

GCPMED 2020
**Global Challenges and Prospects of the Modern Economic
Development**

**TRANSFORMATION OF SOCIO-ECONOMIC RELATIONS AND
HUMAN RESOURCES IN THE DIGITAL SPACE**

O. A. Bulavko (a)*, E. A. Podolyan (b), L. R. Tuktarova (c)

*Corresponding author

(a) Samara State University of Economics, Soviet Army Str., 141, Samara, Russia, vikigor163@mail.ru

(b) Samara State Technical University, Molodogvardeyskaya Str., 244, Samara, Russia, lastmi5@yandex.ru

(c) Samara State University of Economics, Soviet Army Str., 141, Samara, Russia, tuktarovalr@rambler.ru

Abstract

In the modern world, namely at the stage of active development of the digital economy, providing enterprises with highly qualified personnel is an important aspect of the successful functioning and development of any activity. To maintain effective functioning of the organization, it is not enough to have a workforce, it is also important to be able to use it effectively. This article focuses on socio-economic relations in the period of transformation, optimization of human resources management due to the development of new relations in the digital space. Transformation processes occurring at enterprises in connection with the transition to the digital economy are considered. The necessity of introducing information and digital technologies and innovative products is shown. The authors also proved the necessity of personnel training in connection with the transition to new information and communication technologies in the digital space. The application of a lean production system is proposed, which allows to increase both labor productivity and economic performance of the enterprise. It is proved that the introduction of the FMEA method for analyzing types and consequences of potential defects predetermines a new process of labor relations. The authors proposed measures that change the content of labor productivity and affect the efficiency of human resources management. The contradictions that arise in the social structure of our society due to changes in the content of labor productivity and factors that affect the effectiveness of human resources management are considered.

2357-1330 © 2021 Published by European Publisher.

Keywords: Digital space, FMEA method, human resources, labor productivity, lean production system



1. Introduction

Currently, there is an urgent need for transformation of socio-economic relations, effective management of human resources related to the transition to the digital space. Issues on information literacy are discussed by Feldvari and Varga (2017). The number of publications devoted to digitalization has increased significantly over the past decade. Thus, Anisiforov (2018) notes the key role of informatization in the business development, the growth of its innovative potential and improving the efficiency of its activities. The authors of this article agree with the scientist. In addition, they emphasize the importance of digitalization in improving human resources in the context of global changes associated with the new industrial revolution "Industry 4.0". The digital economy is characterized by some features that underlie human resources and increase labor productivity. This transformation is typical for both the socio-economic and digital space. During the period of rapid development of digitalization, companies should attract new employees who are able to work with information products, information and communication technologies or train staff in order to improve the labor productivity, increase profits and profitability, and reach a new development level. Most of the existing solutions for improving productivity have disadvantages because of incomplete protection against data collection or the high cost of software and hardware.

Labor is used in the production of any category of goods. It should be noted that labor resources play an important role in the development of any organization. Despite the importance of material elements of production, human resources are a decisive factor in improving the quality of products and determine the effectiveness of all aspects of the production and economic activities of the enterprise.

Improving the efficiency of the labor use at enterprises of various industries largely means increasing the labor productivity. The growth of labor productivity includes a lot of factors such as: the development degree of science, management of production organization, production experience, training of employees, material and moral incentives for labor, improvement and modernization of equipment and working equipment. Ensuring effective functioning of the enterprise largely depends on the rational use of these factors. For the solution of these tasks is important for scientific research, analysis and justification of the management system and its application in practice to ensure and improve the efficiency of labour resources usage and improving the application of material, financial resources, production and saturation of the market with high-tech products.

It should be noted that an important condition for the development and expansion of production is the planned distribution of available labor resources in the organization. For effective functioning, each enterprise has a certain number, functionality and composition of the contingent of employees that make up the staff of this enterprise. The most accurate selection, placement and organization of labor allows to set up uninterrupted and high-quality performance of obligations and functions at the enterprise. To improve the efficiency of the human resources use, it is necessary to consider the number and composition of employees in professional, official, qualified, age and gender sections.

When transforming socio-economic relations, an important aspect is the remuneration indicator, its composition and structure, dynamics and growth factors, which will allow you to track the pace of effective development of the enterprise. To this end, it is necessary to analyze and diagnose the use of human resources, which requires a widely usage of the latest techniques, computer technologies for

information processing, rational methods of collecting and storing information, creating qualified human resources services for faster and more efficient analytical process, as well as performing the most complete and comprehensive research with minimal costs for its implementation.

2. Problem Statement

The digital space covers the development and implementation of new information and technology products at enterprises. The modern period is characterized by the process of transition to the development of high-tech industries, the formation of a new information society. Currently, the development of Internet technologies covers almost all areas of people's lives. Web applications and various online resources are used not only for effective solutions to everyday tasks, but also in large organizations and government agencies. Processing utility payments and banking transactions, purchasing physical goods in online stores, and buying digital currency – all this has become so commonplace that it is difficult to imagine modern society without the Internet. And the more demand grows for the effectiveness of a service, the more information about target customers companies need for increasing their profits. In this regard, recently, with the rapid development of the Internet and its capabilities, the issue of anonymity and surveillance is increasingly being raised. To a large extent, tracking users on the Internet is of purely material interest for many companies and even has a useful effect for users. Social networks, news portals, multimedia content providers, and online stores all provide fairly high-quality content. To ensure such a high level, we need very significant investments and experienced specialists. And usually, in relation to investments, it is considered that they should pay off. But the fact is that in most cases the content is available for free, and therefore, whether users like it or not, they pay for the content with the own private data.

