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E-mail: Zhge17@mail.ru, kas_2170@mail.ru, utartigr@mail.ru, tsatkali@mail.ru, zhannanurgali@mail.ru**ORGANIZING EFFECTIVE INTERACTION WITH REMOTE
PERSONNEL AS A FACTOR OF ECONOMIC RATIONALITY**

Abstract. The modern labor market is rapidly changing. Today, software integrated with each other, understandable for the average user with advanced communication capabilities, management and control functions, is in high demand. Routine tasks are being automated at all levels of management, and the influence of information technology and artificial intelligence development trends on all areas of the business and its participants is becoming global. Remote employment in a pandemic is relevant and represents a work process carried out outside the traditional place of work and involving interaction with the employer through telecommunication and information technologies. Both the employer and the employee have advantages and disadvantages in the application and use of remote work. How effective it is in this particular case, it is up to each employer to decide on the direction of the organization, the category of personnel and the goals facing the company. The authors proposed ways of effective interaction with remote personnel.

Key words: remote employment, teleworking, teleworker, information technology, online labor exchange.

Introduction. The concept of rationality in economic science is used in a different sense than in other social sciences, where rational behavior is interpreted closer to its ordinary interpretation and means: reasonable, adequate to the situation. In order to clarify in what sense we use the concept of "rationality", it is useful to establish what it is contrasted with in this context. The concepts of rational choice and rational behavior play a crucial role in the methodology of economic theory. First of all, it must be emphasized that these concepts should be handled with the utmost care.

Remote work is the practice of organizing a work process in which permanent or temporary employees work at home, instead of going to work for the premises of the employer or customer.

Remote are considered employees with whom they entered into an employment contract for remote work. They work outside the main location of the employer, as well as outside its branch, representative office or other separate unit. In addition, remote employees do not have a stationary workplace that the employer can monitor. And an important condition for teleworking - to fulfill its duties and interacting with the employer, the teleworker must use public information and telecommunication networks, including the Internet.

Main part. Typical employer requirements for employees no longer apply. At the moment, a request has been formed for active, mobile labor entities who are ready for changes in the work process and want to change professionally. All these changes contribute to the emergence of a new type of professional workers performing their labor tasks in the remote access mode, outside the territory of the employer's usual workplace, remote employment is a form of employment in which the employee and the employer are geographically distributed, are outside the same office space and interact with each other through information and communication technologies. In the modern world, you can work remotely, both being an employee of the company (while on the staff of the organization) and not being its full-time employees, performing specific tasks or implementing certain projects.

As the analysis shows, there is a certain specificity of managing personnel working remotely from the head office. In particular, a number of events are held in the organization (institution), namely:

- 1) used systems and information flows are studied;
- 2) the work process is being studied;
- 3) the procedures that are performed by regular employees, and which could be performed remotely, without being present in the office, are singled out;
- 4) a possible scheme for organizing the work flow is proposed;
- 5) the qualification level of a potential employee is determined;
- 6) technology and material support are approved;
- 7) depending on the level of technical equipment, written integrated software that allows you to keep track of working time, perform assigned functions, reflect the results of work;
- 8) an employee is selected; an employment contract is concluded with him; monthly tasks are determined;
- 9) the workplace is equipped; personal equipment is installed and operated.

In case of temporary impossibility to perform duties, the workstation module is easily configured in another place. And in the conditions of work on the technology of "thin client", only access rights are configured.

The process of registration and dismissal of such workers has a number of features. In particular, an electronic contract may be concluded with remote employees. In this case, an enhanced qualified electronic signature will be used. The employee will be able to provide all the necessary documents in electronic form, and a copy of the employment contract will be sent to him by registered letter. Also, a norm is introduced that allows, at the request of the employee, not to enter information about distance work in the work book. In this case, documents confirming the period of distance work will be copies of the employment contract and the order on the termination of the employment contract. Upon termination of employment, the Internet and electronic signature can be used to exchange documents, and a copy of the order on the termination of employment should be sent to the employer by regular mail.

