

## Retraction

# Retracted: Enterprise Performance Optimization Management Decision-Making and Coordination Mechanism Based on Multiobjective Optimization

### Mathematical Problems in Engineering

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their

agreement or disagreement to this retraction. We have kept a record of any response received.

### References

- [1] T. Zou and S. Bai, "Enterprise Performance Optimization Management Decision-Making and Coordination Mechanism Based on Multiobjective Optimization," *Mathematical Problems in Engineering*, vol. 2021, Article ID 5510362, 12 pages, 2021.

## Research Article

# Enterprise Performance Optimization Management Decision-Making and Coordination Mechanism Based on Multiobjective Optimization

Tao Zou  and Sijun Bai

School of Management, Northwestern Polytechnic University, Xian 71000, Shaanxi, China

Correspondence should be addressed to Tao Zou; zoutolele@mail.nwpu.edu.cn

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Today's society is a society of the knowledge economy, and the competition of enterprises is the competition of talents. The rapid development of science and technology and the fierce development of market competition have made the importance of performance management increasingly prominent in corporate management. The purpose of performance management is to explore and deal with some of the effects of various factors on employee performance and to tap the potential of employees, improve employee performance, and also bring a qualitative leap to the performance of the organization. The improvement of the employee performance management level has laid a solid foundation for the improvement of the organizational performance management level. However, there are still some difficulties in the implementation of performance management in my country at this stage, and the management effect is not obvious. Therefore, building a scientific, reasonable, and complete multiobjective optimization-based corporate performance optimization management decision-making and coordination mechanism is the primary task of today's enterprises. This article will give a brief theoretical overview of the combination of system management theory and behavior management theory, MBO target management, and KPI indicators, build a multiobjective optimization model on an effective theoretical basis, and use genetic algorithms to obtain a weak Pareto effective solution that can optimize the enterprise with consideration of performance appraisal indicators. It also builds an agency model and an analysis of employee incentive plans, which clearly shows the relationship between the company and the management and employees, conducts a cross analysis of the needs of the company's management and employees, and puts forward the best corporate performance considering the needs of employees; among them, the multiobjective optimization of corporate performance increased by 14% under the optimal management decision.

## 1. Introduction

Performance, from the perspective of management, is the desired result of the organization and the effective output that the organization displays on different levels to achieve its goals. It includes both personal performance and corporate performance. The realization of enterprise performance should be based on the realization of individual performance, but the realization of individual performance does not necessarily guarantee the overall performance. Because of this, performance management is even more important in the optimization and improvement of the overall performance of an enterprise.

The multiobjective optimization problem is to select the optimal solution according to a certain index from all possible alternatives of a problem. Mathematically speaking, optimization is the study of the minimization or maximization of a function on a given set  $S$ . Broadly speaking, optimization includes mathematical programming, graphs and networks, combinatorial optimization, inventory theory, decision theory, queuing theory, and optimal control. In a narrow sense, optimization is only exponential planning. The optimization method is widely used in production management, economic planning, engineering design, system control, and other fields.

The heterogeneous cloud system proposed by Liu provides distributed but tightly integrated services that have rich functions in large-scale management, reliability, and fault tolerance. As far as big data processing is concerned, newly built cloud clusters are facing performance optimization challenges, which are focused on faster task execution and more efficient use of computing resources. The currently proposed methods focus on time improvement, that is, shorten the MapReduce time, but pay little attention to storage usage. However, an unbalanced cloud storage strategy may exhaust the MapReduce cycle heavy nodes and further challenge the security and stability of the entire cluster. This paper proposes an adaptive method for space-time efficiency in heterogeneous cloud environments. A prediction model based on an optimized kernel-based extreme machine learning algorithm is proposed to predict job execution time and space occupation faster, thereby simplifying the task scheduling process through multiobjectives. However, it is feasible to use multiobjective optimization methods. The calculations performed in the operation may exceed tens of millions of times [1]. Bandyopadhyay performed empirically studies on the relationship between corporate sector performance and capital structure and macroeconomic environment. He used balance panel data of 1,594 Indian companies in 14 years and found empirical evidence to support assumptions about the relevance of factors such as asymmetric information, agency costs, trade-off theory, signals, and liquidity in determining the corporate capital. The structural decisions of emerging market economies obviously affect the company's financing decisions through the macroeconomic cycle, which in turn affects performance. The endogeneity between capital structure and company performance has also been resolved by the two-step dynamic panel generalized method of moments (GMM). The research shows that the performance of any company depends on its ability to operate on the capital structure. As the scope of capital procurement expands, it is necessary to carefully design the right tool combination to optimize the cost of capital. However, he did not propose a management decision-making plan or system mechanism for the optimization of company performance [2]. Blahová investigated the current trends in the selected management systems and analyzed the synergies between them to regain control of contemporary corporate performance management systems in the business field. *Design/Methodology/Methods*. This research involves the compilation of major academic works and other literature on changes in global management systems and their impact on the reconstruction of contemporary corporate performance management systems. The literature is reviewed using a systematic approach. It identified and analyzed more than 3000 papers and studies. Once the survey results are determined, the main trends and emerging themes of current management practices in the business world and their synergies should be classified. The field of originality/value-performance management system and its remake based on the needs of individual companies is an emerging research field. There are still shortcomings in research experience and research empirical [3].

The innovations of this article are as follows: (1) this article uses a combination of empirical research and normative research, such as the research on the employee incentive and restraint mechanism of the Y enterprise in the fourth part; (2) this article uses a combination of qualitative research and quantitative analysis. This method is concentrated in the analysis of the multiobjective optimization model; (3) this article uses a combination of theoretical analysis and countermeasure research and gives countermeasures, while establishing model analysis. This method runs through this article always.

