

Optimize the Evaluation Index System of Internal Human Resource Management and Control of Ocean Shipping Companies

Hong Zhao*, Xiaoshan Ding, and Jiakai Wang

Hefei Technology College
Hefei 230012, China



www.cerf-jcr.org



www.JCRonline.org

ABSTRACT

Zhao, H.; Ding, X., and Wang, J., 2020. Optimize the evaluation index system of internal human resource management and control of ocean shipping companies. *In: Li, L. and Huang, X. (eds.), Sustainable Development in Coastal Regions: A Perspective of Environment, Economy, and Technology. Journal of Coastal Research, Special Issue No. 112, pp. 461-464. Coconut Creek (Florida), ISSN 0749-0208.*

The internal control environment of an enterprise is an important part of the internal management of an enterprise, which can be divided into three parts: corporate governance, corporate culture and human resource management policies. In order to optimize management and objectively evaluate the status of the internal control environment of the enterprise, this article analyzes the employment characteristics and labor market of domestic shipbuilding enterprises under the new situation, combined with industry characteristics, and analyzes the status quo of labor disputes in shipbuilding enterprises, using the actual experience of typical domestic shipbuilding enterprises. Based on the data, summarize the human resource management measures of shipbuilding enterprises under the new situation.

ADDITIONAL INDEX WORDS: *Evasion, law, risk, labor dispute, corporate culture, human resource management.*

INTRODUCTION

The corporate management framework is undoubtedly the foundation of the internal control environment (Jia *et al.*, 2019; Liu and Peng, 2011). The most common problem in corporate governance is caused by the asymmetry between the owner and the operator's profit claim and control rights (Xu, 2012). The occurrence of such problems usually triggers the establishment and effective implementation of internal control systems (Yu and Yang, 2011). Therefore, it is very necessary to establish a corporate governance framework that conforms to the laws of modern enterprise operation and is suitable for my country's national conditions (Lepofsky and Caldwell, 2013; Tyagi and Sawhney, 2010).

Coastal Port Ship Co., Ltd. is an enterprise directly under the former Ministry of Domestic Trade. It was restructured into a limited liability company in April 2007. Take the coastal port shipping company as a sample for relevant analysis and discussion.

THE CHARACTERISTICS OF THE HUMAN RESOURCE MANAGEMENT SITUATION IN THE SHIPBUILDING INDUSTRY

Employment Characteristics of the Shipbuilding Industry

1) Diversification. The main forms of employment in the shipbuilding industry are generally divided into contract employees, construction team migrants who undertake labor projects, and auxiliary labor of the nature of labor dispatch.

According to the statistics of key shipbuilding enterprises, the proportion of the three types of employment forms is about 30%, 65%, 5%, in addition to the form of employment, the quality level and age level of employees also show diversified characteristics.

2) High liquidity. Since most of the shipbuilding enterprises have construction teams to undertake the main construction tasks, there are many construction teams, ranging from dozens of people to hundreds of thousands of people, with frequent turnover of personnel. On the one hand, problems such as uneven management levels, uneven distribution of production tasks, unfair salary distribution, and untimely payment of wages have led to serious employee turnover; on the other hand, because the professionalism of migrant workers is generally low, the sense of belonging to the company is low, Resulting in a high flow rate.

3) Strong professionalism. The shipbuilding industry is labor-intensive and technology-intensive. Employees who have just entered the industry need to undergo professional pre-job training and pass assessments before they can start their jobs.

4) High cost. Due to the low average skills of the construction team and the inadequate management, it is easy to cause the production tasks to be unable to complete the quality and quantity, and there are more delays and rework.

Employment Market in the Post-Financial Crisis Era

After the financial crisis, all economies in the world have been severely impacted, and the level of economic development has shrunk to varying degrees. Affected by this, new orders received by the shipbuilding industry have dropped sharply, but the hand-held orders have remained at a relatively high level, and the completion of shipbuilding has continued to grow. Since 2011, affected by the continued downturn in the global shipbuilding

DOI: 10.2112/JCR-SI112-122.1 received 30 June 2020; accepted in revision 3 August 2020.

*Corresponding author: qiwoo6@163.com

©Coastal Education and Research Foundation, Inc. 2020

market, my country's three major shipbuilding indicators have fallen year-on-year, and the shipbuilding industry has entered a period of deep adjustment. However, in the post-financial crisis era, the biggest problem facing the shipbuilding industry is not the unpredictability of the market, but the intensified "labor shortage" of enterprises with the development of society.

ALL LEVELS OF INDICATORS OF THE COMPANY'S INTERNAL CONTROL ENVIRONMENT

The content of the corporate internal control environment proposed in the "COSO Report" can be divided into seven parts: First, the honesty and ethics of employees can be reflected in business behavior, conflicts of interest, and ethical standards of conduct.; Second, the competence of employees, such as whether employees are competent for a specific job requirement; third, the board of directors or supervisory committees, such as whether the board is independent of the management; fourth, the management philosophy and business methods, such as management's Attitudes and handling methods of human error; fifth, organizational structure, such as whether the channel for communicating information from the lower level to the management is smooth; sixth, the way of power and responsibility, such as whether there are clear power and responsibility regulations for the responsibilities of managers of key departments; 7. The formulation and implementation of human resources policies, such as whether it is possible to formulate employee employment, training, and incentive policies on a regular basis.

