

Professional and Motivational Features of Staff in the Information Technology Industry

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ABSTRACT

In the article, the authors suggest that an effective incentive and motivation system for labor in the information technology cluster is capable to ensure competitiveness both between individual companies and between countries, influencing on the level of technology development. In order to obtain information about motivation in labor activity of specialists in IT cluster, the authors carried out a sociological research. It showed that currently the value (professional) type of motivation with pragmatic elements prevails among IT industry specialists. In addition, the elements of the incentive system used in IT organizations were analyzed. As a result, the received data demonstrate of the unsatisfactory state of the incentive systems for IT-professionals and their inefficiency.

Keywords

Information Technology, IT cluster, staff, employee engagement, motivation, incentive.

1. INTRODUCTION

P. Drucker was the first who introduced the term "knowledge worker", which denotes a person who works with information, creates and uses knowledge at the workplace [1]. In his book "The Creative Class: People Who Change the Future", published much later than Drucker's books, R. Florida notes that a qualitatively new layer has emerged - a creative class which "economic functions are development of new ideas, new technologies, new creative content" [2]. It is characterized by completely new values for society, which can be combined in three main areas:

- individuality: the possibility of self-affirmation is important. Unwillingness to blindly obey organization's orders and follow the traditional general rules;
- meritocracy: personal achievements and merits are valuable. People set certain goals before themselves, and then work to achieve them. Money is not the main indicator of success. Creative class is formed by ambitious people, for whom professional growth is important, provided by their own efforts and abilities;
- variety: companies are valued where you can see different people. According to R. Florida, addiction to variety is peculiar to creative people with a high level of education.

Based on his own research, R. Schwartz, the creator of the Perl programming language, concluded that the programmer's personal skills include "laziness", impatience and assertiveness [3]. In this context "laziness" is meant such pastime (systematic study nature of problem with the aim of its detailed documentation and a cardinal solution), which generates innovations. IT-professionals must be impatient to design systems that predict problems before they occur, and feel proud of the systems they have created.

2. WHO IS AN IT-PROFESSIONAL TODAY?

The face of Russian IT companies - is young, active, talented specialists. The distinctive features of such teams - are creative environment, competent management and one of the highest levels of wages in the economy [4]. In fact, some of statements, as analysis has shown, correspond to the facts, but this characteristic of IT professionals is not comprehensive. Based on the analysis conducted by Thomsett [5], the club of CIOs from Kaliningrad region [6] identified features and behavioral characteristics of a current successful IT-professionals (Table 1).

Table 1- Professional socio-psychological characteristics of IT professionals

1	Possibility of self-affirmation is important.
2	High value of personal achievements.
3	Variety in the environment (creative environment, interesting people).
4	Normal degree of sociability.
5	Great importance is attached to the importance of the work.
6	Difficulties in understanding organizational issues, such as compulsory coming to work at certain times, wearing jackets and ties, etc.
7	Increased degree of intelligence.
8	Increased degree of anxiety, impatience and exactingness towards oneself.
9	High interest in new, complex, ambitious tasks, requiring a non-standard, creative solutions
10	Responsibility, independence and loyalty.
11	Atmosphere and attitude to work that have developed in the working group are influencing.
12	Possessing a large set of undocumented values that are passed on to young team members.
13	Stimulates training, the prospect of professional growth and its dependence on personal efforts than salary or career growth.
14	They tend to find and create factors of their own motivation.
15	Predominance of the creative approach in solving problems and the high level of professional education.
16	Do not pay attention and do not comply with many
17	There is a great desire for training and professional growth, but, despite this, the need for career growth is smaller than in other professions.
18	Self-sufficiency - you need freedom in decision-making.
19	They prefer predictability to change.
20	We are sure that they differ from other departments, they need a "special" attitude.
21	They attach great importance to the distribution of personal time and the daily routine at work.
22	Relative uncontrollability, which manifests itself in inaccurate fulfillment of tasks, inadequate respect for management, inability to work in a group, a team over

	a single task, a tendency to conflict.
23	The solution of tasks in its own way, ignoring existing standards and procedures used in the organization, guidance from the management.
24	Low ability to plan their activities and comply with time plans and the scope of their work.

