Research Article

Internal Economic Management and Performance Evaluation Method of Enterprise Based on Balanced Scorecard

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In order to evaluate the performance management level of the enterprise, it is necessary to use the Balanced Scorecard to establish the performance evaluation system of the enterprise. On the basis of pointing out the specific problems and deficiencies existing in the enterprise, suggestions for improving the performance level of the enterprise are put forward. Then, a detailed analysis of the performance evaluation of Company A is carried out. Through the analysis of various aspects of Company A's performance, the problems and deficiencies in its performance evaluation are found. According to the specific problems of Company A, a performance evaluation system is designed based on the balanced scorecard. The Balanced Scorecard is a management tool for measuring performance in multiple dimensions. Starting from multiple aspects, scientifically combining strategic objectives with multiple dimensions, this management method not only is suitable for the current market environment, but also improves the company's internal management system. Through the investigation of the company's performance management, it is found that there is a problem in the company's performance management. In view of the existing problems, the Balanced Scorecard of management accounting is used as a management tool to design a feasible performance appraisal plan for the company from the four dimensions of finance, customer, internal process, and learning and growth. Recommendations for full participation can be made for its implementation. The results show that the comprehensive score of Company A's performance in 2022 is 70 points. It can be seen from the evaluation results that the financial performance evaluation level of the company is average. The company's customer performance levels are average as well. The internal operation level of the enterprise is at a high level. The level of learning and growth performance of the business is very good. At the same time, according to the reliability test standard, the reliability coefficient of the questionnaire is 0.866, indicating that the reliability is acceptable.

1. Introduction

With the deepening of social change, companies that play a key role in development have also undergone tremendous changes. The level of competition among enterprises, the complex environment that they face, and the expected profits have also changed dramatically [1–3]. In order to obtain higher corporate competitiveness, create more profits, and mobilize the enthusiasm of corporate employees, corporate leaders must effectively manage and control the various resources that they have. By realizing the reasonable allocation of tangible and intangible assets and increasing the research on management mode, enterprises can obtain greater profits in short-term operation and occupy more

opportunities in long-term development. The necessary tools to achieve effective management and a set of scientific performance management system have become more and more important [4].

As far as the current domestic performance management level is concerned, the performance management of enterprises still has a large room for improvement. Although the current enterprises have implemented performance management to promote the rapid improvement of enterprise management level, performance evaluation is not enough in most enterprises [5]. The assessment of corporate performance is mainly in terms of profit indicators and quality indicators. There may be no way to integrate the enterprise evaluation system into the strategic direction of the

enterprise. Therefore, there is no strong link between evaluation and feedback mechanisms. The guiding direction of performance appraisal indicators hinders each other and even has a counterproductive effect. According to the company's own characteristics, development environment, and market competitors, it is particularly important to choose a performance management system that is suitable for the company itself and in line with its own development characteristics [6, 7]. Through the scientific judgment of the enterprise itself, it can improve the prediction of the future development environment and improve the learning and growth and innovation ability of the enterprise and employees. On this basis, long-term and healthy development can be achieved by improving management efficiency [8].

The significance of the study of the Balanced Scorecard on the internal economic management and performance evaluation of enterprises in this paper is as follows [9–11].

1.1. Theoretical Significance. For the academic theory research of enterprise strategic performance evaluation, some achievements have been achieved at home and abroad. Part of the theory has already completed its original purpose in the process of enterprise performance evaluation. The strategic performance evaluation system can be said to be the product of enterprise strategic management and a response to the needs of enterprise management in the context of the new era.

Since its inception in 1992, the Balanced Scorecard theory has been used by more than 50% of fortune 500 companies. It can not only help enterprise managers to evaluate the entire business process, but also play a practical role in the improvement of enterprise management level through feedback on the formulation or revision of enterprise strategies. After more than 20 years of theoretical and practical discussions, the Balanced Scorecard is not only an initial performance evaluation tool, but also a strategic management tool that has gradually developed to meet the needs of the strategic era and also a strategic performance evaluation method.

The research on enterprise system and management methods is the first to rise abroad and is slowly introduced into China, and the same is true for the research and application of performance evaluation system.

Therefore, the understanding and application of performance evaluation and strategic management in Chinese enterprises are not as good as those in Western countries, so that the implementation has not produced the effect that it should have. Although many scholars are actively studying the application and implementation of the Balanced Scorecard in China, the constraints of the harsh environment of enterprises cannot be avoided. Differences in corporate environment at home and abroad limit the reference objects of the Balanced Scorecard in China. Contingency theory shows that management strategies all have certain environmental dependencies. Any management method or management tool is unique and cannot be applied universally. Therefore, if strategic performance evaluation is to inject vitality into Chinese enterprise management, it should

proceed from the actual situation of Chinese companies. By focusing on localization in the process of theoretical research, it promotes the fullness of relevant performance evaluation theories.

1.2. Practical Significance. Most Chinese enterprises still remain in financial performance evaluation in performance evaluation, and the limitation of only focusing on the financial status and operating results of the company in the past period is still inevitable. However, the strategic performance evaluation system has not received enough attention and promotion. Even if they realize the importance of nonfinancial performance indicators, the application of the strategic performance evaluation system has higher requirements for enterprises. For example, it is necessary for enterprises to clarify their own strategic goals, their managers have high performance evaluation and management quality, and enterprises have relatively good information management systems, which often lead to being shelved or even ignored.

This paper mainly takes Company A as the research object. The present situation of the performance evaluation system of case Company A is pointed out, and its existing problems are analyzed concretely. From the perspective of the balanced scorecard, a specific performance evaluation system is designed for Company A. This performance evaluation system is then applied to A to evaluate the current performance level of the enterprise. It pointed out the specific problems and deficiencies of the company. Finally, some suggestions are put forward to improve the performance level of Company A.

