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Research Article

Design of the Human Resource Optimization Allocation Model Based on Information Integration

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With the increasingly close integration of information technology and enterprise management, the human resource management (HRM) model is also changing in the direction of information integration. The new information-based human resource management has gradually become a common management model for all industries and enterprises. Information integration of management work achieves integration and resource sharing among HR departments, managers, and employees. Information integration also facilitates the management of big data and the query of information from the upper and lower levels of group companies. This research study focuses on how companies can solve their own problems, integrate valuable human resources, improve management, and face fierce external competition. This study addresses the above issues by targeting and optimizing the core of human resource management with a performance management system using fuzzy evaluation. Encouraging employees to stimulate motivation and autonomy on the basis of the original foundation has enriched the content of HR performance management, making the overall work more widespread, objective, and encouraging sustainable growth of the company. The experiment proves that this resource optimization allocation model has an important role for managers to make human resource management plans, improve the information technology content of management, and improve the information level of management, so as to improve management efficiency and promote enterprise development.

1. Introduction

Information integration and data mining are the products of the new era with strong technical characteristics, which bring significant opportunities for current social construction and unit development. In this context, it is necessary to strengthen the innovation and optimization of human resource management (HRM). In fact, HRM can comprehensively improve the authenticity and accuracy of performance information and promote the fair and unbiased development of performance management. As we all know, the technical functions and application trends of information integration and data mining in the new era are very important. Moreover, it has outstanding advantages in information collection, integration, dissemination, sharing, and intelligent statistics. At the same time, it also plays an important supporting role in promoting personnel management innovation and reform. In the implementation process of performance management, the carrier role of big data and machine learning can be given full play to comprehensively sort out and deeply analyze the relevant performance indicators [1]. On this basis, reasonable performance assessment standards are formulated to achieve clear objectives and efficient management.

Many companies prioritize operation over management. Poor HRM awareness and human resource management employees do daily tasks like payroll audits and workload records [2]. Even selection, employment, and assessment are lacking. Everywhere is sand. HRM is a strategy executor, not a decision-maker. It is hard to realize the benefits of management policymaking and design, and it is hard for an enterprise to thrive with internal management. It has been widely used in the organization and management of enterprises. It has shown great practical value in many aspects of human resource management, such as statistics, training, and

assessment, and enterprises have improved management efficiency and reduced management costs. The following are common problems in HRM models.

(i) Reverse HRM: Business management echoes the era of planned economy. Formal evaluation and light rewards and punishments limit employee motivation. Employees complain that the company lacks humanistic care.

(ii) Each functional department's management is weak: The enterprise's existing system is not perfect, it cannot be implemented effectively, and there is no mutual check mechanism between the organization and the employees, which leads to top leaders gaining more power. Other department heads know the latest enterprise trends, but they have little say and cannot correct wrong instructions.

(iii) Lack of communication and cooperation between departments: Complexity and variability of project activities strain information sharing and emergency response speed. In most companies, information transfer, performance assessment, and guidance are done within departments. Inconsistent command and unclear goals affect the enterprise's effectiveness.

(iv) Disconnection between enterprise and project management, and project confusion: As a company grows, economies of scale create multiple projects. Differences in time, location, and uniqueness of projects make enterprise management difficult. The management model of project manager responsibility has improved decision-making, but decentralization of authority has impacted project managers' ethical defenses, and black-box operations have begun to proliferate within the company's reach, weakening its profitability. Functional departments, as direct supervisors and directors of multiple projects, may shirk their responsibilities when meeting with project departments.

(v) Lack of long-term jobs and talent: Too much centralized staff training slows project progress. Existing training lacks relevance, mainly to meet certification and qualification requirements of construction companies, but ineffectively. Construction companies emphasize employees' contributions but ignore their own. They overuse talented workers but cannot use poor ones. Enterprises lack promotion paths and perfect reward and punishment mechanisms, causing employee dissatisfaction and job-hopping. Many low-capacity businesses must support the state, and talent is scarce.

Irrational internal organization, poor supervision and management, backward employment mechanisms, and talent loss highlight empty shell companies. Shrinking market share and difficult transformation make the company worse. Therefore, this research paper focuses on how various companies can solve their own problems, integrate valuable human resources, improve management, and face fierce external competition. This paper addresses the above issues by first, targeting and optimizing the core of human resource management a performance management system, as shown in Figure 1. The core of effective performance management is a continuous cyclic process of a series of joint activities, as shown in Figure 1, which usually and specifically includes four links: performance planning, performance implementation, horizontal effect assessment, and performance feedback [3]. The end of one management performance is the beginning of another performance management process. Through this cycle, individual and organizational performance can continue to evolve.

