Objective of Blockchain Technology Adoption in the Coffee Industry Supply Chain

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Description

As quite possibly of the most well-known drink on the planet, espresso has restrictions in its complicated and obscure production network. It is difficult for consumers to determine the quality of coffee based on the price they pay. Notwithstanding, inventive advancements, for example, blockchain arise with the possibility to help the espresso production network to be more straightforward and discernible. Blockchain technology is a distributed database that makes it possible to keep records that are safe, clear, and can't be changed. This makes it a good tool for tracking where coffee beans go in the supply chain, from farmers to roasters to retailers. Blockchain could be used to log and track every step in the coffee supply chain, promoting greater transparency. Any issues or irregularities in the supply chain would be simpler to identify and track if traceability were implemented. We propose a model for converting a supply chain business process in the coffee industry into a blockchain-capable workflow. Additionally, a software application was developed to enable each supply chain participant to contribute to the data collection and keep track of each coffee batch's status. In one of Indonesia's coffee industries, the application prototype was put into action and evaluated. Globally, the coffee industry is worth billions of dollars. They are accountable for the production, processing, and marketing of coffee products and beans. Millions of people worldwide are employed in the industry. The espresso store network includes numerous partners, from ranchers to roasters to retailers. Coffee farmers, who cultivate and harvest coffee beans, serve as the foundation. After that, the coffee beans are sold to coffee roasters, who then package and sell the beans. After that, the coffee is sold to grocery stores, coffee shops, and online retailers. A complicated and frequently opaque procedure resulted from the lengthy and frequently distinct handling mechanisms that depend on the requirement for the final product. When we are unable to collaborate to verify the procedure, we run the risk of producing inferior products.

Benefits of Blockchain Technology for the Coffee Industry

Overproduction, fluctuating prices, and sustainability issues are just a few of the many challenges facing the coffee industry as a whole. Farmers have lost money as a result of the overproduction of coffee beans, and the industry has also struggled to find a sustainable way to produce coffee. Additionally, other beverages like tea and energy drinks are increasingly challenging the coffee industry. However, the focus of this study is quality assurance, which can be addressed by utilizing blockchain technology's traceability features. There is frequently a disconnect between the various players, which can result in waste and inefficiency. It is necessary to have an effective supply chain that is better coordinated among the various stakeholders. To assist in tracking the movement of coffee beans and other products throughout the supply chain, a technological solution is required. Additionally, improving the efficiency of the coffee supply chain and guaranteeing the quality of the coffee can be accomplished by increasing communication and collaboration among the various players. The benefit for farmers, who frequently struggle to obtain a fair price for their beans due to the supply chain's complexity and opaqueness, is another important aspect of traceability features. With blockchain, ranchers could follow their beans' development and guarantee they get a fair item cost. The coffee supply chain's food safety may also benefit from blockchain. For instance, blockchain could track the affected beans back to the farm where they were grown in the event of a food safety incident at a roastery. Any issues with food safety could be contained quickly and effectively using the mechanism. Generally speaking, blockchain might possibly change the espresso inventory network to improve things. By expanding straightforwardness and discernibility, blockchain could assist with further developing espresso ranchers' lives and guarantee that purchasers appreciate protected and tasty espresso. Blockchain technology is a distributed database that allows for secure, transparent, and tamper-proof record-keeping by combining the two primary fields of distributed system and cryptography. Because of this, the information cannot be altered or deleted, thereby fostering trust among stakeholders without the use of a central authority like the government. The need to facilitate peer-to-peer transactions sparked the development of blockchain technology. As a result, the mechanisms can be trusted without the need for additional bodies to act as guarantors. The following is a list of some of the benefits of blockchain technology for the coffee industry. Initial, a decrease of generally costs since there is no requirement for outsider

delegates. Second, the information is stored in a decentralized computer network, making it extremely difficult to hack. This increases security. Third, a quicker exchange, following no requirement for outsider endorsement; Fourth, an expanded productivity, taking into account that it can assist with smoothing out cycles and make them more proficient. Be that as it may, the principal downside for blockchain executions is adaptability issues contrasted with the customary data set, particularly confronting continuous exchange interest.

Model for the Espresso Business Store Network Utilizing Blockchain Innovation

This exploration answers the essential target of blockchain innovation reception in the espresso business production network by noting how to change the current store network into the blockchainable one. To respond to this inquiry, we direct examination on one of the little and medium endeavors size organization in Indonesia. For export, the company provides high-quality coffee beans. While the market requires a guarantee of the quality of coffee beans, the business itself must shift to a more scalable and long-lasting business process. Blockchain innovation has been around starting around 2009, and it was first presented in a white paper by Satoshi Nakamoto. Blockchain is an innovation fit for interfacing a few blocks of information through a scrambled association in a dispersed organization; therefore, distributed ledger technology is also used to refer to the blockchain. The data that is inserted into the block and the hash, which is cryptography whose creation is constantly changing, are the two primary characteristics of the blockchain. The referenced properties make blockchain qualities: unchanging information records alter opposition, detectability highlights, cryptographic security, and decentralization. A smart contract, which is a list of codes that can be executed within a specific blockchain network, may also be present in a blockchain network. The contracts will only proceed with transactions automatically if certain conditions are met, as the name suggests. When compared to the conventional database, the advantages of the blockchain and the network's smart contracts are highlighted. However, block chain is definitely not a universally useful innovation since there are perspectives where the traditional information base is better. We effectively planned the recognizability model for the espresso business store network utilizing blockchain innovation. Our design is a general model that can be adapted modularly to specific conditions in the coffee industry's supply chain. By adjusting the number of stakeholders in the overall model to better suit various circumstances, we demonstrated how to apply the model to a specific industry. Additionally, we create a working prototype of an application that has been rigorously tested in our case study industry's supply chain environment. In general, we expect this research to add to the body of knowledge and practical applications of blockchain applications, particularly in the coffee sector. We intend to improve the final consumers' prototype version for future projects. From farmers to final consumers, the supply chain activities will be recorded by the system. When the coffee package reaches the retailers, there may be some difficulties, such as automated data collection.