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Monitoring of Agricultural Supply Chain Using BCT

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ABSTRACT: The term Supply Chain Management is relatively new. It first appeared in logistics literature in the 1980s, as an inventory management approach with emphasis on the supply of raw materials. Logistics managers in retail, grocery, and other high inventory industries began to realize that a significant competitive advantage could be derived through the management of materials that flow in their inbound and out bound channels. Supply Chain Management involves following processes: Integrated Planning, Implementation, Coordination and activities necessary to produce and deliver, as efficiently as possible, products that satisfies consumer preferences and requirements. This paper proposes a system of agricultural supply chain management using BCT features so as to make ASC transparent and corruption free.

KEYWORDS: ASC, BCT, AES, visual cryptography, SHA 256, Java, JSP, Sevlet, Web, etc.

I. INTRODUCTION

The supply chains of different agricultural commodities in India, however, are fraught with challenges stemming from the inherent problems of the agriculture sector. The agrisupplychain system of the country is determined by different sartorial issues like dominance of small/ marginal farmers, fragmented supply chains, absence of scale economies, low levelof processing/value addition,inadequacy of marketing infrastructure etc. Early processing-based supply chain management success includedimproved relationships between warehousing and transportation within companies as a result of reduced inventory and better response time to customer requests for products and services. Supply chain management then entered a logistics stage where other functional areas within companiesjoined forces to incorporate manufacturing, procurement,transportation, distribution, and marketing to effectively compete in the marketplace. This stage was aided by the use of telecommunications, electronic data interface, and other technological advances that made the transfer of information moretransparent across the functional areas between companies.
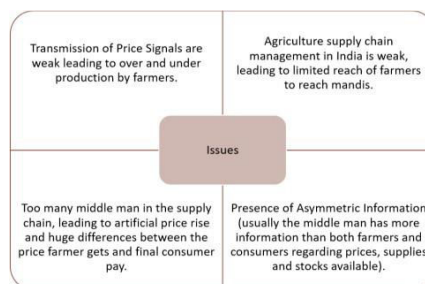

Fig: Issues in ASC

Overview of Proposed Technology:
BCT: The blockchain technology allows peer-to-peer transactions to take place transparently and without the need for an intermediary like a bank or a middleman in the agriculture sector. By eliminating the need for a central authority, the technology changes the way that trust is granted – instead of trusting an authority, trust is placed in cryptography and peer-to-peer architecture. It thus helps restore the trust between producers and consumers, which can reduce the transaction costs in the agri-food market. The blockchain technology offers a reliable approach of tracing transactions between anonymous participants. Fraud and malfunctions can thus be detected quickly. Moreover, problems can be reported in real-time This helps addressthe challenge of tracking products in thewide-reaching supply chain due to the complexity of the agri-food system. Thetechnology thus provides solutions toissues of food quality and safety, which are highly concerned by consumers, government, etc The blockchain technology provides transparency among all

involved parties and facilitates the collection of reliable data. Blockchain can record every step in a product's value chain, ranging a product's creation to its death. The reliable data of the farming process are highly valuable for developing data- driven facilities and insurance solutionsfor making farming smarter and less vulnerable.

II. LITERATURE SURVEY

A model in Agri-food Supply Chain Costing using ABC Costing: A empirical research for Peruvian coffee supply chain

Andrea Villalva-Cataño, Edgar Ramos-Palomino, Kelsey Provost, EduardoCasal
DOI 10.1109/IESTEC46403.2019.00009
2019 7th International Engineering,Sciences and Technology Conference (IESTEC)
This paper analyzes basically the causes of the high logistical costspresented by the Peruvian coffee in the supply chain. A cost analysis methodology will help to explore, analyses and develop high supply chaincosts so that the current coffee crisis can be stabilized. Indeed, the findings found were analyzed to improve, support, and help small-business growth in the long run.

A Theoretical Implementation: Agriculture- Food Supply Chain Management using Blockchain Technology

S. Madumidha1, P. Siva Ranjani2,U.Vandhana3, B.Venmuhilan4
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IEEE
This paper presents a fully decentralizedblockchain based traceability that enables to build blocks for agriculture that continuously integrate with IoTdevices from provider to consumer. To implement, we introduced "Provider-Consumer Network" - a theoretical end to end food traceability application. The objective is to create distributed ledger that is accessible by all users in the network that in turn brings transparency.