2. Related Concepts and Theoretical Basis

2.1. Performance. Performance refers to the appraisal subject's work evaluation of employees. The assessment method should be reflected through the work objectives and performance standards set by the company [12]. It is evaluated in a reasonable and scientific way, and reward and punishment measures are given according to the evaluation results. Performance can effectively improve corporate profits. There are also two basic principles in the achievement of performance: target management and responsibility requirements. Through the establishment of goals, the development of individuals and organizations can be made without divergence. Appropriate rewards can be given when goals are achieved. Responsibilities are the requirements for employees' work and life. Performance in most cases refers to efficiency. Effectiveness consists of two aspects: discipline and conduct. The embodiment of discipline in an enterprise is mostly its internal rules and regulations. Character refers to the personal behavior and morality of employees [13]. When transferring personnel, not only their personal performance, but also their personal character should be considered comprehensively. Organizational performance refers to macroaspects. From the organizational level, it analyzes the completion of organizational tasks in a period of time. Organizational performance and individual

performance complement each other, and individual performance is an effective foreshadowing of organizational performance. The effective achievement of organizational performance requires everyone's efforts. Organizational performance is achieved when each individual achieves his or her individual performance goals.

Performance has the following characteristics. One is the ability of integrating multiple factors to effectively analyze performance advantages. Second, when designing the weights of evaluation indicators, comprehensive performance evaluation objectives should be determined. Third, performance occurs in dynamic changes. When time and environment change, performance evaluation methods will also change accordingly.

2.2. Performance Management

2.2.1. The Concept of Performance Management [14–16]. Performance management refers to the continuous cyclic process of performance plan formulation, performance coaching and communication, performance appraisal, application of performance results, and performance goal improvement in which managers and employees participate in order to achieve organizational goals. Performance management is not only to effectively improve the performance of individual employees, but also to improve the overall performance of the company. According to its definition, performance management is a comprehensive management that pays attention to the details of the work process. Performance management cannot be ignored in the production and operation process of any enterprise. Through effective performance management, the goals of the staff and management can be aligned, and the achievement of organizational goals and personal goals of employees is also taken into account.

2.2.2. Principles of Performance Management [17, 18]. A company should adhere to the following principles when conducting assessment management. First of all, the principle of objectivity and fairness should be guaranteed. Through open and fair performance management, employees can accept their management methods heartily, so as to improve the application of their performance management results in the company. Secondly, performance management should be combined with the company's financial principles. The other three dimensions should focus on the financial dimension, and the company should combine multidimensional assessment to improve the company's financial level. Finally, it must comply with the principle of combining rewards and punishments. The efforts brought by excellent employees to the company cannot be ignored, or the mistakes of uncooperative employees.

2.2.3. Performance Management System and Process. The overall process of performance management can be divided into three steps. The first is performance planning. As the primary link of performance management, its role is to guide the company's performance management. Only scientific and reasonable plans are more suitable for the company's management, operation, and development. The second is performance coaching and communication. As the basic link of performance management, only through coaching and communication can the formulated performance plan be close to the company's own development and in line with the working state of the company's employees, so that the performance plan can reach a feasible state. The third is performance appraisal. As the central link of performance management, scientific index construction is the performance appraisal center. Different from performance appraisal, performance management focuses on the interaction between management and employees. Through the exchange of feedback, the management can gain a deeper understanding of the employees' working ability and set career goals for employees that are suitable for their own development. By striving to achieve their goals and getting a return that matches their efforts, employees embody a win-win situation between the enterprise and management.

2.3. The Relevant Theoretical Basis of the Balanced Scorecard

2.3.1. The Core Idea and Basic Framework of the Balanced Scorecard. The Balanced Scorecard believes that the lagging financial indicators lack guiding significance for the strategic management process of enterprises. In the era of fierce competition in the new economy, traditional performance evaluation methods can no longer meet the needs of enterprise strategic management [19]. Companies must also focus on the competitive performance indicators that drive the achievement of strategic goals. The Balanced Scorecard develops financial and competitiveness performance indicators closely related to corporate strategy from four levels: finance, customers, internal operations, and learning and growth. It not only pays attention to the balance of various indicators, but also devotes itself to the implementation and achievement of corporate strategies. In turn, it can help enterprises to form a lasting core competitive advantage [20].

In 2004, Kaplan and Norton proposed a strategic map (as shown in Figure 1). A strategy map can clearly show the causal relationship between strategic objectives at each level in the Balanced Scorecard [21]. The intangible assets of an enterprise lay the cornerstone of enterprise value creation. The process of enterprise value creation creates value for customers. High customer value can lead to good and lasting financial performance for a business. This progressive causal relationship shows that any part of the four levels of the Balanced Scorecard is an inseparable whole.

2.3.2. The Four Levels and Interrelationships of the Balanced Scorecard. The Balanced Scorecard transforms the mission and strategic objectives of an enterprise into four levels of business strategic objectives. Corresponding performance evaluation indicators are guided from the strategic objectives to evaluate and improve the performance level of the enterprise. In turn, it can provide relevant information feedback for enterprise managers [22]. On this basis, through
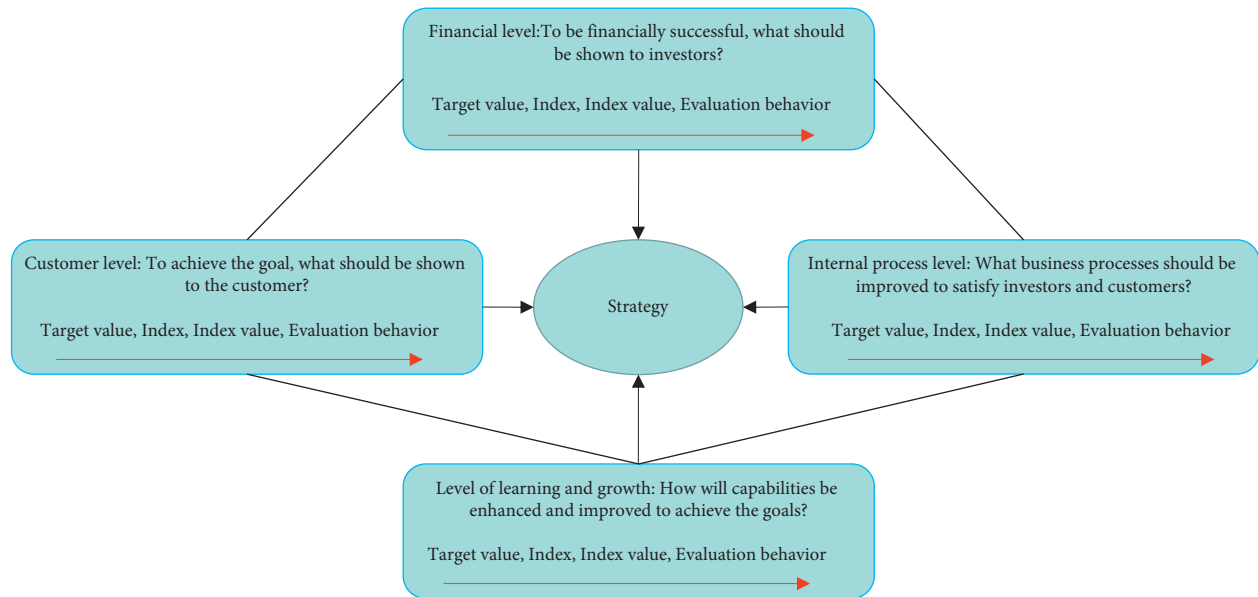
FIGURE 1: Strategic map.

timely discovery and resolution of problems, the achievement of strategic goals will be promoted [23, 24].

