Blockchain Technology for Customer Protection in E-Commerce Transaction

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Abstract

The high use of the internet has a significant effect on human activity and one of the most affected is online sales via the internet. Many conveniences result from e-commerce both for sellers and for buyers. However, in e-commerce transactions, the customer's position is weak in the sense that customers cannot monitor their transactions transparently so that e-commerce transactions harm customers, such as the goods sent by the seller do not match what was ordered, the seller cancels the transaction unilaterally and so on. Meanwhile, blockchain technology offers a high level of transparency and security based on peer to peer transactions, so blockchain technology can protect customers in e-commerce transactions. The purpose of this research is to protect customers in e-commerce transactions using

blockchain technology. The research method uses a qualitative approach through literature review and observation of e-commerce transactions and identification of problems and solutions using blockchain technology.

Keywords
E- Commerce, Block Chain, Customer

1. Introduction
E-commerce is the process of buying and selling products electronically and from company to company or customer by utilizing the internet and computer networks (Budyastuti and Iskandar 2018).

E-commerce is also defined as a dynamic set of technologies, applications, and business processes to connect companies, consumers and society through electronic transactions and the electronic exchange of goods, services and information (Sinaga et al. 2020).

The process of buying and selling goods and services was previously done conventionally, namely by coming to the store, meeting traders, selecting merchandise, and paying with cash. In addition, the marketing process is also carried out through television, radio, or banners, even door to door. Even though these things are still being found, now most of them are starting to switch to digital transactions by using gadgets and internet connections. Broadly speaking, e-commerce is a commercial activity that includes the marketing process, buying and selling transactions, bargaining, to payments by utilizing internet technology and smart devices or gadgets. Sales to customers are sometimes difficult to be predicted (Gustriansyah et al. 2017). The growth of e-commerce is increasing, especially in the current covid pandemic situation which requires people to stay at home and keep their distance (Petsopha et al. 2021).

However, e-commerce transactions have the potential to harm customers for several cases, such as customers who receive goods that are not in accordance with the order (Sugiarto et al. 2022),(Oentoro 2017). Other customer loss is the goods do not arrive at the destination address (Masruroh 2019),(Perkasa et al. 2016). Customer also difficult to refunds for cancelled transaction (Rizky and Gorda 2019),(Aswari et al 2017). All of those data is very important as capital for business development (Ramadhan 2022). The investment must be done right (Suroso and Ramadhan 2011).

A survey conducted by Kaspersky Lab and B2B International revealed that Indonesia is a country where 26 percent of consumers are the target of online crime. This survey also found that 48 percent of consumers were the target of fraudulent actions designed to deceive and obtain sensitive information and financial data for criminal acts. The survey conducted by the buying and selling site Bukalapak.com found that 1 in 5 Internet users had been a victim of online fraud. Based on the survey, it is known that online fraud is carried out through social media sites, be it forums, Facebook, or Twitter. As many as 46 percent of respondents based on this survey admitted to having experienced fraud through buying and selling forums, while another 24 percent of respondents through Facebook, while another 16 percent were deceived via the web and 14 percent of short message services (Fauzi 2018).

Blockchain technology offers a high level of transparency and security due to several advantages (Khatoon et al. 2019)(Inayatulloh 2021). Blockchain technology and the advantages of this technology can be applied to e-commerce transactions to protect customers from fraud and other harmful actions. The purpose of this research is to help protect customer transactions in e-commerce from fraud and other actions that harm customers using blockchain technology. The result of this research is an e-commerce integration model with blockchain technology to protect customer transactions. The research method uses a qualitative approach through interviews and observations to identify problems for customers. When transacting e-commerce and literature review studies are carried out to find alternative solutions using an information technology approach.

2. Literature Review
Blockchain Technology
The early history of the discovery of Bitcoin (digital money) at the end of 2008, which was discovered by a person named Satoshi Nakamato, and in a paper entitled "Bitcoin: A Peer-to-Peer Electronic Cash System". Where he wrote ideas related to the use of Peer-to-Peer network technology (Chen 2019).Definition Peer-to-Peer or known as P2P is a distributed network that can share media files and also exchange data between two computers (peer) or any type of network without any intermediary (Miyachi and Mackey 2021),(Hasavari and Song 2019), (Lee et al. 2021). To handle electronic transactions that have been discussed in the paper related to the concept of how to transact with digital

money (Bitcoin) online without using a third party and without centralized or distributed storage, the application of the Peer-to-Peer concept can certainly be said to be appropriate to provide solutions related to transaction method using Bitcoin (Namasudra et al. 2021), (Adiyanto and Febrianto 2020),(Cunha et al. 2021).

