



## Utilization of Blockchain for Marine Products Tracking

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### Abstract

Many marine product companies currently have not implemented blockchain potentials in tracking systems. There could be found many errors in transactions record. The purpose of this research is to implement blockchain as a fraud prevention system for transactions in marine product companies. This research is qualitative-exploratory research with data collection using documentation techniques from related literature. This study concludes that Blockchain can be used as an alternative to fraud prevention. Blockchain can be used because there is transparency with a distributed system, which makes the whistleblowing system more effective and independent, in fully implementing the principles of GCG (Good Corporate Governance). The results of the advanced system designed at a marine product company are to facilitate data collection of all goods to be sent this providing high-security guarantees because it implements a blockchain security system in this system, and places an integrated tracking system so that data and goods sent during the transaction can be tracked.

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## A. Introduction

Blockchain technology has great potential to advance supply chains [1], [2]. Various studies have been carried out to implement the potential of blockchain in the supply chain sector, including agricultural commodities [3], fashion [4], health [5], [6], finance [7], including marine [8], [9]. But many marine product companies, has not been explore the potential to be applied on its tracking systems.

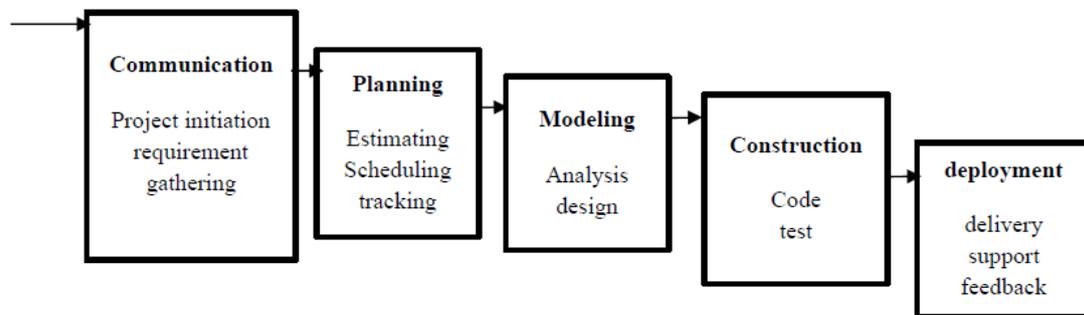
PT. Denpo Andalas Samudra is a company engaged in the delivery of goods such as tuna, mackerel, snapper to several consumers in several regions and countries. The problem with the company at this time is that the delivery system is not safe and stable when the transaction takes place. often experience problems in every data received and often change during delivery or transactions, such as goods that do not match consumer demand. Based on Article 26 of Law Number 11 of 2008 concerning Information and Electronic Transactions. The use of Tracking properly and integrated can be utilized to support a good transaction system in the Company. The development of information technology is currently increasing rapidly, both hardware and software that can be utilized by irresponsible parties to commit acts of misuse of funds provided and the benefits obtained. Therefore blockchain design can be used as a security method. which is where this system is assisted by tools built using blockchain technology. Blockchain is a revolutionary system that connects computer networks in a decentralized and distributed manner. Blockchain can be applied internally in a company, with external parties of the company, such as investors or owners. for financial institutions, internal auditors, external auditors and other parties related to the company. This concept departs from the Agency Problem contained in Agency Theory. These problems stem from two different interests in the company where each party tries to achieve the expected prosperity, so that information asymmetry between management can provide opportunities for managers to carry out earnings management in order to mislead owners about the company's economy. This concept aims to avoid this and reduce earnings management that is too extreme so that complaints from customers arise. This opens the eyes of company managers that in meeting the company's success factors there are other factors besides profits; some of these factors are the company's ability to continue to grow and develop, the ability to get sustainable projects, and no less important is the company's ability to because for the owners other than having the advantage they also need a company that is safe from the risk of fake transactions that do not have a good system.

