



Research on Human Resource Performance Evaluation of Furniture Enterprise Based on DEA Model

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Abstract

Human resource performance management can help enterprises to improve their overall strength and gain advantages in the fierce market competition. For Furniture Enterprises, making the right human resources decisions and carrying out effective human resources activities can greatly improve the overall business situation. This study uses DEA model to discand analyze the present situation of human resource performance evaluation of a furniture enterprise, and determines the index of human resource performance evaluation of a furniture enterprise, according to the conclusion of the data analysis, the concrete improvement suggestions are given.

Key words: furniture enterprise; DEA model; Human resources; The performance evaluation

1. INTRODUCTION

Based on the data envelopment analysis method, this paper analyzes the present situation of human resource performance of a furniture enterprise, and provides guidance for the improvement of enterprise human resource performance from the perspective of satisfaction, satisfaction and stability, with a view to improving the enterprise's human resource management ability and team competitiveness, and providing reference for enterprises to become bigger and stronger and effectively cope with increasingly fierce market competition.

2. DEA ANALYSIS

2.1. Data sources and processing

Most of the index data selected in this paper are provided by the relevant persons in charge of each department of the furniture enterprise, and the other part is to obtain first-hand data in the form of questionnaires. The final results of the questionnaire data are obtained after the invalid questionnaires are eliminated by issuing questionnaires to people in different positions [1]. The data comes from the survey data of furniture enterprises, and the survey content mainly involves investment indicators of A furniture enterprise in 2021, including capital investment indicators, which are divided into job and salary indicators. Output indicators of A furniture enterprise in 2021, including indicators of three dimensions, satisfaction, competency and stability. Use Excel to establish the database (see attached table for specific data), and use DEAP 2.1 to process the data.

2.2. Input-output indicators

TABLE 1. DEFINITION AND EVALUATION CRITERIA OF INPUT-OUTPUT INDICATORS

Level 1 indicators	Level 2 indicators	Level 3 indicators	Indicators show
Input index (x)	Capital investment	Position	General staff 40 Grass-roots manager 60

			Middle management 80 Senior Management 100
		Wages and salaries	Basic salary, performance bonus and allowance paid to employees annually
Output index (y)	Dimension evaluation	Satisfaction	A: Complete satisfaction. Satisfaction: 100% B: Satisfied with the position; But hope for better, satisfaction: 80%-100% C: Basically satisfied, but think there is a lot of room for improvement, satisfaction: 60%-80% D: Is the potential eliminated object, satisfaction rate: 40%-60%
		Up to degree	A: Fully competent, with the potential for advancement; Competence: 100% B: Competent for the position; Talent inventory is stable talent, competency: 80%-100% C: Basically competent, but there is still a lot of room for growth. Competence: 60-80% D: Potential elimination target, competency: 40%-60%
		Stability	1. Over 40 years old, with more than 10 years of working experience in the group, local or working in this company Having a house and a car, married with children, normal development, dual-income, stability:100%. 2. Age from 30 to 40, with more than 5 years of working experience in the group and local housing car, married with children, normal development, stability: 80%-100%. 3. The group has 3-5 years of working experience and owns a house and a car locally, but the development situation is abnormal and the stability is 60%-80%. 4. The working age of the group is less than 2 years, and there is no house in the local area, unmarried or unmarried, or married but separated from Stability: 40%-60%. 5. The person who has submitted the resignation application and is waiting for the resignation procedure or is planning to be eliminated at the bottom, Stability: 0%.

2.3. Data envelope analysis results

TABLE 2. MEASUREMENT RESULTS OF HUMAN RESOURCE PERFORMANCE DATA OF FURNITURE ENTERPRISE A

The test unit	Position	The comprehensive efficiency	Pure technical efficiency	The scale efficiency
1	Top management	0.458	1	0.458
2	Top management	0.464	1	0.464
3	Top management	0.411	0.5	0.821
4	Middle management	0.56	0.931	0.602
5	Middle management	0.533	0.533	1
6	Middle management	0.489	0.524	0.934
7	Middle management	0.458	0.531	0.862
8	Middle management	0.471	0.54	0.871
9	Grass-roots manager	0.57	0.687	0.829
10	Grass-roots manager	0.595	0.667	0.892
11	Grass-roots manager	0.754	1	0.754
12	Grass-roots manager	0.726	1	0.726
13	Grass-roots manager	0.576	0.667	0.864
14	Grass-roots manager	0.667	0.667	1
15	Grass-roots manager	0.68	0.729	0.932
16	Grass-roots manager	0.588	0.667	0.882
17	Grass-roots manager	0.633	0.667	0.949