The strategy elaboration process is shown in Figure 2.

The performance indicators at the financial level usually reflect the performance of the company's solvency, profitability, operating ability, and growth.

(1) Financial Level. The performance indicators at the financial level usually reflect the performance of the company's solvency, profitability, operating ability, and growth. The strategic objectives and indicators at the financial level can often be developed and designed from the three strategic themes of financial growth, effective cost control, and asset utilization improvement. The life cycle of an enterprise should be considered when selecting financial performance metrics. Determine the financial goals according to the stage where it exists, so that the performance evaluation results truly reflect the performance level of the enterprise.

(2) Customer Level. Customer-level goals and indicators generally consider five aspects: market share, customer retention rate, customer acquisition rate, customer satisfaction, and customer profitability. The customer level focuses on the target market and target customers in which the company competes and can also reflect the company's strategic planning. Customers are the source of business revenue for a business. Enterprises should establish a correct customer view. Businesses need to define their target customers and the value proposition of their products and services.

(3) Internal Management Level. At the internal management level, indicators can be developed from three aspects: innovation process, operation process, and after-sales service. Internal operations are the internal processes required to create customer and corporate shareholder value. The quality of an enterprise's products and services often depends on the value creation process of the enterprise's internal value chain. Limited resources require companies to benchmark against customer needs and shareholder preferences. Combining the strengths and weaknesses of the enterprise, resources can be invested in the correct strategic goals and a lasting core competitive advantage can be created. The Balanced Scorecard starts from the strategic goals of the enterprise and meets the needs of target customers, so as to formulate strategic goals and performance indicators for internal operations.

(4) Learning and Growth Level. The level of learning and growth is an intangible asset of an enterprise. It includes the human capital and organizational capital of the enterprise. This level is the source from which the goals of the above three levels can be achieved. It has laid the foundation for enterprises to create higher customer value and shareholder value. The learning and growth dimension generally includes three main goals, that is, to improve the technical ability level of employees, improve information system capabilities, and increase incentives, authorization, and cooperation.

(5) The Relationship between the Four Levels of the Balanced Scorecard. Different from traditional performance evaluation methods, the most important design of the Balanced Scorecard is that it establishes four levels of goals and the causal relationship between goals and indicators. Under a series of causal relationships, it identifies performance indicators at different levels that are closely related to the company's strategic goals and core competitiveness and fits the particularity of the company. On the basis of the above, by driving the enterprise to form and maintain the core competitive advantage, the strategic goal has been achieved.

(3) The Smooth Implementation of the Balanced Scorecard Requires Enterprises to Meet the Following Basic Conditions. On the basis of summarizing the relevant research and
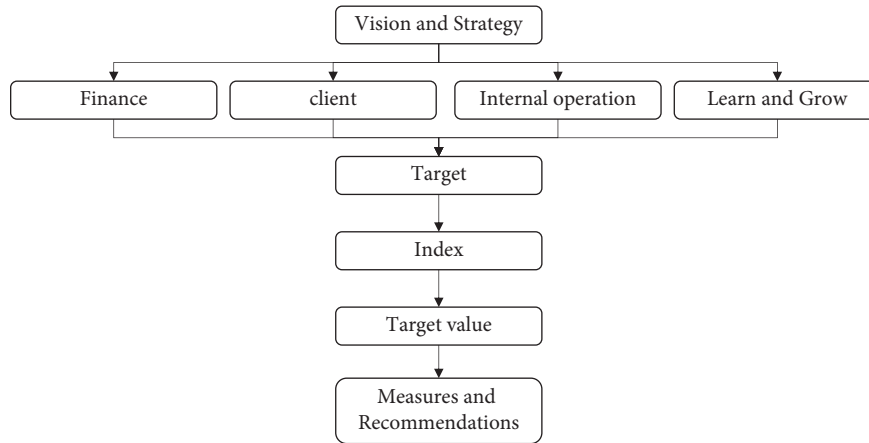
FIGURE 2: The strategy elaboration process.

experience in the theoretical and practical circles, this paper argues that the smooth implementation of the Balanced Scorecard requires enterprises to have the following basic conditions [25, 26].

(1) Businesses have clear and correct strategic goals.

(2) The company has a relatively complete organizational structure.

(3) The company has a relatively stable operating status.

(4) Enterprises have a sound information platform.

(5) The introduction of the Balanced Scorecard requires the approval of personnel at all levels of the enterprise.

3. Analysis of Problems and Reasons in the Process of Company Performance Appraisal

3.1. Introduction to the Company's Human Resources. Company A currently has a total of 4,522 employees, including 1,276 self-employed employees, 1,751 dispatched employees, and 1,495 employed employees. There are 1,357 middle-level and above managers and 3,165 other employees. The company has 1,112 senior engineers, 1,365 intermediate engineers, and 1,145 junior and below personnel. Doctoral degree accounted for 5.2%. Master's degree accounted for 15.8%. Bachelor degree accounted for 48%. College degree accounted for 25%. Others accounted for 6%. The proportion of employees at each level of Company A is shown in Figure 3.

In 2022, Company A will add 217 new employees, including 118 school recruits, 99 social recruits, and 6 job transfers. Company A reduces 201 employees, of which 192 are resigned, 5 are transferred out, and 4 are retired. The employee turnover rate is 14%. The employee turnover rate decreases by 2 percentage points from the previous year. The turnover rate of undergraduates and above was 6.6%, a decrease of 2.5 percentage points from the previous year (as shown in Figure 4).