Based on this, we present our integrated HR optimization model based on the information from the integrated data, which we will present again in Section 3. In addition, this research area can benefit from the utilization of big data, the Internet of things, information technology, computer networks, and machine learning-based learning techniques. This research seeks to explore the informatization of developing human resource optimization allocation against the backdrop of big data in order to effectively integrate the current human resources and to increase efficiency of the HRM systems. We concentrate on how businesses can address internal issues, incorporate valuable people resources, enhance management, and deal with intense exterior competition. Finally, using a performance management system to target and optimize the human resource management system's fundamental functions, we address the aforementioned concerns. We think that the literature currently in print has relatively little to say about this particular field of study.

The first thing we do in this study is to construct the public service information platform for human resource allocation optimization using big data and quantitative assessment. Then, we thoroughly describe the platform's main elements before constructing the heterogeneous data model for the human benefit index. The information integration method is then used to optimize the target parameters in order to implement big data mining and feature analysis of human resources. The proposed solution may successfully integrate the current human resources and increase the effectiveness of HRM systems, as shown by our evaluation and testing results. The following are the study's main innovations:

(i) We build the public service information platform of human resources and optimization allocation using the fuzzy evaluation;

(ii) With the proposed method, different companies and organization can solve their own problems, integrate valuable human resources, improve their management, and face fierce external competition;

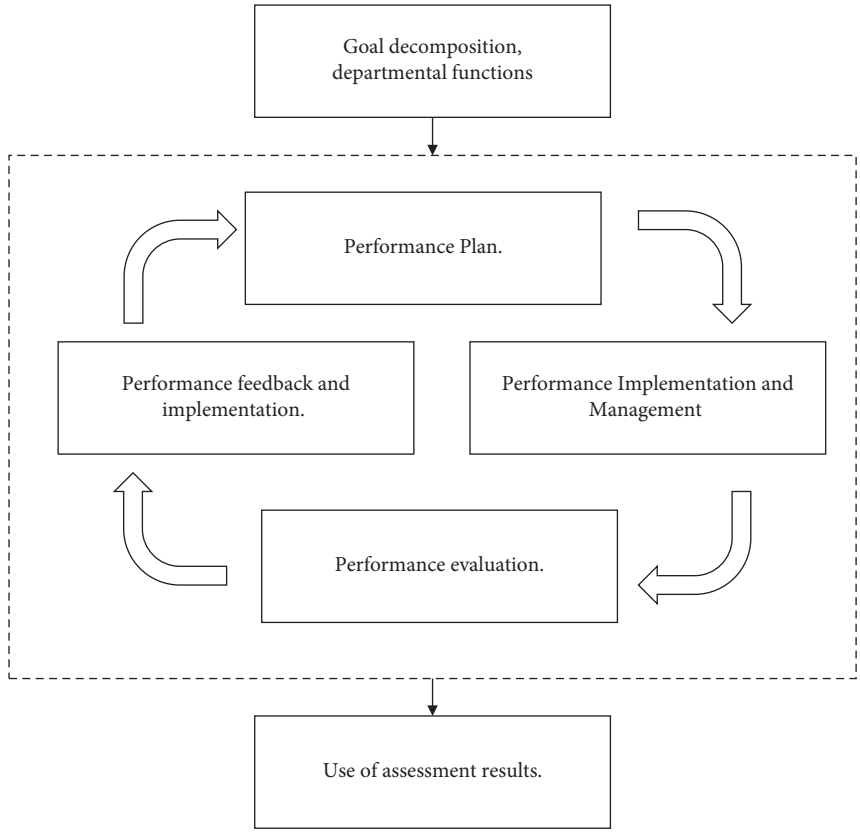


Figure 1: The performance management workflow.

(iii) We address the aforementioned problems, by focusing on and optimizing the core of human resource management with a performance management system; and

(iv) We demonstrate that the suggested strategy can efficiently distribute the available human resources and boost the effectiveness of the system for managing human resources.

The remainder of the manuscript is structured as follows. Modern related work is illustrated in Section 2. The information platform for optimizing human resource allocation is designed in Section 3 and is based on the widely accepted idea of fuzzy assessment. The model's mathematical justification is also demonstrated. Section 4 discusses the application and outcomes of the suggested approach based on fuzzy assessment. Finally, we wrap up this investigation and provide recommendations for future research in Section 5.

2. Related Work

2.1. Concepts and Background. During the evolution of HRM theory, many HRM experts have discussed in depth the definition of HRM, the practical activities of HRM, the responsibilities of HR managers, the value orientation of HRM, and the value orientation of HRM, and analyzed the challenges faced by HRM from their respective research perspectives. The definition of HRM traces and analyzes the development of HRM theory, and we summarize the definition of HRM into two categories.