An effective incentive system in the IT industry is capable of ensuring competitiveness both between companies and between different countries, and affecting the level of technology development. But, as cited A.P. Egorshin, "the way to effective management lies through understanding of motivation. Only with a knowledge of what drives a person, what motivates them to work, what motives are the basis of his actions, we can try to develop an effective management system" [7]. Information about labor motivation of IT-professionals in open sources is not objective enough to make full-fledged conclusions. Thus, for the purposes of obtaining information about labor motivation of IT-professionals, the authors pursue a sociological research. An important aspect of the research was the representative sample of investigated object. With a given total population of 400 people (number is determined by possibility of data collection) and a confidence level of 95%, the volume of adequate sample was 152 people [8].

3. RESULTS OF THE RESEARCH OF LABOR MOTIVATION AND STIMULATION FOR IT-PROFESSIONALS

The survey, which was offered to the respondents, consisted three sections. The first section "Characteristics of respondents" included questions about profession and employment pattern, gender, age, education and work experience. The second part "research of labor motivation of IT-professionals" contained questions related to identifying motivation and facts of needs satisfaction of IT-professionals. The questions of the third section "Research of labor incentive system of IT-professionals" were aimed to identify the properties of incentive systems used in organizations.

Most of the respondents (91%) were men. The age of specialists from 20 to 24 years was 39% of respondents, and from 25 to 29 years - 30%. 46% of respondents had a higher education and 35% had a work experience of 1 to 3 years. Most of the respondents were programmers (57%). Answer to question "Kind of your activity in the organization?", 60% of respondents answered that they are engaged in mixed, project-operating activities. Thus, we get a portrait of a specialist in the IT-industry. This is a young man – a programmer who graduated a university or studying at the latest courses, with a work experience of up to 3 years and leading a primary project-operating activity.

The study of labor motivation of IT-professionals has shown that at the present time the value (professional) type of motivation with elements prevails among the specialists of the IT-industry. The greatest need for IT-professionals is respectable salary, paid leave, professional growth, support of the principle of "Work-life", interesting work and good relations in team. At the same time, interesting work occupies the highest position in hierarchy of needs. Also, it is important for the IT-professionals to meet certain social needs (medical care, mortgage lending), needs related with professional and career development (the possibility of training on the workplace, support for the pursuit of self-education), time planning (flexible working schedule, opportunity of remote working and study leaves) and

working conditions (comfortable office, modern equipment). It should be noted that according to statistics provided by respondents, not many needs are met in organizations. The needs for paid leave and pension contribution the most satisfied. The needs related with raising of professional level and working conditions, social needs are insufficiently satisfied. Needs related to time planning, and monetary requirements scarcely are deficient satisfied.

The greatest influence on working activity is provided by the following incentives: salary increase, offering more attractive work, flexible time and skills improvement. Also, the positive effect is provided by using of the premium bonus system, the offer of more prestigious work and leisure opportunities. Comparing the results of incentives and the strength of their influence in organizations, it can be concluded that organizations downplayed attention to the study of labor activity motives and the needs of staff, which leads to a distortion of the expected results of stimulating of IT-professionals. After analyzing these two questions, the results obtained in the question "For what reasons are you ready to change your job?" are quite predictable. Among the reasons for the change of employment of IT-professionals the most significant factor was the size of salary, but it does not exceed 25%. It is notable that 19% of respondents do not like the inconvenient schedule of work. As cited R. Florida, the importance of money as an incentive was overestimated. The salary was only the fourth among incentives. The appropriation looked like this: the main factor was interesting and responsible work, following were flexible working conditions. Stability closed the top three factors. Salary were followed by vacation, respect for personal opinion, benefits, working atmosphere, etc. His main conclusion was: although inadequate payment alone can cause dissatisfaction, a "creative person" needs more than just a refund for the time spent. And in our study, the data obtained by R. Florida are partly confirmed: the first place is occupied by an interesting work. The increasing position of the salary factor can be explained by the post-crisis period, as a result of which the IT-industry has suffered significantly and has not yet restored pre-crisis positions. And, as before, flexible working conditions remain important. In support of these results, 58% of respondents drive to professional growth, 55% - knowledge, erudition and qualification, and 53% - creative abilities.

In addition to the analysis of stimulation of labor activity of IT-professionals in the Russian Federation study properties of incentive system used in organizations. Thus, 36% of specialists note that information about incentive system in their organization (capabilities, restrictive guidelines, operating conditions, etc.) is provided to them verbally and only individually. It can be assumed that these data confirm the using of "gray" wage schemes and non-compliance with the Labor Code of the Russian Federation. It can include the answers of 18% of respondents who indicated that they do not receive information about the incentive system in organizations at all.