3.2. Performance Appraisal Method for the Company. Company A has established a "target-performance" full-staff assessment system. The company develops a schedule at the beginning of the year. The person in charge of the department signs the target responsibility guarantee with the company. The company needs to sign a target responsibility letter with the person in charge of party building, business performance, quality management, safety production, and environmental management. At the end of the year, the assessment will be carried out according to the degree of completion of the plan. This is the basis for evaluating the performance salary of the department. Employee appraisal is similar to department appraisal. At the beginning of the year, set personal annual goals according to the content of departmental goals and responsibilities. At the end of the year, it will be reviewed according to the completion of the target. The results of performance appraisal are used in the evaluation of excellence, salary adjustment, job promotion, and job resignation.

3.3. Problems with Performance Appraisal. Through the exploration of the performance appraisal model of Company A, the following questions can be obtained.

(1) The proportion of management positions in the company is relatively reasonable. The company's management staff accounted for 29.8%. According to the French Graicunas theory, when the proportion of management talents in the organization is more than 20%, the organization's management of personnel is relatively less complex and easier to control. It can be seen that the proportion of management personnel of the company is more appropriate according to this theory.

(2) A shortage of high-end talent: the proportion of senior engineers in the company is 24.2%, and the proportion of graduates or above is only 21%. This shows that Company A lacks high-end technical talents. There is an urgent need to introduce favorable measures to attract high-level technical talents or to strengthen the training of internal employees. It can enrich the proportion of high-end technical personnel in the enterprise.

(3) The brain drain rate of the companies is relatively high. The employee turnover rate of Company A in
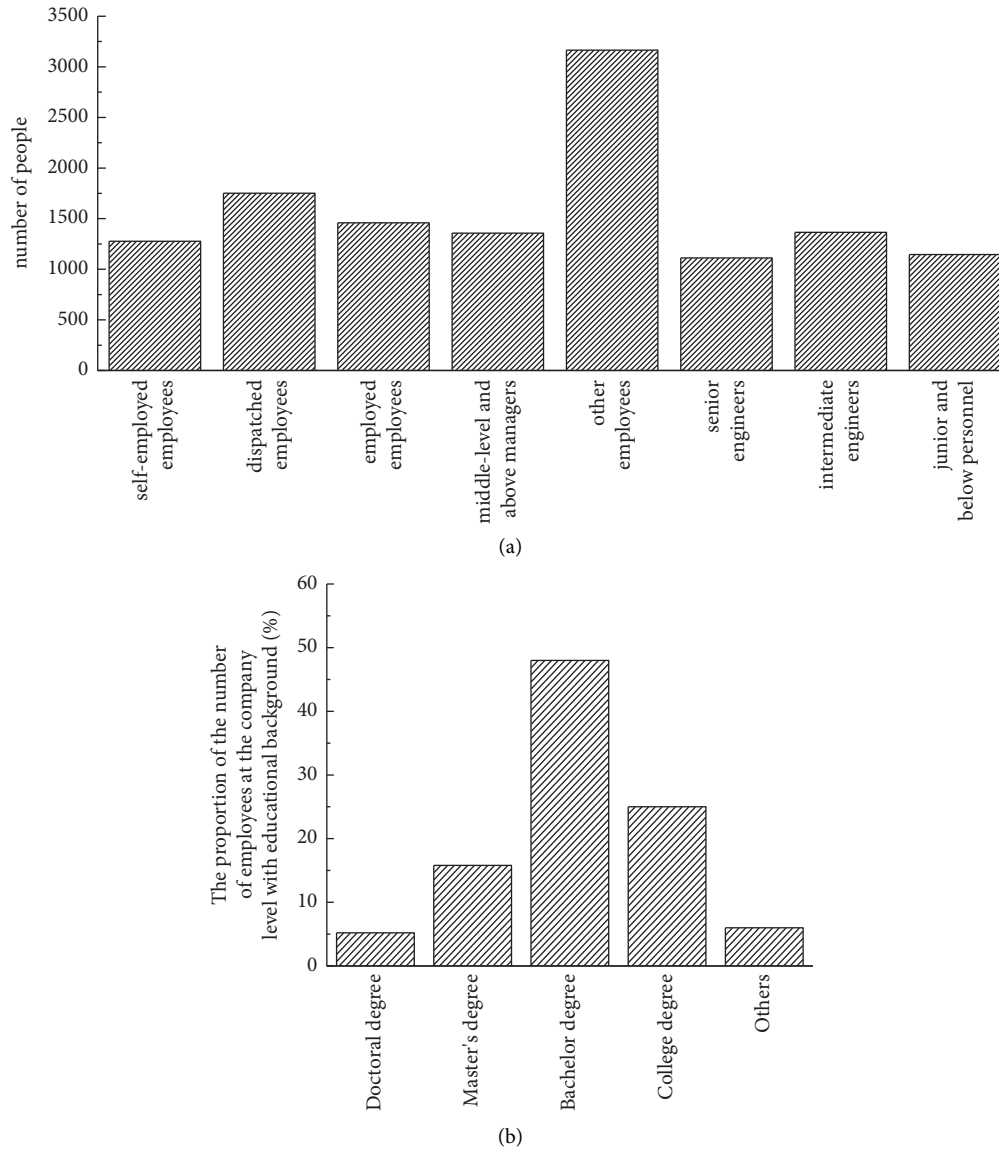
(a)

(b)

FIGURE 3: The proportion of employees at each level of Company A. (a) The number of company personnel. (b) The proportion of the number of employees at the company level with educational background.

2022 is 14%, a decrease of 2 percentage points from the previous year. Among them, the turnover rate of undergraduates and above is 6.6%, a decrease of 2.5 percentage points from the previous year. Although it is lower than that in 2021, the high brain drain rate will still bring great losses to enterprises. It shows that the company's human resource management needs to be further strengthened.

(4) Company A's performance appraisal belongs to the "MBO + 360" (target-performance appraisal method + comprehensive performance appraisal method) comprehensive appraisal model. This model can not only implement the overall goals and responsibilities to the established responsible persons, but also avoid problems such as unequal levels of authority and unclear powers. At the same time, the subjective evaluation of various sources of information caused

by this model is relatively strong, and the degree of objectivity is not enough. It is difficult to compare the job performance of different employees and different departments horizontally, and it is impossible to provide a basis for employee promotion decisions.