## 2. Enterprise Performance Optimization Management Decision-Making and Coordination Mechanism Method Based on Multiobjective Optimization

*2.1. Combine Contemporary System Management Theory with Behavior Management Theory.* Modern management theory is the synthesis of all modern management theories. It is a knowledge system and a group of disciplines [4]. Its basic goal is to establish a creative and dynamic adaptive system in the face of a rapidly changing modern society. To enable this system to be continuously and efficiently output, it not only requires modern management thinking and management organization but also modern management methods and means to form modern management science.

The foundation of behavioral science management theory is classical management theory, which overcomes the shortcomings of classical management theory. It is mainly to study the production behaviors of enterprise employees and the reasons and related factors of these behaviors [5]. It is a comprehensive application of psychology, sociology, social psychology, anthropology, economics, political science, history, law, education, psychiatry, marketing, and management theories and methods to study human behavior borderline subjects. Behavioral science was once called interpersonal relations [6].

Its research content is mainly in the following three aspects: incentive theory is the core content of behavioral science. Specifically, it needs to be carried out in three aspects: level theory, behavioral transformation theory, and process analysis theory; group behavior theory is the core of behavioral science management theory. An important pillar, mastering group psychology is an important part of the study of group behavior; leadership behavior theory is an important part of behavioral science management theory, including research on the quality of leaders, leadership behavior, leadership ontology, and leadership styles [7, 8].

Throughout the management of each school, choose system management theory and behavioral science management theory and draw something in common, and the commonalities can be summarized as follows:

- (1) Pay attention to the integrity of the system: first of all, the people, things, and environment in the enterprise are regarded as a complete system, which in turn lives in a larger system. Then, use system thinking and system analysis method to view the problem

from the overall framework, recognize the problem, analyze the problem, and finally solve and deal with the problem [6].

- (2) Emphasize the importance of people: the core part of management theory is the subject of people. People are subjectively active. Everyone's thoughts, behaviors, language, and emotional expressions are different. Even in the same organizational department, there is no guarantee that everyone and the organization will move forward. The direction and pace are the same. Therefore, it is necessary to conduct business management, guide employees and the company to stand on the same side, and work together to face difficulties, overcome challenges, and complete tasks.
- (3) Actively try advanced management theories first: the changes of society and enterprises, the rapid development speed, and traditional management theories can no longer keep up with the new development model of modern enterprises, so in the process of management theory innovation, we need to continue to try, explore, and accept the emergence of new things and development, for example, in corporate performance management, combining management methods with emerging technologies to improve management efficiency.
- (4) Combine management efficiency and management effect: different from traditional enterprise management, modern management theory emphasizes that the management efficiency of the enterprise should be combined with the management effect of the organization. The goals or objectives of management show a diversified trend, which are to realize the performance management of the enterprise [9]. The core of performance management has three modules, as shown in Figure 1.
- (5) Combination of theory and practice: talking about management theory is only on paper. It is necessary to combine theory and practice to make the theory operability and implementability so that the theory is useful. In the process of corporate performance management, the management should be good at applying new theories to practice, summarize, innovate, and promote the development of management [10, 11].
- (6) Emphasize the predictability in advance: social development is changing rapidly, and the business environment is also constantly changing. If an enterprise can adapt to changes in the objective environment, it must have certain planning capabilities and feedforward control capabilities, accept the facts of upgrading, and ensure the normal operation of enterprise operations and management.
- (7) Be brave in innovation: management not only includes the management of existing people, things, and the environment but also includes the management of predictable content in the future. It is

necessary to actively reform and innovate and constantly pursue progress so that the development of the company can be "unchanged in response to changes" and continuous development [12].

*2.2. MBO Target Management.* MBO goal management was put forward by the American management master Peter Drucker, who later innovatively put forward the viewpoint of "target management and self-control" [13]. In his view, a person's career must be goal-oriented, and the view that "the mission and tasks of an enterprise must be transformed into goals" is also extremely correct. Therefore, in the management process of the enterprise, the management process should be that the top leadership determines the highest goals and requirements of the enterprise, the enterprise managers divide the strategic goals into departments, and the department managers finally issue personnel goals and proceed according to the completion of the project considering fairness, implement reward, and punishment measures [14].

In the goal management theory, it is emphasized that the company must formulate strategic goals, which are like a compass, giving a direction to the company and internal employees. In a team, a variety of factors could hinder the process of cooperation of the team, but after determining the specific objectives of the formation of a strong cohesive force of the team, it will overcome all difficulties and move toward common success. Generally speaking, the goals of enterprises are diversified and involve multiple departments, but there is only one final goal, and only after the final goal is clear, other subgoals are easier to determine and achieve [15].

MBO target management focuses on the overall management of the system, is advanced management, and emphasizes the management of results and personnel, so it has the following functions:

- (1) Overcome the shortcomings of traditional management: traditional management has two main drawbacks: one is that there is no plan and arrangement of work, and the whole system is in a state of chaos; the other is that bureaucracy, centralized power, and low efficiency are still adopted in the organization [16].
- (2) Improve work effectiveness: after the goal management and division of labor, employees can complete their work with quality, quantity, and efficiency in accordance with their respective goals, effectively improving the performance management of the enterprise.
- (3) Individual abilities are motivated and improved: management, by objectives, takes the form of intensive discussion and division of tasks. Therefore, in this process, employees are fully involved and have the right and opportunity to show their talents and develop their potential. Moreover, the determination of management by objectives is based on individual abilities. It is also challenging. To achieve the goal, it is possible to work hard.

