HUMAN RESOURCE MANAGEMENT: CONFLICT PREVENTION STRATEGY SIMULATION

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ABSTRACT

A model of conflict prevention strategy in the form of a phased implementation of measures for detection of the signs of conflict situations and an establishment of the probability of causes and negative consequences of the conflicts is presented in this article.

Keywords: simulation, conflict prevention, causes of conflicts, negative consequences of conflicts.


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1. INTRODUCTION

According to the classification of the strategies by hierarchy, the conflict management strategy refers to functional strategies, that is, those that are developed for a particular functional field of activity, but require coordination with other types of functional strategies to determine a unified growth area of the enterprise. Such a strategy is rather narrow and consists of maximally specific activities for the implementation of conflict management objectives, as one of the main functional fields.

In general, various conflict management strategies are identified by the scientists [1-3]. Most often, conflict management strategies are divided into two large groups: conflict prevention strategies and conflict resolution strategies.

The prevention of conflict situations is one of the important components of personnel management, which involves the identification of the types of possible conflicts, their interconnectedness, and the evaluation of the level of conflicts, the development of the methods for their avoidance or mitigation of negative consequences. Therefore, it is important to develop clearly the models and mechanisms for conflict prevention with the in-depth analysis and calculation of the indicators of the socio-economic feasibility of their identification in the activities of the enterprise.

The conflicts should be prevented, first of all, by the employees of departments for personnel, personnel support, human resource management, depending on their designation at the particular enterprise. Such functions can be assigned to risk managers who are responsible for the risk management in personnel activities.

In general, regardless of the organizational structure of the conflict management and prevention system, the authors would like to propose a conflict prevention model consisting of the following consecutive stages:

1. Determination of the frequency of activities on detection of the signs of conflict situations.
2. Selection and use of the information collection methods to detect the signs of conflict situations.
3. Determination of the probability of negative consequences of conflict situations.

2. DETERMINATION OF THE FREQUENCY OF ACTIVITIES ON DETECTION OF THE SIGNS OF CONFLICT SITUATIONS

The periodicity is determined depending on the number of conflicts and their consequences: the more conflicts and the more significant their consequences, the more often the detection of the signs of conflict situations should be carried out. Accordingly, a matrix for determination of the frequency of such events should be formed.

The matrix should be based on the fundamental principle of the functioning of the economic entities – the efficiency. That is, in order to carry out any measures for detection of the signs of conflict situations, it is required to estimate the resource costs for their provision, on the one hand, and the results obtained, on the other hand. So, in order to ensure the economic efficiency of development of a system of measures to detect the signs of conflict situations, the following inequality should be fulfilled:

\[ K_1 \leq K_2 \]  

where \( K_1 \), \( K_2 \) are the level of losses due to the effects of conflicts, respectively, before and after application of the approaches to detect the signs of their occurrence.
In order to calculate the economic feasibility of the measures for detection of the signs of conflict situations, it is required to take into account the planned implementation period for these measures, the total investments and expenditures for the formation of the approaches to detection of the signs of conflict situations, the restrictions and other ways (alternative) of use of the financial and other resources of the enterprise:

$$K_2 = -I - \sum_{k=1}^{n} \frac{\nu c_k}{(1+s)^k} \cdot Q + \sum_{k=1}^{n} \frac{P \cdot L_x - G \cdot L_y}{(1+s)^k}$$  \hspace{1cm} (2)

where $I$ is the conditionally constant costs (the volume of one-time investments) for the implementation of a system of measures to detect the signs of conflict situations;

$Q$ is the frequency of these measures in the activities of the enterprise;

$vc$ is the variable (operating) costs for implementation of these measures, depending on the number of such events;

$k$ is the period of application of the system of measures for the detection of the signs of conflict situations;

$s$ is the interest rate for the use of attracted capital;

$n$ is the number of periods of measures for detection of the signs of conflict situations;

$P$ is the probability of the occurrence of losses without using these measures;

$L_x$ is the level of losses without the use of a system of measures to detect the signs of conflict situations;

$G$ is the probability of a certain level of losses after the practical use of the system of these measures;

$L_y$ is the level of losses after the practical use of the system of measures to detect the signs of conflict situations.