This information in the form of a huge number of parameters is processed by complex systems that track users and learn their preferences and behavioral factors. The user only has to try to find a computer or any other product in the search engine — and advertising blocks of different sites in the form of ads with offers from online stores will appear in the browser window on various pages for a long time. This is how contextual advertising works and there are many legitimate methods for tracking people's online activity (Negrini, 2016). The original idea of creating algorithms is to help users find what they need faster. But it is impossible to know how much and what data companies collect: user agreements are vague, and they will never tell you about it themselves. In addition, this information is not always stored reliably enough – news about leaks of millions of accounts of a service appears regularly enough, and that it is no longer accepted as a sensation.

In contrast to the very rapid development of algorithms for Internet marketing companies, the ability to manage the availability of user parameters, on the contrary, is practically absent. It turns out that, taking care of the confidentiality of private information, everyday use of the Internet can lead to undesirable results in the form of dissemination of some personal information. Most of the existing solutions to increase the anonymity level in the network have disadvantages in the form of incomplete protection against data collection or high cost of software and hardware. Focusing on high-tech products, investment in scientific research and innovative components is the first direction in the transformation of socio-economic relations of the new digital space.

3. Research Questions

The transition to the digital economy is inextricably linked to the need to review the relationship to such an economic element as labor rationing and its role in the enterprise life. Under the new conditions, increasing the competitiveness of organizations comes to the fore, which is associated with the rational use and management of the financial, human, and technological resources being at their disposal, as well as the ability to quickly and adequately adapt to market requirements.

In the new digital space, special attention should be paid to the methodology for calculating bonuses and other incentive payments depending on employee performance indicators, which are reduced to two models: additive and multiplicative ones. The first models are based on the addition of certain indicators, the second group of models is based on their multiplication. In our opinion, an algorithm for calculating premiums based on an additive approach is more acceptable. Improving the efficiency of activities, increasing labor productivity and innovation activity are important tasks of socio-economic development during the transition to the digital economy. The search for and subsequent implementation of an effective motivation scheme mainly depends on the competence of the HR manager and top managers of the company, on their practical skills and theoretical training.

One of the most important competitive advantages in business is qualified personnel, but most enterprises and organizations currently do not pay enough attention to the organization of an effective system of adaptation and training of personnel at first, which leads to a loss of motivation among employees and disorientation in their job responsibilities, rights and opportunities. State of the workforce and its development, and the socio-psychological state of the staff are very positive, but we need more careful planning and consideration of these factors in the management of human potential, as well as further development and improvement of the personnel management system of organizations. In the field of optimizing the organization's human resources management, it is necessary to improve material incentives for employees, work out a development program and a training system for staff.

4. Purpose of the Study

Many Russian enterprises spend about 60% of their resources on digitalization of production and management processes and development of IT-infrastructure (Balenko, 2018). In our opinion, it is necessary to review the balance of income and expenses and increase costs of information and communication technologies, since the digital space covers all areas of life support. According to the authors of this article, digitalization is defined as an integral component of socio-economic development, a factor in the human resources growth. For the long-term effective development of industries and enterprises, measures are needed to stimulate the development of research and development, in order to create:

- an attractive environment for research and development, in particular, increasing the prestige of scientific activity, bringing the income of a productive researcher to a level above the industry average (Bulavko & Zastupov, 2017);

- a modern engineering base for research and development, including not only a corps of qualified specialists, but also the appropriate equipment.

The transition to an innovative scenario opens the way to modernizing the digital economy, increasing the pace and efficiency of its development based on the intensive use of domestic intellectual potential and the development of advanced technologies (Babkin, 2014). Thus, the digital space requires improving the development of human resources and the formation of an innovation system as the main source of sustainable economic growth.

5. Research Methods

In the course of the study, the methods of current analysis, distribution of the consequences of social risks, and comparison methods were used. Additive and multiplicative models are considered. The authors used theoretical-level methods that include idealization, formalization, analysis, and synthesis. The solution of the tasks set in the study was carried out on the basis of general scientific methods. The authors use logical, comparative, and statistical analysis. Within the framework of financial analysis methods, dynamics methods were applied. In the course of the research, methods of current and prospective analysis, methods of structure analysis were applied. This research work was also conducted with empirical research methods.

6. Findings

The next direction to improve the efficiency of human resources in the new digital space is the application of the lean production system 5S. The practical goal of 5S is to eliminate unjustified losses. It is considered to be the simplest tool for lean production, it does not require significant investment, because the main part of the activities is organizational. Pros of "5S" are the following: there is no need to apply new management theories and technologies. Thanks to the 5S system, you can restore order at the enterprise almost without investment, thereby improving productivity by 10-50%, reducing losses and the level of injuries, defects by a third, but also creating the required initial conditions for implementing expensive and complex organizational and production innovations, ensuring their high efficiency, using a radical change in the consciousness of employees, their attitude to their work. It is also optimal to implement the FMEA method for analyzing types and consequences of potential defects.