MBO refers to the measurement of employees' achievement of set goals and implementation of work standards according to certain indicators or evaluation standards. Corresponding rewards can be given according to the measurement results. It is an evaluation method for employees under the system of "target management" implemented in the whole organization.

The 360 performance appraisal theory comes from the British Army think tank and is fully developed at Intel. It is a method of evaluating people from all angles and from all perspectives by themselves, their supervisors, direct deployment, colleagues, and even customers. Assessments may

include communication skills, interpersonal skills, leadership skills, administrative skills, and more.

3.4. Cause Analysis. Through the analysis of Company A's performance appraisal, it can be summed up in the following three points.

(1) The performance evaluation system focuses more on economic indicators. The performance evaluation system is not obvious for the exploration of the potential of the company's employees, which is not conducive to effectively improve the enthusiasm of employees.

(2) The backwardness of performance management concept: Company A is not strong enough in innovation awareness and is weak in accepting new management concepts. In recent years, the company has gradually increased the recruitment of outstanding business talents, but the introduction of management talents is not enough. The company's leadership and middle-level leaders are in urgent need of progress in learning and improving management concepts.

(3) Performance feedback is not strong enough. The company does not work hard enough on performance feedback. The company lacks a smooth communication mechanism from high level to middle level to the grassroots, which makes it impossible to detect problems and correct them in time. This is not conducive to the smooth progress of the company's overall performance management.

4. Establishment of Company A Performance Evaluation System Based on Balanced Scorecard

4.1. The Principle of Setting Up the Performance Evaluation System [27–29]

4.1.1. Scientific Principle. The scientific principle refers to the design of an evaluation index system that can objectively and correctly reflect the status of the enterprise through scientific methods.

4.1.2. The Principle of Specificity. The principle of specificity means that the evaluation index is a specific and clear index. It is a targeted indicator that can be proposed on a specific aspect of the e-commerce business performance, rather than a vague and unclear indicator.

4.1.3. Measurable Principle. The principle of measurability means that the evaluation index of the evaluation index system should be measurable. No matter how perfect and beautiful an evaluation index system is, the relevant data of its indexes should be available and can be quantified and easily calculated.
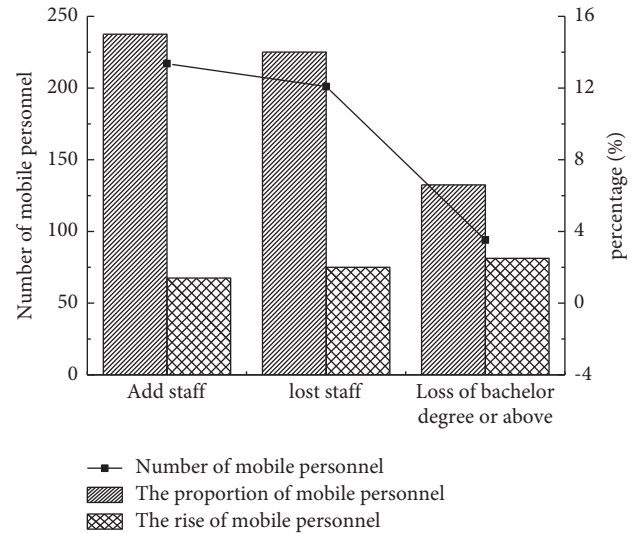

FIGURE 4: The flow of personnel in the company.

4.1.4. The Principle of Achievability. The principle of achievability means that the specific indicators in the evaluation index system can be adopted by relevant personnel and departments and applied to practical work.

4.1.5. General Comparability Principle. The general comparability principle means that the purpose of performance evaluation is not only to require the managers of the enterprise to master and implement the performance evaluation system, but also to make it understandable by stakeholders such as investors and creditors.

4.1.6. Incentive Principle. The incentive principle refers to the evaluation of the performance of the enterprise to judge whether the enterprise goal has been achieved and the current operation status of the enterprise.

4.1.7. Cost-Effectiveness Principle. The cost-benefit principle means that the performance evaluation system is formulated with the purpose of helping enterprises to make profits.

4.2. Determination of Evaluation Index Based on Balanced Scorecard. Based on the principle of performance evaluation, this paper selects some representative indicators that can reflect the performance of Company A.

Starting from the financial dimension (A1), four specific measurement indicators including current asset turnover ratio (b1), inventory turnover ratio (b2), cost profit margin (b3), and sales gross profit margin (b4) have been set. From the customer dimension's (A2) point of view, four specific indicators of market share (b5), customer retention rate (b6), customer acquisition rate (b7), and new click-through rate (b8) have been set. From the perspective of internal operation dimension (A3), four specific measurement indicators including the variety and quantity of commodities (b9), the out-of-stock rate of commodities (b10), the number of payment methods (b11), and the on-time delivery rate of

commodities (b12) have been set. Based on the dimension of learning and growth (A4), four specific indicators including employee loyalty (b13), employee ability (b14), employee motivation (b15), and employee efficiency (b16) are set up.

4.3. Determination of Weights of Performance Evaluation Indicators Based on AHP (Analytic Hierarchy Process)

4.3.1. Constructed Judgment Matrix. The relative importance of the four dimensions of finance, customers, internal operations, and learning and growth are scored. The relative importance of the indicators under each dimension level is scored, and the judgment matrix is constructed by these methods. The mutual importance of each index is judged, and B_{ij} represents the relative importance of B_i to B_j (as shown in Table 1).

4.3.2. Determining the Weight Coefficient of Single-Level Sorting. To determine the largest eigenvector and largest eigenroot of the matrix A, the sorting value can be obtained by solving $A * W =$.

4.3.3. Consistency Check. The next step after calculating the weights is to perform a consistency check. The final calculated results are analyzed, and it is judged whether the constructed judgment matrix can pass the consistency test. If it can pass the consistency test, it means that the specific weight of each evaluation index determined is reasonable. The judgment matrix can be constructed using YAAHP software, and the consistency will be automatically detected by the system.

4.3.4. The Total Ranking and Composite Weight of Each Level Index in Performance Evaluation. Through the calculation of the target layer, the criterion layer, and the scheme layer, this paper takes the value of a group of elements obtained in the scheme layer as the weight value of an element in the corresponding previous layer. This paper finally gets the final weight value of each element. The last layer of the scheme is used as the weight of the target ranking of this article, so as to facilitate the selection of the scheme in this article. The final weight value is obtained by synthesizing the weight value under the single criterion from top to bottom, and then the overall weight values are sorted. The specific synthesis method is to multiply the weight of the index layer relative to the criterion layer by the weight of the criterion layer relative to the target layer. By obtaining the composite weight of the index layer relative to the target layer, the final total ranking of the layers is obtained.