18	Grass-roots manager	0.533	0.667	0.8
19	Grass-roots manager	0.667	0.667	1
20	General worker	1	1	1
21	General worker	0.802	1	0.802
22	General worker	0.938	1	0.938
23	General worker	0.95	1	0.95
24	General worker	1	1	1
25	General worker	1	1	1
26	General worker	0.94	1	0.94
27	General worker	0.929	1	0.929
28	General worker	1	1	1
29	General worker	1	1	1
30	General worker	1	1	1
31	General worker	1	1	1
32	General worker	1	1	1
Mean		0.731	0.833	0.881

Note: create=technical efficiency from CRS DEA

Vrste=technical efficiency from VRS DEA

Scale=scale efficiency=crste/vrste

It can be seen from Table 2 that the comprehensive efficiency of human resource performance of furniture company A is 0.731. Among 32 test subjects, only 8 test subjects have an overall efficiency value of 1, accounting for 25%, indicating that the overall technical efficiency of the 8 evaluated employees is effective. In other words, 8 units achieve both "technical efficiency" and "scale efficiency". There are 24 units whose overall technical efficiency value is less than 1, accounting for 75%, which belong to relatively invalid units. The lowest total technical efficiency is the third investigated employee (0.411), who is a senior manager of a furniture enterprise, with satisfaction, competency and stability score of 100, 69 and 80 respectively.

Table 2 shows the pure technical efficiency of the evaluated units. The pure technical efficiency of the human resource performance of furniture company A is 0.833. Among the 32 evaluated units, 17 units have the pure technical efficiency value of 1, accounting for 53.1%, and 15 units have the pure technical efficiency value of less than 1, accounting for 46.9%. The least technically productive worker was the third.

In Table 2, the scale efficiency of human resources in furniture company A is 0.881. Among the 32 evaluated units, 11 units have to scale efficiency of 1, accounting for 34.4%, and 21 units have to scale efficiency of less than 1, accounting for 65.6%, indicating that the scale efficiency of these 21 employees is relatively ineffective.

2.4. Input-output improvement directions

TABLE 3. FIRM 3 PROJECTION SUMMARY

Variable		Original value	Radial movement	Slack movement	Projected value
Output	1	100	0	0	100

Output	2	69	0	0	69
Output	3	80	0	0	80
Input	1	100	-50	0	50
Input	2	659860	-329930	-10881.5	319048.5

As can be seen from Table 2, the comprehensive technical efficiency, pure technical efficiency and scale efficiency of the third employee are all less than 1, which fails to reach DEA effectiveness. When studying the improvement direction of input-output, this employee is taken as the representative for analysis. As can be seen from Table 3, the first, second and third outputs have no redundancy. The first input factor has input redundancy 50. The second input factor has input redundancy of 340,811.5 yuan. According to the output redundancy of the third sample, the first input factor can be reduced by 50 yuan, and the second input factor can be reduced by 340,811.5 yuan. That is, when the salary is reduced by 340,811.5 yuan and the satisfaction of the employee is reduced by 50%, the input and output of human resources spent on the employee reach a balance.

2.5. Analysis of input-output efficiency of human resources in different positions

TABLE 4. ANALYSIS OF INPUT-OUTPUT EFFICIENCY OF HUMAN RESOURCES IN DIFFERENT POSITIONS

Position	Average value: comprehensive efficiency	Average value: pure technical efficiency	Average term: scale efficiency
Top management	0.44	0.83	0.58
Grass-roots manager	0.64	0.74	0.88

General worker	0.97	1.00	0.97
Middle management	0.50	0.61	0.85
Total	0.73	0.83	0.88

From table 4, you can just see, general office staff every efficiency is high, the second is the first-line managers, middle managers and senior managers of the input and output and its imbalance, is less than the average of all the data, it shows that A furniture enterprise top managers for the use of human resources waste phenomenon, The satisfaction degree and the salary paid to the middle and senior staff cannot achieve DEA effectiveness, while the satisfaction degree and salary of the grass-roots and general staff are mostly achieved DEA effectiveness, and human resources are effectively used.