One of the tasks set in this study was to clarify views of IT-professionals on fair incentive system. 27% and 25% believe that it should be based on the performance of the specialist at their skill level and professionalism. Also, the majority of respondents (40% and 23%) said that the stimulation of their work depends either partially or indirectly from their production results. The results about equitable incentive systems used in organizations are multiple-valued. Respondents cannot say that system is fair and corresponds to the results of their work, and it is also fair in relation to the cost of living. Most of the respondents believe that their operational conditions still partially meet conditions in other companies (42%). The most revealing and confirming results

of the previous studies show that only half of the respondents stated that their activities are well-timed stimulated. As much as indicative are the following facts: only 54% of respondents believe that the stimulation of work in their organization corresponds to the Labor Code of the Russian Federation. 38% of respondents are sure that their rights are respected. Thus, another part of IT-professionals confirms the widespread prevalence of violations of the Russian Federation Labor Code. Only for 42% of professionals the motivation system in organization is simple and understandable. The further results show more unsatisfactory indicators.

Thus, respondents find it hard to give single-valued answer what means stimulation in their organization: corresponds to their qualifications; increases their level of self-esteem; corresponds to their personal needs; conditions for career growth. 38% of respondents believe that it does not increase their labor motivation. 31% of respondents does not create conditions for attracting and retaining the best employees. 38% of respondents it does not allow to evaluate results of their efforts. 31% of respondents partially corresponds to the specifics of their work (31%). Practically does not bring moral satisfaction; improves their social status badly; does not create conditions for competition within the collective (35%); insufficient to create a cohesive team and corporate culture; insufficient to identify the worthiest and the most talented professionals. As a result, the received data show in general of the unsatisfactory state of the IT-incentive systems and their inefficiency.

Features of labor activity of any specialist in the IT industry are determined by various factors: first of all, the type of organizational structure, type of activity, style of management and the content of the specialist's work. According to the results of a study, the most complex organizational structures are characteristic of IT companies involved in system integration. This situation is explained by the presence of a greater number of different business processes than other types of IT companies, the diversity of their activities.

The most typical and applicable for such companies are organic structures. Together, these organizational structures are more flexible and adaptable to the modern conditions of a complex and dynamic environment. They are characterized by a small number of management levels, rules and regulations, greater autonomy in decision-making at the grassroots level.

This approach demonstrates its effectiveness in conditions when it is not a routine, but a technology that requires creative approach. When, in the absence of accurate estimates and standards, the worker is driven by self-motivation (for example, the need for self-expression) and internal rewards, rather than a clearly developed system of formal control. At the present stage of the development of the IT industry, companies that meet the principles of adhocracies and multidimensional organizations are most effective. Organizations with adhocracy are characterized by such management style of leadership, in which the means of achieving complex goals are chosen by the performers themselves, that is, organizations, allowing a high degree of freedom in the actions of employees, use their high competence and ability to solve problems independently. These organizations are characterized by a lack of familiar formalities, such as hierarchy, working conditions, clothing, etc. The system of remuneration in organizations with adhocracy is based on expert knowledge, the contribution of the employee, his competence and the degree of participation in the overall work.

The most important distinctive feature of multidimensional organizations is that their top managers receive broad

autonomy in the exercise of the function of general leadership, since even the subdivisions of the lowest level are managed as independent types of business in a market economy. The peculiarity of personnel in these organizations is their high qualification and versatility. The subdivision, as an independent unit within the company, must independently determine, provide and distribute resources, sell the product, settle with suppliers, the company, employees and make other payments.

The activities of the organization, depending on the tasks, specific to the employment of IT professionals, are usually presented as projects and/or as operations. According to today's realities, 60% of IT professionals are engaged in the project (s) and at the same time perform operational activities with a different share of employment. The operational and project activities vary significantly, so does the similarity, which definitely affects the features of the incentive system (Table 2).

Table 2 - Differences and similarities in operational and project activities

Differences		Similarity of operational and project activities
Operating activities	Project Activities	
Continuing in time and repetitive process	Temporary process Limited resources: time, goals, budget	Performed to achieve specific goals or strategic plans for the organization
Using well-established technologies	A unique process and result	Planned, implemented, controlled
In the process of obtaining new goals and continuing the process	Completion of the process after reaching the goal	Have restrictions, including restrictions on resources

Unlike the stimulation of labor in operational activities, the incentive features in the project activity are not paid enough attention in the scientific literature and publications, and the issues of incentives when combining these two types of employment are at least. There are situations of employment of specialists simultaneously in several projects and here too there is a specificity that requires detailed consideration. Organizational features that affect their stimulation and some features of stimulation in the designated activities of IT professionals are discussed in Table 3.