In order to determine the maximum level of the frequency of measures to detect the signs of conflict situations in the enterprise, the following inequality should be fulfilled:

$$-I - \sum_{k=1}^{n} \frac{\nu c_k}{(1+s)^k} \cdot Q + \sum_{k=1}^{n} \frac{P \cdot L_x - G \cdot L_y}{(1+s)^k} \geq 0$$  \hspace{1cm} (3)

After application of the elementary mathematical transformations and simplifications, the inequality can be obtained to find the maximum permissible level of frequency for the measures to detect the signs of conflict situations, taking into account the conditionally constant costs for the formation of a system of these measures at the enterprise and the conditional variable costs, as well as the resulting effect in relation to reduction of the level of negative consequences of the conflicts:

$$\sum_{k=1}^{n} \frac{P \cdot L_x - G \cdot L_y}{(1+s)^k} / \sum_{k=1}^{n} \frac{\nu c_k}{(1+s)^k} \geq Q,$$  \hspace{1cm} (4)

The estimated costs and losses from the effects of conflicts are calculated by the formula:

$$L = R + Z + L_Z,$$  \hspace{1cm} (5)

where $R$ is the costs of all types of resources incurred by each party to the conflict;

$Z$ is the damage caused to any party to the conflict through the unfriendly actions of another party;

$L_Z$ is the losses associated with the deterioration of the overall situation (failure to implement a joint project or general corporate goals due to lack of cooperation or ineffective interaction of the parties, the inconsistencies in their actions, inaction, etc.).
Consequently, finally the formula for calculation of the limit level of frequency of performance of the measures to detect the signs of conflict situations will take the following form:

\[
\sum_{k=1}^{n} \frac{P(R_x+Z_y+L_{xy})-G(R_y+Z_y+L_{xy})}{(1+\delta)^k} - \frac{1}{\sum_{k=1}^{n} \frac{v_{ck}}{(1+\delta)^k}} \geq Q, \tag{6}
\]

3. SELECTION AND USE OF THE METHODS FOR COLLECTION OF THE INFORMATION TO DETECT THE SIGNS OF CONFLICT

According to the literature review [1-4], the main methods for obtaining the information to detect the signs of conflict situations include: the development and use of a survey or a questionnaire; the audit and analysis of the documents and accounting; the development of the maps of resource flows (primarily financial, information and material); conversations, negotiations and meetings in various formats (vis-a-vis, involving internal and external experts, etc.); inspection visits to individual units; the expert assessment of the documents by specialized consulting companies.

All the above methods of collection of the necessary information to detect the signs of conflict situations are practically applicable and have certain advantages, taking into account the features of the object of application and the circumstances of the external environment. These methods differ primarily by the data source, and depending on the characteristics of the signs of conflict situations, it is required to choose different data sources, as well as to be able to find the relationship among the data obtained from different sources.

In the context of managerial conflicts related the allocation of financial resources, funding, etc., then the main sources of information should be the financial reports and accounting and management reports, respectively, the documents and the accounting should be studied using the method of audit and analysis.

Many methodologies and questionnaires were analyzed to identify the signs of conflict. In general, they all contain questionnaires that can be divided into a universal questionnaire and a special questionnaire.

A universal or standard questionnaire is used to detect the signs of the emergence of all kinds of conflicts in all types of production and economic activities, it contains general questions that make it possible to identify all the typical variety of conflicts in the activities of the enterprises.

To detect the signs of different types of conflicts, specific questionnaires have been developed that are collected in the data banks. In fact, the type of conflict determines the type of questionnaire for its detection and evaluation, the search for possible measures for its settlement, etc.

4. DETERMINATION OF THE PROBABILITY OF CAUSES AND NEGATIVE CONSEQUENCES OF THE CONFLICT SITUATIONS

To quantify the losses from the conflicts, as well as the total number of conflicts in the enterprise, it is reasonable to use the criterion of Page trends.