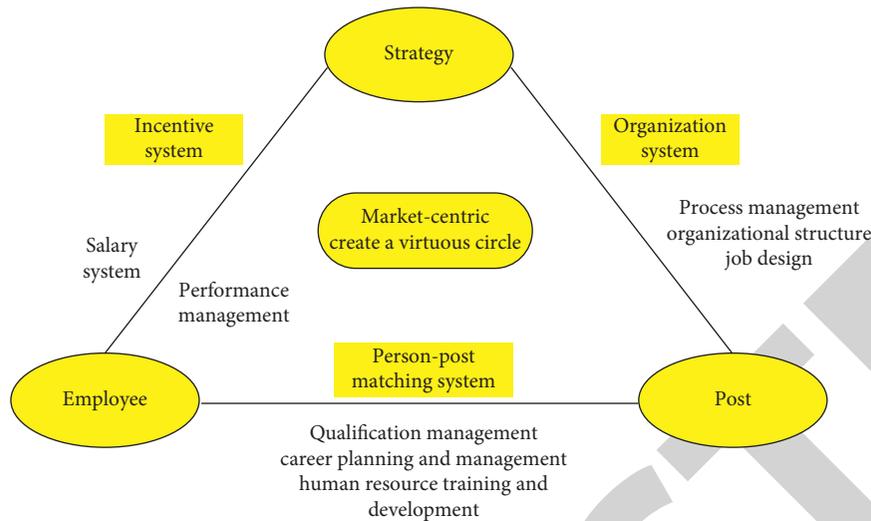


FIGURE 1: The three cores of performance management.

- (4) Improve interpersonal relationships: in the process of goal management, the relationship between the upper and lower levels of the enterprise can be effectively improved, the role of communication and coordination can be strengthened, and it is easy to form a sense of teamwork and promote the accelerated realization of the overall goal [17].

MBO target management also has some shortcomings. We need to clearly recognize these limitations in order to better achieve the success of target management. The disadvantages are as follows:

- (1) Emphasize short-term goals: short-term goals are easy to decompose and easy to achieve, but excessive emphasis on short-term goals is not conducive to the company's long-term healthy development, and it does not pay attention to the company's long-term plan goals.
- (2) Difficulty in setting goals: in the process of target assessment, it is difficult to unify assessment standards. Because the achievement of the goal is the result of everyone's joint cooperation, there is not enough measurable workload, and it is difficult to judge the amount of personal contribution made, only a qualitative description.
- (3) No contingency: it is impossible to change the goals during the execution of goal management because doing so will lead to organizational chaos. The goal cannot be changed during the execution of goal management because doing so will cause confusion in the organization. In this rapidly changing business, it is obviously unable to adapt to the changes in the market and cope with the changes in the external environment, and the organization and operation are inflexible [18].

2.3. *KPI Indicators.* KPI indicators refer to the internal operation of the process, the setting of key input

parameters of the operation, sampling, calculation, analysis, and output [19]. It is the foundation of enterprise performance management, and it is a quantifiable target management index that can decompose the highest-level goals into specific implementation and execution sub-targets and use this to measure performance. KPI indicators are mainly used by department heads to manage performance. They operate under the establishment of a clear and practical KPI system. The head is responsible for issuing specific performance indicators for each department and individual personnel. This is an important part of personal performance.

The key principle of KPI indicators is the Eight-Two Principle, which applies to companies and individuals. In enterprises, 20% of talents often solve 80% of the company's problems, and 20% of backbones create 80% of the value [20]. Therefore, in the process of corporate performance management, we must fully realize the importance of this 20% and grasp the core for analysis and evaluation.

There is an inseparable relationship between KPI indicators and corporate strategic objectives, which are mainly manifested in the following three aspects: first, KPI indicators are the decomposition of corporate strategic objectives, that is, to say, the company's strategic objectives must be fully considered in the setting of KPIs. If there is a deviation from the company's strategic goals, it needs to be adjusted in time; second, KPIs are further refinement and development of strategic goals. The content of KPI is set for each position, it is clear, and it also shows the job performance requirements of the position, so to a certain extent, it has a certain degree of guidance for the company's strategic development direction; third, KPI can make content changes moderately with the change of strategic objectives. In a complete system in this KPI, KPI is established on the lower level of the need to communicate and discuss the needs of both clear and practical work and to improve the overall performance is very helpful [21, 22].

Specifically, KPI has the following characteristics:

- (1) KPIs are indicators, not targets, but they guide the determination of targets.

KPI is a key performance indicator: it does not exist as a target, but is a comprehensive consideration of multiple dimensions under a specific target. It can provide the specific conditions and performance reflected by the target, which can also better determine the goal to serve.

- (2) KPI is an important basis for performance appraisal: in enterprise performance appraisal, we must fully consider and attach importance to the role of KPI. On the one hand, it is the result of performance appraisal, and on the other hand, it is performance management. It reflects both the ability to work and working conditions of employees, but also to help executives understand the ability of employees, targeted distribution of work, and setting goals.
- (3) KPI realizes good communication and interaction: in the KPI formulation process, communication, exchange, and assistance between managers and subordinates are required to ensure the consistency of strategic goals and personal goals and achieve common growth and development.
- (4) KPI realizes the performance appraisal method combining qualitative and quantitative: KPI data can be used to make quantitative judgments of performance. Here, analyze and summarize the data to make a qualitative description, clarify the advantages and disadvantages of the existing KPI system, set the degree of achievement of goals, and understand the difficulties and improvements of employees based on their performance.