5. Comprehensive Evaluation of Performance Based on Fuzzy Comprehensive Analysis

5.1. Constructing the Index Factor Set. The first step of fuzzy comprehensive evaluation is to establish an index factor set [30]. It is a collection of various elements that affect the

TABLE 1: Importance judgment matrix.

	B_1	B_2	$\ldots$	B_n
B_1	1	B_{12}	$\ldots$	B_{1n}
B_2	B_{21}	1	$\ldots$	B_{2n}
$\ldots$	$\ldots$	$\ldots$	1	$\ldots$
B_n	B_{n1}	B_{n2}	$\ldots$	1

evaluation object. The model of the factor set is expressed as follows.

$$U = (U_1, U_2, U_3, U_4), \tag{1}$$

where U is the factor set.

The subfactor sets are

$$\begin{cases} U_1 = (u_{11}, u_{12}, u_{13}, u_{14} \cdots) \\ U_2 = (u_{21}, u_{22}, u_{23}, u_{24} \cdots) \\ U_3 = (u_{31}, u_{32}, u_{33}, u_{34} \cdots) \\ U_4 = (u_{41}, u_{42}, u_{43}, u_{44} \cdots) \end{cases}, \tag{2}$$

where U_1, U_2, U_3, and U_4 are the subfactor sets. u_{ij} is the factors in a subfactor set.

5.2. Constructing the Language Comment Set. The language comment level is a set composed of the evaluation results of the object. The language rating scale is established as follows.

$$\begin{aligned} V &= (V_1, V_2, V_3, V_4, V_5) \\ &= (\text{very good, good, average, poor, very poor}), \end{aligned} \tag{3}$$

where V is the language comment set. V_n is the factor of language annotation sets.

5.3. Determining the Weight Vector Set. Since the importance of each indicator to the evaluation object is different, in order to distinguish the importance of each indicator from the evaluation object, a corresponding weight is assigned to each indicator. W is the indicator to determine the weight vector using AHP.

$$W = (W_1, W_2, W_3, \ldots, W_n), \tag{4}$$

where W_n is the weight vector.

5.4. Determining Indicator Membership. When the evaluation level is determined, a questionnaire survey method is used to obtain the evaluation value of each index. The membership degree R corresponding to the five comment levels is

$$R = (R_1, R_2, R_3, R_4), \tag{5}$$

where R_n is the set of factors in R.

The calculation of index membership is divided into two steps. The first step is to obtain the actual value of each index. The second step is to evaluate the actual value of each indicator by experts through a questionnaire survey.

6. Application of Performance Evaluation System Based on Balanced Scorecard in Company A

The four dimensions of finance, customers, internal operations, and learning and growth are set as the first-level evaluation indicators.

$$A = (A_1, A_2, A_3, A_4), \tag{6}$$

where A_1 represents finance, A_2 represents customers, A_3 represents internal operations, and A_4 represents learning and growth.

Based on the determined evaluation indicator, the second-level index factor set is determined.

$$\begin{cases} A_1 = (b_1, b_2, b_3, b_4) \\ A_2 = (b_5, b_6, b_7, b_8) \\ A_3 = (b_9, b_{10}, b_{11}, b_{12}) \\ A_4 = (b_{12}, b_{14}, b_{15}, b_{16}) \end{cases}. \tag{7}$$

Based on the performance evaluation index hierarchy chart, the relative importance of each index in the analytic hierarchy process is compared. After combining the opinions of experts and individuals, the following judgment matrix can be obtained.

$$A = \begin{bmatrix} 1 & 2 & 3 & 3 \\ 1/2 & 1 & 2 & 3 \\ 1/3 & 1/2 & 1 & 2 \\ 1/3 & 1/3 & 1/2 & 1 \end{bmatrix},$$

$$A_1 = \begin{bmatrix} 1 & 1/2 & 1/5 & 1/4 \\ 2 & 1 & 1/4 & 1/3 \\ 5 & 4 & 1 & 3 \\ 4 & 3 & 1/3 & 1 \end{bmatrix},$$

$$A_2 = \begin{bmatrix} 1 & 3 & 2 & 4 \\ 1/3 & 1 & 1/2 & 2 \\ 1/2 & 2 & 1 & 3 \\ 1/4 & 1/2 & 1/4 & 1 \end{bmatrix}, \tag{8}$$

$$A_3 = \begin{bmatrix} 1 & 3 & 5 & 2 \\ 1/3 & 1 & 3 & 2 \\ 1/5 & 1/3 & 1 & 1/2 \\ 1/4 & 1/2 & 2 & 1 \end{bmatrix},$$

$$A_4 = \begin{bmatrix} 1 & 1/2 & 2 & 1/5 \\ 2 & 1 & 2 & 1/5 \\ 1/2 & 1/2 & 1 & 1/3 \\ 5 & 5 & 3 & 1 \end{bmatrix}.$$

All the above judgment matrices pass the systematic consistency test. Based on the above data, the weights of all 16 indicators for the performance evaluation of Company A

are automatically calculated by the YAAHP software. Figure 5 shows the index weights of each layer and the total ranking weight.

Taking the obtained actual data of Company A in 2022 as an example, the index membership degree is calculated. The performance indicators of Company A are shown in Figure 6.

Through a questionnaire survey of 20 experts from Company A, the scoring results of the indicator data are shown in Figure 7.

The reliability of the questionnaire is analyzed. The Alpha (reliability test coefficient) coefficient is often used as an indicator to measure the reliability. The smaller the Alpha coefficient value, the smaller the reliability, and otherwise the higher. There is no uniform standard for the numerical size of the reliability coefficient. In general, when Alpha > 0.9, the reliability is very good. When $0.8 \leq \text{Alpha} \leq 0.9$, it means that the reliability can be accepted. When $0.7 \leq \text{Alpha} \leq 0.8$, it means that the scale needs to be greatly revised, but it is still useful. When Alpha < 0.8, it means that the questionnaire should be redesigned. The reliability coefficient of this part is 0.866, indicating that the reliability is acceptable.