Through the discovery of how to transact Bitcoin, simultaneously the Blockchain concept was initially only used to secure digital money transactions, until now it has experienced rapid development that can be applied in various ways, especially in the digital field that prioritizes trust, security, and the validity of a transaction. data transactions. Blockchain is a distributed digital ledger of transactions that are cryptographically signed and grouped into blocks. Each block is cryptographically linked to the hash of the previous block after being validated and undergoing a consensus decision. When a new block is successfully created from the mining process, the data in the previous block will be almost impossible to change or manipulate. Thus the definition of Blockchain in general, Blockchain is a distributed database that records every transaction or exchange in each block and is protected by cryptographic security methods, so it is safe and cannot be easily changed in value.

Based on the type of Blockchain, there are three types of Blockchain that are commonly known and their differences and purposes, namely:

a. Public Blockchain, This blockchain is a large distributed network because it has a public nature which means it is open to everyone who participates and has open-source code, so that the community can distribute it. The purpose of this type of Blockchain is widely used to carry out digital currency transactions or cryptocurrencies, where everyone can see a list of transactions that have been made and validate transactions (Singh et al. 2020),(Benhamouda et al. 2020),(Brunner et al. 2019).
b. Private Blockchain is a type of Blockchain that is closed and aims to exchange information internally only. Of course this can make parties who do not join, cannot see what processes are carried out on the Blockchain. access restrictions on private blockchains. If there are organizations or companies that apply Blockchain technology in general. However, not too comfortable with the access control provided by the public network (public Blockchain), of course this goal can be achieved by utilizing this private Blockchain (Yang et al. 2020),(Pahlajani et al. 2019),(Kuo and Ohno 2018).
c. Semi-Private Blockchain or consortium Blockchain, is a type of Blockchain that gives access rights to anyone who has the right to use it and has a closed source code. Similar to private Blockchain. However, for data storage sent through transactions, it will still be stored on the public Blockchain network (Eisa et al. 2020),(Rambhia et al. 2020).

Electronic Commerce and E-Marketplace

Electronic commerce or e-commerce is all buying and selling activities carried out through electronic media. Although the facilities include television and telephone, now e-commerce is more often done through the internet. Because of this understanding of e-commerce, sometimes there are misunderstandings about e-commerce and marketplaces. The term e-commerce is used to describe all transactions that use electronic media. E-Marketplace itself is one of the e-commerce models, where it functions as an intermediary between sellers and buyers. Sellers who trade in the marketplace only need to serve purchases. All other activities such as website management are already taken care of by the platform. In the context of this research, the customer's position is weak for the transactions they make either in e-commerce or in e-marketplaces.

3. Methods

Figure 1 explain the research method. E-commerce provides benefits for both sellers and buyers in the context of direct selling from seller to buyer. However, the existing e-commerce system has the potential to harm customers and the e-commerce system does not provide effective features to customers when e-commerce transactions harm customers. Such conditions become the initiation of research to develop an e-commerce system that protects customer rights. After the problem is found, the next step is to study the mechanism of e-commerce transactions that have the potential to harm customers.

Based on the observation of e-commerce mechanism transactions, some parts have the potential to harm customers, so a solution is needed which is based on a literature review of the right solution using blockchain technology. The next step is to combine the mechanism of e-commerce transactions with blockchain technology. The final stage of this

research is to build an e-commerce model with blockchain technology to protect customer transactions and all stakeholders in e-commerce transactions.

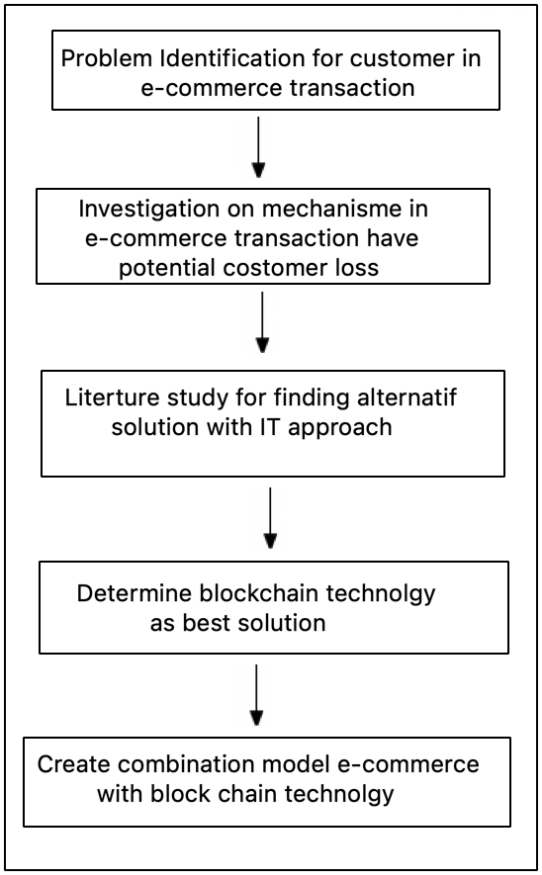

Figure 1. Research Method

4. Results and Discussion

Figure 2 describes the e-commerce transaction model with blockchain technology. In the model offered, the blockchain network is already available with all the tools needed so that when e-commerce transactions occur, it will be integrated directly with the existing blockchain network, meaning that both systems have been prepared before the integration process begins. These two systems are not physically and conceptually different systems, but these two systems are complementary to one another. The following is an explanation of the image:

