

# Design of Employee Performance System in State Owned Enterprises Based on TSH Framework

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## ABSTRACT

In order to ensure the scientific performance plan, controllable implementation and accurate performance results, the construction of enterprise performance management system is a multi link, multi-level, multi factor and multi-dimensional system engineering. In order to ensure efficient and standardized operation, it is necessary to establish enterprise performance management system. Starting from the requirements of performance management, this paper comprehensively analyzes the theoretical basis and system design of performance management, puts forward the system design method of organizational performance and employee performance, and looks forward to the application effect of the system.

**Keywords:** *TSH framework, state owned enterprises, performance evaluation, theoretical basis, enterprise performance management system*

## 1. INTRODUCTION

The implementation of the scientific outlook on development is the premise of realizing the harmonious development of enterprises. People oriented is the core content of the scientific outlook on development<sup>[1]</sup>. It is an urgent requirement for the scientific development of state-owned enterprises to establish the performance appraisal system, standardize the appraisal content, improve the appraisal form, perfect the incentive and restraint mechanism, pay attention to the whole staff participation and the whole process management, and carry out the whole factor appraisal objectively and fairly<sup>[2]</sup>. After years of exploration and practice, it has gradually formed a strategic performance management system with TSH framework as the overall framework and performance contract as the carrier, which has played a positive role in the healthy development of enterprises. But there are also some problems, such as: the vision and strategy of the enterprise still remain in words, can not be fully implemented in the specific actions of each employee, the combination between department and individual goals is not close enough, and the synergy is not fully reflected<sup>[3]</sup>. Therefore, to achieve closed-loop performance management of state-owned enterprises in line with the PDCA cycle, promote the optimization and innovation of performance management, improve the

reliability and effectiveness of performance management in all aspects of state-owned enterprises, ensure that the responsibility of operation and management is implemented to all levels of organizations and posts, and carry out incentive and constraint on all employees, it is very important to build the performance management system of state-owned enterprises.

## 2. DESIGN OF EMPLOYEE PERFORMANCE SYSTEM IN STATE OWNED ENTERPRISES

### 2.1. hardware structure of employee performance system in state owned enterprises

This paper optimizes the hardware structure of employee performance system in state-owned enterprises, and establishes a flexible structure index library combined with B/S framework, so as to realize the hierarchical and classified management of evaluation indexes. The index library includes TSH framework, key performance indicators, qualitative and 360 degree comprehensive evaluation<sup>[4]</sup>. The hardware structure of state-owned enterprise employee performance system should have the attributes of classification, sequence, measurement unit, statistics summary, etc., and support manual creation or batch import, and can be edited and deleted. The index library can be established

hierarchically, and can be added and modified flexibly according to the needs of company management. More application server load<sup>[5]</sup>. The management software of B/S architecture is only installed on the server. In B/S architecture, the main transaction logic of server-side user interface is realized through browser. Only browsers implement a small amount of transaction logic. Every client has a browser, only some hardware maintenance. Network administrators need to do a lot of management work on the server<sup>[6]</sup>. As a result, the data load running on the application server is very heavy. When the server crashes, the consequences are serious<sup>[7]</sup>. Countermeasures: many user units have configured database storage server to avoid data damage or loss.

The performance management system based on B/S is divided into three layers: performance layer, business layer and data storage layer<sup>[8]</sup>. Network technology, so as to effectively strengthen the development progress of performance management system. The performance management system is divided into three levels. The network structure of the display layer is the display information of the browser, and there is no need to install any logical application. Customers don't have maintenance. Users can input and obtain data in the interface layer. System management, performance management, attendance management, report management, employee information management and other modules are realized. As the main body of the system, the system processes all the data and completes most of the system functions. Microsoft's performance management information system is mainly used to store employee performance evaluation information in the enterprise's performance management information

system. For the state-owned enterprise employee performance appraisal management system, because it is running in the network environment, so security is an important prerequisite to ensure the normal operation of the system. Therefore, for the performance management system, the content of security test includes specific aspects, that is, the security measures used in the test. Similarly, in the design of network structure, the content of security testing also includes some specific aspects, and security is also an important consideration.