### 3. Experimental Model of Enterprise Performance Optimization Management Decision-Making and Coordination Mechanism Based on Multiobjective Optimization

**3.1. Multiobjective Optimization Model.** It is assumed that there are  $P$  research subjects and  $q$  assessment indicators in the entire system. The  $j$  index score of the first research object  $i$  is  $a_{ij}$  ( $i = 1, 2, \dots, p$  and  $j = 1, 2, \dots, q$ ). There are subject differences among the selected research subjects, which are caused by the differences in background and professional ability, so there are different optimization solutions in the performance distribution plan.

First, the research subjects are divided into different types according to the index scores. This article only considers the  $q = 2$  situation and divides the research subject into two types: I type and II type. If

$$\frac{a_{i1}}{a_{11} + a_{21} + \dots + a_{p1}} \geq \frac{a_{i2}}{a_{12} + a_{22} + \dots + a_{p2}}. \quad (1)$$

The first research subject  $i$  is called type I research subject; otherwise, it is called type II research subject. Without loss of generality, this article assumes that the first  $s$  research subjects are model I research subjects and the remaining research subjects  $p - s$  are model II research subjects.

Consider the general multiobjective optimization problem:

$$(MOP)_1 \min_{x \in \Omega} (f_1(x), f_2(x), \dots, f_p(x)), \quad (2)$$

where  $\Omega$  represents the feasible region range of the multiobjective optimization model  $(MOP)_1$  and  $f_1(x), f_2(x), \dots, f_p(x)$  means that there is an objective function  $p$  within the feasible region. The basic concepts and lemmas are as follows.

**Definition 1.** Weak Pareto effective solution  $(MOP)_1$  called  $\hat{x} \in \Omega$ ; if  $x \in \Omega$  does not exist,  $i = 1, 2, \dots, p$  will have for any  $f_i(x) < f_i(\hat{x})$ .

**Lemma 1.** If  $i \in \{1, 2, \dots, p\}$  exists,  $\hat{x}$  is a constraint  $\varepsilon$ -scalarization problem:

$$\min_{x \in \Omega} f_j(x) \quad f_j(x) \leq \varepsilon_j, \quad j = 1, 2, \dots, p, \quad j \neq i, \quad \varepsilon_j \in R. \quad (3)$$

The optimal solution  $\hat{x}$  is a  $(MOP)_1$  weakly effective solution.

Now, introduce the satisfaction function, which can calculate the degree of satisfaction of the research subject to the performance distribution [23], which is expressed mathematically as the continuity problem formed by the change of the variable within the scope of the finite domain. It can be written as

$$\begin{aligned} Y_i &= \sum_{j=1}^2 y_{ij}, \\ Y' &= \sum_{i=1}^p y_{i1}, \\ Y'' &= \sum_{i=1}^p y_{i2}, \\ &i = 1, 2, \dots, p. \end{aligned} \quad (4)$$

The multiobjective optimization model is established based on the satisfaction function, and its goals are set as follows: the first goal is to maximize the satisfaction of all research subjects; the second goal is to balance the satisfaction of the research subjects as much as possible. Its model can be expressed as

$$(\text{MOP})_2 \min_{\lambda_1, \lambda_2, x_1, x_2} \sum (f_i(\bar{Y}_i) - f_j(\bar{Y}_j))^2, \quad (5)$$

$$\max_{\lambda_1, \lambda_2, x_1, x_2} \sum_{i=1}^p f_i(\bar{Y}_i), \quad (6)$$

$$\text{s.t.} \begin{cases} \lambda_j \in [l_j, u_j] \\ x_j \in \left[ 0, \min \left\{ \bar{X}_{1j} + t_\partial (s-1) \frac{S_{1j}}{\sqrt{s}}, \bar{X}_{2j} + t_\alpha (p-s-1) \frac{S_{2j}}{\sqrt{p-s}} \right\} \right], j = 1, 2. \end{cases} \quad (7)$$

Usage principle: there must be valid solutions for continuous functions in the closed interval, so  $(\text{MOP})_2$  must be (weak) valid solutions. It can be seen from the formula that the satisfaction function  $f_i(\bar{Y}_i)$  is continuous for any value of the effective interval, so  $\sum_{1 \leq i \leq j \leq p} (f_i(\bar{Y}_i) - f_j(\bar{Y}_j))^2$  and  $\sum_{i=1}^p f_i(\bar{Y}_i)$  are also continuous. And, the domain of definition  $(\text{MOP})_2$  is bounded, so  $(\text{MOP})_2$  must be a (weak) effective solution for multiobjective optimization processing.

**3.2. Agency Model.** The agency model is used to analyze the incentive and restraint problems of operators. Assuming that the owner's problem is an incentive contract  $s(x)$ , the operators will be rewarded and punished according to the fluctuation of  $x$  [24]. Suppose the V-N-M expected utility function of the company owner is  $v(\pi - s(x))$ . The expected utility of the manager of the company is  $u(s(\pi)) - c(a)$ , where  $\pi = \pi(a, \theta)$  is the monetary output of the owner (or the monetary income of the operator) and  $a$  is expressed as a one-dimensional variable of the degree of effort, in which  $\theta$  is an exogenous random variable not controlled by the operator.  $v' > 0, v'' \leq 0; u' > 0, u'' \leq 0; c' > 0, c'' > 0$ . Both the owner and the operator hope that the risks they face are as few as possible. The owner wants the operator to work harder ( $\partial \pi / \partial a > 0$ ), and the operator wants to work harder ( $c' > 0$ ), and the marginal negative utility of the effort increases. Therefore, the owner and the operator have a conflict of interest. Unless the owner can provide sufficient incentives to the operator, the operator will not work as hard as the owner hopes [25].

