

Impact of Blockchain Technology and 5G / IoT on Supply Chain Management and Trade Finance

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The main objective of the research is to explain the concept of blockchain management and 5G or Internet of Thing (IoT). The study highlights the impact of blockchain management and 5G on supply chain management and trade Finance .The paper also demonstrates how blockchain management and IoT will offer opportunities to the organizations and how it will impact their future competitiveness and market share and it exhibits various other issues relating to blockchain and 5G.

Keywords: Blockchain; Finance; Technology; 5G

Blockchain technology

A blockchain technology is described as a decentralized peer-to-peer network which maintains public ledger of transactions, hence, it is also known as 'Distributed ledger technology'[1]. A Blockchain is easy to understand, does not require any professional degree. Just a replicated ledger is essential which can be used as a database as it can store all kinds of information. The transfer of crypto currency like bit coins etc is primarily facilitated by Blockchains only. The ledgers used in Blockchain are decentralized as transactions are stored on different computers connected through common network through internet. A complete history of every transaction processed and completed on a Blockchain is contained in each node. In a decentralized manner,

the network of nodes is connected via internet. All connected computers operate on a common platform, which is referred as a 'Protocol'. In simple words, we can say, that, Blockchain are computer networks running on a common software application.

5G or Internet of Things (IoT)

5G is a next generation wireless technology that will replace 4G standard. And formal standard defining 5G will be promulgated by the 3rd Generation Partnership Project (3GPP) which refers to 3GPP.3GPP is an international collaboration which unites multiple telecommunications standard development organizations. The standards of 3GPP are known as 'Releases' [2]. In late 2018, the earlier minimal set of 5G standards are being rolled out and forthcoming release 15 will be the first set of 5G standards.

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The promise of secure, real-time data about goods in transit requires bandwidth having capacity that doesn't exist with our current infrastructure. 5G-enabled IoT is intended to greatly increase this capacity [3]. Without the upgrade of our telecommunication infrastructure, the development and implementation of blockchain solutions involving logistics will be restricted to pilots and other deployments at reduced scale. Blockchain technology is particularly well-suited to respond to both the challenges and opportunities of a 5G-enabled IoT. Therefore, it is very likely that each technology will spur greater adoption of the other.

Blockchain can serve not only to save the operating costs of the companies but also the potential legal fees arising from disputes which could have been avoided. Blockchain technology can serve a way to log data in a form highly resistant to tampering and a tool to fight malicious IoT devices. The security of such devices ensures the respect of privacy rights and also the sensitive information is kept out of bad characters. At present, multiple start-ups are working on blockchain based solutions to 5G IoT.

Supply chains can leverage the integrity of blockchain logs with a secure 5G/IoT networks. The integration of both is mandatory to avoid the skepticism of the accuracy of the valuable data collected about the goods in transit. This will also impact those who provide Trade Finance. For example, a letter of credit should only be honored if offered with a draft that sanctions the bill of lading or other applicable document of title has been negotiated to the purchaser. These manual processes and controls can be a awkward and fragmented process for lenders, sellers and buyers, which can lead to forged documents and other fraud, require dismissed reconciliation, sale of counterfeit goods and a general inability to keep private-deal terms confidential.

Blockchain systems and technology provides benefits of integrity and providence matters too. The consumer has the certainty about the product which it claims .For Example- Wal-Mart has started a pilot program to ensure the safety the products sent to US from a foreign producer. Due to these benefits from blockchain technology and 5G/IoT, the parties involved will reap more benefits than the potential cost to implement.

A smart contract prototype can streamline the supply chain process and will permit the automatic payment of goods upon receipt. A blockchain smart contract would eliminate disputes regarding whether a distributor is entitled to volume incentive rebate.

With the use of blockchain technology in integration with 5G, a shipment can be tracked easily so that the manufacturer as well as the distributor knows promptly accurately where they stand with respect to volume incentive rebate [5].

For example, a tracking device on a shipment of 90,000 units of a particular phone model would sanction information to be uploaded proximately onto the blockchain to show that the shipment was received in the distributor's holding warehouse, which would trigger automatic payment by the distributor to the manufacturer.

The shipment is stalked to reveal in which areas the distributor is selling the units. As the information is immediately loaded onto the blockchain, both the manufacturer and the distributor can see in real time how many units of a particular model have been sold in a particular territory to determine whether the conditions precedent to earning a volume incentive rebate have been met. If the volume incentive rebate is conditioned that all 90,000 units are sold within a specific territory, and the information uploaded on the blockchain from the tracking device shows that 15,000 phones were actually sold outside the selected territory, then both parties are aware that the conditions have not been fulfilled. Because this information could be uploaded onto the blockchain and would exceptionally problematic

for distributor to attempt to alter these records after an attempt to defraud the manufacturer.. If the information uploaded onto the blockchain shows that the distributor fulfilled all the conditions precedent, the rebate would be issued artlessly to the distributor, without the need for the distributor to follow up with the manufacturer for payment.

Should litigation still arise, the parties would have instantaneous access to the information that was recorded on the blockchain to conclude whether a distributor's claim that it is entitled to a rebate is legitimate and whether any defenses are available to the manufacturer. Hundreds of thousands of dollars in litigation costs, including the astronomical costs of electronic discovery retrieval and production, could be evaded entirely because the information has been recorded on the blockchain, eradicating the need to go back through each parties electronically stored information and old records to try to prove or disprove whether the units were all sold within the chosen territory.

Challenges and Obstacles

In the context of blockchain, there still exists lot of obstacles that must be removed and overcome timely to reap its benefits. Unlike Bitcoin and Ethereum, blockchain systems of many organizations lack a native virtual currency. Hence, one can be easily added in compliance with standards and foreign exchange adjustments [4]. Still, there is a lack of Uniformity in existing distributed ledger protocols and there is no interoperability across ledgers. However, the greatest challenge is addressing all these issues in association with Government agencies

and industry participants. It's very difficult to achieve the collaboration among all and need lot of investment in time and effort to deploy these systems. Commercial deployment of discrete projects with modest goals will take little time period but more ambitious projects will take longer time with large value proposition. Such changes in systems will impact the future competitiveness and market share of the companies which will grab such opportunities. It will be very difficult for those companies who fail to make investment in such systems to compete with those actively engaged with such technologies. It will be challenging for such companies to deploy such systems as it is not simple as unwrapping a standard software application. Hence, early adoption will provide unique opportunities and will accelerate the pace of development.

Conclusion

The blockchain technology has developed beyond its use due to its security, privacy, traceability and inherent data provenance. It will surely provide opportunities to organizations in developing nations like India in future and will definitely impact their future competitiveness and market share in a positive way. Blockchain technology will possess a great potential to empower developing nations if widely adopted by e-governance.

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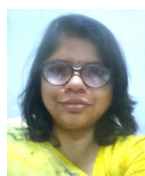
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