The first category is the HRM concept was proposed by Peter Drucker and Barker et al. and introduced by Schuler et al. [4], and they consider human resource management as a broad general management function possessed by managers. Its goal is to effectively manage personnel in the workplace, which includes comprehending, maintaining, creating, using, and coordinating. This definition of HRM is based on a "humanistic" management philosophy. It views human resources and all employees in an organization as a valuable resource for the organization, rather than as a cost that the organization should minimize [5]. In his book "Managing Human Resources," Schuler defines human resource management as the use of a set of management activities to ensure the effective management of human resources for the benefit of the individual, society, and the enterprise [6]. This definition is in line with the humanistic perspective. Human resource management, according to Robert et al. [7] and others, is the use of human resources to accomplish organizational goals. Sherman et al. [8] and other academics argue that all organizations are made up of individuals, particularly, all successful organizations, which rely on diverse groups of people working together to achieve a common goal. This is the essence of human resource management.

The second one is considered by Henneman et al. [9] that HRM is a new name for personnel management. It is a type

of employee management that is performed by professionals and is a management practice related to people. This concept is predicated on the notion that the management methods now in use are the most effective and appropriate ones to utilize in order to manage personnel efficiently, and that these management practices can be improved upon throughout time. For example, according to this view, Dessler et al. [10] debate that human resource management (HRM), or more specifically personnel management, denotes to the numerous policies and practices that want to be learned in order to successfully accomplish the jobs involved in managing individuals. Similarly, Wright et al. [11] and others scholars argue that human resource management talks about numerous strategies, management rehearses, methods, and structures that, in fact, influence employee arrogances, comportment, and enactment. According to Beech [12] and others, human resource management (HRM) can be considered as a comparatively innovative methodology to personnel management that considers people and individuals as key resources.

2.2. Information Integration. Huang et al. [13] proposed to break through information silos in 2019. They established a standard information database through many trials and communications, breaking the current situation that departments and systems are independent and separated from each other. Through information integration, they have broken through information silos, which facilitates managers to manage human resources comprehensively from a strategic perspective. The fundamental concept is to build an HR information management system and create an information integration platform [13]. The establishment of information integration platform can make some modules of HR information management system and multi-departmental management system interrelated, and realize the sharing and exchange of relevant data through LAN. Gradually, the system realizes the all-round and whole process dynamic management of people. By assigning accounts and setting permissions, the department's personnel rotation and deployment permissions are assigned to the project department, operation department and other related departments. Each functional department will redeploy project personnel in the system according to the flow of personnel in that month to realize dynamic management of personnel. The HR department can effectively deploy and manage project personnel, break the drawbacks of static management of the previous system, and realize the dynamic display of information.

According to Park et al. [14], the original performance management model needs to be optimized and innovated in addition to being integrated with big data technology to evaluate and study the management content in order to truly improve the quality and level of HR performance management. The following aspects can each be used to carry out particular management tasks. In the process of data operation and management, objective and comprehensive basic data primarily refer to comprehensive, particular, and focused data analysis, inquiry, and study on the relevant human resources basic information. In order to build a solid foundation for the subsequent performance management, the relevant departments use this as an objective basis to carry out actual personnel deployment and transfer in accordance with the actual situation of personnel. Second, "dynamic personnel data" primarily refer to internal people transfers for work or transfers made for personal reasons. Additionally, it encompasses things like talent introduction and corporate recruitment. Using a big data system and the pertinent statistical content data, human resource management must quickly respond to the corresponding personnel changes.

In order to successfully achieve the efficacy and accuracy of employee management and avoid the condition of information lag and management irregularities, data software can be used to input, alter, and remove the relevant information. The third is personnel data that are of a specified standard. It is mostly based on the tallied performance data of employees on a daily basis. To get high-quality employee data, the contributions made by the employees to the business are examined and integrated in light of the significant performance appraisal outcomes. The methods of centralized investigation, collection, analysis, and management of employee information are also further stressed in order to guarantee the thoroughness and accuracy of performance appraisals and to fundamentally enhance the authenticity, thoroughness, and objectivity of employee analysis.

2.3. Model for Optimal Allocation of Human Resources. Many scholars and managers favor the project-oriented organization structure due to the fact that Mithas et al. [15] proposed it, from independent firms to alliance or network firms, and from project-level flexibility to business organization flexibility. Park et al. [14] expressed doubts about project-oriented organizational structures in business management and conducted a series of experiments to show that we must pay attention to whether such structures fit the organization. Sanders and Premus [16] described the latest developments in project-oriented organizational structure, summarized the conditions for a mature structure, and argued that project management practices and structure influence each other. With the growth in technology, the scholars' research is becoming more "project-oriented" and concrete [16].

Devaraj et al. [17] argue that resource scheduling is the core of project team management, but limited resources require a reasonable and efficient plan. Management is challenged by the fact that the project and others are competitive. The model theory research has made great strides in human resource allocation and staffing. Bhatt and Grover [18] studied manager assignments in tech-driven organizations using a competency model. Through literature review, expert interviews, and case studies, they proposed a project manager competency model. Wang [19] studied the employee evaluation and assignment problem, proposed that organizational goals and strategies be considered in the employee assignment model, and developed a fuzzy theory

scoring model to measure employee-job fit. Some scholars have also studied staffing from a competency perspective, which is practical.