To study causes and mechanisms of nonconformities and prevent or minimize their negative consequences, and, consequently, improve product quality and reduce the cost of eliminating nonconformities at subsequent stages of the product life cycle, it is advisable to use the FMEA method. Errors at the design stage are much more expensive than at the subsequent production stage. Currently, in world practice, at least 80% of the development of technical products and technologies is carried out using this analysis. This method will reduce by half the losses from defects caused by errors at the design stage. The material costs of implementing FMEA consist only of paying for training of specialists, team members, and the FMEA methodology. In the future, only employees' time is required for the work of the FMEA team. Labor productivity depends not so much on the number of employees, but on the amount of working time spent on production. The analysis of working time usage is based on the working time balance. In his research, Schulze argues that "the integration of high technologies into a network of active players grouped around an "authorized" state characterizes the European model (Schulze, 2017). This model is based on elements of reindustrialization, and sufficient groundwork for additive technologies,

digital design and modeling. Technological breakthroughs in many industries are possible with state-of-the-art developments and funded research. When forming elements of a new economic policy, there is a strong correlation between the rate of economic development and the share of investment in human and fixed capital in GDP. The combination of these factors gives approximately 85% of the economic growth.

7. Conclusion

Based on the experience of organizations that have implemented the 5S system in their enterprises, labor productivity increases by 10-50%, and product quality increases by a third. The increase in productivity is explained by a reduction in the complexity of creating products, using a reduction in the loss of working time. In turn, this leads to an increase in production or to a reduction in the number of employees. Due to the fact that after the introduction of the 5S system, the quality of products increases by a third, it is possible to reduce the loss from defects by one third, and therefore the cost. Thus, the application of lean production at the enterprise will allow you to get an economic effect.

Thus, one of the main means of ensuring the economic stability of enterprises in the conditions of new socio-economic relations is to reduce labor costs and other production costs. That is achieved by rationing labor, improving the development of human resources, using information programs, modules and digital technologies. All this actualizes the need for a comprehensive study of the role and opportunities of the digital economy implementation. Based on the economic needs of our society, practice requires a new concept and methodology of labor organization, due to the role and importance of human resources in ensuring of elements' functioning in the digital space.

Summing up our research on the human resources potential in the digitalization space, the authors would like to emphasize that the contemporary technological changes form vectors of socio-economic development in different countries that usually arise in the context of post-industrial economy issues, knowledge-based economy. This new technological order is characterized with the new quality of human capital in the framework of intellectual economy, the main features of which are determined by the transition to the economy based on knowledge, information, Big Data. In general, the sixth technological order defines a new management paradigm. Its priority task is not the development of competitive industries, but rather the formation of conditions for the stable and sustainable socio-economic development, that also includes the creation of a new system of values and principles to ensure the high quality of life, social justice and human well-being (Chekmarev & Bulavko, 2021).

References

- Anisiforov, A. B. (2018). Key tasks of information management at the enterprise in the digital economy. In V. E. Schepinin, O. V. Kalinina, & S. V. Shirikova (Eds.), *Basic and Applied Research in Management, Economics and Trade* (pp. 88-93). Peter the Great Saint Petersburg Polytechnic University.
- Babkin, A. V. (2014). Integrated industrial structures as an economic subject of the market: Essence, principles, classification. *Bulletin of the Astrakhan State Technical University. Economy Series*», 4, 7-23.
- Balenko, E. (2018). Industry has skimmed on digitalization. <https://www.rbc.ru/newspaper/2018/07/03/5b3a26a89a794785abc9f304>

- Bulavko, O. A., & Zastupov, A. V. (2017). Cluster approach in innovation and investment development of industrial enterprises. *Vestnik of Samara State University of Economics*, 7(153), 30-37.
- Chekmarev, V. V., & Bulavko, O. A. (2021). Changes in the content of labor and their social consequences: Discussion issues. In S. I. Ashmarina & V. V. Mantulenko (Eds.), *Digital Economy and the New Labor Market: Jobs, Competences and Innovative HR Technologies. Lecture Notes in Networks and Systems*, 161 (pp. 85-91). Springer.
- Feldvari, K., & Varga, M. (2017). Young people as human capital - What type of information literacy education is required? In A. M. Tonkovic (Ed.), *Proceedings of the 6th International Scientific Symposium Economy of Eastern Croatia - Vision and Growth. Medunarodni Znanstveni Simpozij Gospodarstvo Istocne Hrvatske-Jucer Danas Sutra* (pp. 318-326). Ekonomski Fakultet Osijeku-Fac Economics Osijek.
- Negrini, F. (2016). Who is watching you online? <https://www.kaspersky.ru/blog/web-tracking-in-numbers/11849/>
- Schulze, P. W. (2017). Future of industry: The fourth revolution - Functions of state and society. *Economic Revival of Russia*, 2(52), 39-46.