6.1. Fuzzy Comprehensive Evaluation.
The judgment matrix of financial A_1 is

$$R_1 = \begin{bmatrix} 1/20 & 1/5 & 7/10 & 1/20 & 0 \\ 1/20 & 3/10 & 3/5 & 1/20 & 0 \\ 0 & 7/20 & 7/20 & 3/10 & 0 \\ 2/5 & 2/5 & 1/5 & 0 & 0 \end{bmatrix}. \tag{9}$$

According to the weight of each index of the financial dimension, the matrix A_1 is calculated.

$$A_1 = (0.117, 0.333, 0.357, 0.170, 0). \tag{10}$$

The judgment matrix of customer A_2 is

$$R_2 = \begin{bmatrix} 3/10 & 2/5 & 3/10 & 0 & 0 \\ 1/10 & 3/5 & 3/10 & 0 & 0 \\ 1/20 & 1/5 & 11/20 & 3/20 & 1/20 \\ 0 & 2/5 & 2/5 & 1/10 & 1/10 \end{bmatrix}. \tag{11}$$

According to the weight of each index of the customer dimension, the matrix A_2 is calculated.

$$A_2 = (0.170, 0.377, 0.379, 0.051, 0.023). \tag{12}$$

The judgment matrix of internal operations A_3 is

$$R_3 = \begin{bmatrix} 3/5 & 1/5 & 1/5 & 0 & 0 \\ 1/10 & 1/2 & 2/5 & 0 & 0 \\ 7/10 & 1/5 & 1/20 & 1/20 & 0 \\ 4/5 & 1/10 & 1/10 & 0 & 0 \end{bmatrix}. \tag{13}$$

According to the weight of each index of the internal operations dimensions, the matrix A_3 is calculated.
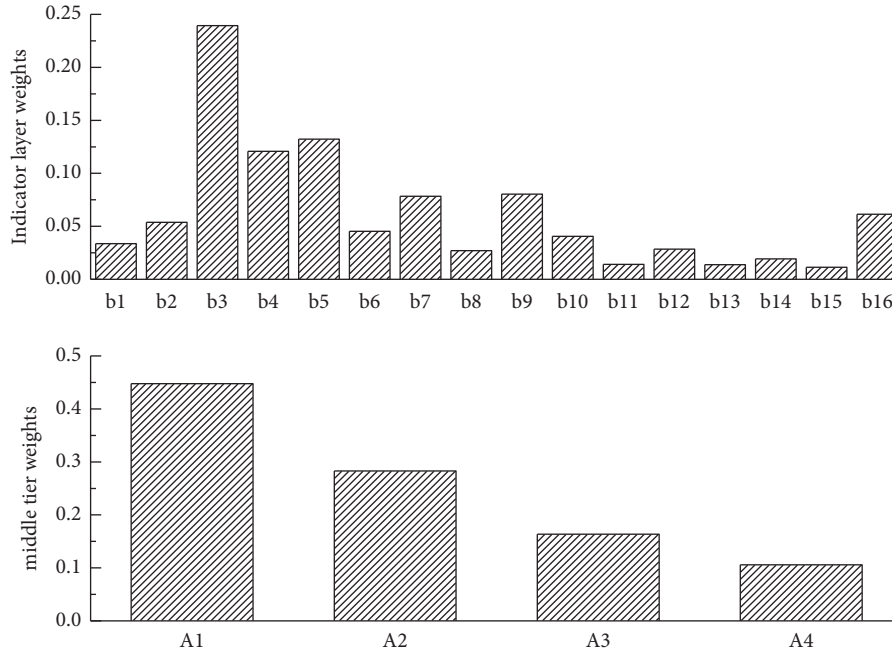
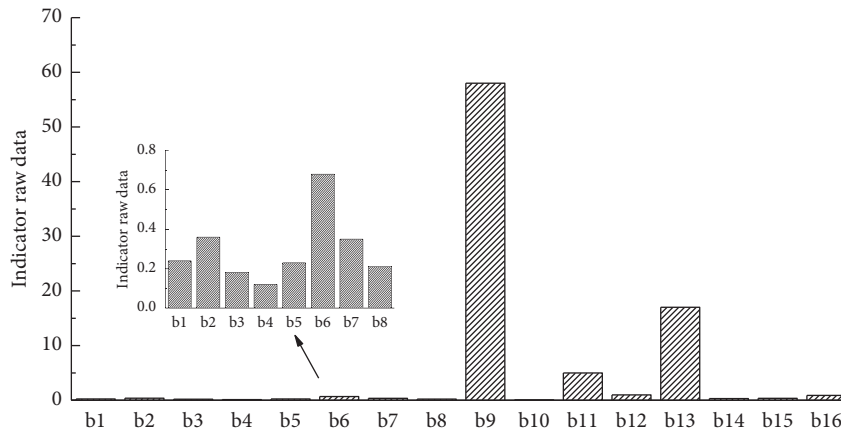Figure 5: The weight of each layer index and the total ranking weight.

Figure 6: The performance indicators of Company A.

$$A_3 = (0.520, 0.257, 0.219, 0.004, 0). \qquad (14)$$

The judgment matrix of learning and growth A_4 is

$$R_4 = \begin{bmatrix} 1/10 & 1/4 & 3/5 & 1/20 & 0 \\ 7/10 & 3/20 & 1/10 & 1/20 & 0 \\ 1/20 & 1/5 & 7/10 & 1/20 & 0 \\ 1/2 & 2/5 & 1/20 & 1/20 & 0 \end{bmatrix}. \qquad (15)$$

According to the weight of each index of the learning and growth dimensions, the matrix A_4 is calculated.

$$A_4 = (0.436, 0.314, 0.201, 0.050, 0). \qquad (16)$$

From the above calculation data, the judgment matrix R of the first-level index can be obtained as

$$R = \begin{bmatrix} 0.118 & 0.333 & 0.366 & 0.170 & 0 \\ 0.170 & 0.377 & 0.379 & 0.051 & 0.023 \\ 0.058 & 0.257 & 0.219 & 0.004 & 0 \\ 0.436 & 0.313 & 0.201 & 0.050 & 0 \end{bmatrix}. \qquad (17)$$

By combining formula (17), the matrix A can be obtained.

$$A_4 = (0.232, 0.331, 0.328, 0.097, 0.007). \qquad (18)$$

Figure 8 shows the overall budget performance evaluation results of Company A in 2022.