Assuming that the distribution function  $G(\theta)$ , production technology sum  $x(a, \theta)$ , and utility function sum  $\pi(a, \theta)$  are all common knowledge, that is,  $v(\cdot)$  and  $u(\cdot) - c(\cdot)$ , owners and operators have the same understanding of these technical relationships. The owner's expected utility function can be expressed as follows:

$$(p) \int v(\pi(a, \theta) - s(x(a, \theta)))g(\theta)d\theta. \quad (8)$$

Select the degree of effort  $\partial$  and maximize the expected utility function  $s(x)$  in formula (8). Operators are subject to two constraints, one of which is called the participation constraint, that is, the expected utility that the management obtains from accepting the contract must be greater than or equal to the maximum expected utility that can be obtained when not accepting the

contract. It is also called the personal rationality restraint, expressed as follows:

$$(\text{IR}) \int u(s(x(a, \theta)))g(\theta) - c(a) \geq \bar{u}. \quad (9)$$

In the above formula,  $\bar{u}$  is called the reserved utility, which is the maximum expected utility that can be obtained when the contract is not accepted. The second constraint is the operator's incentive compatibility constraint: among the two choices, one is the choice within the operator's control; the other is the range of actions the business owner wants the operator to take; if the latter is not less than the former, then the operator will act in compliance with the owner's expectations, which is expressed as follows:

$$(\text{IC}) \int u(s(x(a, \theta)))d(\theta) - c(a) \geq \int u(s(x(a', \theta)))g(\theta)d\theta - c(a'), \forall a' \in A. \quad (10)$$

In the above formula,  $A$  represents the combination of all optional actions of the operator and  $a' \in A$  is any action within the controllable range of the operator. To sum up, the owner's problem is to select  $\partial$  and  $s(x)$ , maximize the expected utility function ( $P$ ), and satisfy the constraints (IR) and (IC), namely,

$$\max_{a, s(x)} \int v(\pi(a, \theta) - s(x(a, \theta)))g(\theta)d\theta, \quad (11)$$

$$\text{s.t.} (\text{IR}) \int u(s(x(a, \theta)))g(\theta)d\theta - c(a) \geq \bar{u}, \quad (12)$$

$$(\text{IC}) \int u(s(x(a, \theta)))g(\theta)d\theta - c(a) \geq \int u(s(x(a', \theta)))g(\theta)d\theta - c(a'), \forall a' \in A. \quad (13)$$

The above formula clearly expresses every technical relationship between the owner and the operator. If the indicators that the owner cares about, such as the degree of effort, turnover, profit, market share, and technological progress, are quantified into variables, they will be brought into the model, and a meaningful solution to the owner may be obtained. The agent model flowchart is shown in Figure 2. The flow chart of the agency model follows the procedure in the figure. Two standards are implemented in the position of the filling standard. If you agree, it will be executed. If you do not agree, the decision will be made again.

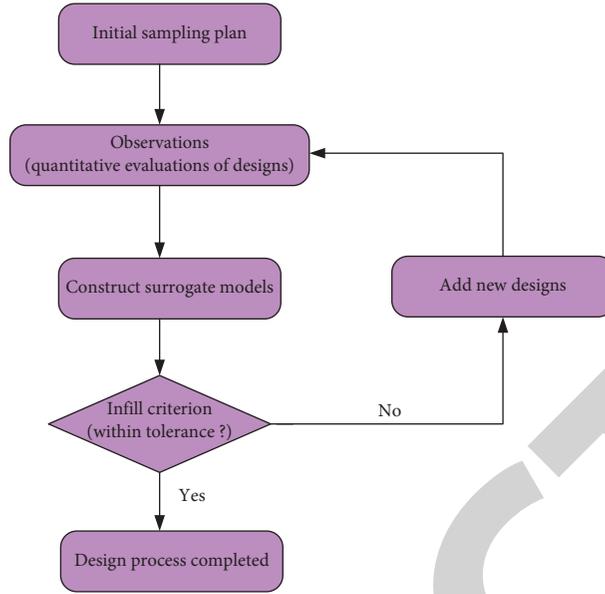


FIGURE 2: Agent model flowchart.

#### 4. Management Decision-Making and Coordination Mechanism for Enterprise Performance Optimization Based on Multiobjective Optimization

**4.1. Multiobjective Optimization Model Analysis.** The research of this paper is mainly to use the multiobjective optimization model established in the previous article to study the problem of enterprise performance management decision-making and coordination. Take company Y as an example, select the work performance and ability of company employees and conduct performance evaluation on 40 employees. Table 1 shows the 40 employees' work

performance index scores and work ability assessment index scores.

From the data in Table 1, the company performance is first divided into two aspects, personal work performance and work ability, where personal work performance  $s = 48$ ; it can be seen that the data in Table 1 basically meets the conditions of satisfaction function formula (4), and then calculate these parameters. Afterwards, it can be concluded that when the confidence level is equal to 0.95, the estimated interval of the basic workload  $X_1$  and the work capacity workload  $X_2$  of the work performance index is  $[0, 356.91]$  and  $[0, 790.72]$ ; take  $u_1 = u_2 = 0.1$  and  $l_1 = l_2 = 10$ . To simplify the calculation, let  $\varepsilon = \lambda_1/\lambda_2$ :

$$\begin{aligned}
 g_k(\varepsilon, x_1, x_2) &= f_k(\bar{Y}_k), \\
 &= \sqrt{\frac{1}{U_k - L_k} \frac{u_{k1}\lambda_1(a_{i1} - x_1)^2 + u_{k2}\lambda_2(a_{k2} - x_2)^2}{\sum_{i=1}^p u_{i1}\lambda_1(a_{i1} - \lambda_1)^2 + \sum_{i=1}^p u_{i2}\lambda_2(a_{i2} - x_2)^2} - \frac{L_k}{U_k - L_k}}, \\
 &= \sqrt{\frac{1}{U_k - L_k} \frac{u_{k1}\varepsilon(a_{k1} - x_1)^2 + u_{k2}(a_{k2} - x_2)^2}{\sum_{i=1}^p u_{i1}\varepsilon(a_{i1} - x_1)^2 + \sum_{i=1}^p u_{i2}(a_{i2} - x_2)^2} - \frac{L_k}{U_k - L_k}},
 \end{aligned} \tag{14}$$