### 2.2. Optimization of system software operation algorithm

Performance evaluation refers to the use of certain evaluation indicators and methods to evaluate managers or ordinary employees in every link of the production process, so as to determine whether they have completed their own work or contributed to the realization of business objectives. There are also many different views on the understanding of the index. The system calculates the performance of employees based on their attendance and work status. Then, the system realizes the performance statistics of each department, and statistics the performance of each department according to the evaluation information and work status of employees. Measure the overall performance of the enterprise, the performance plan is responsible for the formulation of the performance plan, according to the department, time point and position to develop the corresponding performance plan, employees arrange work according to the plan. Based on this, the function sequence of performance management is optimized as shown in Figure 1.

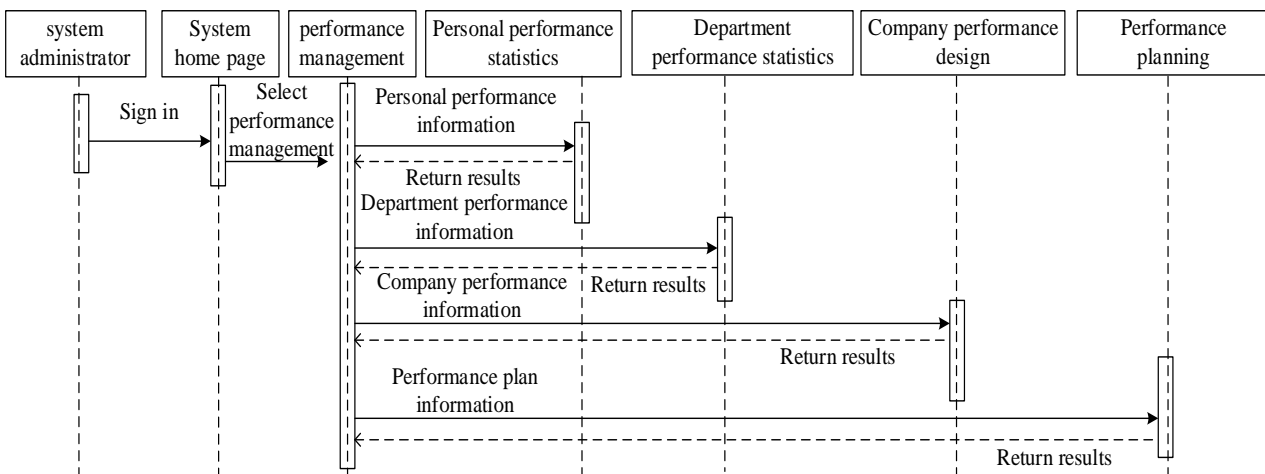


Figure 1 Performance management function sequence diagram

Among them, performance evaluation can be understood from three aspects: content, objective and current situation. Based on this, the performance evaluation indexes are optimized. By using certain evaluation indexes and methods, the managers or

ordinary employees in every link of the production process are evaluated to determine whether they have completed the work or contributed to the business objectives of the enterprise. This is a scientific and effective method, is the enterprise in order to better

achieve the goal of the measures taken, is the enterprise in the business process of contribution affirmation. This paper interprets the performance appraisal from three aspects: content, goal and current situation. 2,4,6,8 are used to represent the median values of adjacent scales. So a judgment matrix is obtained  $a=(a_{ij})_{n \times n}$ , the characteristic algorithm is as follows:

$$\begin{cases} a_{ij} > 0 \\ a_{ij} = \frac{1}{a_{ji}} \quad (i, j = 1, \dots, n) \\ a_{ii} = 1 \end{cases} \quad (1)$$

The weight of judgment matrix  $a=(a_{ij})_{n \times n}$  is calculated by eigenvalue method. Let  $w_n$  be the weight vector, if  $A$  is the consistency matrix, then:

$$A = \begin{pmatrix} \frac{w_1}{u_1} & \frac{w_1}{u_2} & \dots & \frac{w_1}{u_n} \\ w_1 & w_2 & \dots & w_n \\ \frac{u_2}{u_1} & \frac{w_2}{u_2} & \dots & \frac{w_2}{u_n} \\ \vdots & \vdots & & \vdots \\ \frac{w_n}{u_1} & \frac{w_n}{u_2} & \dots & \frac{w_n}{u_n} \end{pmatrix} \quad (2)$$

The matrix rank is 1,  $n$  is the largest eigenvalue,  $u$  is the eigenvalue of  $n$ , so the eigenvalue method can be used to test the consistency of the judgment matrix.

