

Automation of personnel management of the enterprise based on intangible stimulation

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Abstract. Incentive of employee's work is one of the most important parts of the workflow. There are many types of incentives, but intangible incentive methods are the most effective due to the increased productivity with minimal cost of resources. Effectiveness has been proven by the example of a McDonald's company. Nevertheless, managers do not use these methods or use them incorrectly. Moreover, incorrect use of these methods can be a reason of degrading employee productivity. In this regard, it is proposed to create software. Using this software managers are able to analyze the characteristics of employees and the current state of non-financial incentives. Thanks to this software, an increase in the effectiveness of the use of intangible incentives and the formation of a community within the enterprise are expected.

1. Introduction

Trends in the development of economics and business are associated with the search for various ways of solving the problem of stimulating employees of various enterprises [1]. Various types of incentives find their place in certain industries. Unfortunately, nowadays, not all of them justify themselves.

Some of the methods of labor work stimulation require considerable material costs or the certain tasks enforcement, which affects the financial component of various companies or the future performance of employees [2]. But there are also socio-psychological methods of personnel management, which involve the formation of a favorable climate within the team and unleash the abilities and potential of each employee of the company with minimal or indirect material costs, which undoubtedly indicates the importance of this approach in management [3].

2. Non-financial incentives

Non-material labor incentive is the process of encouraging employees to increase productivity when performing certain tasks through public recognition, increasing prestige or creating comfortable working conditions [4].

An important component of the work process is not only an incentive to work for the sake of salary or bonuses. It is also necessary to create favorable conditions within the team, sometimes to encourage the work of employees verbally or create conditions for career growth. Otherwise, there is a risk to lower the efficiency of employees because of their dissatisfaction with work conditions or management [5].

Most of the methods of non-financial incentives are formed within the companies themselves and can be applied both to the whole collective and to a specific employee [6]. In this regard, there are two main groups of methods of non-material incentives: individual and collective (Figure 1).

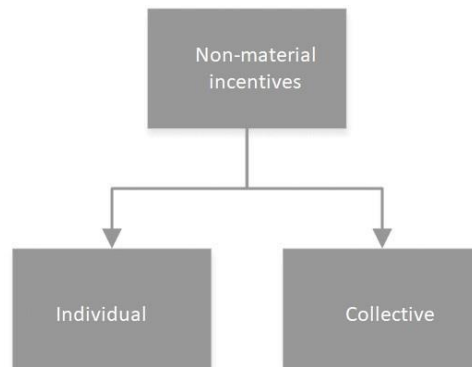


Figure 1. Types of non-financial incentives.

Individual incentive methods are used to stimulate the work of a specific employee of the company. When applying these methods, the personal characteristics of the employee to whom they are applied should be taken into account [7]. As an example, individual praise or the issuance of certificates.

There are also collective incentive methods, which are the encouragement of the whole collective. As a rule, these methods are based on the notion of team building - the process of forming a cohesive team from the collective [8]. Examples of collective methods include corporate meetings, organization of joint trips and any other events that contribute to team building.

Each of the methods of non-financial incentives can be individual both for the employee and for the whole company. However, there are also universal methods, such as:

- Possibility of training and further training - this method will help not only to develop the employee, but also to improve his performance, which is useful not only for the employee himself, but also for his authorities.
- Recognition of employee's merits is one of the most important components of non-financial incentives. This method gives employees positive feedback if their work has been done efficiently and effectively. In this case, the employee becomes increasingly interested in maintaining this state of his work.
- Career growth opportunity - the position promotion is a strong motivator for self-improvement, because the position promotion is not only a salary increase, but also a recognition by the team.

Also, one of the effective methods is a simple employee survey. Due to the survey, it is possible to find out not only what the staff is displeased with, but also to make an attempt to improve the process, because the management is not always able to monitor the work of each employee [9]. At the same time, they know their work fully and are able to make their suggestions to the improvement of this process. This will increase both the efficiency of the process and the effectiveness of the work of the interviewed employee.

Unfortunately, the use of non-financial incentives is not practiced everywhere, it is used mostly in large companies.

3. The use of non-financial incentives in practice

A good example of the use of non-financial incentives is the company "McDonalds" [10]. This company used many methods of non-financial incentives. One of them is informal address. In this company, it is completely irrelevant between who the communication is going on. In addition, the restaurant director is interested in each employee from time to time. The director is interested whether everything suits them in their work and praises for the work done, which undoubtedly is a good motivator for work. In addition, support and mutual assistance are actively practiced in this company. That is why an active formation of a single collective takes place. Every six months, meetings of workers are held. On these meetings the results are summed up, various competitions are held and the best employees are awarded.

