Development of an Blockchain Application in Food Supply Information Security

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With the increasingly serious problem of food, it directly or indirectly endangers people's health, quality of life and safety of life. Therefore, the article introduces the concept of Blockchain technology, putting forward the application of Blockchain technology in information security of the food supply chain and comparing it with the traditional supply chain system. It is mainly designed for the production sector, which gives information related to client and dealers of the company with respect to product launches.

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UPPLY CHAIN MANAGEMENT - As food-borne diseases Scontinue to increase, manyconsumers have become less reliant on food, thus creatinga need for more detailed information on food production.
In last few years, many food safety incident - Low-quality milk powder, “Sudan Red” hot sauce, “hair sauce”, “toxic rice”, etc., which cause serious consequences. This study suggested that the Blockchain provides an innovative solution for achieving these goals: Firstly, it provides a permanent record for each transaction segment which is grouped into individual blocks and cannot be tampered with. Secondly, it can replace those traditional paper tracking systems and manual monitoring system, so as to prevent the traditional
way of the supply chain from suffering the inaccurate impact. In other words, the supply chain tracking is an important measure to protect food safety, promoting food
safety and food certification.
This paper uses the theories of information science, management science, system science and empirical research methods, making use of reasoning, comparison,
theory and demonstration of research methods to study.

I. LITERATURE SURVEY

We set out to take a survey of related literature regarding our work. We selected papers related to cloud fundamentals, deployment models, comparison of IaaS, PaaS, SaaS. We reviewed literature dealing with the performance reports of various IaaS, PaaS providers.

A. ***Blockchain Application in Food Supply Information Security***

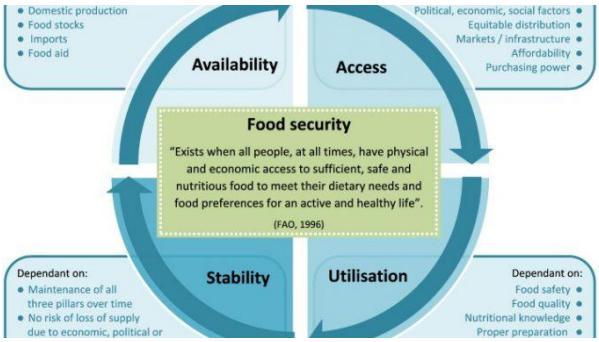
This paper mainly focus on the use ofblockchain technology to achieve management of the food market through the system of regulatory records of the food market transaction information. This preciously collects information, stores and can be transferred a regulatory platform.

B. ***Information Propagation in the Bitcoin Network Christian Decker***

Bitcoin could be a digital currency that depends on a networks that put together implement a replicated ledger and verify transactions.
In this paper the way Bitcoin uses a multi-hop broadcast to propagate transactions are analyzed. The gathered information is used to verify the conclusion that the propagation delay in the network is the primary cause for blockchain forks.

C. ***The Role of Traceability in Sustainable Supply Chain Management***

This is a traceability system in order to identify sources of deficiency and be able to withdraw hazardous products on the market precisely and efficiently. The main focus of this is traceability of sustainable supply chain management.



II. EXISTING SYSTEM

The existing system as aneffective means of product quality and safety managementand control, many countries and regions have beenresearched, developed and operated of the traceabilitysystem. On the one hand, these technologies have not beenable to achieve more accurate traceability, these resultscannot be directly used in market for analysis of those information.This system follows a traditional paper tracking systems and manual monitoring system, which makes the traditional way of the supply chain from suffering the inaccurate impact.

- The existing traceability system uses traditional way of tracking and storing information.
- Those system has been proposed at the initial food supply security development.
- Here once it is deployed it traces the food flow from initial stage to final stage and stores the information in Distributed Database.
- These existing technologies have not been able to achieve more accurate traceability
- This results we got cannot be directly used in market for analysing .
- The proposed system is more accurate and uses Blockchain technology.

III. PROPOSED SYSTEM

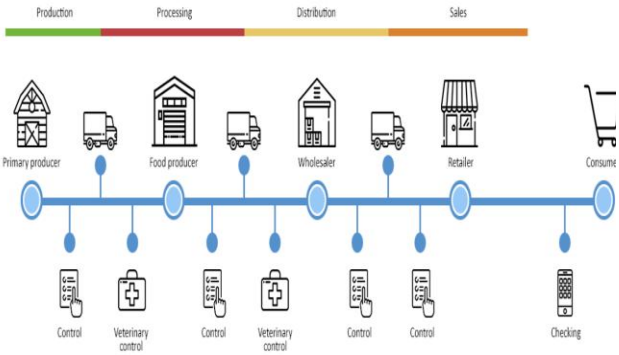
The article introduces the concept of Blockchain technology, putting forward the application of Blockchain technology in information security of the food supply chain and comparingit with the traditional supply chain system.