Blockchain in Agriculture by using Decentralized Peer to Peer Networks

Mrs S.Thejaswini, Ranjitha K R,Department of CSE, Siddaganga Institute of Technology, Tumkur, Karnataka, India.
To address the problems arising from the farmers related to agriculture, theblockchain technology plays a major role in the agriculture industry by improving transparency and foodprovenance in the supply chain, which isfeatured by the distributed ledger, centralized servers, P2P (Peer to Peer) networks, As in [1] [10]RFID (Radio- Frequency Identification) tag, consensusverification. Hence, the proposed work explores the different problems faced inagriculture production and the solutionsto those problems are addressed by using blockchain technology.

Blockchain technology in currentagricultural systems: from techniquesto applications

WANG1, HAINING YIN4, DEWEI YI5, ANDLAIHUNG YAU6
DOI 10.1109/ACCESS.2020.3014522,
IEEE Access
In this paper, we provide a survey tostudy both techniques and applications of blockchain technology used in the agricultural sector. First, the technical elements, including data structure, cryptographic methods, and consensus mechanisms are explained in detail. Secondly, the existing agricultural blockchain applications are categorized and reviewed to demonstrate the use of the blockchain techniques. In addition, the popular platforms and smart contract are provided to show howpractitioners use them to develop these agricultural applications. Thirdly, we identify the key challenges in many prospective agricultural systems, and discuss the efforts and potential solutions to tackle these problems.

Blockchain-based Data TraceabilityPlatform Architecture for Supply Chain Management

Yihang Wei 2020 IEEE 6th Intl Conference on BigData   Security on   Cloud (BigDataSecurity), IEEE Intl Conference on High Performance and Smart Computing, (HPSC) and IEEE Intl Conference on Intelligent Data and Security (IDS) This work proposes a data traceability platform architecture design plan for supply chain management based on the multi-disciplinary knowledge and technology of the Fabric Alliance chain architecture, perceptual identification technology, and cryptographic knowledge. At the end of the paper, the characteristics and shortcomings of data traceability of this scheme are evaluated.
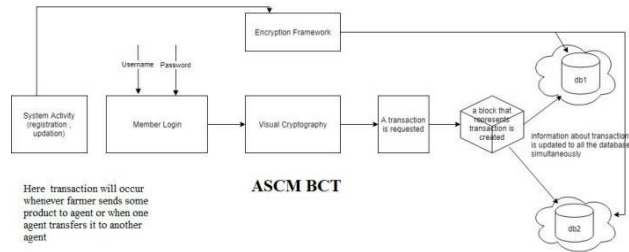
III. PROPOSED SYSTEM

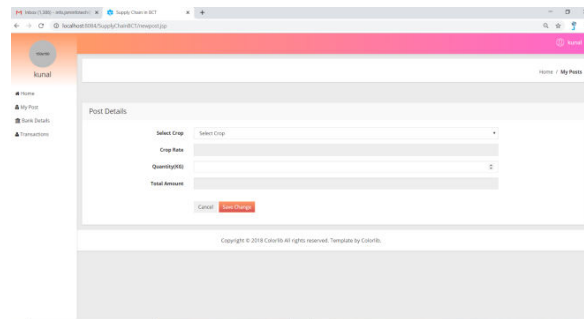Fig: Proposed System

Implementation Results:
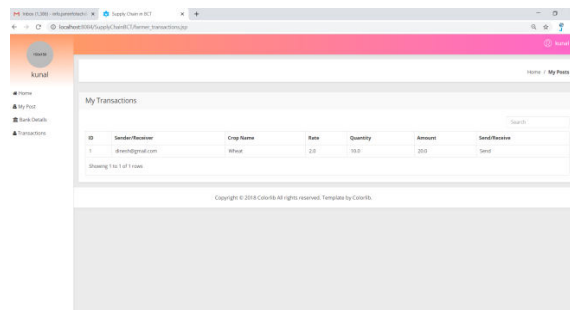

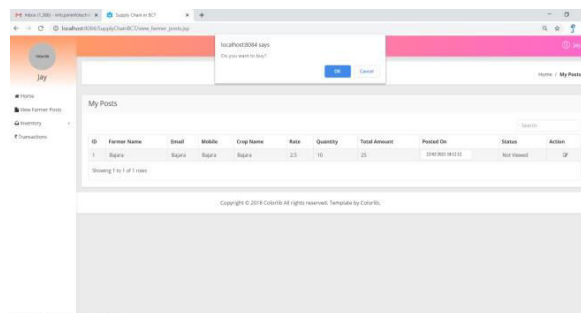Fig: Farmer Add Post

Fig: View Post

Fig: Buy Farmer Product

IV. CONCLUSION

Thus we are going to implement anASCM using BCT, the system with BCT will be an effective solution to solve the problems in ASCM. The system will be developed using java as a programming language using JSP & Servlet technology.

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