Table 3 - Organizational features in various activities that affect the promotion of IT professionals

Operating activities	Project Activities
The cyclicity, consistency and regulation of activity provides it with a relative predictability, which stabilizes and increases the predictability of stimulating IT professionals.	The achievement of the project's goal is achieved through the fulfillment of the intermediate goals of the project stages. At the same time, the goals of the stages can be different, which is reflected in the formation of incentives for IT professionals.
The difficulty in assessing the effectiveness of an IT specialist imposes certain requirements on	Successful completion of the project is possible with well-coordinated teamwork and individual fulfillment

management, which in turn should seek to establish objective incentives, depending on the results of the work of each specialist.	of all assigned tasks aimed at the final result of the activity, which in turn will be a reflection of the effectiveness of the TIR incentive system.
Uniformity for a long period of time performed by an IT specialist functions negatively affects his motivation.	The activity of each IT-specialist participating in a project can't be described by a single indicator and by one criterion reflecting its effectiveness.
The policy of the organization in the field of management of IT professionals should be aimed at attracting and retaining the most valuable personnel	The duration of the project implementation is reflected in the deadlines for the final payment of labor, which is paid at the end of the project.
The incentive system should be understandable and predictable for both management and IT professionals. It is important that the principles of labor remuneration for all specialists remain unchanged and common.	The lack of the necessary stimulation of IT specialists' IT TD or its inadequacy to the resources of the executors leads to uncontrollability of the project.
The main activity is the fulfillment of personal tasks and solutions to individual problems, where personal success and achievements are a priority.	Stimulating IT professionals must support the achievement of the collective goal of the project, while encouraging The achievements of each project.
Project-project	Design and Operations
Difference of once-performed functions and tasks in different projects.	With partial involvement in the project, the distinction of the once-performed functions and tasks in the project and operational activities.
In each realized project the IT specialist plays his own, certain functional role. Thus, several roles are executed at a time, which are controlled and managed by various governing bodies.	In every kind of activity, an IT specialist plays his own, a certain functional role. Thus, several roles are executed at a time, which are controlled and managed by various governing bodies.
The thoroughness of the workload distribution of an IT-specialist between projects and the intensity of work in each individual project, the results of its activities depend	Optimal distribution of labor load for the time of participation in the project and the application of a labor-dependent transparent pay scheme.
The difference in project completion dates affects the employment and stability of IT-specialists	With partial employment in project activities, it is important to have transparent incentives, depending on the results of the IT-specialists activities
Stimulation aimed at fulfilling not only personal goals, but also the goals of the team.	Of particular importance is the choice not only of performance evaluation criteria that affects the level

	of remuneration, but also the optimal distribution of material remuneration.
Individual approach to stimulation based on functional and team roles.	
In order to work effectively in several projects, it is necessary to maintain interest in each individual project.	

There are also differences, depending on the type of employment, in the categorization of IT professionals. Operational activity by its properties is the most continuous and permanent, therefore the difference among IT specialists based on professional qualification levels is most rational. Unlike operating activities, the project has a limited time schedule, as well as a different principle of categorizing IT professionals, resulting in the most appropriate is the principle of separation of roles. Here are some of the roles that are present in any project: project manager (coordinator), project financier-controller, project customer, project team members (technical expert, executors), expert team (consultant-analyst), management committee. In addition to the structural and functional roles related to all personnel involved in the project, the most interesting are the team roles of the project members and the team of experts. Command roles reflect the way in which a person does his job. The command role is also determined by innate and acquired personal qualities. Regardless of the type of employment and the functional or team role that is being performed, the traditional approach to the distribution of authority among employees is that, given a lack of scope of work, employees can combine roles and tasks. This aspect has a double meaning and, in certain circumstances, is the key to the effectiveness of stimulating. However, in the field of information technology this approach is not always applicable, since there are jobs, combining which dramatically increases the risks of the organization or whose combination is impossible, for example, development and testing. Nevertheless, we emphasize that this tool, used as an incentive, has a special significance in the IT industry. Depending on the functional or team roles being performed, the possibility of combining work areas by IT specialists is determined individually.

CONCLUSION

As a result of the conducted research of professional, motivational characteristics of IT specialists and peculiarities of their work activity, we can consider that we have a sufficient information base about the incentive system object for further formation of an effective stimulating system the IT specialists.

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