where  $\varepsilon \in [0.01, 100]$ , and in turn,  $(MOP)_2$  can be transformed into

$$(MOP)_3 \min_{\varepsilon, x_1, x_2} \sum_{1 \leq i \leq j \leq p} (g_i(\varepsilon, x_1, x_2) - g_j(\varepsilon, x_1, x_2))^2, \tag{15}$$

$$\min_{\varepsilon, x_1, x_2} - \sum_{i=1}^p g_i(\varepsilon, x_1, x_2), \tag{16}$$

$$s.t. \varepsilon \in [0.01, 100], x_1 \in [0, 356.91], x_2 \in [0, 790.72]. \tag{17}$$

The result shows that  $(MOP)_2$  and  $(MOP)_3$  are equivalent, and then, the genetic algorithm is used to calculate the weak Pareto front surface  $(MOP)_3$ , as shown in Figure 3.

It can be seen from Figure 3 that the weak Pareto solution obtained by the legacy algorithm is some irregular discrete points. According to their dense and sparse degree,

TABLE 1: The 40 employees' work performance index scores and work ability assessment index scores.

Serial number	Work performance	Ability to work
1	2338	435
2	1037	480
3	2578	373
4	2063	264
5	1733	203
6	2044	241
7	2291	245
8	2851	253
9	2904	378
10	1212	421
11	2114	421
12	2487	352
13	1638	481
14	1773	306
15	2630	352
16	1556	388
17	2563	328
18	1615	399
19	1528	435
20	2221	480
21	1540	431
22	2989	256
23	2438	441
24	1865	300
25	1985	332
26	2012	247
27	1494	239
28	2616	411
29	1253	350
30	1984	296
31	2536	345
32	2443	249
33	1819	234
34	1545	399
35	2099	222
36	1736	440
37	2178	201
38	1626	418
39	1702	351
40	1698	212

the left side can be appropriately regarded as a smooth curve, and the right side is more sparse.

This paper randomly selects 5 groups of weak Pareto effective solutions (see Table 2) corresponding to the distribution ratio and satisfaction curve shown in Figures 4 and 5. The overall satisfaction level in Table 2 is balanced, and the square sum of the satisfaction difference shows signs of fluctuation.

Observing Figures 4 and 5, we can see that, in the face of randomly selected weakly effective Pareto solutions, the overall satisfaction and distribution ratio of the research subject are only slightly different, which can be approximated as a coincident curve. Therefore, in the process of performance management, managers adopt a multiobjective optimization model and only need to select a set of weak Pareto solutions arbitrarily to achieve optimal performance decision-making and coordination.

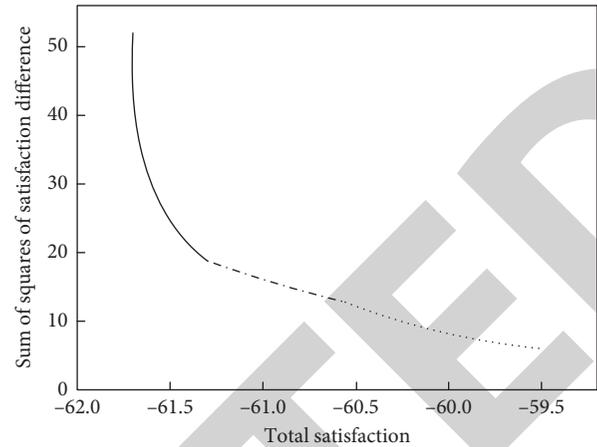


FIGURE 3: The forefront of the weak Pareto solution.

In addition, in order to fully consider the rigor of the experiment, the weak Pareto frontiers at different confidence levels are given. As shown in Figure 6, the changing trends of the weak Pareto frontiers at the five different confidence levels are basically the same, that is, different confidence levels affect the results. The impact is small.

#### 4.2. Employee Incentive and Restraint Mechanism.

Employees are the cells of an enterprise and are an indispensable and important part of this organism. Improving employees' production enthusiasm, increasing production efficiency, and promoting employees to conduct research on technology and management will enable the company to increase the efficiency of the work and create outstanding performance. Enterprises are composed of people, and the research on "people" has begun since the formation of society. Some management scholars in the West have used experimental methods to conduct research many times, hoping to find out how "corporate people" can give full play to their abilities and improve work efficiency. Taylor did experiments such as "carrying pig iron" to determine the employee's work quota, and the Gilbreths did an experiment of "action decomposition and research" to reduce the inefficiency caused by invalid actions at work. Mayo hosted the "Hawthorne." The experiment reveals the social attributes of people and closely links productivity with factors such as employees' psychology, attitude, motivation, and interpersonal relationships. Later, some management scientists put forward the X theory, Y theory, Z theory, etc., starting from the employees' preference and perspective and further studying effective incentive methods.

China's cultural background and national conditions have their own characteristics. Obviously, it is useless to apply certain theories above to Chinese enterprise groups alone. Enterprise groups should be based on their ability to pay, the characteristics of their employees, and the market environment. Referring to the advanced management experience of other companies and the current mature management theories, motivate the interest and enthusiasm of employees and explore a suitable incentive and restraint

TABLE 2: Five groups of weak Pareto effective solutions and related parameters.