Analyzing the above specific content, in this article, the elements of a company are divided into three main components: corporate

governance, corporate culture, and human resource policies and analyzed (see Table 1).

Comparing the above three main components, we can see that these problems exist in the current internal control environment in our country. First of all, in terms of management, it can be seen that the corporate with the board of directors as the core has not yet been established. Therefore, the internal control structure of some enterprises is under the administrative leadership of the controlled object and cannot perform the functions of supervision and control. So that it is impossible to protect the economic interests of the protected persons (shareholders and related interest groups). Secondly, the organizational structure of the enterprise is unreasonable, the internal institutions are in a state of parallelism, and their own governance, and due to the unclear powers and responsibilities of the managers, it has triggered the phenomenon of shirking responsibility between departments and subordinates. In addition, in terms of human resources policy, it is impossible to provide the incentive policies that employees should have. In terms of training and promotion, it is unable to satisfy the career development of employees, which makes the turnover rate of employees increase.

Through the above analysis, the main indicators can be obtained. These indicators can more comprehensively reflect the basic conditions of the internal control environment (see Table 2).

Of course, these indicators alone cannot be used to evaluate the internal control environment. It is also necessary to carry out index weight design and index calculation on the basis of this index system, in order to obtain the comprehensive score of the internal environment and conduct the evaluation of the control environment.

Table 1. *Classification of elements of internal control environment.*

Classification	Environmental Factors
Corporate Governance	Board of directors or supervisory committee, organizational structure, power and responsibility methods
Company Culture	Management philosophy and business methods, employee ethics
Human Resources Policy	Human resources policy, employee competence

Table 2. *Enterprise internal control environment indicator system.*

Level 1	Level 2	Level 3
Corporate Governance	Board of Directors	Board size, board structure, information communication, supervision (External director's foreign-related nature)
	Supervisory committee	Supervision committee structure, financial review, and implementation of supervision powers
	Organizational structure	Chairman's powers and responsibilities, subordinate committees, supervisory committee powers, and information transmission
	Power and responsibility	Clear rights and responsibilities, execution of rights and responsibilities
Company Culture	Management philosophy and business method	Risk appetite, business planning, planning execution, risk assessment
	Employee ethics	System implementation, reward and punishment system
	Recruitment	Recruitment effectiveness
Human Resources Policy	Performance appraisal	Performance appraisal content, regular appraisal
	Salary System	The incentive effect of the salary system, the implementation of the salary system
	Training	Training objectives, training effects
	Excitation	Incentive plan formulation, plan execution
	Capability	Competence of employees

WEIGHT MODEL OF INTERNAL CONTROL INDICATORS

Theoretical Basis of the Model

AHP method (The Analytic Hierarchy Process) is mainly used as a quantitative analysis method for qualitative problems. The method is to compare the evaluation indicators in pairs, and perform quantitative analysis according to the prescribed scale according to the relative importance rating table (see Table 3), and complete the analysis matrix.

Establishment of the Index Weight Model

After judging and analyzing the importance of the indexes at all levels, it can be summarized according to the above-mentioned importance ranking table, and the importance ranking table among the indexes can be arranged (see Table 4).

And W_i is the weight, n is the number of indicators. Then calculate the weight according to the weight calculation formula according to the importance level to obtain the weight of each indicator.

$$W_i = \frac{1}{n} \sum_{j=1}^n \left(a_{ij} / \sum_{i=1}^n a_{ij} \right) \quad (1)$$

Take the management philosophy and operating methods of the secondary indicators of corporate culture and employee ethics as an example for calculation. If a company judges that management philosophy and operating methods are as important as employee ethics, the weights of the two secondary indicators are each 50%. And if it is judged that the importance of management concepts and business methods is greater than employee ethics, then according to the calculation of the index weight model, the weights of the two indexes should be 66.7% and 33.3% respectively.

Suppose a company makes the following judgments based on the current development needs of the first-level indicators of the internal control environment: corporate governance is greater than human resource policy, and human resource policy is greater than corporate culture. Therefore, the results in Table 4 can be obtained when analyzing the first-level indicators. Compared with corporate governance, corporate governance is equally important, so it is recorded as 1, corporate governance is slightly greater than human resource policy as 2, and corporate governance is greater than corporate culture, so it is recorded as 3 (as shown in Table 5).

According to the weight calculation formula (1), the weight of each indicator can be obtained.

It can be concluded that the weight of corporate governance is 53.9%, the weight of human resources policy is 29.7%, and the weight of corporate culture is 16.4%. Therefore, it can be seen that the current corporate governance of the company has a greater weight, and the corporate culture is second to the human resources policy. The above are only the first-level indicators in the environmental indicators, and the weights of other indicators at all levels can be calculated according to the second- and third-level indicators in the above-mentioned indicator system and formula (1). And when performing the second-level index calculation, a pairwise comparison is performed under different first-level indexes to complete the determination of the scale and calculate the weight.

