International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 09 Issue: 06 | June 2022 www.irjet.net p-ISSN: 2395-0072

Corruption-less Appraisal System using Blockchain

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Abstract - *One of the most complicated and contentious human resource approaches is performance evaluation. A successful performance assessment system must include participatory performance appraisal, which will prove effective. Improvements in performance evaluation should be prioritized in order to be more effective in influencing organizational commitment, civil servant satisfaction, and equitable performance management within the organization. As a relatively new use of computer technology, blockchain provides particular advantages that support a decentralized corporate governance system, which in turn fosters employee confidence. The purpose of this paper is to show how a blockchain may be utilized to create a fair performance appraisal system. It also provides a detailed design of an appraisal and incentive system, which will serve as a guide for companies looking to implement blockchain technology in their appraisal system.*

Key Words: Blockchain, Appraisal, Corporate, governance, Decentralisation, DAO, Token.

1. INTRODUCTION

The movement of power and decision-making from a centralized entity (person, organization, or group thereof) to a dispersed network is referred to as decentralization in blockchain. Blockchain technology has the potential to decentralize business structures and build a consensus-based operating system known as the Decentralized Autonomous Organization (DAO) (DAO). [1] DAO has the potential to promote data exchange, performance evaluation, and cross-departmental collaboration. This would improve the organization's capacity to innovate and operate efficiently, attracting business executives and decision-makers to test blockchain technology applications and explore new corporate governance models. Blockchain is a new age technology that can help with point-to-point transmission, distributed data storage, consensus techniques, and encryption techniques. [3] It contains five attributes that add up to its overall worth: 1. Decentralization, 2. Encryption, 3. Tampering Proof, 4. Tokenization. Although it is difficult to integrate all of the qualities in the present use of blockchain technology, there is a rising tendency to investigate blockchain's enormous potential in businesses.

[2] The most common objective of a performance evaluation is to let the employee understand where he or she stands among his or her colleagues and in the perspective of the supervisor. This would assist the individual in reviewing and comprehending the areas that want improvement. Employees always have a reasonable interest in knowing how their work is perceived. As a result, it is critical to develop a performance evaluation system that is devoid of prejudice based on the type of organization and employee thinking.

2. MOTIVATION

Employees despise performance evaluations, and according to pay scale, 95% of supervisors refuse to provide them. Some of the down sides of current performance evaluation techniques:[5]

2.1 Prone To Biases

Some raters may provide a rating based on the overall impression given. For example, a person may be scored well on all criteria while only performing well in one area. Biases and prejudices of the raters also have an impact on the procedure. These instances occur when a person is undervalued due to sex, religion, favoritism, appearance, or race.

2.2 The Central tendency

Managers have a tendency to give staff an average rating regardless of their real performance. It means that both underperformers and over performers are given an average grade. Managers typically engage in this type of behavior to prevent displeasing other workers, potential problems, envy, and team friction. It is, however, unjust to those employees who deserve high evaluations but are only given an average grade.

2.3 Time consuming

Performance assessments take a lot of time and may be daunting for managers who have a lot of staff. In some circumstances, managers may be required to complete a yearly PA on hundreds of workers.

2.4 Error in Contrast

Performance evaluation is usually dependent on certain criteria; nonetheless, a contrast mistake happens when someone is graded without taking the standards into

consideration. This can also happen if the rater compares an employee's current performance to their previous performance.

2.5 Error in Sampling

This happens when a rater draws a conclusion based on a small percentage of an employee's work.

2.6 Regency and Primary Errors

Employee conduct at the start and conclusion of the assessment period might have an impact on the process. For example, a salesperson's performance fluctuates by season, and it might be poor at times and high at others.

2.7 Exorbitant

The organization will need a lot of money to build up evaluation centers. In addition, technical specialists will be employed to help develop and create evaluation methods. Organizations may also need to recruit outside professional specialists to undertake the review process.

The problem is figuring out how to get around obstacles and make the process more effective so that the company reaps the rewards of all the hard work that management and staff put in.

