**BLOCKCHAIN IN SUPPLY CHAIN MANAGEMENT**

The supply chains of various fields have undergone a phase of rapid growth and evolution, incorporating complex steps. As the entire supply chain is not managed by one entity, the lack of coordination between participants causes a significant amount of resources to be squandered.

However, the core concept of a decentralized network in blockchain is the notion that it is a conglomerate of smaller entities. Blockchain concepts can be integrated into each individual step of the supply chain. The primary advantage of blockchain is that it offers maximum transparency while also providing data immutability. Let us take a brief look at how this concept can be applied to agriculture and its supply chain. The steps involved include acquiring seeds and fertilizers from a source. The fertilizer can be further traced back to the source of individual chemicals. The next step involves transportation and storage, followed by distribution, wholesale, and finally, purchase by the customer.

The entire process can be documented, and the farming step can include information about weather conditions, plant conditions, or animal health. Transportation information can include temperature, travel distance, and vehicle information. These details can be appended to the blockchain on a basis of proof of stake. In case any information is inaccurate, the concerned party and the verifier would directly suffer the consequences.

Smart contracts can be implemented to ensure that the standards and promises are upheld by the connected parties. The entire process can be written in code, and other aspects such as negotiations and execution can be done more efficiently since they are all automated. Smart contracts can also be used to ensure that no single entity gets favored and promote equality. For example, if a seller wishes to buy 10kgs of potatoes, they can place a request that can be fulfilled by a minimum of three parties that meet the conditions set by the seller. To avoid a monopoly, regular audits and standardization of contracts can be performed to ensure the overall well-being of stakeholders.

As a reward for completing the contract or being a proponent of a contract, a common cryptocurrency can be issued to the concerned parties. By having a decentralised currency of exchange, transactions can occur seamlessly around the world allowing for a larger diversity of products in all markets. Instead of a central party selling stock in wholesale, this practise would enable for smaller traders to flourish. If the cryptocurrency is backed by a physical asset, such as the product itself, it would prevent the currency from being subject to fluctuations in the economy. This also allows for the participants in the supply chain to transparently view costs associated with each step and manage profit and loss accordingly while providing a tamper-proof environment. For example, if a seller needs to sell 1 kg of wheat, they can request for it by placing a 100 token bounty, and all the parties that fulfill the contract along with the verifiers get rewarded with the token. To ensure a fair balance, the component members can also increase their reputation by successfully completing transactions.This reputation would act as a way to gauge the quality and integrity of the sender, and in case of fraudulent practices oligopoly the central party concerned can be tackled by the smaller parties.

Overall, implementation and decentralisation of supply chain using blockchain, smart contracts and cryptocurrency offers security, transparency and integrity. It also balances the scale between buyer and seller and helps increase profit margins.