## B. Research Method

Previous research has been conducted on utilizing blockchain for tracking system of shrimp [10] and beef [11]. Other similar researches has been conducted such as Analysis and Design of a Prototype of Multimedia Nusantara University Bus Tracking Application on the Android Platform by Dony Pratidana, Bima Agus Setyawan (2017) that is helping to find out information and bus position more accurately so as to minimize incidents such as being missed by the bus, Online Tracking System for Delivery of Goods and Documents at PT. Scam by Yusuf Agpal Nasution, Harry Dhika, Sri Rezeki (2020) to develop application can be used to overcome problems such as faster service data input, faster delivery of delivery information, and more effective transaction processes, and Laboratory Invoice

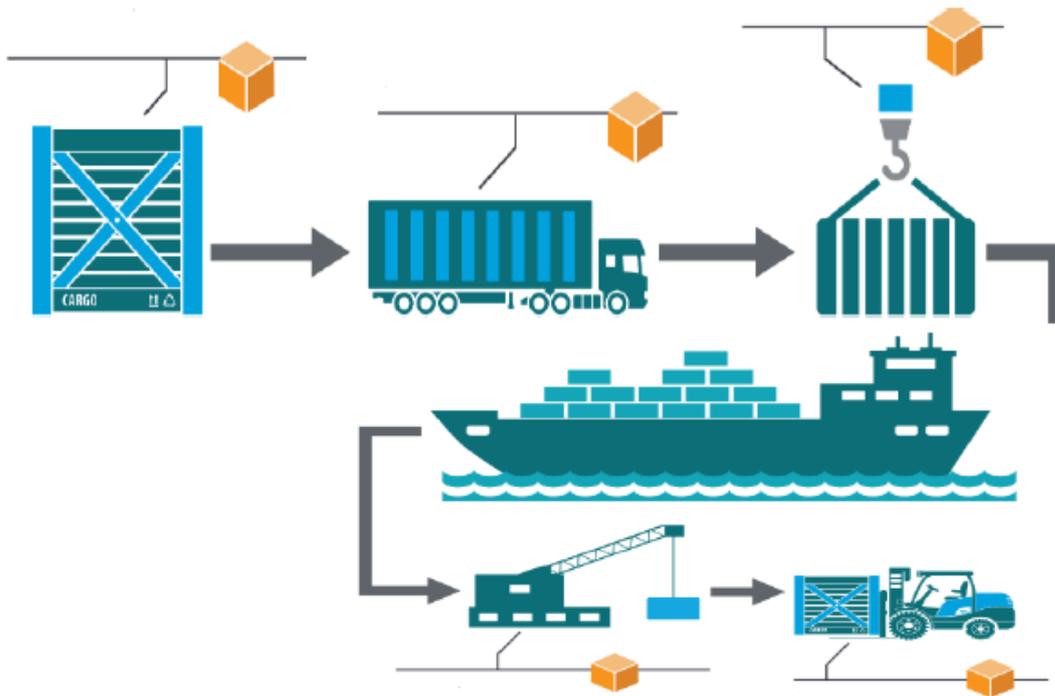
Tracking System Design at PT. Sucofindo by Erfian Junianto, Yusa Primaesha (2015). With the website, customers can apply for analysis, laboratory or certification without coming directly to the company. Data from each certification application can be stored centrally by the company.

For the application development in our research we are using SDLC model. The data collection process uses the System Development Life Cycle waterfall (SDLC). The waterfall model is sometimes called the classic life cycle, which implies a systematic and sequential approach to software development, starting with specification of user requirements and continues through the stages of planning (planning), modeling (modeling), construction (construction), and delivery of the system / software to customers / users (deployment), which ends with 16 continuous support on complete software that generated (Pressman 2010). The system development process has several stages from the system being planned until the system is implemented, operated and maintained. The stages are as follows:



**Figure1.** Waterfall model

The system that would be developed in this research could be illustrated in Figure 1.