There are significant differences between these types of remote work. The workplace can be organized at home, in a cafe or in specialized centers. In the labor market of freelancers, it is the latter that are gaining popularity. They are called coworking centers. In coworking centers, there is all the necessary infrastructure to do the work: connecting to the Internet (hereinafter referred to as the Internet) and electricity, food and rest areas, meeting rooms and directly the workplaces themselves. A prerequisite for remote employment is the presence of a remotely employed worker or freelancer desktop personal computer or mobile laptop. Currently, for the implementation of the workflow, mobile devices are gaining popularity: tablets and smartphones. In addition to technical means, the availability of broadband Internet access is urgent. When performing critical work, several Internet providers are used to make reservations. Specialized software for remote access to the information resources of the employer allows the employee to remotely perform almost all the tasks assigned, as if he was in the office at the working computer. At the same time, remote hiring to a certain extent depends on a smoothly functioning technology.

To solve the problem of communication between geographically distributed labor entities and for the effective interaction of remote personnel, specialized means of exchanging messages and video calls - corporate messengers are used. Their use can replace all other previously used means of internal communication.

Remote work implies that employees who perform their functions outside the office lose their corporate culture. Therefore, the company's management needs to ensure regular contact with employees in order to immediately eliminate the problems that arise and make sure that the instructions and process regulations for remote personnel are as clear and precise as possible. Talent management technologies (TMS) can help to cope with these problems, allowing to solve issues of training and development, achievement of goals, formation of competencies, performance management and career growth of employees. When organizing remote work, it is necessary to take into account information security aspects issues of organizing and conducting specific control over employees.

What are the benefits of remote work for staff:

- time saving;
- reduction of "road costs";

- there is no need to spend time on the road to work, a freer format for doing work, which increases the likelihood of creating non-standard solutions and new ideas;

- this type of work does not tie me to a certain place - I can work anywhere and always be in touch; I myself dictate to myself the rules and regime of my working day;

- a flexible schedule, the ability to work at a convenient time and in a convenient place, there are no costs for transport and meals;

- a flexible schedule, tasks / results are often written in text, saving time on transport;

- a flexible schedule, the ability to communicate with candidates, after their working day, the ability to sleep during the day;

- the possibility of independent planning of working time; the ability to control the nutrition of children, saving time and energy on the road;

The company's advantages in organizing remote work:

- the employee is more motivated;

- savings on office rent (in addition, I believe that the control of rational use of working time should take place according to the results of work, and not according to the time spent at the workplace);

- foresight, good organization of personnel;

- less cost of technical support for employees, lower payroll due to the hiring of employees in the regions;

- an element of employee motivation;

- flexibility, employee loyalty, choice and greater efficiency;

- saving workplace, electricity, people spend more time on work, reducing time for travel and lunch;

- equal opportunities when working at home and in the office;

- performance, improving IT culture, the ability to adapt to the client, and not to your fixed work schedule;

- the ability to hire more employees, and not pay for rent and organization of jobs;

- lack of costs for the organization of the workplace, lower salary;

- employee loyalty.

The benefits for the employee with the remote nature of employment are obvious: the ability to organize the work process at their discretion, a freer work schedule, no need to spend time and money daily to travel to and from work.

Conclusion. The main advantage for the employer with the remote nature of employment is the savings in the cost of renting office premises. The disadvantages include the difficulty of monitoring and managing employees.

However, in order to solve this problem, the employer needs to use a single task management system throughout the organization, which will not only track tasks assigned to the employee, but also determine the percentage of their completion. This system should be accessible through a Web server, and also have a simple user interface that is understandable to both remote employees and their managers. The task management system should have the following features: calendar support with the display of assigned tasks; the ability to automatically assign bonuses and penalties for the quick completion or non-fulfillment of tasks; the ability to attach graphic files to tasks, as well as sending notifications of assigned and completed tasks to e-mail or via SMS.

