Optimization Of Dana Desa Through Blockchain Technology

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Abstract

Dana Desa is an allocation of 10% of the APBN given to villages following Law of the Republic of Indonesia Number 6 of 2014. It purposes to reduce the number of underdeveloped villages from 26% to 20% in 2019 (RPJMN 2015-2019). However, there are many cases of abuse of Dana Desa. According to Indonesia Corruption Watch from 2015 to 2018, there were 181 cases of corruption of Dana Desa which resulted in state losses of Rp40.6 billion (Kompas, 2018). Besides, there was the deposition of Dana Desa in the regional accounts due to constraints on the report on the realization of Dana Desa (LRA). Therefore, this paper describes the process of implementing blockchain technology in the Dana Desa program and the impact on the audit process. Blockchain can simplify the process of using and reporting of Dana Desa through several features. The type of research is qualitative with a descriptive approach.

Keywords: Blockchain, Dana Desa, Audit, Government, Technology

1. Introduction

The Indonesian government has launched a development program in the 3rd NawaCita "Building Indonesia from the periphery by strengthening regions and villages within the framework of the NKRI". In realizing this program, the government has spent funds from APBN called Dana Desa. Dana Desa is an allocation of 10% from APBN given to the villages following Law of the Republic of Indonesia Number 6 of 2014. By the government, this program aims to reduce the number of underdeveloped villages from 26% to 20% in 2019 from 5,000 villages or increase the developed villages to at least 2,000 villages (RPJMN 2015-2019).

Figure 1. Realizing the Independent Village (Budi Harto, 2017)

Implications of the concept of building a village through community empowerment. Community empowerment is supported by the Dana Desa program. At the beginning of the 2015 implementation, the Dana Desa was able to empower 3 villages (0.07%) and increase in 2016 which was 72 (1.66%). Besides, the formation of the developed village was count 212 (4.88%) and increasing in 2016 amounting to 687 (15.81%). The Dana Desa allocation is intended to develop the underdeveloped village and reaching success of 13.72% by alleviating 596 villages (Indonesia Ministry of Finance, 2016).
The process of channeling Dana Desa through RKUD to RKD carried out by regents/mayors. This distribution will be carried out after the Village regulation regarding APBDesa to the regent/mayor and the report on the realization of the use of Dana Desa for the previous fiscal year. This phenomenon has resulted in the Dana Desa settling in the Regional General Cash Account (RKUD) so that it has not been channeled entirely to the Village Cash Account (RKD) (CNN Indonesia 2018). Certainly, this resulted in the development expected to be hampered.

Considering the importance of achieving government goals in Nawacita, the central government requires the Dana Desa channeling method which appropriately uses information technology systems to facilitate recording or calculation in the distribution of Dana Desa. This information system is expected to be able to resolve the Dana Desa reporting problem that is late so that disbursement can be done on time. Later on, the Dana Desa disbursement accounting information system is expected to increase public transparency over the use of Dana Desa.

2. Materials and Methods

This research is a descriptive method with a qualitative approach. The type of data used in this research is secondary data. It obtained indirectly through intermediary media or obtained and recorded by other parties. According to Hasan (2002), Secondary Data is data collected by people who research existing sources. The use of secondary data is intended to support primary information that has been obtained, namely from library materials, literature, previous research, books, and others.

3. Results and Discussion

3.1 Accounting Information System Distribution of Dana Desa based on Blockchain Technology

Accounting information system distribution of Dana Desa based on blockchain technology is a system that is a closed system, i.e. the environment outside can not affect the system. However, the public and other parties can see the results or output of the system in the form of a database. Transaction using blockchain technology is peer to peer. So, data that can be in the form of messages or important information/documents can be moved from one user to another without the help of a third party to process it. With the blockchain, dependency on one server will not occur because all transactions are duplicated to the entire network so that they avoid various forms of fraud due to modified data, server down or hacking account attempts. Form of identification of the characteristics of the blockchain system, namely:

a. Component
   Component here are users in the system, namely the central government, district/city government, village government, and third parties. Third parties here are project implementers.

b. Scope of the System
   All activities that have value of money and are related to village use in the form of infrastructure development, community training, or empowerment.

c. System Connector
   The media used to connect the system is internet media.

d. System Input
   All transaction data is in the form of channeling funds from the center to the regions and then to the village or the use of funds by the village.

e. System Output
   Information about allocating Dana Desa in the form of ledgers that have been grouped into account blocks.

f. System Processing
   The data processing system here uses peer-to-peer networking, which can be done automatically without involving third parties.

g. System Objectives
   The purpose and objective of this system is to breakdown the old distribution flow due to reporting because the report can be seen directly in each ledger and can optimize the use of Dana Desa.

The accounting information system uses a blockchain, of course, will interact with the building blocks of blockchain technology, namely using addresses, transactions, blocks, peer-to-peer networks, scripting or
programming languages, virtual machines, state machines, nodes, and smart contracts. In this system, it is done automatically. Transactions that occur as inputs that will be processed in the system and recorded in the ledger are historically and grouped. The blockchain peer-to-peer network system allows all transactions to be recorded and verified on the network. This system will provide full transparency to shareholders and regulators that allow external audits of accounting entries. In short, the blockchain process is explained in the model below.

**Figure 2. Blockchain Process (Chartered Accountant NZ 2017)**

The blockchain system helps governments and communities implement a control system in managing Dana Desa. Activities that occur are only inputting transactions so that the village government needs to assess its expenditure before the expenditure is made because the data cannot be changed or deleted. While agreements or contracts occur through existing smart contracts to minimize the abuse of authority in allocating Dana Desa. Then, the principle of transparency expected by the public can be fulfilled. The public can monitor activities that have value for money, especially the implementation of programs that receive Dana Desa funding. Directly, this technology also helps in fulfilling the principle of accountability because the village government must use its funds honestly to be used to improve the welfare of the village.

