DEFINE PROBLEM\PROBLEM UNDERSTANDING

TEAM ID:	**NM2023TMID04432**
PROJECT NAME:	**AGRICULTURE DOCS CHAIN**

SPECIFY THE BUSINESS PROBLEM:

- In the agriculture industry, there is a significant challenge related to the management, verification, and accessibility of critical documents and data.
- Farmers, agricultural businesses, regulatory authorities, and other stakeholders deal with a vast array of documents, including land deeds, crop records, certifications, permits, contracts, and more.
- These documents are often paper-based, prone to loss or damage, and can be challenging to verify, leading
- Agriculture-related documents are typically managed in a fragmented and paper-based manner, making it difficult to organize, retrieve, and maintain their integrity.
- Ensuring the authenticity and validity of agricultural documents, such as land titles or organic certifications, is a critical concern.

- Stakeholders often require timely access to critical agricultural documents for decision-making, regulatory compliance, and transactions.

Abstract:

- Since the commercialization of agriculture technology, there has been a surge in interest in agricultural data.
- However, these data are notoriously chaotic, and analysts are concerned about their authenticity because there is a big possibility that others may have influenced data quality at various points along the data stream.
- This article suggests a new blockchain architecture to protect the integrity of agricultural data. The goal of this architecture is to provide farmers with safe storage.
- The agriculture data inserted cannot be modified without some rules. Many procedures are completed automatically using smart contracts to limit the danger of manipulation.
- One of the suggested architectures is the proof of concept. It connects a traditional farm system with the blockchain accompanied by smart contracts to facilitate the entire agri-supply chain.
- The conceptual architecture will eliminate the flaws discovered in prior studies. Sensors are used in this approach to provide us with environmental data.

Introduction:

- Agriculture is a big part of the economy of any country because it helps feed the entire population. It connects and communicates with all of the related industries.

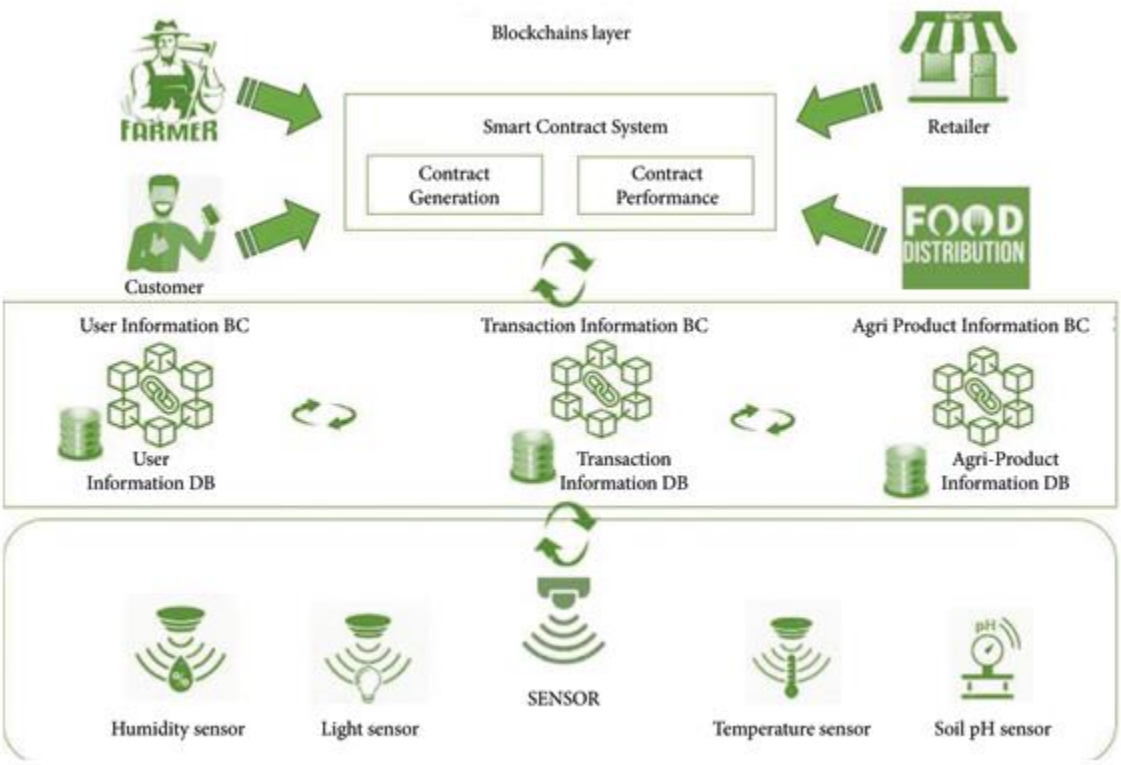
- If the agriculture base is strong, it is generally regarded as a socially and politically stable society.
- Many modern farms make use of cutting-edge technology and scientific and technological ideas .