There are many studies on project team or enterprise resource allocation. Zhang [20] used a particle swarm optimization algorithm to solve the Pareto solution for optimal human resource allocation from a multiobjective decision-making perspective. Xue [21] used genetic algorithm to solve optimal human resource allocation and proposed a simple two-way selection allocation method. Wu [22] created a heuristic algorithm for optimal allocation of human resources based on constraint satisfaction and backtracking search algorithm to reduce enterprise cost. They obtained the optimal algorithm sequence by example operation: first, the heuristic algorithm was used to select the optimal configuration, and then the selected personnel were assigned using the algorithm proposed in this article.

3. Method and Design

3.1. The Matrix Organization Structure. In a matrix organization, permanent functional departments and temporary project departments are crossed vertically and horizontally. When a company is awarded a new project, a project manager consults with the heads of the functional departments to determine how each function can help. This project does not require re-establishing functional departments, but rather temporary staff. This person can help with multiple projects at once, improving human resource utilization and reducing business costs. When the project is over, they can return to the function to work on other projects. As shown in Figure 2, it is the matrix organization.

The old functional and project-based organizational structures are combined here, as shown in Figures 3(a) [11] and 3(b), [12], which are schematic diagrams of functional and project-based organizational structures, respectively, so the matrix organizational structure brings together the advantages of both structures and avoids the singularity and some disadvantages of individual structures.

The matrix organization has the following major benefits.

(1) The organization is flexible, and its project-based structure allows for more activities. When the external environment or project changes, the project manager can adjust the plan and get functional department support. When the project schedule encounters obstacles, he can tap the group's experience and wisdom.

(2) It is beneficial to use the human resources function's technical supporters and behavior supervisors of multiple project-related functions. In fact, personnel mixes may vary. Therefore, they can play to their strengths and avoid their weaknesses, optimizing the project's organization.

(3) Increase mobility: The matrix organization structure meets project needs and breaks down barriers between functions, strengthening coordination and cooperation. Functional employees can gain horizontal project knowledge and vertical professionalism, advancing their careers.

This should be noted that we should avoid dictatorship problems that can be reported to the project manager or functional head. Moreover, employees can choose which principal can be reported to based on their own interests, which helps to identify and solve problems. The matrix structure flaws include the following.

(1) Project manager–functional head conflicts: Dual subordination and improper hierarchy are problems with the matrix management design. When project managers and functional heads clash, employees become timid about following orders, and powerful people control subordinates. Matrix organization design will not be flawed if project managers and functional managers can negotiate rationally and give up some of their rights to subordinates.

(2) Enterprise and project department resource competition: In cases of limited resources, the enterprise maximizes overall benefits while the project manager pursues project interests. Project managers consume too many quality resources, leaving businesses short. This organizational structure must also establish a resource flow mechanism.

(3) Uneven project manager authority: Matrix organization is more complicated than linear. This model connects people into a network structure, which is cumbersome for the project manager. As the project's leader, the project manager must communicate and coordinate effectively. The project manager must deal with department heads, clients, and multiple companies. Despite having many responsibilities, there is no effective authority to support the process, and the project manager cannot gain more power. The project manager's lack of authority hinders progress. Functional and project-based organizational structures do not work here.

3.2. Enterprise Organization Structure Optimization Configuration Scheme

3.2.1. Enterprise Organizational Structure Configuration. The stability of enterprise-level organizational structure and the temporary nature of project-level organizational structure lead to various inconsistencies and conflicts. In this study, after studying the organizational structure design and related theories and development trends of various construction and project-based enterprises, the evolutionary design of the enterprise organizational structure is carried out according to the industry background and the current situation of the enterprise. The main problems to be solved in this design include: information transfer barriers, talent shortage, lack of corporate culture, disconnection between corporate and project management, and rigid organizational structure; the organizational structure theories used include: learning organization, network organization, and project-oriented organization. As shown in Figure 4, it is the set-up optimized organization.