The use of such a criterion to study the trends and the development of phenomena in the personnel management should be ensured by conducting an expert survey. The objective set for the experts should be to assess the magnitude of the losses from the effect of the conflicts and the number of possible conflicts, given the level at which they originated in the organization. The weight of the assessments of each of the experts is assumed to be the same.
The processing of the data obtained and the calculation of the criteria for decision-making can be carried out using the Page Trend method. The search for the values of the Page criteria is performed in order to identify and to test the trajectories of the investigated variable in the input samples with the simultaneous monotonous trend of the causal index.

This causal variable is the combination of the causes of conflict situations (see Table 1) (internal / external, functional / dysfunctional), presented to the experts for evaluation, while the variable under study is the number of potential conflicts and the volume of possible losses from them.

Table 1 Map of conflicts of the enterprise with the identification of "causes-conflicts" relationships

<table>
<thead>
<tr>
<th>Causes</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>Escalation of the organizational standards and labor productivity, a large amount of information, alteration of the social status of the employees, optimization of the organizational structures, difference among the employees in relation to life values</td>
<td>The growth of STP rates, the receipt of additional resources, increased availability of necessary resources, a reduction in the number of external conflicts, regulation by the regulatory bodies of the enterprise, improvement of the basic regulations</td>
</tr>
<tr>
<td>Dysfunctional</td>
<td>Duplication of functions, asymmetry between powers and tasks, insufficient qualification and experience, the predominance of individual motives over the goals and values of the organization, the psychological crisis and depression, the irrational behavior of managers etc.</td>
<td>The deterioration in the socio-economic performance of the industry, the growth of bureaucracy, the increased monopolization of markets, the growth of disparities in wages between different levels of management and executors, significant differences in working conditions among the employees in various industries</td>
</tr>
</tbody>
</table>

The Page criterion formula has the form:

\[ L = \sum_{j=1}^{n} T_j \]

where \( j \) is the sample under study (there are as many samples as the variables of the causal factor);

\( T_j \) is the sum of the coefficients of the sample elements.

This method involves the calculation of the critical region, which is right-sided according to the method. The limit values of the Page indicator pursuant to the relevancy of 0.05 and 0.01 (the number of variables \( 2 \leq n \leq 12 \), the number of causative signs \( 3 \leq k \leq 6 \)) are given in [5].

To calculate the critical values for \( k \) and \( n \), the following equation should be used:

\[ L^* = \frac{L - \frac{nk(k+1)^2}{4}}{\frac{k^2-k}{12} \sqrt{n(k-1)}} \]  

(8)

The volume of possible losses and the number of conflicts can be estimated using the Likert scale, which is often used to conduct the research in the field of economics and management. In the recommendations for practical use of the scale, it is proposed to apply the estimated values from 1 to 5 in order to obtain the average value of the exponent [6].

Such a scale is used both to estimate the volume of losses from the effects of risks, and to assess the number of risks. Let us denote the minimum loss volume as 1 point, the insignificant loss amount – as 2 points, the average amount of losses from the conflict – as 3 points, above the average – as 4 points, significant – as 5 points.

In order to estimate the number of conflicts, some standardized scale should also be used, since if taken in natural units, the significant deviations in levels are possible, which makes it
impossible to process the data adequately and to obtain the evaluation results with a high level of reliability.

The probability of the data obtained can be calculated using the concordance coefficient, which estimates the degree of consistency of the expert estimates. In this case, the condition $W > 0.5$ must be satisfied, which characterizes the adequacy of the expert evaluations obtained. In general, the concordance indicator should be calculated as follows:

$$ W = \frac{\sigma_f^2}{\sigma_{max}^2} \quad (9) $$

where $\sigma_f^2$ is the calculated variance of the expert survey; $\sigma_{max}^2$ is the variance of expert estimates when their levels coincide.

5. CONCLUSION

The model of conflict prevention strategy is developed herein, consisting of the following stages: the determination of the periodicity of carrying out the measures to detect the signs of conflict situations; the selection and use of methods for information collection to detect signs of conflict situations; the establishment of the probability of the causes and negative consequences of the conflict situations.

This model, unlike others, makes it possible to increase the informativeness and validity of the results obtained, to optimize the frequency of measures to detect the signs of conflict situations, taking into account their economic feasibility, to identify clearly the main causes of the conflict.

REFERENCES