Very important facts are the following: the staff is provided with free lunches, and when working at a later time - they are transported home by taxi. In connection with all this, the work of this collective becomes more harmonious and efficient.

Analysis of existing approaches to non-financial incentives shows that good and proper use of non-material stimulation techniques do increase the efficiency of every employee. All of these speak of the importance of using non-financial incentives in enterprises [11]. In this regard, it is proposed to develop a software product that will help managers of enterprises not only to analyse the current state of the staff, but also suggest various ways to improve it and introduce various methods of non-financial incentives.

4. The concept of the developed software product

The first stage of creating a software product is the formation of requirements [12]. The proposed application must:

- Properly analyse each employee individually.
- Correctly assess the current status of the application of non-financial incentives within the enterprise.
- Select the best methods of non-financial incentives for a particular employee and give advice on improving the performance of his work.

In connection with the identified requirements, it is necessary to create an algorithm for the software product [13]. The proposed algorithm is shown in Figure 2.

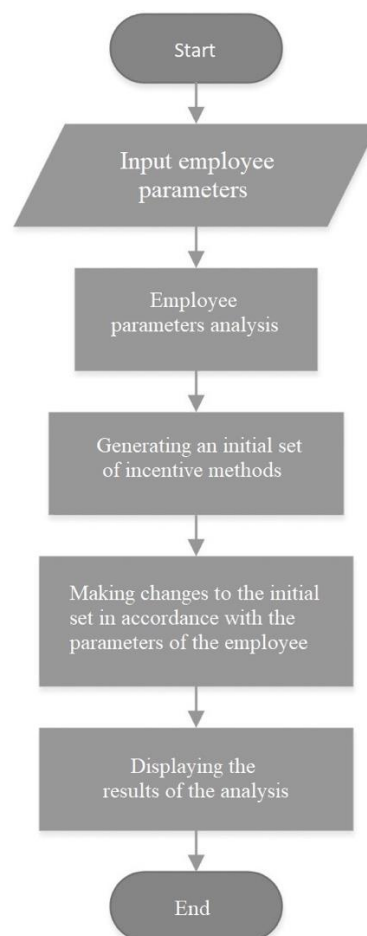


Figure 2. The algorithm of the application.

Let's consider each of the stages in detail:

- Input employee parameters - get all the data about the employee, including his character traits, habits, hobbies, etc.
- Employee parameters analysis — employee analysis to form an initial set of non-financial incentive tips.
- Generating an initial set of incentive methods — compiling a set of incentive methods that are already in use. Also data on how often these methods are used and what can be extended.
- Making changes to the initial set in accordance with the parameters of the employee - analysis of data that are used on the methods of non-financial incentives and making various adjustments and clarifications to the set of formed tips.
- Displaying the results of the analysis - the formation of the entire set of tips in a more visual form for the user.

The following principle is used to analyse the characteristics of each employee: for each method of non-financial stimulation, there is a set of parameters from different traits of character and frequency of application of this incentive method. Each of these parameters has its own weight depending on the type of stimulation. The combination of these parameters and their weights is the amount by the value of which we can judge about the need to implement one or another method of stimulation.

The modular structure of the proposed software product is presented in Figure 3.

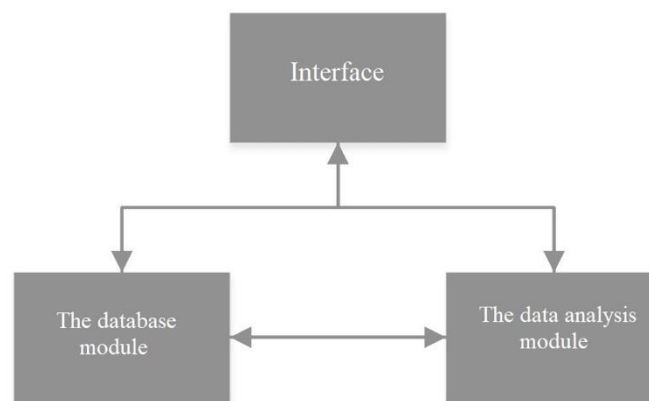


Figure 3. The modular structure of the program.