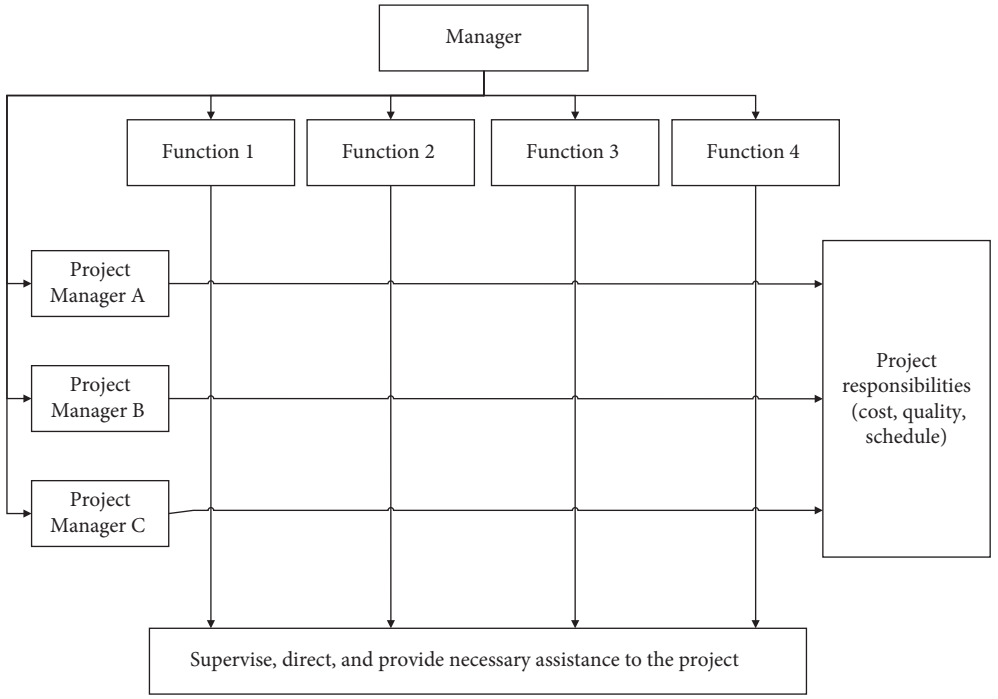
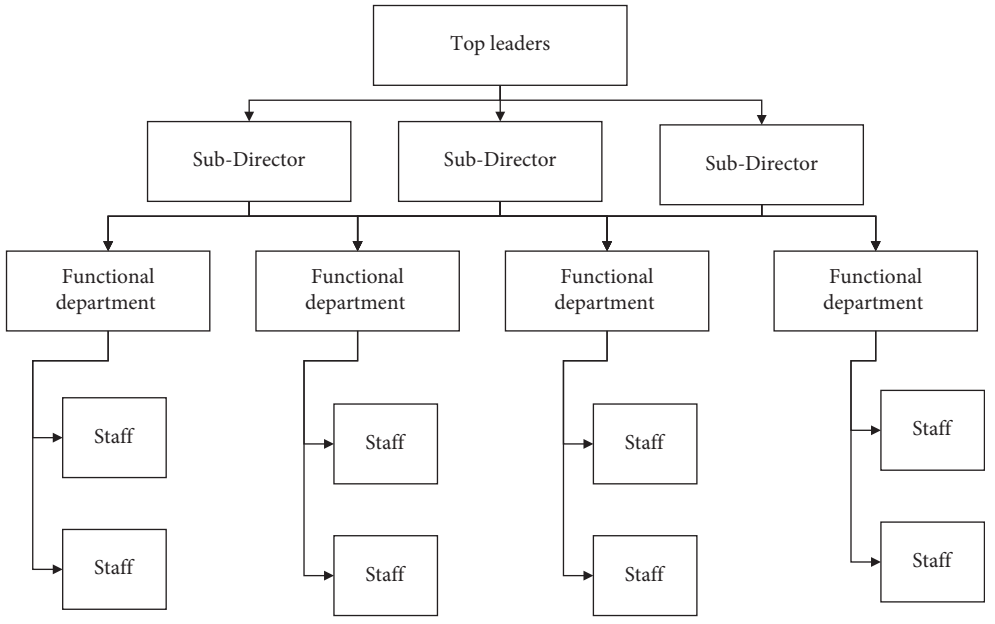


Figure 2: The enterprise rectangular organization chart.



(a)

Figure 3: Continued.

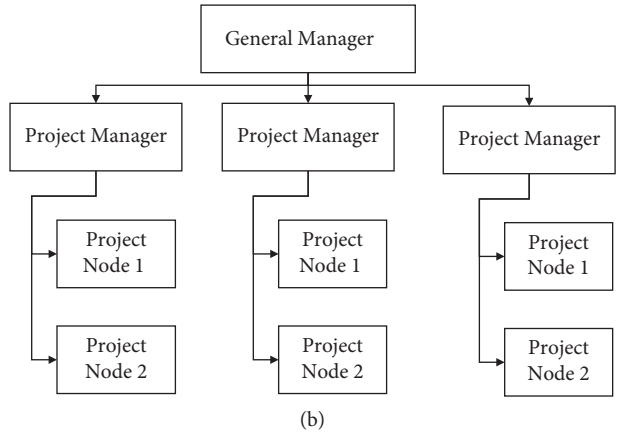


Figure 3: Other enterprise structures (a) for functional organization and (b) for project organization.