According to the results of the above fuzzy evaluation, scores are in a percentage system. By assigning different weights to the five levels (very good, good, fair, poor, and
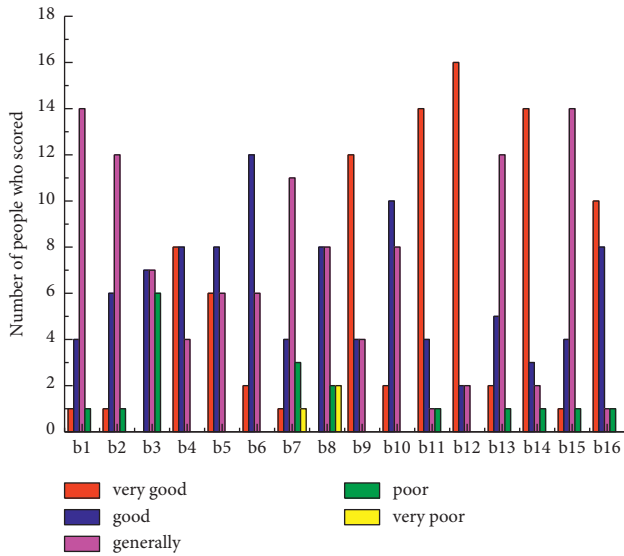
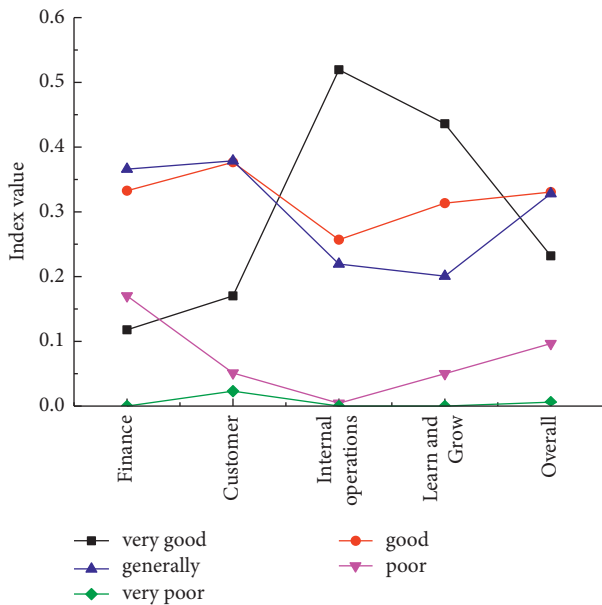Figure 7: The expert scoring results of the indicator data.

Figure 8: Overall budget performance evaluation results in 2022.

very poor), the weights are (90, 75, 60, 45, and 30). According to the above comprehensive evaluation results, the comprehensive score of performance evaluation of Company A in 2022 is calculated as 70.

7. Comprehensive Analysis of Evaluation Results and Suggestions for Improving Performance

Specifically, Company A can improve its performance level from the following four aspects.

7.1. Financial-Level Advice. Company A's financial performance evaluation level is average. The company needs to make efforts at the financial level to improve its performance level. First, because the enterprise mainly conducts marketing through the network platform, the enterprise can strengthen the effective use of the network sales platform. Company A needs to reduce the cost of product sales to achieve the result of increasing product profit margins. Secondly, the network market has great potential for exploration and development. Enterprises can vigorously develop the potential customer groups in this market, so as to achieve the purpose of increasing their sales revenue. Finally, the investment in sales plays a very important role in the development of the enterprise.

7.2. Customer-Level Advice. The level of customer performance of the firm is average. The company needs to make efforts at the customer level to improve its own performance level. First, businesses still need to maximize customer satisfaction. This can reduce the operating cost of the enterprise. As the differences in the means of competition among competitors in the e-commerce industry are decreasing day by day, individual e-commerce companies in the industry are striving to optimize their service quality and widen the gap with their competitors in terms of service quality.

7.3. Internal Operational-Level Advice. The internal operation level of the enterprise is very good. This result shows that the enterprise attaches great importance to the internal operation of the enterprise. But there are still some steps to be taken to improve the internal operation of the enterprise. First, more product styles can be developed and the number of varieties of goods can be increased. Secondly, it is necessary to ensure the supply of sources of goods and sufficient inventory, so as to ensure the supply of goods and reduce the rate of shortage of goods. Again, more payment methods can be provided to facilitate customers to make payments. Finally, a logistics company with fast logistics can be chosen and the on-time delivery rate of goods can be improved.

7.4. Learning and Growth Level Advice. The learning and growth performance level of the enterprise is very good. The enterprise can maintain the learning and growth performance level of the enterprise from the following aspects. First of all, it can improve the wages and benefits of employees. Excellent employees can be retained as much as possible and the personnel turnover rate can be reduced. Then, employees can be encouraged to express their opinions. Opinions that are beneficial to the development of the enterprise should be considered for adoption. Secondly, regular training can be carried out to improve the relevant professional level of employees, so as to provide better service to customers. Third, through the reasonable organization and configuration of the employees of the enterprise, the talents are dedicated. Through education and training to improve the professional level and quality of employees, the labor productivity of employees has been improved.

8. Conclusions

As an important management method of an enterprise, performance appraisal occupies an important position in the long-term development of an enterprise. Scientific performance appraisal can not only effectively improve individual performance at the employee level, but also achieve performance goals at the organizational level, so as to achieve the strategic goal of long-term development of the enterprise. Therefore, this paper adopts the Balanced Scorecard theory to evaluate the internal economic management and performance of enterprises.

According to the results of the above fuzzy evaluation, scores are in a percentage system. By assigning different weights to the five levels (very good, good, fair, poor, and very poor), the weights are (90, 75, 60, 45, and 30). According to the above comprehensive evaluation results, the comprehensive score of performance evaluation of Company A in 2022 is calculated as 70. Through the evaluation results, it can be seen that the financial performance evaluation level of the enterprise is general. The level of customer performance of the firm is average. The internal operation level of the enterprise is very good. The learning and growth performance level of the enterprise is very good.

Aiming at the specific problems of Company A obtained from the analysis, the corresponding suggestions for improving Company A's performance are put forward. Corresponding suggestions are made from the four perspectives of finance, customer, internal operation, and learning and growth. It is hoped that Company A can achieve better and faster development by taking these measures.

Data Availability

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

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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