	Total satisfaction	Sum of squares of satisfaction difference	$\epsilon$	$X_1$	$X_2$
First group	60.05	3.51	0.50	169.50	351.46
Second group	61.24	13.72	0.50	23.36	126.44
Third group	61.58	20.36	0.49	16.97	13.64
Fourth group	61.74	30.15	0.56	15.49	3.72
Fifth group	61.76	32.49	0.58	15.45	3.66

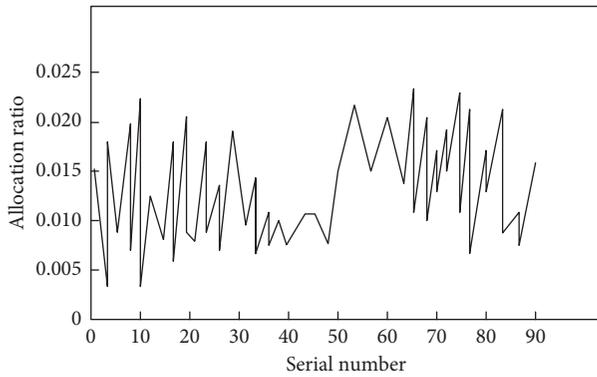


FIGURE 4: Distribution ratio curves corresponding to 5 groups of weakly effective solutions.

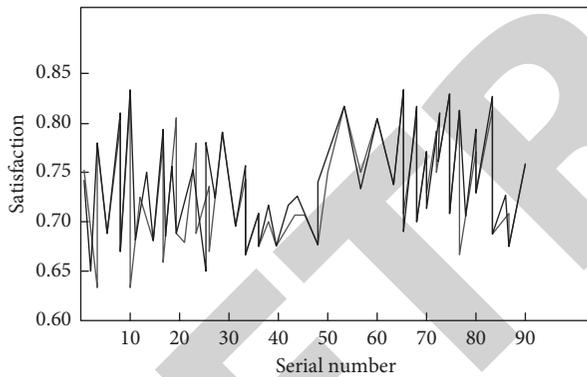


FIGURE 5: Satisfaction curve corresponding to 5 groups of weak Pareto effective solutions.

method for employees of the enterprise group from the aspects of emphasizing human sociality and subjectivity.

As shown in Table 3 and Figure 7, in a survey of American industrial enterprises, managers' understanding of workers' needs is compared with workers' actual needs. There is a big discrepancy between the two. This article also conducts a sample survey of the managers and employees of some companies. Although the survey results may not be universal, they can explain some problems. The needs of employees in Chinese enterprise groups are different from those of foreign companies, and to a certain extent, there is a deviation in the understanding of the needs of the employees by the operators and employees themselves, as shown in Table 4 and Figure 8.

It can be seen from Table 4 and Figure 8 that when many companies analyze the needs of employees and formulate incentive policies, they often rely on the

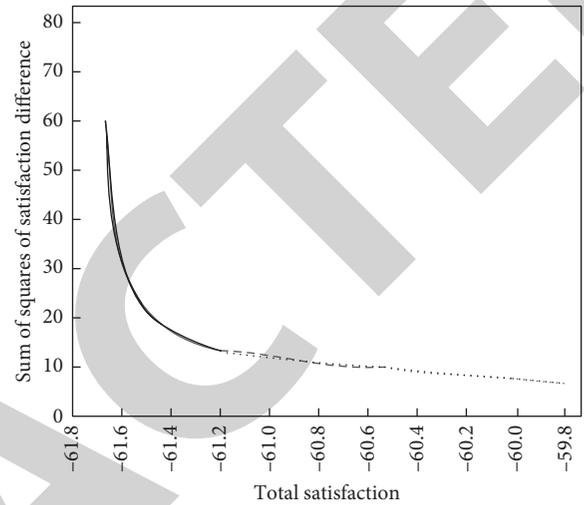


FIGURE 6: Pareto front surface obtained by solving different confidence levels.

subjective assumptions of the operators. Due to the differences in the status and division of labor between operators and employees, there will always be some differences in their grasp of real needs. The incentive measures formulated by the operators for employees based on their own perceptions do not address the real needs of the employees, so there is no incentive. On the contrary, due to the complexity of the specific situation of enterprise groups, one enterprise can refer to the situation of another enterprise to formulate an incentive mechanism, but it must not be copied. The needs of employees of different companies vary greatly. For example, employees of state-owned enterprises usually regard the enterprise as the support of themselves and their families and have a strong sense of dependence. They yearn for stable work, proper medical care, housing, and childcare. In contrast, do they have to take it? High wages are not as important as the above factors. The employees of high-tech companies require high salaries, more knowledge and skills, promotion, etc. It does not matter whether the job is stable or not. As long as they have the ability and knowledge, they can find better job opportunities at any time. The age of employees also affects their needs. Generally speaking, 18 to 28 years old employees have less family burdens, have full enthusiasm for work, and are not sure about their self-reliance. Therefore, they prefer to be appreciated by the

TABLE 3: Comparison of the ranking of the needs of the US survey managers and the workers themselves.