The performance index system is composed of several independent and interrelated evaluation indexes, which fully reflects the requirements of evaluation. A good performance appraisal system is conducive to employee motivation, is the basis of employee appraisal, but also an important guarantee for employees to make full use of performance appraisal results. Performance appraisal and performance management are two different concepts. Performance appraisal is an important part of performance management. If there is no effective performance evaluation, performance management can not be effectively implemented. The key to the success of performance management is performance evaluation. Secondly, there are some differences between them: first, institutional differences; second, performance appraisal; third, performance management system; fourth, performance management system; fifth, performance management system; sixth, performance management system; seventh, performance management system; seventh, performance management system; Eighth, performance management system. Ninth, performance management system; tenth, performance management system. The performance management module mainly realizes the performance statistics function of the state-owned enterprise employee performance appraisal

information management system. It includes four parts: performance statistics of enterprise, performance evaluation of enterprise, performance evaluation system and performance guarantee.

### 2.3. The realization of employee performance management in state owned enterprises

In the process of employee performance management in state-owned enterprises, managers should guide and supervise the performance of the examinees, solve problems in time, and adjust the work plan at any time according to the actual situation. Managers need to guide their employees and give feedback on their performance, that is, continuous performance communication. Maintain continuous communication with the management to ensure that the management and employees can solve problems in time and modify their responsibilities. So as to ensure the normal work of employees, design the performance management system from the organizational strategy, and ensure the effectiveness and reliability of the system operation. Generally, the process of enterprise performance management is divided into four steps: performance planning, performance implementation, performance evaluation and performance feedback. It belongs to feedforward control of performance management to determine performance appraisal objectives, establish work expectations, formulate performance improvement plans and design performance improvement plans. Supervise and guide the forming process of performance improvement plan, which includes process management control, performance improvement interview and making performance improvement plan. Generally speaking, the design of key performance indicators can be divided into four steps: determining work output, establishing assessment indicators, formulating assessment standards, and auditing KPI indicators.

Performance management module is mainly performance statistics, performance planning and so on. The system calculates performance information according to various data provided by monthly performance function module. Its performance information can be divided into personal performance information, department performance information and historical performance information. Performance plan making function is used to make monthly performance plan. Performance evaluation is to synthesize the monthly performance of employees. According to different positions of employees, the performance evaluation scheme is also different. The system can also display the work performance of the staff in real time and evaluate it to ensure the scientific and accurate work results.

### 3. ANALYSIS OF EXPERIMENTAL RESULTS

Due to the large number of test modules and functions, we list three test cases to illustrate the whole test environment. Other parts are basically the same. The user

number is lt001. Features: registration function, employees can become official users through registration. Check Objective: employee name, name entered by employee, whether null value can be detected, whether Chinese, numbers, special symbols can be used correctly, etc.; Prerequisite: employees can use this function without registration, as shown in Table 1.

**Table 1.** Experimental test data

Test data	Input value	Actual output value	Expected output value	Test results (true / false)
Typical value	Enter 218007 at the employee number	Result: the user name does not exist. You can use	Result: the user name does not exist. You can use	Correct
Outliers	Cxy218	Pop up prompt box "input only"	Prompt text to remind the user to enter the wrong value and prevent the user from submitting	Correct
Boundary value	Nothing	Nothing	Nothing	Nothing

According to the test process of each module of the state-owned enterprise performance appraisal information management system, the black box test method is selected. For many modules in the system, this paper selects several important modules for testing, and introduces the testing process in detail. As a test case test performance query module, the historical performance

