

**ISCKMC 2022****International Scientific Congress «KNOWLEDGE, MAN AND CIVILIZATION»****DIGITAL TECHNOLOGIES IN THE PERSONNEL  
MANAGEMENT SYSTEM**

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**Abstract**

The article analyzes digital technologies used in the personnel management system. The labor market is undergoing changes comparable to the industrial revolution. At the end of the 18th century, they switched from manual labor to machine; currently, the transition from full-time work to hybrid formats can be observed. The processes of personnel management are based on digital tools. Digital transformation has already caused major transformations in industries such as telecommunications, financial services, retail, and auto manufacturing. The new technologies, which give companies a competitive advantage are also used in the sphere of human resources. Depending on the industry, different questions arise for HR departments. There are new opportunities for modeling scenarios and analyzing the future. Optimizing resources, scenarios, and calculating risks play an important role. At the same time, there is a requirement for a significant increase in the speed of response of a specialist: s/he can calculate and predict the situation using a certain algorithm, but this requires a faster response to the counterparty's request. The article discusses the most popular professions in the context of digitalization, analyzes the share of IT jobs in the market and training programs for specialists in the digital economy. The demand for IT specialists is especially relevant in developing and increasing the investment attractiveness of the information infrastructure, which has increased the demand for IT professions. The development of information technologies has resulted in the active interaction of people in the virtual world, improved the digital competencies of personnel and created new professions.

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## 1. Introduction

The digitalization of the economy is a priority for the national development of Russia, and by 2025 Russia aims to increase the scale of the digital economy up to 8–10 % of GDP. This creates significant challenges in the labor market. According to international experts, in the next 15–20 years 14 % of existing jobs may disappear; the rules in the labor market will change. Transformations in traditional labor relations are expected. As a result, the need to develop new rules for interactions between employees and employers will increase. The challenges of digitalization will affect the requirements, incentives for activities and social protection of the personnel. The changes will affect all areas of personnel management. This includes the use of new forms of hiring, selection and promotion of employees, the development of new career incentives and models of career development. Personnel training will become one of the key areas in the digital age. The changes will affect the content, forms and methods of training, increasing the speed of retraining and adapting to new technologies (Markeeva et al., 2019).

Significant changes are expected in the forms of employment. First of all, this is the expansion of the use of non-standard types of employment and various modifications of distant employment. New forms of labor organization will require new regulations for monitoring the working conditions, reporting, current interaction between workers and employers. New activities of companies and employees will impact on the development of new forms and systems of remuneration. It is expected that changes in the nature of work and types of employment, increasing the autonomy of labor and its focus on the final result in the era of digitalization will lead to the creation of new forms and systems of remuneration. Significant changes will occur in the field of social protection of workers. The list of traditional guarantees will be modified.

## 2. Problem Statement

The level of automation of Russian HR is extremely low. Specialists of the State University of Management analyzed the main difficulties faced by domestic companies:

1. Non-systematic use of digital technologies in personnel management. Russian companies mainly use point solutions to automate HR processes (63 %). Selection, development and evaluation of personnel occur separately from each other. Only 35 % of organizations have implemented a unified system for automating the personnel management processes.

2. HR processes are complex, heterogeneous and varied. HR managers need to study a variety of aspects: labor legislation, views of trade unions, the labor market.

3. The law on personal data makes it difficult to use modern foreign technologies, because they are presented in the cloud and have data centers abroad.

4. Russian companies have just begun to realize the importance of digital HR management. Only 18 % of companies have financial resources for HR automation, and 37 % of organizations are in dire need of funding.

The solution can be Russian cloud technologies that allow for storing and processing data in accordance with the requirements of regulators. (Idigova, Tagaev et al., 2019). Modern market

mechanisms force enterprises to use advanced technological solutions in the field of personnel quality control.

### 3. Research Questions

In the context of digital transformation, the requirements for the personnel are changing. Internet marketers, web designers, copywriters, data analysts are in demand, because the availability of human resources with digital skills is a priority tool for increasing the competitiveness of the national economy and the enterprise. To date, there are a lot of various seminars aimed at improving the digital skills of staff. For example, the Tsifra company holds an online workshop "Digital Production" on technologies and digital solutions (Idigova et al., 2020).

On June 2, 2020, the conference on digital competencies as a tool for determining the value of employees was held. The event was organized with the support of the State Budgetary Institution "My Career" of the Department of Labor and Social Development of Moscow and Microsoft. The federal project "Personnel for the Digital Economy" has been implemented from 2018. It aims to train 800 thousand graduates, and the share of the population with digital literacy skills will be 40 %.

The demand for IT professions is especially relevant in developing and increasing the investment attractiveness of the information infrastructure. Little attention is paid to the administrative and organizational aspects of the development of digital processes. More attention is focused on technological aspects.

It should be noted that employees with university diplomas can increase the competitiveness of enterprises and allow them to show flexibility in changing environmental conditions.