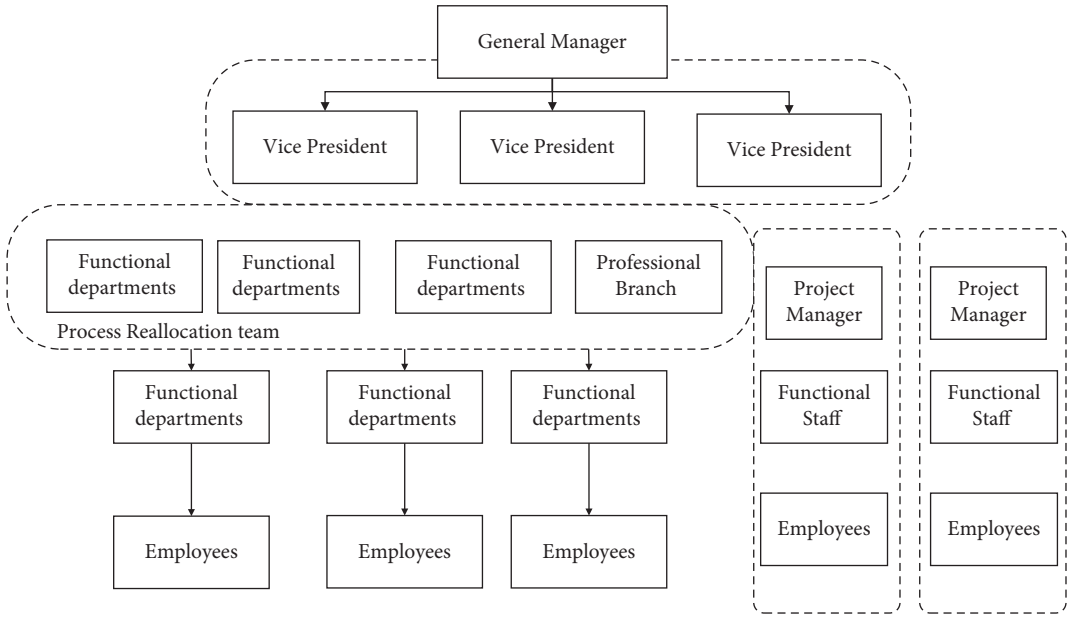


Figure 4: Enterprise organization structure optimization design.

3.2.2. Analysis of the Organizational Structure of the New Enterprise. Based on the analysis of the organization structure for several enterprises, we conclude the following observations.

(1) Project-oriented organization theory is applied to the management of functional departments at the enterprise level, so tasks are formed from the bottom up according to the progress and needs of each project. Functional departments are responsible for their tasks and strengthen communication and cooperation with other departments to form a "construction process reengineering team". The team's direct supervisor is responsible for planning and interdepartmental communication. This structure allows functional departments to directly serve clients (i.e., the project department). This should be kept in mind that this is customizable by project that allows direct information from each project. Furthermore, it allows easy access to the company's knowledge and experience, saving decision time and reducing errors. A project-oriented organization can generate fast information transfer and efficient problem handling through effective resource integration, as the project manager is placed under each function and branch. Each function has decision-making authority over scarce resources and corporate issues. The project manager is responsible for schedule, quality, and cost control, but functional departments oversee his authority.

(2) Large projects benefit from project-based organization. One situation is too complex for interdepartmental communication and cooperation; the

other is too regionally different for functional departments to plan rationally by time and location. Senior corporate management gives project managers in project-based organizations the authority of a functional department director. The two projects are not independent of the enterprise's functional departments. The enterprise sends or trains project staff, and timely information is sent to identify and correct problems. This organizational structure should be tightly managed. The company should meet project resource needs. Competition for scarce resources should rely on project manager–function communication. When needed, senior leaders should coordinate.

(3) To maintain long-term competitiveness, businesses must establish a learning organization. Facing the industry's fierce competition is like sailing upstream. If not, it will go backward. Construction companies gain knowledge and experience through projects. The organization structure viewed the project as a one-time physical finished product and neglected soft power building. Some good experiences and methods were abandoned after the projects were finished. As the category with the highest quality in construction enterprises, the top leadership team faces various decisions and choices, shoulders the mission of enterprise development, and must improve continuously. In the next phase, the top-down learning begins. Functional department heads who take over projects and large and overseas project managers understand project success and failure best. As their superiors, senior leaders can learn. The top learning group will improve its corporate culture by analyzing these projects' successes and failures. Moreover, the corporate culture reflects the leaders' values. The company will continue to improve through debriefing and cultural exchange.

(4) It combines various organizational theories and avoids traditional organizational flaws. Construction companies have a talent shortage, low efficiency, and employment problems. Project-oriented organization theory uses functional personnel's rich project experience to manage projects, reducing the need for many talents. Functional personnel in projects create a link between projects and functional departments, open communication channels, and facilitate training and tapping. Learning organization theory promotes corporate culture, reduces internal conflicts and senior talent turnover, and unites employees. This hybrid organizational structure facilitates site-specific management, strengthens project monitoring, and weakens project managers' resource appropriation ability.