3.CAUSE ANALYSIS

3.1. Defects in talent introduction and staff training

On the one hand, the talent introduction mechanism is in urgent need of improvement. There are mainly structural problems such as unreasonable human resource structure and talent dislocation, among which the biggest challenge is the inability to recruit, let alone the right people [2]. In addition, in the talent selection, there is nepotism, nepotism, through unfair competition and other serious phenomena.

3.2. Employee promotion mechanism is defective

From DEA analysis results, it can be seen that the satisfaction, competence and stability of most general employees are higher than those of middle and senior managers, but there is a big gap in salary level. At present, we can see from the above study A furniture enterprises not yet fully understand to improve the staff promotion mechanism to improve the construction of human resource management, improve employee collaboration consciousness, enhances the team cohesion of the enterprise, the introduction of talents and other key role, also not be included in the the scope of the human resource management evaluation system has not been fully appreciated.

4.IMPROVEMENT STRATEGY

4.1. Satisfaction improvement strategies

First,refine the personnel planning, set up the proportion of personnel composition of each factory, the standard industry and regional salary standard, improve the efficiency of fine staff; focus on key positions

echelon integrity and reserve readiness.

Second, broaden recruitment channels. In addition to external headhunting companies and traditional recruitment channels, we should make good use of our own brand effect, exert brand influence through new media publicity channels, and attract talents. Secondly, with the help of employees, managers, fresh graduates, etc., use their independent social circles to promote and publicize.

Thirdly, deepen school-enterprise cooperation. Determine the precise needs of personnel, select the personnel who meet the business and post requirements, deepen the cooperation between schools and enterprises, strengthen the stability of interns, establish the admission standards, design the personnel identification model according to the employment needs of business departments, and effectively identify interns with strong adaptability and high satisfaction.

4.2. Satisfaction improvement strategies

First, in-depth analysis of jobs. Through questionnaire method, interview method, job log method and other methods, job analysis is carried out to conduct a detailed and in-depth analysis of the post name, nature, task, rights and responsibilities, procedures, qualifications, etc [3]. On this basis, the recruitment and selection standards are formulated to help enterprises introduce excellent employees and ensure that the knowledge, skills, abilities and quality of employees are matched with their positions.

Second, fully analyze the human-post matching degree. Everyone has his own advantages and disadvantages. How to make the best of his strength and avoid his weaknesses, we need to "make the best of people and make the best of things" to accurately match employees and positions to maximize utility.

Thirdly, the satisfaction force model is established. Job analysis and man-post matching degree analysis are the basis of establishing satisfactory force model. The effective satisfaction model can provide a positive and beneficial reference for talent selection. Through the construction of satisfaction force model, it can further classify the work characteristics of various talents in specific positions [4]. indicators of satisfaction model mainly include the following contents: role positioning, self-recognition, knowledge, skills, values, quality and motivation, etc.

4.3. Stability improvement strategies

First, formulate retention mechanisms and care policies suitable for employees' needs, and improve employees' willingness to stay on.It mainly includes four aspects: career retention, emotional retention, treatment retention and cultural retention.

Second, a people-oriented incentive system should be established to encourage, support, recognize and reward employees' achievements in a fair and open manner, thereby effectively improving the overall work enthusiasm of employees, fully stimulate their work potential and improve their satisfaction level.

Thirdly, strengthen management of dismissal risk posts. The outflow of talents is an important human resource management problem faced by enterprises, and it is a difficult problem to effectively control the turnover rate of employees. Therefore, we should strengthen management, identify key posts with a high turnover rate, analyze the reasons for employees' turnover, and take targeted measures [5].

5. RESEARCH CONCLUSIONS

Based on DEA method to A furniture enterprises as the research object, using the BCC model, adopt the questionnaire method, the performance of its human resources management present situation has carried out investigation and analysis, from the satisfaction, satisfaction, stability analysis in three aspects: the evaluation index, 32 employees surveyed for a furniture enterprise efficiency evaluation of the current human resource input and output of the unit. The results show the overall efficiency, pure technical efficiency and scale efficiency of each employee, and it is found that there are over-input and under-output in 32 units. Further analysis of the reasons for failure to achieve DEA effectiveness shows that these employees have a great space for improvement in the utilization efficiency of human resources. The research results provide specific and targeted strategies for A furniture company to improve human resource efficiency, including refining personnel planning, broadening recruitment channels, deepening school-enterprise cooperation, formulating retention mechanism and care policies suitable for employees' needs, and strengthening dismissal risk management.

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