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ЭКОНОМИКАЛЫҚ РАЦИОНАЛДЫҚ ФАКТОР РЕТІНДЕ ҚАШЫҚТАН ЖҰМЫС ІСТЕЙТІН ҚЫЗМЕТКЕРМЕН ӨЗАРА ТИІМДІ ҚАРЫМ-ҚАТЫНАС ҰЙЫМДАСТЫРУ

Аннотация. Қазіргі еңбек нарығы жылдам өзгеруде. Бүгінде бір-бірімен интеграцияланған, дамыған коммуникация мүмкіндіктері, басқару және басқару функциялары бар қарапайым пайдаланушыға түсінікті бағдарламалық жасақтама үлкен сұранысқа ие. Күнделікті тапсырмалар басқарудың барлық деңгейінде

Преимущества и недостатки в применении и использовании удаленной работы есть как у работодателя, так и у работника. Насколько она эффективна в данном конкретном случае, решать каждому работодателю в зависимости от направления деятельности организации, категории персонала и целей, стоящих перед компанией. Авторами предложены пути эффективного взаимодействия с удаленным персоналом. Главным преимуществом для работодателя при дистанционном характере занятости является экономия расходов на аренду офисных помещений. К недостаткам можно отнести трудность контроля и управления за работниками.

Однако, чтобы решить данную проблему работодателю необходимо использовать единую систему управления задачами в рамках всей организации, которая позволит отслеживать не только порученные работнику задания, но и определять процент их выполнения. Данная система должна быть доступна через Web сервер, а также иметь простой пользовательский интерфейс, доступный для понимания как удаленным сотрудникам, так их руководителям. Система управления задачами должна иметь следующие возможности: поддержку календаря с отображением на нем поставленных задач; возможность автоматического назначения премий и штрафов за быстрое выполнение или невыполнение поставленных задач; возможность прикреплять к задачам графические файлы, а так же отправку уведомлений о назначенной и выполненной задаче на электронную почту или через SMS.

Ключевые слова: удаленная занятость, дистанционная работа, дистанционный работник, информационные технологии, онлайн биржа труда.

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REFERENCES

[1] Ledeneva I.Yu. Advantages and disadvantages of remote work // Young scientist. 2013. No. 2. p. 157-160. (in Russ.). URL <https://moluch.ru/archive/49/6225/>

[2] The influence of macroeconomic factors to the dynamics of stock exchange in the Republic of Kazakhstan. Niyazbekova Sh.U., Grekov I.E., Blokhina T.K. Economy of the region. 2016. V. 12. № 4. p. 1263-1273. DOI: 10.17059/2016-4-26

[3] Nechay N., Listkov V., Kurbatova V., Niyazbekova S. World Transactions on Engineering and Technology Education. 2018. V. 16. № 2. p. 186-192.

[4] Nyussupova, G. The indicators of quality of life of regional development of astana city (2018) International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM, 18 (2.2), pp. 467-482. SJR=0.211.

[5] Nyussupova, G. Socio-demographical indicators of an electronic atlas of socio-demographic development of the regions of the republic of Kazakhstan (2018) International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM, 18 (2.3), pp. 559-566. SJR=0.211.

[6] Nyussupova, G., Kalimurzina, A., Kelinbayeva, R. Social and geographical research in the Republic of Kazakhstan with the use of GIS technologies (2017) European Journal of Geography, 8 (3), pp. 109-125. SJR=0.220.

[7] Kenzhebayeva Zh.E., Sariyeva A.M. Development of special mathematical and software systems analysis. NEWS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN. SERIES OF SOCIAL AND HUMAN SCIENCES ISSN 2224-5294, Volume 1, Number 323 (2019), 126–129. <https://doi.org/10.32014/2019.2224-5294.19>

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