3.3. The Fuzzy Evaluation Mathematical Model. In the enterprise evaluation index system, due to the different influencing factors of each indicator, some indicators can be obtained by statistical methods. Similarly, some other indicators can only be evaluated by expert evaluation methods. In fact, for such evaluation problems, the use of fuzzy mathematical methods, i.e., fuzzy comprehensive evaluation method can get more objective conclusions [23].

3.3.1. First-Order Comprehensive Evaluation Model. Let's suppose: the set of factors $U = \{u_1, u_2, \ldots, u_n\}$, and u_i means the considered factors, $i = 1, 2, \ldots, n$. Furthermore, the set of comments $V = \{v_1, v_2, \ldots, v_n\}$, and v_j denotes the evaluation result, such that $j = 1, 2, \ldots, m$.

The fuzzy subset $W = (w_1, w_2, \ldots, w_n)$ on the factor set U is called the weight assignment, and w_i is the weight of factor u_i being considered. Then, a single-factor evaluation is made. A fuzzy mapping f from U to V is established as given by:

$$f: \longrightarrow (r_{i1}, r_{i2}, \ldots, r_{im}), \ldots \quad \left(0 \leqq r_{ij} \leqq 1, i = 1, 2, \ldots, n, j = 1, 2, \ldots, m\right), \tag{1}$$

where r_{ij} denotes the degree of recording genus of factor u_i to rubric v_j. The fuzzy relationship R can be induced from f to obtain the fuzzy matrix as illustrated in equation (2):

$$R = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1m} \\ r_{21} & r_{22} & \cdots & r_{2m} \\ \cdots & \cdots & \cdots & \cdots \\ r_{n1} & r_{n2} & \cdots & r_{nm} \end{bmatrix}, \tag{2}$$

where R is called the single-factor evaluation matrix and also the transformation matrix of comprehensive evaluation.

In this way, when the weight assignment and transformation matrix are known, the composite operation of the fuzzy matrix can be applied to perform the comprehensive evaluation, which leads to the first-order comprehensive evaluation model as follows in equation (3):

$$B = W \circ R = (b_1, b_2, \ldots, b_m), \tag{3}$$

where B is the result of fuzzy comprehensive evaluation.

3.3.2. Two-Level Comprehensive Evaluation Model. By dividing the factor sets, the above model can be extended to a two-level fuzzy comprehensive evaluation model. First, the factor set U is divided into s subsets according to certain attributes, which are $U_1, U_2, \ldots, U_n$, and satisfy [23]. This relationship is mathematically expressed as given in equation (4).

$$\bigcup_{i=1}^{s} U_i = U, \quad U_i \cap U_j = \phi, \ (i \neq j). \tag{4}$$

Let us suppose that the factors of each subset be defined as:

$$U_i = (U_{i1}, U_{i2}, \ldots, U_{ik}), \quad (i = 1, 2, \ldots s), \tag{5}$$

where W_i, R_i, and B_i denote the weight assignment, single-factor evaluation matrix, and comprehensive evaluation

results at the second level, respectively. The two-level fuzzy comprehensive evaluation model can be obtained as given by equation (6):

$$B = W \circ R = W \circ \begin{bmatrix} B_1 \\ B_2 \\ \dots \\ B_s \end{bmatrix} = \begin{bmatrix} W_1 \\ W_2 \\ \dots \\ W_s \end{bmatrix} \circ \begin{bmatrix} B_1 \\ B_2 \\ \dots \\ B_s \end{bmatrix}, \quad (6)$$

where W is the weight assignment of s factors U_i in $U = \{U_1, U_2, \dots, U_s\}$. Similarly, W_i is the weight assignment of the K factors u_{ij} in $U_i = (u_{i1}, u_{i2}, \dots u_{ik})$. Furthermore, R and R_i are the transformation matrices of the combined evaluation of U and U_i, respectively. Note that B is the integrated evaluation result of U.

4. Experimental Results and Analysis

4.1. Evaluation Index. The evaluation of corporate managers' performance can be measured by the following nine indicators: sales margin, return on total assets, return on capital, capital preservation and appreciation rate, gearing ratio, current ratio, quick ratio, accounts receivable turnover ratio, and inventory turnover ratio [24]. Based on the analysis of the quality, ability and performance composition of corporate managers, we established a comprehensive evaluation index system for corporate managers, as shown in Table 1.

Table 2 shows the HRD training effectiveness evaluation index system.

4.2. Optimization Results. Faced with different performance evaluation methods, companies and employees will make different choices from their own perspectives. For the above indicators, we use fuzzy evaluation method to evaluate different enterprises. As shown in Figure 5, after the enterprises use our proposed HR optimization organization model, the costs of the enterprises can be greatly reduced. Furthermore, we observed that the enterprises' indicators are better than before, and the employees' motivation and learning ability are greatly improved.