3. BUILDING AN EFFECTIVE APPRAISAL AND INCENTIVE MECHANISM FOR EMPLOYEES

3.1 Mechanism

Due to the qualities of dispersion and decentralization, blockchain technology can assist organizations in operating on DAO. In this system, we employed a decentralized network to store opinions of appraisal data in the form of blocks. The chain of these records are made up of blocks that are connected to each other. When an employee succeeds in accomplishing an assigned task, the work is evaluated according to DAO rules and instructions. After evaluating, the new data is added to blockchain as a block, which contains necessary information of the task evaluated. [7] When the system authenticates a new block, it is appended to the end of the blockchain using the hash value, and this structure resembles a Linked List. As new blocks are uploaded to the blockchain, the sequence continues to grow. The Genesis Block is the first and most important block on the blockchain. Because there is no preceding block for the genesis block, it has a value of zero. The hash value of the previous block will be used in the following block, and the process of adding blocks to the system will continue in this manner. Since all the backend work functions dynamically, the real time appraisal of that particular employee gets updated and can be seen. This data which is once stored, cannot be altered since blockchain is tamper-proof[6].

3.2 Preconditions

While building an employee performance appraisal and incentive mechanism in corporate governance, there are some stipulations to be considered.

For starters, this method relies on employees and executives accepting norms and evaluating standards. Because smart contracts form the foundation of such consensus-based platforms, It is vital for the employees and leaders to come to a conclusion on evaluation and reward norms and standards in order for this mechanism to be efficient and fair for businesses. Furthermore, this approach necessitates decentralizing corporate governance and achieving collaborative co-governing.[12]

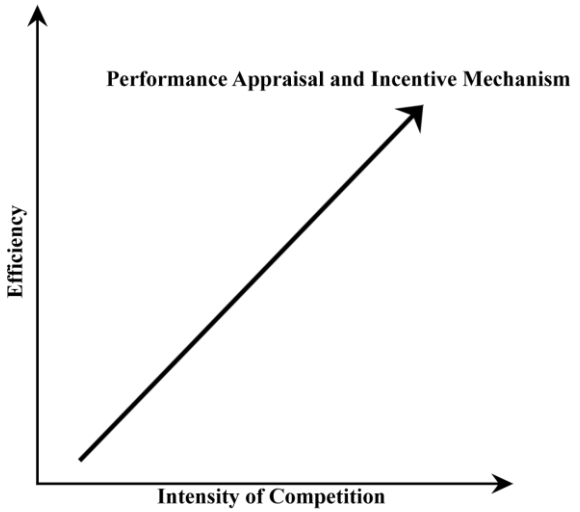

Fig 1 : Relationship between efficiency and intensity of competition.

The degree of competitiveness in the organization will thus have an influence on the productivity of this mechanism, making it a new prerequisite. This system would be effective in both appraisal and incentive when firms encounter severe competitiveness in everyday operations, as employees might get fair and honest appraisals and incentives for their efforts, encouraging them to work and strive even harder for greater outcomes. Because of DAO, most employees would be willing to embrace this system, leading in increased efficiency.[8]

4. ARCHITECTURE OF APPRAISAL AND INCENTIVE SYSTEM

4.1 Token distribution system

After completion of the task, Employees must submit data or work papers to Blockchain-based platforms. Based on smart contracts, blockchain-based systems will validate

identities and evaluate the quality and amount of jobs. Smart contracts include both rules and criteria based on Decentralized Autonomous Organization, to guarantee that evaluations are accurate and fair. Now, blockchain-based platforms will use a token issuance method to issue tokens. Employees' identities and the quantity of tokens will be verified by the token issuing system, which will subsequently issue tokens like Pow and Pos to their digital wallets. Finally, after verifying the number of tokens received, the employee must send confirmation to the token issuing system, to complete the token issuance (Fig. 2).[6]

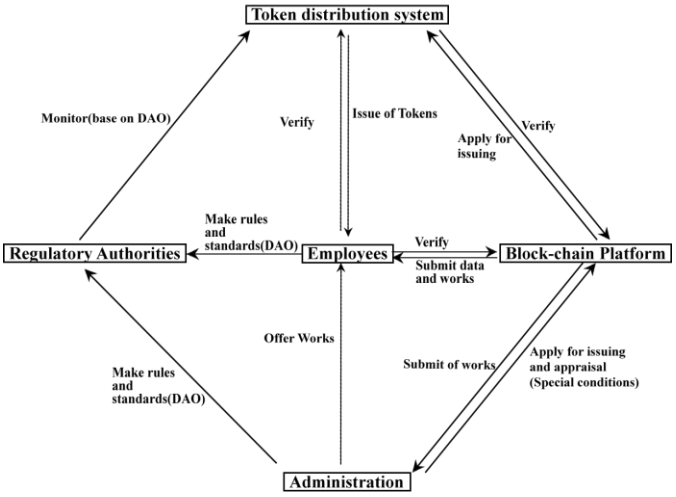

Fig 3 : Token distribution system

In specific cases, Smart contracts may fail to appraise the job performed by an employee. In such cases, the leaders should evaluate the work and issue tokens. Also, they could update the smart contract for future use, wherein if this type of evaluation is required, the evaluation could be done by the smart contract and reduce the work of the leader and improve it's fairness.