- The following are some of the reasons for food supply chain problems and processing environment challenges.
- The maximization of the profits relies on some farmers' vegetables and fruits with chemicals. Chemical fertilizers, insecticides, and other compounds are used in several plants and fruits.
- As a result, pesticide residues in vegetables and fruits become excessive. It is a significant health risk.
- Food gets contaminated with heavy metals. The irrigation water source of crops is polluted by the excessive intrusion of heavy metal elements such as lead, tin, mercury, and zinc, which are dangerous to human health.
- Food additives are used excessively in food processing. Some nefarious enterprises use excessive food additives, antibiotics, hormones, and harmful substances .
- The following are some of the most common blockchain applications:

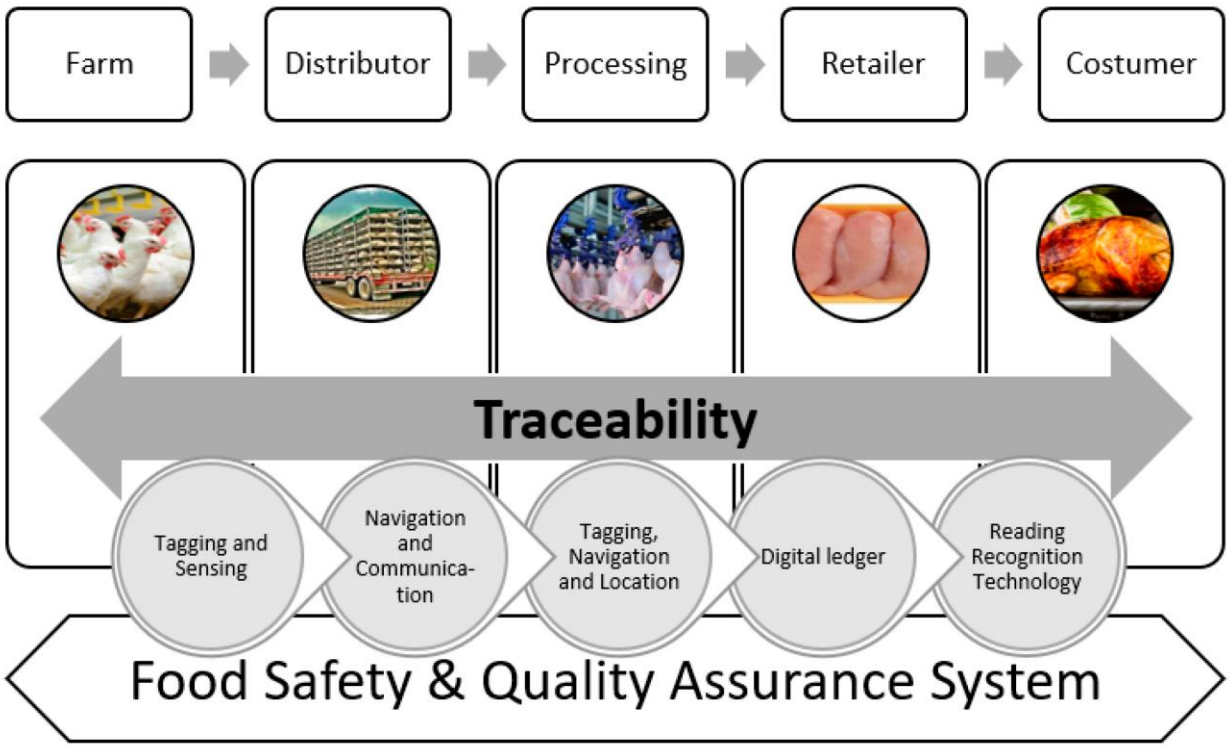
(i)Agribusiness insurance.
(ii)Smart farming.
(iii)Traceability.
(iv)Land registration.
(v)Food supply chain.
(vi)Security and safety farms.
(vii)Agricultural product e-commerce.

- As a formal definition, the blockchain is a distributed ledger to share transactions or sensitive data across untrusted multiple stockholders in a decentralized network.
- The data are recorded in a sequential chain of hash-linked blocks that facilitate the data distribution to be more manageable than other traditional data storage formats.

Agriculture Supply Chain Management Based on Blockchain Architecture:



- Designing a smart contract on the Ethereum blockchain to store and manage agriculture data, including the ability to add, query, and update details, requires careful planning.
- Below is a conceptual outline of how this can be done, along with a simplified smart contract This simplified smart contract allows for adding and updating agriculture data.
- In practice, additional features, security measures, and access control mechanisms would be needed for a fully functional and secure agriculture data management system on the blockchain.



Conclusion:

- In conclusion, blockchain and IoT technologies can aid in developing a secure, transparent, open, and innovative ecological agriculture system that involves all participants.

- This work aims to provide a possible technique to build practical blockchain-based applications and change the agriculture industry, even though the evolution of blockchain and agriculture research studies is still in its infancy.
- This model is considered a prototype for reducing financial loss and agricultural pollution.
- The system defines the three primary entities in the agriculture domain: data, process, and stakeholders.