4.3. Comparison of the Evaluation Methods. Due to the large number of evaluation indexes, the mathematical model of the second-order fuzzy evaluation is used in this article. In the experiment, we compared the fuzzy evaluation method and the hierarchical analysis method. Table 3 shows the comparison results of the two methods on the sample size of enterprise employees.

From Table 3, we can see that the fuzzy evaluation method is relatively better under the same evaluation index. This proves the effectiveness of the proposed fuzzy evaluation mathematical model.

4.4. Costs Comparison. In order to illustrate the effectiveness of our suggested HR optimization allocation model, we compared the costs before and after the HR optimization for different levels of personnel drawn from the enterprise to do the sample. Note that the number of samples will change with the number of times, after each extraction. To show the impacts of our outcomes in a better way, we will do the average of the cost of employees that were, in fact, randomly selected employees as shown in Table 4.

It can be seen from Table 4 that after the model optimization, our manpower cost is increased by 18.6%, but the enterprise's revenue increased by 22.1%. Moreover, it can be also seen that the loyalty and trust of the manpower are greatly improved. These outcomes prove that our suggested model is of great reference value to the enterprise.

Table 1: Comprehensive evaluation index for business managers.

Business manager qualities	Moral qualities Knowledge qualities Experience quality Spiritual quality Physical qualities
Business manager competencies	Innovation ability Decision-making ability Organizational leadership ability Resilience Social skills
Business manager performance	Profitability of sales Return on total assets Return on capital Capital preservation and appreciation rate Gearing ratio Inventory turnover ratio

Table 2: Effectiveness of corporate HRD training.

Training effort	Average training time per employee Proportion of trained employees per year
Learning outcomes	Degree of improvement in knowledge Degree of improvement in skills Degree of improvement in corporate culture identity
Behavior change	Error rate The rate of rework Rate of damage to goods Saving rate

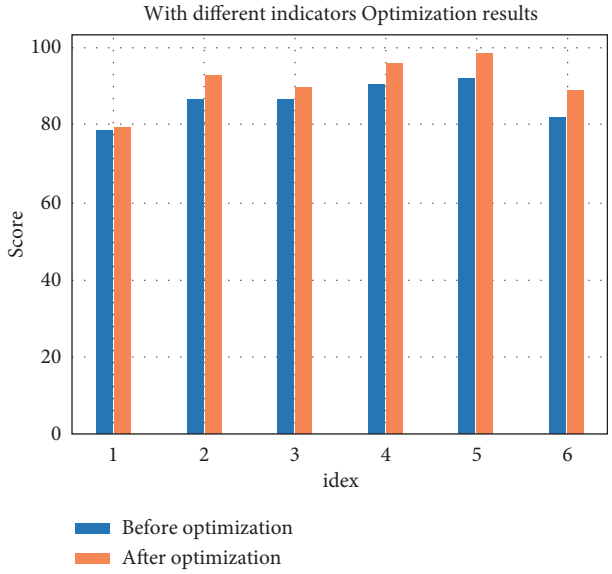


Figure 5: Optimization results with different indicators.

Table 3: Comparison experimental results.

Number of employees	Fuzzy evaluation	Hierarchical analysis evaluation
50	87.66	87.39
100	88.21	84.69
200	88.90	88.82
300	89.49	88.61
500	91.29	85.90

Table 4: Comparison and experimental results.

	Labor cost	Enterprise benefit	Employee loyalty (%)
Before optimization	4712	28418	40
After optimization	5588	34698	60

5. Conclusions and Future Work

Human resource management in modern enterprises requires managers to constantly innovate, abandon old traditional human resource management models and methods, build new management systems and management models, and construct a management environment that meets the characteristics of human resource information management. This paper proposes that managers should collect employee information within the framework of ensuring information security and legal authority, enrich the management system database, realize the HR optimization model, and give full play to the management platform, actively carry out the integration of various information, link HR management information with that of other departments, improve the comprehensive integration of information, facilitate managers to inquire and read relevant talent information, and realize information sharing under certain conditions. The experiment proves that this resource optimization allocation model has an important role for managers to make human resource management plans, improve the information technology content of management, and improve the information level of management, so as to improve management efficiency and promote enterprise development.

We will encourage the digitized building of new models, such as particle swarm optimization for optimizing human resource allocation, in the future with the aid of information technology. By doing this, businesses and organizations will take the lead, invest more in capital projects, innovate new development models, boost the effectiveness of service delivery, and effectively enhance the mechanisms for allocating human resources and their management systems. In order to improve accuracy and reliability, we will also look into machine learning and other cutting-edge technologies like the Internet of things and edge computing techniques. The computational cost of the proposed model can also be considered for minimization. We will use other optimization methods, for instance, particle swarm optimization (PSO) in

order to optimize the human resource allocation problem for various companies and enterprises.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares that he has no conflict of interest.

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