The blockchain technology-based Dana Desa accounting information system requires that parties transact to join the system using the address. Whereas for third parties, the address will apply in the implementation of only one project. The process of channeling funds is done online by connecting in an accounting information system application. The first process is channeling the Dana Desa from the center to the village. From this process, it can be identified that the system is done online and produces documents in the form of a database budget. Funds are sent from the central government following the size of the ceiling determined by also evaluating the performance of the Dana Desa in the area using the information on the RKD ledger. Each shipping transaction is recorded in the database in following with the block and historical transaction. After the funds are received by the village government, the village government announces the implementation of the project. By making banners, advertising, and publications under the agreement with the National Police which requires to inform each activity related to the use of the Dana Desa.

Hearing information on project implementation, third parties, namely contractors are allowed to submit project proposals that are sent through the decentralized autonomous organizational system, namely Blockchain. Automatically, this technology evaluates project proposals from third parties until finally, the government accepts the proposal submitted. After that, the government conducts a contract assessment and continues with the agreement (smart contract) with the selected third party. A smart contract is a method for automating the contract process and allows monitoring and enforcement of contract promises by minimizing human intervention. Automation can improve efficiency, reduce turnaround times and operational errors. The proposal is then uploaded on the server to be encrypted in a shared ledger, so that information stored in blocks can not be lost or manipulated by any party. After that, the village government transfers money following the contract and the contract can be implemented by a third party. The blockchain can be used to evaluate projects carried out by contractors, this technology allows evaluating the work of the project by checking its workflow according to the agreed initial contract. After the contract is completed the third party is obliged to make a Project Implementation Report send to the village.
government. Then, the village government reports to the local government and the central government. Finally, the data in this process will also be entered automatically in the database.

3.2 Dana Desa Audit Process with Blockchain

The use of blockchain technology also facilitates the audit process. This technology provides complete information both peer to peer and from external sources. Also, data information obtained from the blockchain is more secure because the blockchain allows existing data to be irreversible or manipulated by the parties responsible. Therefore the data obtained is more reliable and can be used by the auditor as audit evidence later. Data transparency is guaranteed by end-user processing controls, computer operating controls, data entry control and system development, and modification controls. The use of the blockchain in the transaction processing system design helps increase transparency by providing a record of a series of blocks and the properties of algorithms in the data.

In the audit process it also technically has differences between conventional methods and systems that use blockchain. The differences can be seen from the table below:

Table 1. Audit procedures comparison of traditional manual procedures and Blockchain-enabled continuous procedures (modified from Appelbaum and Nehmer 2017)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Traditional</th>
<th>Blockchain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection of Records or Documents</td>
<td>Pull samples of records and trace/verify/match</td>
<td>Evaluate entire datasets in ERP using blockchain</td>
</tr>
<tr>
<td>Inspection of Tangible Assets</td>
<td>Physical inventory, walkthrough, open boxes</td>
<td>RFID tagging</td>
</tr>
<tr>
<td>Observation</td>
<td>Stand/sit with worker(s) and observe</td>
<td>Use blockchains or process mining to verify workflows</td>
</tr>
<tr>
<td>Inquiry</td>
<td>Written or oral interviews</td>
<td>Monitor processes and controls, identify process violator for examination</td>
</tr>
<tr>
<td>Confirmation</td>
<td>Verify account balances</td>
<td>Link data streams using blockchain application</td>
</tr>
<tr>
<td>Recalculation</td>
<td>Extract and recalculate figures to verify</td>
<td>Monitor all data and run calculations automatically at intervals desired</td>
</tr>
<tr>
<td>Re-performance</td>
<td>Re-perform procedures to verify</td>
<td>Automatically replicate all transactions and identify exceptions</td>
</tr>
<tr>
<td>Analytical Procedure</td>
<td>Scanning and statistics</td>
<td>Filter real-time data with continuity equations and statistics</td>
</tr>
</tbody>
</table>

3.3 Preparation towards Blockchain Technology Implementation

The transition of Dana Desa accounting information systems from conventional to blockchain requires preparation from various fields both in terms of facilities and infrastructure and readiness of human resources. Therefore, the central government can carry out the following strategies for implementing this technology:

1) Mapping Villages in Indonesia that will be designated as the pilot projects. Pilot project aims to test and improve the blockchain system.
2) Manage socialization and training on Government Employees (SKPD).
3) Manage socialization and public hearing of third parties such as contractors.
4) Providing adequate facilities and infrastructure such as computers, internet networks and an integrated websites with blockchain technology.
5) Evaluate the use of blockchain periodically.
4. Conclusions
The implementation of blockchain technology aims to optimize the distribution and management of Dana Desa. Nowadays, the distribution and management of Dana Desa has many problems starting from the readiness of the officer and the complicated bureaucratic system. Therefore, the blockchain can simplify and facilitate the bureaucratic system. Furthermore, blockchain also prevents fraud between the parties.

5. Suggestions
1) Government; they should begin preparing for bureaucratic reform of the distribution and management of Dana Desa. The implementation of this system is very important considering that Indonesia has now entered the Internet of Things (IoT) period so that everything is built with the internet system for efficiency and effectiveness. Blockchain requires adequate resources such as computers and internet networks, servers and manage training for relevant government civil service agencies until they can run this system well; 2) Community; They support and supervise this system; 3) Businessmen; to be able to maximize this system so as to facilitate business people in this case the contractor in participating in the development program tender.

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