a. The model begins with e-commerce transactions where buyers buy goods from sellers through e-commerce platforms. Of all the information contained in the transaction, the system will filter the most important information that will enter the blockchain network. This data selection is very important because peer to peer transactions in a long blockchain network will hamper the validation process if too much information is entered in the blockchain network. After there is selected data, the next step is that the data will be encrypted with a hash function so that data security will be protected before entering the blockchain network. After the encryption process is complete, the data will become a new block in the blockchain network.

b. New blocks that have passed the encryption process will enter the blockchain network and spread to all nodes in the block chain network. The nodes in the blockchain network represent all stakeholders involved in e-commerce transactions such as sellers, suppliers, shipping companies, banks and others. One block represents a transaction between a seller and a buyer

as well as parties involved in e-commerce transactions such as shipping companies. So when an e-commerce transaction occurs, the shipping company receives information and validates the transaction, as well as the bank as an institution that facilitates payment transactions.

c. If all nodes have received a new block of information in the blockchain network that has been validated, the block will enter into a part of a ledger that contains all the blocks that have been arranged previously.

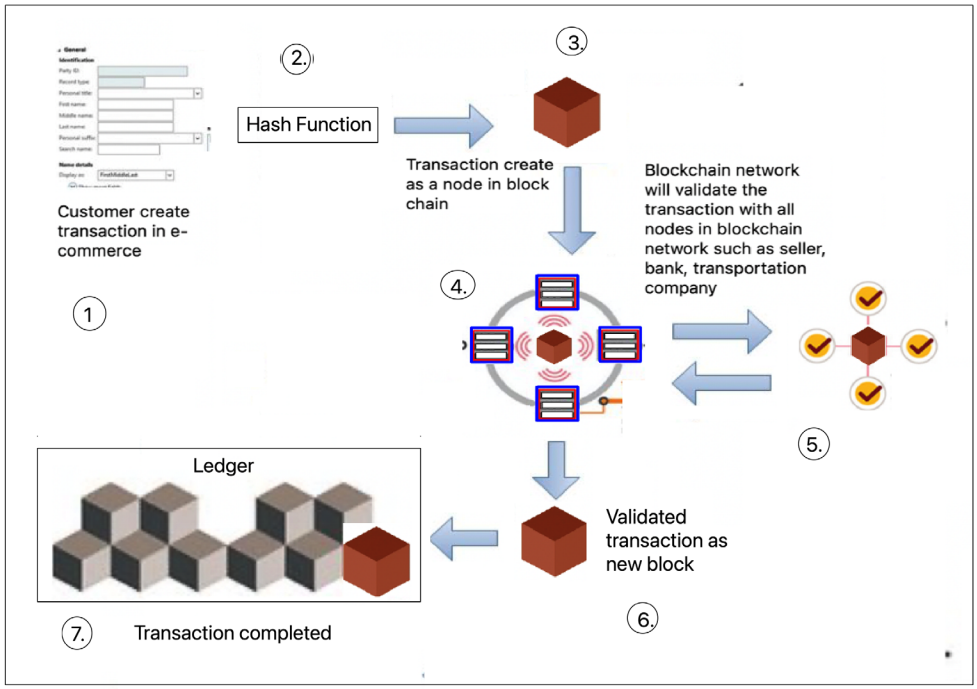

Figure 2 . The proposed Model

5. Conclusion

The combination of e-commerce with blockchain technology provides several advantages for customers from fraud, for example, fraudulent goods sent not in accordance with the order, this fraud can be avoided by the shipping company who is given the responsibility for sending goods will refuse delivery transactions because in the blockchain network all nodes know everything e-commerce transactions. The illustration above also applies to transactions between all stakeholders in the blockchain network.

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Biography

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Sugeng Riyanto, found that my passion was to become an educator. I decided to take a master's degree at the university of IPB by taking a concentration in Small and Medium Industry Management (MPI). It was a big decision in my life that would change everything. I am currently a lecturer at the College of Economics (STIE) PERTIWI Bekasi, I have started the teaching profession since 2014 until now. Apart from being a lecturer, I am also the deputy principal of the industrial relations field at a private vocational school in Bogor district. I have a responsibility to establish relationships and cooperation between schools and the industrial world, agencies, and other institutions, both government and private institutions

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