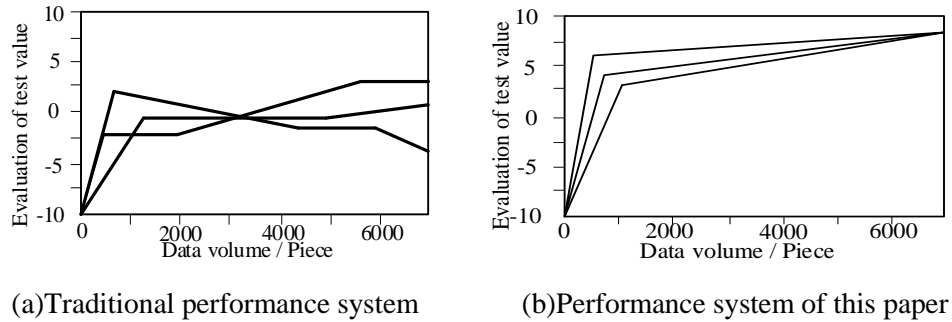
query function is used. By using the historical performance query function, employees can view the performance of the past period of time, and leaders can query the performance of the past industry and compare it with the current performance through the historical performance query function.

**Table 2.** Historical performance query function use cases

No.	Testing procedure	Input data	Expected results	Confirmation result (yes / no)
1	Users enter the system and enter the performance query page through the historical performance query button	N/A	Enter the performance query page	Yes
2	Select query date	Date of selection: July 2015	N/A	Yes
3	Enter the name of the inquiry staff	Input: Suman	N/A	Yes
4	Click query	N/A	The system will display the performance information of Suman in July 2015	Yes
5	Click back	N/A	The system returns to the main page of the system	Yes

Furthermore, the traditional system and the performance system in this paper are tested for many times to analyze the stability of the system. The test

results of the traditional performance system and the performance system in this paper are shown in Figure 2.



**Figure 2** Test results of different performance systems

Through the analysis of the above results, it can be seen that the traditional performance evaluation system fluctuates greatly in the process of operation, indicating that the detection effect of this method is not stable. It can be seen that in the process of software project operation, evaluation accuracy error is easy to occur, and its accuracy is difficult to ensure. It is found that all the test values of the designed performance evaluation system are not greater than 5. Even though there is a certain degree of floating, the floating index is relatively low, so the formalized system has better stability. The system has the characteristics of small calculation error and high precision.

#### 4. CONCLUSION

The main function of performance management system is to improve the quality of strategic choice of enterprises at all levels, so that all systems are fundamentally interrelated and mutually coordinated. Performance management system will gradually become the workflow of various mainstream applications and embedded extensions. The combination of human resource management objectives and employee performance bonus is an important part of various standard project plan management methods. In order to take advantage of best practices, each employee needs to understand his or her relationship to performance and achieve the goals set by coordinating his or her actions and changing constantly.

#### REFERENCES

[1] Zhang Q, Liu L, Pan C , et al. Review of recent achievements in self-healing conductive materials and their applications[J]. *Journal of Materials Science*, 2018, 53(1):27-46.

[2] Thomas E, Felix B , Wieke H , et al. Where We Live—A Summary of the Achievements and Planned Evolution of the Global Urban Footprint[J]. *Remote Sensing*, 2018, 10(6):895.

[3] Mirtl M, T. Borer E , Djukic I , et al. Genesis, goals and achievements of Long-Term Ecological Research at the global scale: A critical review of

ILTER and future directions[J]. *Ence of the Total Environment*, 2018, 626(5):1439-1462.

[4] Catherine M. Engineering *Yarrowia lipolytica* for Use in Biotechnological Applications: A Review of Major Achievements and Recent Innovations[J]. *Molecular Biotechnology*, 2018, 60(10):1-15.

[5] Guo W. A Review of the Hydraulic Transient and Dynamic Behavior of Hydropower Plants with Sloping Ceiling Tailrace Tunnels[J]. *Energies*, 2019, 12(17):3220.

[6] Ohkura T, Nogami K. Five-Year Achievements of Volcano Program Promotion Panel[J]. *Journal of Disaster Research*, 2020, 15(2):106-111.

[7] Barry C. SPE Awards Program Focused on Industry Professionals and Their Achievements[J]. *Plastics Engineering*, 2020, 76(3):5-7.

[8] Aouadi B, Zaukuu J L Z, Vitalis F, et al. Historical Evolution and Food Control Achievements of Near Infrared Spectroscopy, Electronic Nose, and Electronic Tongue—Critical Overview[J]. *Sensors*, 2020, 20(19):5479.