The development of information technologies has resulted in the active interaction of people in the virtual world, improved the digital competencies of personnel, and created new professions. In the next fifteen years, among the most demanded professions will be:

- virtual environment designer. By 2023, the market for VR devices will be \$40 billion;
- Internet of Things Data Analyst.
- Analytics, software developers, drone operators, digital marketers, digital society lawyers, specialists in genetics and quantum communications, robotics and nanotechnology, etc.

According to the website hh.ru, in 2018 the share of all IT jobs in the market was 9 %, of which 51 % had one-three year experience, 36 % – 4–6 year experience, 4 % – more than 6 year experience and 9 % – less than one-year experience.

Increasing demand for IT specialists has increased their salaries. The average salary in 2018 amounted to 92 thousand rubles, in 2021 – 108 thousand rubles (in Moscow – 150 thousand rubles, in St. Petersburg – 120 thousand rubles).

The development of the digital economy contributes to the formation of new elements in the economy: digital competencies of personnel, retraining of personnel in accordance with changes in the economy, the use of digital technologies.

According to Rosstat, the average salary of employees in the first quarter of 2021 amounted to 48,390 rubles, in the second quarter – 50,784 rubles. For comparison, in the first quarter of 2018, the

average monthly nominal accrued salary was 43,944 rubles and 48,453 rubles in the second quarter, in 2017 – 40,691 rubles and 44,477 rubles in the first and second quarters, respectively.

According to the portal "Personnel Agencies of Russia", the salary of IT specialists in SberTech, in Moscow, is 150 thousand rubles, while the salary in the Russian Railways company is 20 thousand rubles, in Uralsib OJSC it is 27 thousand rubles.

In 2019, the most demanded specialists were Machine Learning Specialists, Data Scientists, Blockchain Specialists and Data Analysts.

In 2019, the website for free training in the digital economy was launched. The age of users varies from 25 to 55 and older: 42 % of users are people aged 25–34, 25 % are people aged 35–44, and the proportion of people under 25 and over 55 years does not exceed 15 % in each category (Tebekin, 2019).

In 2019, residents of Tatarstan, Bashkortostan, Yakutia, Rostov and Tula regions received 1,000 certificates as part of the implementation of the federal project "Personnel for the Digital Economy".

In the context of digitalization, the demand for programming, cybersecurity, and digital marketing has increased.

The emergence of new programs to improve the digital skills indicates the growing interest in digital technologies. Areas of training change depending on the demand in a particular region.

#### **4. Purpose of the Study**

The study aims to analyze the main trends and consequences of the impact of digital transformations on personnel management, as well as on the labor market and relations between employees and employers.

#### **5. Research Methods**

Various interdisciplinary theoretical and empirical approaches and modern economic and mathematical methods and models were used.

#### **6. Findings**

The pandemic year of 2020 affected businesses and forced them to transform under new unusual working conditions. Strategic tasks have appeared, "innovations" have to be initiated and implemented. There are three main changes:

- distant working format.
- Continuous support of employees in new stressful conditions.
- Hiring employees capable of working in a "hybrid" mode.

Without restructuring, the company will not be able to work effectively in the coming years. Companies are willingly investing in digital technologies that will help them to work with people. The initiatives of progressive HR directors run into misunderstanding on the part of top management.

The main concern of experts is that businesses that are immune to changes may be left behind and lose out to more progressive rivals. Therefore, companies should focus on the automation (Serenkov et al., 2018)

In 2022, it is planned to introduce a number of changes in the labor legislation of the Russian Federation. In particular, they will concern the procedure for calculating and paying benefits, issuing sick leave, bringing to administrative responsibility for the transfer of incorrect information to the FSS of the Russian Federation, quotas for jobs for the disabled and labor protection (Idigova & Rakhimova, 2021).

Most of the amendments entered into force since the moment the federal law was published (November 22, 2021), some of them will enter into force since September 1, 2022 (regarding the use of the Jobs in Russia portal13), and another part – since March 1, 2023.

One of the amendments that have already entered into force is that the order for employment is a non-binding document. According to Art. 68 of the Labor Code of the Russian Federation employment should be based on the employment contract.

The digital format involves the automation of processes, which will speed up the processing of incoming requests. Company executives and IT directors ask reasonable questions: what processes can be automated, what software solutions to use in order to fully implement the standards (Idigova & Rakhimova, 2021).

## 7. Conclusion

The competition in the labor market has been intensified. Employees need to improve their skills in accordance with new trends in digitalization, master digital technologies and quickly respond to environmental changes. Compliance with these measures will allow the enterprise to increase efficiency and compete in the market. Progress is good, but every leader must understand:

- What exactly will this innovation bring? Money? Time? New opportunities?
- What will happen if the technology is not implemented? What problems can arise?
- What is the explicit and implicit costs of the project?

The main tasks in personnel management, taking into account digitalization are:

- to develop the own HR strategy. Moving to mobile platforms and a digital mindset is a priority;
- to exchange digital strategies and experience for further development;
- to expand and develop digital thinking, as well as to transfer practical experience for the purpose of further application.

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