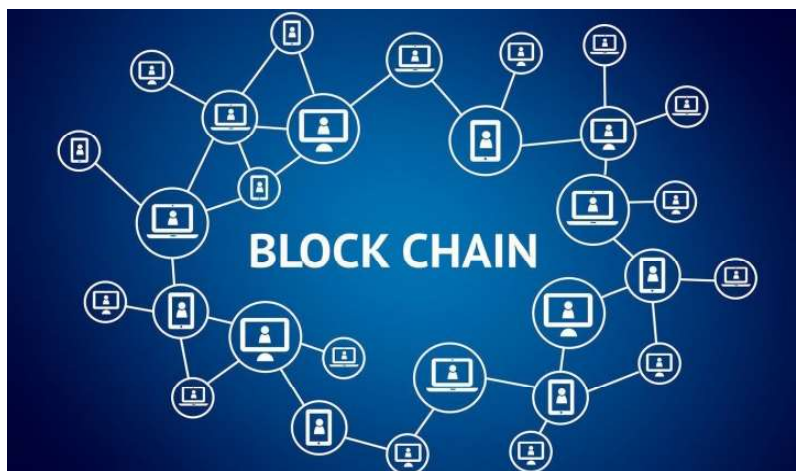
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Introduction

If we understand blockchain and its components we would automatically understand that what the hype is all about. Its mechanisms embody foolproof work, which is why it is entrusted by the masses. A blockchain constitutes of blocks of information connected to each other by virtual chains. Each block consists of three main elements - information or data, hash of that block, hash of the previous block. Hash is solved to lock the information in the blocks. Hash can be called as the identity of the block. Hash is a unique code (or algorithm) given to a block. This same code is stored in the successive block as the hash of the previous block. We can say that the block will point to the hash of the previous block. So, if anyone tries to hamper with the data of any block, its hash code will be changed and its further connections will also be faulty. But, here it is nearly impossible to alter the hash back to its original code. Blockchains mitigate through this problem by something called as proof

of work. Proof of work is a method that provides security to the processes conducted through blockchain. This slows down the process, evaluates items and confirms solidity- then creates a new block, further down the chain.

data has been locked in a block it cannot be mutated, and is distributed amongst the network. This ensures transparency, which also helps to pinpoint the malice in our work. For example, Walmart through blockchains improved its quality of products, by



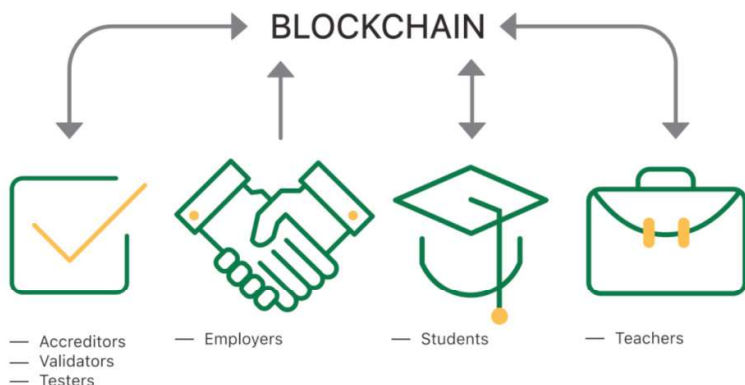
Now, why is Blockchain so popular? The excellence of blockchain depends upon its hashing and proof of work mechanisms. But, it's another key feature is distribution, that is, once

examining their steps of production, transportation, and sales. Now, not only did they come to know about their wrong steps and strategies but it also provided transparency and

opportunities for equal participation to all their employees. This tells us that blockchains are not controlled by any central entity rather it is a decentralized network. All the participants have a copy of the chain (also called ledger), thus verifying it is ordered.

under the company. Since a genome or genetic data of any individual is very personal to them, so Blockchain gives them anonymity and privacy. A person can give their genetic data in a block, which without revealing their personal details will distribute

precise, buildable and clear updates. Biotechnology is a progressing field but on a wider picture, it might be possible that in the future we could connect various domains of biotechnology and pharmaceutical industries. With the help of machines and blockchains, we could predict the scope of study of microorganisms that will increase the chances of our success in the future.



Blockchain can be instrumental in the medical and pharmaceutical industry. Blockchains can be instrumental in maintaining records of patients in the hospitals, which will secure the data and identity of patients if ever hampered with. This can help in several ways, like creating advanced reports of patients, with their histories, etc. It can largely influence the way genomic sequencing companies works. Gene sequencing of an individual requires them to disclose their genetic information to the companies, which might be discomfoting to them because they might fear getting it exposed to various people working

it amongst the employees of the company, handling their case. Today, genetic data of an individual seems to be the most valued possession to any biotechnology company in order to develop new drugs and medicines, but people hesitate to share it, which can be solved with blockchains. Since blockchains work with immutable data blocks; they can be a great aid in the bio-piracy department. Patents and discoveries can be recorded and given credit to the discoverers. They also help in tracking the progress of our project that is usually done in labs by humans, hence preventing the chances of human error and giving



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Arushi Verma - a student, currently pursuing B.tech in Biotechnology (Amity University). I believe that cybernetics and internet is like a ball of strings which acts like a mediator, and connects several disciplines of our society. As a result, we can all relate to each other better and help different people through our own knowledge.

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Annexure I

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Reviewers Comment

Review 1: The Blockchain is an open source spread ledger, and block chain it signifies another virtual substance for a range of relations.

Review 2: Block chainspeeches one of the main issues with direct peer-to-peer dealings online; that is, a lack of trust. The artificial intelligence and block chain technology are unceasingly improving.

Review 3: Many will remain on the barrier until new skills have been tested away and accepted, by the biotechnology industry as a whole.

Editorial Excerpt

This article has 0% plagiarism;The finding related to “How Will Blockchain Revolutionize Biotechnology” in recent years, inquisitiveness has prompted many industries to open their eyes to the possible wisdom of tolerant artificial intelligence and block chain into their businesses. This includes industries that handle food, healthcare, pharmacy, and even gardening companies. Hence it is decided to take this article under “**Column** (CLM) “Category.

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Disclaimer

All Views expressed in this paper are my own, which some of the content are taken from open source website for the knowledge purpose. Those some of i had mentioned above in references section.



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