The advantage of using the analytic hierarchy process to build a model is that, first, it can reflect the organization's importance indicators through weights. The model has the characteristics of

Table 3. Importance rating table.

Scaling	Judge Meaning
1	Two elements are equally important
2	Between judgment 1 and 3
3	The former is slightly larger than the latter
4	Between judgment 3 and 5
5	The former is significantly larger than the latter
6	Between judgment 5 and 7
7	The difference between the former and the latter is large
8	Between judgment 7 and 9
9	The difference between the former and the latter is huge

Table 4. Ranking table of importance among indicators.

	Index 1	Indicator 2	Indicator 3
Index 1	a_{11}	a_{12}	a_{13}
Indicator 2	a_{21}	a_{22}	a_{23}
Indicator 3	a_{31}	a_{32}	a_{33}
...
Index n	a_{ij}	a_{ij}	a_{ij}

Table 5. Weight calculation of first-level indicators.

	Company Culture	Company Culture	Human Resources Policy
Corporate Governance	1	3	2
Company Culture	1/3	1	1/2
Human Resources Policy	1/2	2	1
$\sum a_{ij}$	1.8333	6	3.5

objectivity and comprehensiveness. Second, the index weight model established by the analytic hierarchy process can be applied to any organization.

EXPERIMENT AND RESULT ANALYSIS

In application, corresponding evaluation methods should be designed according to the index system in Table 2. The score can be set by means of a scale. In the evaluation, the corresponding indicator should be firstly scored in the dimension design, then the scoring standard should be determined, and finally the score value for each dimension (generally can be designed as 1-10 points).

According to the calculation results of the above-mentioned index weights at all levels, the total scores of the standards at all levels are designed and then scored.

Calculate the total score S_j of each indicator when scoring, and then calculate the total score according to formula (2).

$$F = 10 \times \sum (S_j W_i) \quad (2)$$

For example, in the example of the above company, the weights based on the judgment of the company's first-level indicators are 53.9% for corporate governance, 29.7% for human resource management policies, and 16.4% for corporate culture. Assuming the statistical results of the company's questionnaire survey, taking the first-level indicators as an example, if the scores of the three first-level indicators are all 10 points, the weight score of the corporate governance part is 53.9, and the human resource management policy is 29.7. The culture score is 16.4 points, and the comprehensive score of the internal control environment of the enterprise is 100 points. If the score reflecting corporate governance is 9 points, the score reflecting human resource management policies is 8, and the score reflecting corporate culture is 7 points, the weight scores of the three indicators should be 48.51 points and 23.76 points, respectively. The score is 11.48 points, while the comprehensive score of the internal control environment of the enterprise is 83.75 points.

Finally, according to the comprehensive score, it can compare this score with the company's historical score to adjust the management direction. At the macro level, the scores can be analyzed and compared with the average scores of companies in the same industry and the scores of advanced companies in the industry, thereby further improving the efficiency of business operations.

CONCLUSIONS

Human resource management of shipbuilding enterprises is one of the key requirements to improve the core competitiveness of shipbuilding enterprises under the new situation. To analyze and study the corresponding measures and measures, it is necessary to conduct a scientific and reasonable analysis of the corresponding

industry employment characteristics. According to the analytic hierarchy process, a method to determine the weight of indicators is designed. Through this index system and weight determination method, it is possible to objectively evaluate and analyze the internal control environment, find deficiencies and find the direction for improvement.

ACKNOWLEDGEMENTS

This work was supported by Anhui Province Department of Education Humanities and social studies key research project: two-level management system of Higher Vocational Colleges Performance Management Research (SK2017A0768), Anhui Province Quality Engineering Project "Wang Jiakai Mingshi studio" (2016msgzs063), and Anhui Province Quality Engineering Project "High-level Vocational Specialty" (2018ylzy138).

LITERATURE CITED

- Jia, N.; You, Y.; Lu, Y.; Guo, Y., and Yang, K., 2019. Research on the search and rescue system-of-systems capability evaluation index system construction method based on weighted supernetwork. *IEEE Access*, 7, 97401-97425.
- Lepofsky, D. and Caldwell, M., 2013. Indigenous marine resource management on the northwest coast of North America. *Ecological Processes*, 2, 1-12.
- Liu, Q. and Peng, Y., 2011. Research on the method of unstructured information process in computer teaching evaluation system based on data mining technology. *Energy Procedia*, 11, 5095-5103.
- Tyagi, R.K. and Sawhney, M. S., 2010. High-performance product management: The impact of structure, process, competencies, and role definition*. *Journal of Product Innovation Management*, 27, 83-96.
- Xu, F., 2012. A research on construction and application of evaluation index system of the effectiveness for enterprise technological innovative interface. *Lecture Notes in Electrical Engineering*, 142, 399-405.
- Yu, P. and Yang, Y., 2011. Research on human resource management in the process of knowledge transfer across borders. *Energy Procedia*, 11, 1834-1838.

Copyright of Journal of Coastal Research is the property of Allen Press Publishing Services Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.