4.2 Token exchange system

Employees can trade tokens for legal money or other sorts of compensation through token exchange. This will boost the value of tokens and broaden their functionalities, motivating employees to work even harder to earn tokens [10]. Fig. 3 depicts this token exchange mechanism.

Token exchanges use the same methodology as the token distribution system in terms of establishing norms and regulations based on Pos, and regulatory agencies will keep an eye on the token issuers to guarantee accuracy and fairness. In general, the properties of blockchain technology would improve employee and leader acceptance of the appraisal and incentive system, as well as the efficiency of corporate governance. [11]

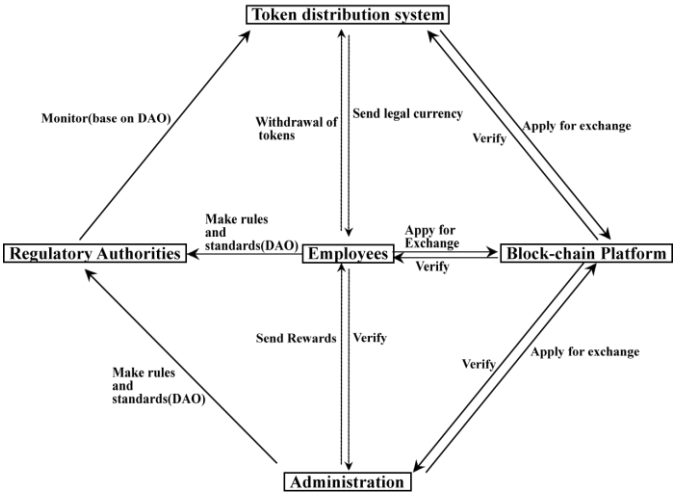

Fig 3 : Token exchange system

Employees should first apply to Blockchain-based platforms for exchange before trading tokens (Pow) with legal cash. Blockchain-based platforms will check the employees' credentials and resources before applying to the token distribution system for exchange. Finally, employees will get legal cash in their digital wallets, and the token distribution system will withdraw their tokens. Tokens like Pow, on the contrary, may be exchanged for other forms of rewards, making them more appealing and useful to employees. The methods are similar to exchanging legal cash, but Blockchain-based platforms will apply for exchange to associated workers, leaders, or departments. Employees should validate their incentives after receiving them, and the token issuing system will immediately remove tokens from digital wallets.[13]

5. ADVANTAGES

To begin with, information imbalance in corporate might be reduced. Employees will be able to access the information immediately and in a timely manner since information may be delivered via Blockchain-based systems. Furthermore, because this technique encrypts and timestamps data, it will be more reliable. As a result, this mechanism has the potential to increase the corporate ability to cope with a variety of difficulties.[14]

Employees, on the other hand, would be able to enhance their working and cooperation skills. This technique promotes employee engagement and cooperation, as well as the assistance of leaders. Employees might increase their capacity to work together and be motivated to work harder by their supervisors, improving corporate governance efficiency.[15]

6. CONCLUSION

Organizations utilize performance appraisal systems to assess the effectiveness and efficiency of their staff. Because each individual approaches their task differently, a performance appraisal system is required. Employee performance, communicating expectations, assessing employee potential, and employee counseling are all improved through performance appraisal. It has a number of advantages, including higher voter turnout and decision-making precision.

The main motive of developing this decentralized appraisal system is to make appraisal process cheaper, secure, faster and easier for the organization. This appraisal system guarantees cost efficiency, privacy and security. To address security issues and enhance fairness in the process, the system makes effective use of smart contracts.

The major goal is to concentrate on issues of performance evaluation fairness in order to improve employee loyalty to the organization. This approach also has scope for employee feedback, and it has a lot of potential for enhancing motivation, clarifying goals, and achieving long-term individual performance and career growth.

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