It clearly shows the interaction of modules relative to each other. The interface is responsible for displaying the questionnaire for interviewing employees and the results of the analysis. The database module is required for loading and retrieving data. The data analysis module is responsible for processing employee data and compiling proposed methods for non-financial incentives.

5. Interface of the developed software product

A sample of the interface has been made for a software product. Appearance and functionality of the program depends on the user who will be authorized in this application. The software product assumes the existence of three roles: an employee, a manager and an employee of the personnel department. The appearance of the application for the employee is presented in Figures 4 and 5. In this window, the user fills in the data about himself, for example, his full name, his own characteristics and data on the methods of stimulation applied to him. After filling all the fields, the data are sent to the database.

The appearance of the interface for the manager is shown in Figure 6. In this window, the user can view all employee data and go to the analysis results window for each employee, which describes all the methods of non-financial incentives recommended for application.

Employee information [X]

Surname: Ivanov

Name: Ivan

Middle name: Ivanovich

Age: 21

Employee information | Intangible incentive methods

- Desire for leadership
- Sociability
- Pursuit of public acceptance
- Pursuit of self-development

Send for analysis

Figure 4. Employee data: character traits and incentive methods.

Employee information [X]

Surname: Ivanov

Name: Ivan

Middle name: Ivanovich

Age: 21

Employee information | Intangible incentive methods

- Recognition of merit (praise) 1 times a week
- You have been promoted in the last 3 years
- You are satisfied with your current position
- The team is cozy

Send for analysis

Figure 5. Employee data: character traits and incentive methods.

View analysis results [X]

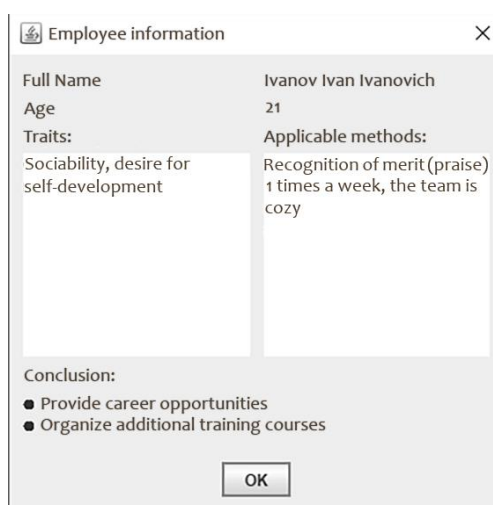
Full Name	Analysis Status	View data
Ivanov Ivan Ivanovich	Analysis is ready	<input type="button" value="View"/>
Petrov Petr Petrovich	Analysis is ready	<input type="button" value="View"/>
Alexandrova Alexandra Alexandrovna	Not enough data to analyze	Prohibited
Igor Igor Igorevich	Analysis is ready	<input type="button" value="View"/>

Figure 6. View analysis results for the manager.

6. Results analysis

It is assumed that when using this software product, the efficiency of using non-financial incentives within the enterprise will increase. It will depend not only on the implementation of the application and the correct placement of weights, but also on the use of its leadership [14].

By improving the efficiency of use of non-material stimulation techniques, it is expected that the cohesion of staff, the desire of workers for self-learning, quality and volume of work performed will be increased. It is also possible the influx of highly qualified personnel and a decrease in the outflow of employees within the enterprise. The result of the algorithm is the recommendations on the use of methods of non-financial incentives, and the final decision on the actions taken is up to leadership. An illustrative example of the result is shown in Figure 7.



The screenshot shows a dialog box titled "Employee information" with a close button (X) in the top right corner. The dialog is divided into two columns. The left column contains the following text: "Full Name", "Age", "Traits:", and "Sociability, desire for self-development". The right column contains: "Ivanov Ivan Ivanovich", "21", "Applicable methods:", and "Recognition of merit (praise) 1 times a week, the team is cozy". Below these columns is a "Conclusion:" section with two bullet points: "● Provide career opportunities" and "● Organize additional training courses". At the bottom center of the dialog is an "OK" button.

Figure 7. Results analysis.

The report contains information about the employee, including his character traits and the incentive methods used, as well as tips on motivating the employee's work.

7. Conclusion

Non-financial stimulation is a very effective way to encourage staff to increase their productivity. Hirers can motivate their employees to work without a pay rise using this stimulation. Often, the use of non-financial incentives can affect the efficiency of work more than the use of material incentives. Unfortunately, this method requires an individual approach to each employee, which requires more time and effort.

The proposed software product should help business leaders to make decisions about the use of non-financial incentives online.

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