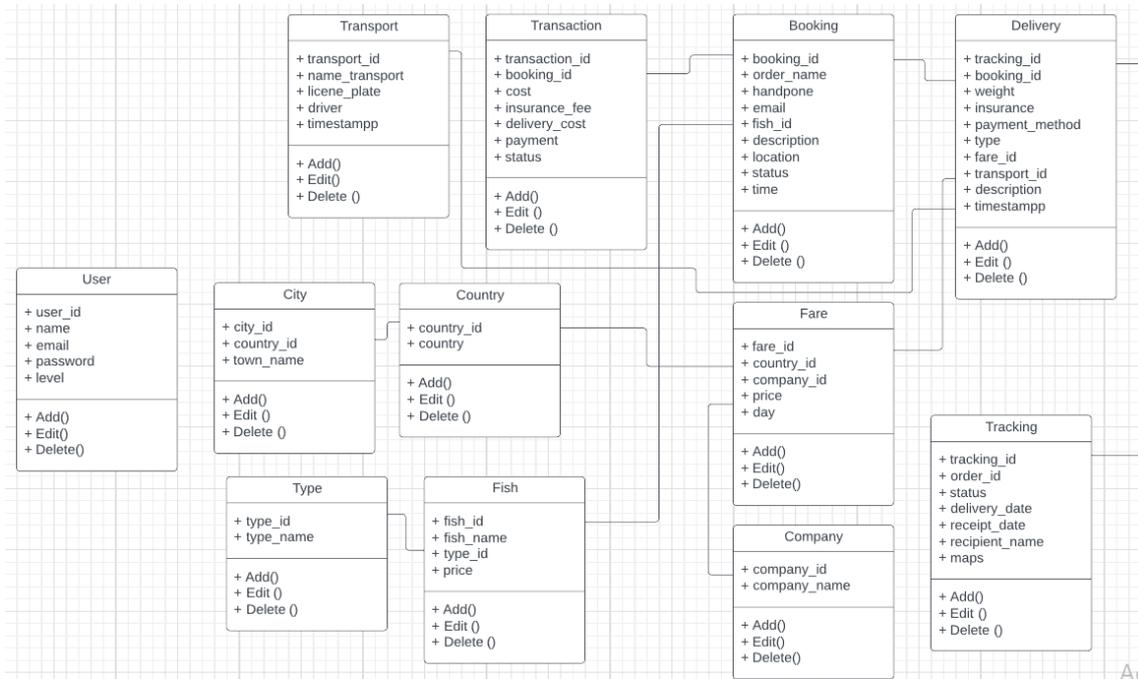


**Figure1.** Transaction System

The blockchain-based systems would powering a supply chain management system of marine product in which every steps of the product shipment could be traced.

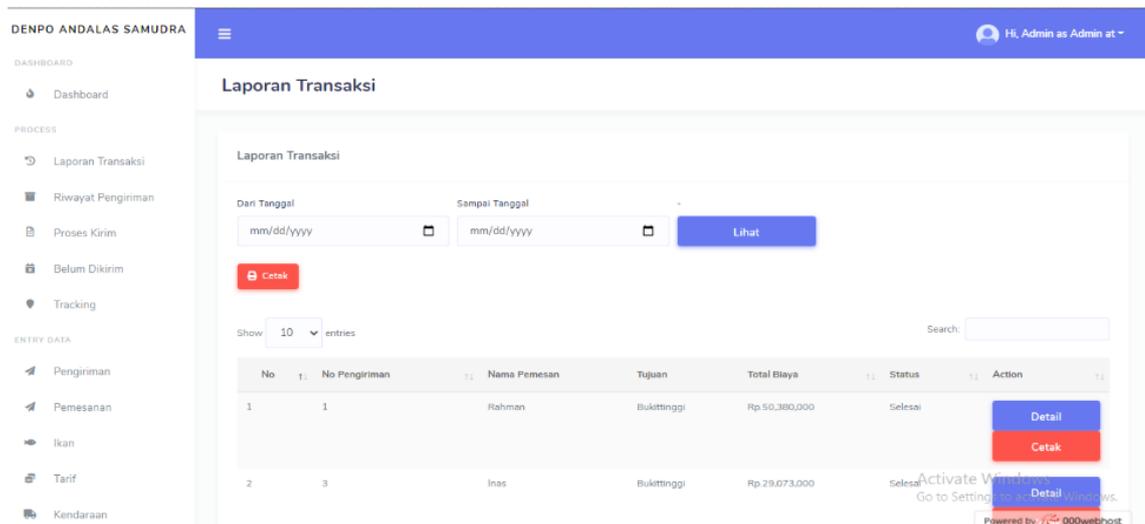
### **C. Result and Discussion**

Based on the user requirements, the marine products company and its customers, we have developed a design of the blockchain-based tracking systems that could be seen in the class diagram as follow:



**Figure 2.** Class Diagram of Tracking Systems

The system has been successfully developed as tracking system of marine products. An example of transaction report page of the system could be found on Figure 3.



**Figure 3.** Transaction Report

**D. Conclusion**

Some conclusions can be drawn as follows:

1. The transaction process has been running well and is stable.

2. The application of blockchain for tracking can be implemented so that transactions are safe and run well.

3. The use of the system is easy to understand so that it can be operated properly.

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