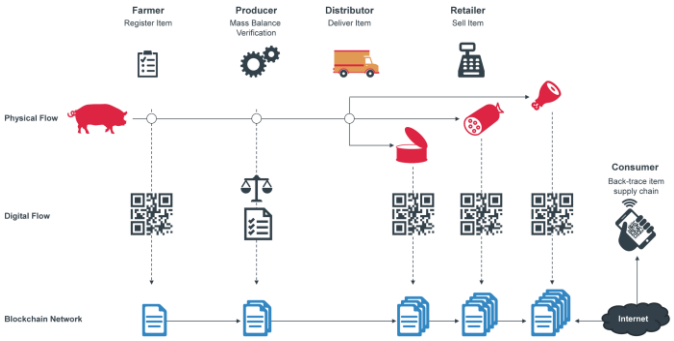
This study suggested that the Blockchain provides an innovative solution for achieving these goals: Firstly, it provides a permanent record for each transaction segment which is grouped into individualblocks and cannot be tampered with. Secondly, it canreplace those traditional paper tracking systems andmanual monitoring system, so as to prevent the traditionalway of the supply chain from suffering the inaccurateimpact.

In other words, the supply chain tracking is an important measure to protect food safety, promoting food safety and food certification.Blockchain technology was used to solve the problem of agricultural food supply chain traceability, further addressing the food safety issues, and to demonstrate its link in each supply chain in the implementation process details. Aiming at national conditions of food market analysis, a set of theoretical methods were used to adapt to current situation in order to make agricultural product supply chain management more efficient and reliable, as well as the quality and safety of agricultural products. In this paper, we use the methods of information science, management science, system science and other theories and empirical research methods, mainly using the PEST analysis to analyse, contrast and demonstrate studying the application of Blockchain in the food supply chain.

PEST is an analytical model which analyses the macro-environment location of the industry. All parts of the PEST are the external environment of the industry which cannot be controlled by themselves.
The paper also carries on the demand analysis of the Blockchain system platform of the food supply chain. Firstly, this paper qualitatively analyses the current situation of food security. The second is the demand analysis of the food supply chain traceability system platform, analysing the food supply chain can be traced back to the root causes and the need for development. Thirdly, it analyses the traditional traceability system of food supply chain.

Fourthly, aiming at the problems existing in the food supply chain system, applying the block chain technology to build a supply chain system platform for production processors, brokers and consumers.





This "Supply Chain Management System" consists of 3 main modules.

They are

- Admin Module
- Client Module
- Dealer Module

ADMIN MODULE

In this module, the administrator can check the availability of the product, the new launched product information. It also checks the delivery of product to the clients request and filters the products which are not being ordered by the clients.

A. Client module

It consists of registration and regulations for the client. The client then specifies the requirements in order to get the product build and get intimated. The client then gives the feed back with respect to the services provided.

B. Dealer module

The dealer module consists of the complete data concerning the dealers.

It consists of the list of dealer associated with the system.

The dealers maintain the record of things and generate the list of things once required.

1. PRINCIPAL CONSTRUCTS AND DEFINITIONS:

Blockchain is originated from the bitcoin, a technology which is a distributed database and with the continuously increasing records regarded as blocks. Moreover, it is constantly growing as miners add new blocks to that (every ten minutes) to record the foremost recenttransactions. Reference was coming up by , and applied it to the bitcoin transactions. On top of that, the blockchain has four basic characteristics which calledDecentralization, Openness, Security and Privacy.

IV. CONCLUSION

As above mentioned, although there still have some disadvantages, promoting the blockchain is a well worth technology for helping government track, monitor and audit the food supply chain and helping manufacturers to record the transactions in authenticity. Not only this technology can benefit the customers, manufacturers and the supervision departments but also improving the efficiency of food supply chain's processing and circulation. However, these technologies still stay in a concept, not putting into practice. Based on the above reasons, some suggestions can be borrowed from the US implementations and then propounded for building up the system all over the world.

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