Required content	Manager thinks (rank)	Workers think (rank)
High salary	1	5
Work stability	2	4
Promotion and corporate growth	3	7
Good working environment	4	9
Interesting job	5	6
Management's concern for workers	6	8
Skill training	7	10
Appreciation of work	8	1
Compassion and understanding of personal issues	9	3
Devotion to things	10	2

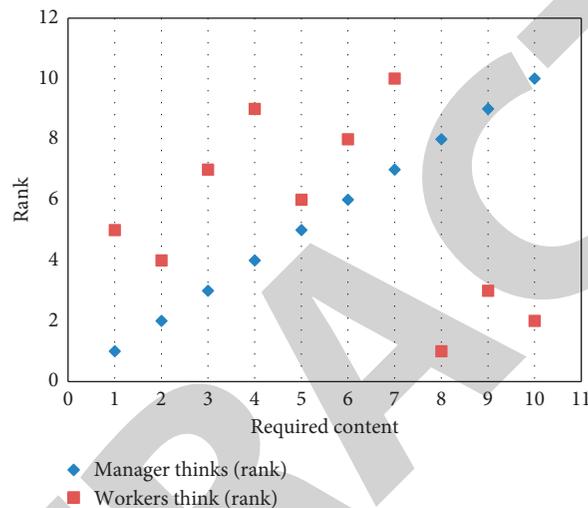


FIGURE 7: Comparison of the ranking of the needs of the US survey managers and the workers themselves.

TABLE 4: Comparison of the ranking of the needs of the employees between the operators of the Y enterprise and the employees themselves.

Required content	Manager thinks (rank)	Workers think (rank)
High salary	1	4
Promotion and corporate growth	2	7
Skill training	3	3
Good working environment	4	8
Work stability	5	1
Generous benefits	6	5
Appreciation of work	7	2
Interesting job	8	9
Harmony of labor relations	9	10
Harmonious team relationship	10	6

leader and have a harmonious team relationship and desire to have a lot of exercise and training opportunities to increase their abilities. The one-year-old Peng's employees are in the period of forming families, having children, and, at the same time, eager to have better job prospects in the career. Therefore, he has a door to demand high salaries and generous benefits to ensure the needs of the family such as promotion, corporate growth, and a good working environment to achieve their career pursuits and ambitions. For employees over 48 years old, their children can already support themselves. They can and are willing to devote time to work, especially some

older employees hope that through happy work, they can give full play to their abilities. I also want to get a high salary and good benefits, but when my income is not high, I can also maintain good labor relations and team relations and can be recognized and praised by the leaders for my work. It can also stimulate their enthusiasm. Kemen can even categorize the age group more carefully and consider the actual situation of employees more comprehensively, and then, more specific characteristics of needs can be derived. According to the understanding of super Y theory, people are different from each other, and each person's needs are different.

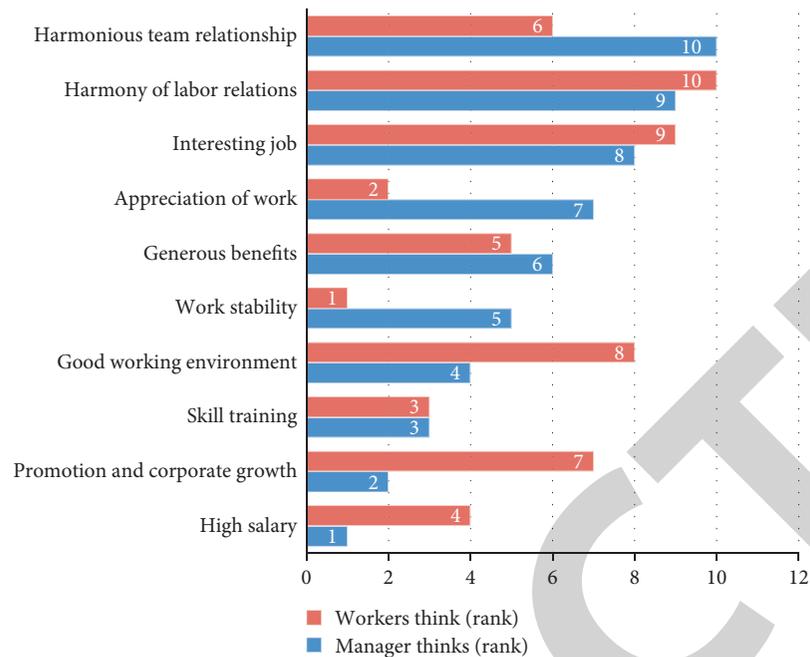


FIGURE 8: Comparison of the ranking of the needs of the employees between the operators of the Y enterprise and the employees themselves.

In summary, the business managers should first start from the actual situation of the employees, understand the real needs of the employees of the company through careful observation and care, and then formulate incentive and restraint mechanisms in a targeted manner.

### 5. Conclusions

This paper mainly studies the decision-making and coordination mechanism of enterprise performance optimization management based on multiobjective optimization. Based on system management theory and performance management theory, through constructing the multi-objective optimization model and agency model, using the genetic algorithm, the Pareto effective solution is obtained to help enterprise performance management make optimal decision-making and coordination. By analyzing the relationship between the company and the management and the company and its employees, multiobjective optimization is carried out to promote the healthier development of the company and its employees.

The innovation of this article is that this article uses a combination of empirical research and normative research, such as the research on the employee incentive and restraint mechanism of the Y enterprise in the fourth part; it uses a combination of qualitative research and quantitative analysis, and this method has been reflected in the analysis of multiobjective optimization models; the method of combining theoretical analysis and countermeasure research is used, and countermeasure suggestions are given, while establishing model analysis. This method runs through this article.

The research in this paper still has shortcomings: the data samples selected in this paper are small, and the research

results need to be more comprehensively considered. The representativeness of the samples needs to be evaluated; the selection of target parameters has certain limitations, and the research subjects of the samples are subjective and not conducive to the objective and fairness of the research results. The research in this article has certain guidance and practical significance for the optimal choice of corporate performance. This research topic will help the company to develop more sustainably and healthy in the long run.

### Data Availability

No data were used to support this study.

### Conflicts of Interest

The authors declare that they have no conflicts of interest.

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