

**GCPMED 2018**  
**International Scientific Conference "Global Challenges and  
Prospects of the Modern Economic Development"**

**DIGITALIZED PERSONNEL MANAGEMENT**

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***Abstract***

An active transition to a digital economy and the rapid development of information technologies makes it imperative for companies to search for new business management models. The formation and development of a Digital strategy integrated with business and HR strategies becomes a prerequisite for ensuring company's stable competitive position on the market due to its transformation into a technological one. At the junction of digitalization and personnel management, the new forms of management appear - digitalized personnel management. Digitalized personnel management makes a significant adjustment to the current management paradigm. The priorities in management, the principles of building organizational structures, the content of tasks and the life cycle of an enterprise change. At the same time, the list of requirements for candidates is undergoing significant changes and the rate of appearance of new professions is accelerating. The article discusses the basic theoretical provisions of digitalized personnel management, identifies its structure, components, impact on company's internal environment and the labor market in general. The transformation of personnel management processes is inevitable in view of the evolution of the organization management as it will result in an increase in the activity efficiency and in the shift of personnel employment in more creative professions requiring unique knowledge and skills. Undoubtedly, such qualitative transformations will affect not only the internal environment of the organization, but also the labor market as a whole, and in conjunction with it the education system.

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**Keywords:** Personnel management, digitalization, digitalized personnel management.



## 1. Introduction

In the American literature, the concept of “digitalization” was first used in 1971 by Professor Vachal who examined the social consequences of “digitalization of society” and the disadvantages of the transition to electronic computing systems (Starodubtseva & Markova, 2018).

In Russia, this term became popular recently and is used more frequently by the heads of various companies, especially those engaged in the banking sector. Digitalization is a way of transferring (Stachoa, Stachovaa, Hudakovaa, & Stasiak-Betlejewska, 2017) any kind of information into a digital form. Digitalization is recently defined as one of the signs of the modern era. Soon, thanks to this process, humanity will have a single infrastructure that links together all social activities. There are several aspects that scientists attribute to the forms of digitalization in today's world. For example, the growth of globalization, which occurs due to digital technologies, contributes to the development of economy beyond the national border. Subsequently, digitalization, informatization and globalization will lead to the blurring of boundaries between states and this will result in cultural changes and affect the capital, goods and the people themselves. Digitalization is characterized by convergence, by which we mean the merging of some autonomous features and elements. Nowadays, digitalization affects various spheres of human life. Intensive penetration of digitalization is observed in such areas as healthcare, culture, politics.

From a business perspective, digitalization means a gradual transition of a product, service, brand or business sector to the Internet space, taking into account the peculiarities of developing new information and communication technologies, and a new understanding of consumption rules. In this regard, fundamental changes are observed in the management of company's resource component, including the management of human resources.

## 2. Problem Statement

Being an organic element, enterprises undergo permanent changes in their structure, technologies and management formats. In the context of globalization and rapid development of information technologies, the emphasis is on cardinal changes in the criteria for evaluating the efficiency of personnel management, conditioned by the variability of company's internal and external environment.

In the context of digitalization there is a necessity to reconsider the mechanisms and methods of personnel (Gubanova, Vnuchkov, & Mikhailova, 2017) management and personnel development, the following tendencies are of special importance here:

the changes in company's internal environment, complication of production and labor processes, the changes in the nature of company's activities. The causes for the changes are the possibility of changing the profession, cultural and social environment, continuous learning opportunities.

## 3. Research Questions

Human resource management is the most dynamic subsystem of an enterprise (Denisi, Wilson, & Biteman, 2014), and a cardinal reconsideration of personnel management methods and technologies influences considerably company's overall efficiency which indicates the relevance of studying the impact of digitalization on this management sphere.

The paper focuses on the transformation of the most important management subsystem - personnel management system under the influence of digital economy.

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

The study aims to describe the concept of digitalized personnel management and to identify its origin, development vector and influence on company's internal and external spheres.

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

The study was carried out by the following methods: methods of systematic approach and structural-functional analysis, expert assessments and forecasting, content analysis of scientific literature and other economic research methods.

Combined methodological approach allowed the authors to structure the process of study and to identify its basic stages. The first stage involves content analysis of scientific literature and gathering the materials for analysis. The second stage, practice-oriented, was focused on studying the experience of leading enterprises in the sphere of digitalization of management systems.

#### **6. Findings**

Digitalization is considered in the study as a deep transformation of the company implying the active use of digital technologies to optimize business processes, to raise business efficiency and to improve the interaction with customers.

Digitalization aims to achieve such goals as:

- improving the quality of company's product;
- modification of company's product sphere of usage;
- increasing the efficiency of value added processes;
- optimization of internal and external communications in the company

These purposes necessary presuppose the qualitative changes in the personnel management system.

The traditional system of human resource management at the present stage of economic development includes, as a rule, several basic subsystems specializing in the implementation of a number of specific functions:

- subsystem of general and linear personnel management;
- personnel evaluation subsystem;
- staff marketing;
- accounting and economic planning subsystem;
- subsystem of organizational relationship management;
- subsystem of staff development and staff training;
- subsystem to secure the rights in the personnel management system and some others

Digitization processes transform the human resource management system, shifting the emphasis to company's communication environment - the information space.

Considering the classic paradigm of human resource management in comparison with a new one - digitalized personnel management, we highlight the following distinctive features (Table 01):

**Table 01.** Comparing the classic paradigm of personnel management and Digital HR

<b>Classic paradigm of personnel management</b>	<b>Digitalized personnel management</b>
The basic resource – human capital	The basic resource – synergy of talents and digital technologies
Unskilled tasks for personnel	Intellectual work
Functional division of labour	Project work
Individual management	Team management
Focus on process organization	Focus on personnel involvement and productivity improvement
The use of basic software products, cloud solutions	Development of innovative solutions which implies further development and active use of mobile applications

Note: Source: Authors.

In the modern literature there is no single definition of the term “digitalized personnel management”. Theoretical and practical works mention the digitization of certain personnel management processes, but they do not consider their structural changes. By digitalized personnel management, the authors understand the human capital management paradigm which implies the formation of a proactive information-digital space for the effective use of employees’ labor, experience and talents.

Digitalized personnel management is characterized by the following principles:

- flexible approach to staff development;
- hyper-subordination to company goals;
- integration of management and business owners into the overall management system;
- advanced motivation;
- the staff is regarded as an investment that should be promoted;
- the prevalence of personal potential criteria in the selection of personnel;
- the dominance of working groups and project teams over the traditional structural divisions;
- proactive role in stimulating innovations;
- stimulating changes.

Information technologies and complication of production and labor processes influences the company’s activity, this influence manifests itself through the following organizational parameters:

1. Knowledge management:

- new forms of skills and knowledge are used to create innovation;
- employees are critical to assessing the efficiency of new information technologies;
- new forms of intellectual activity are propagated in the organization.

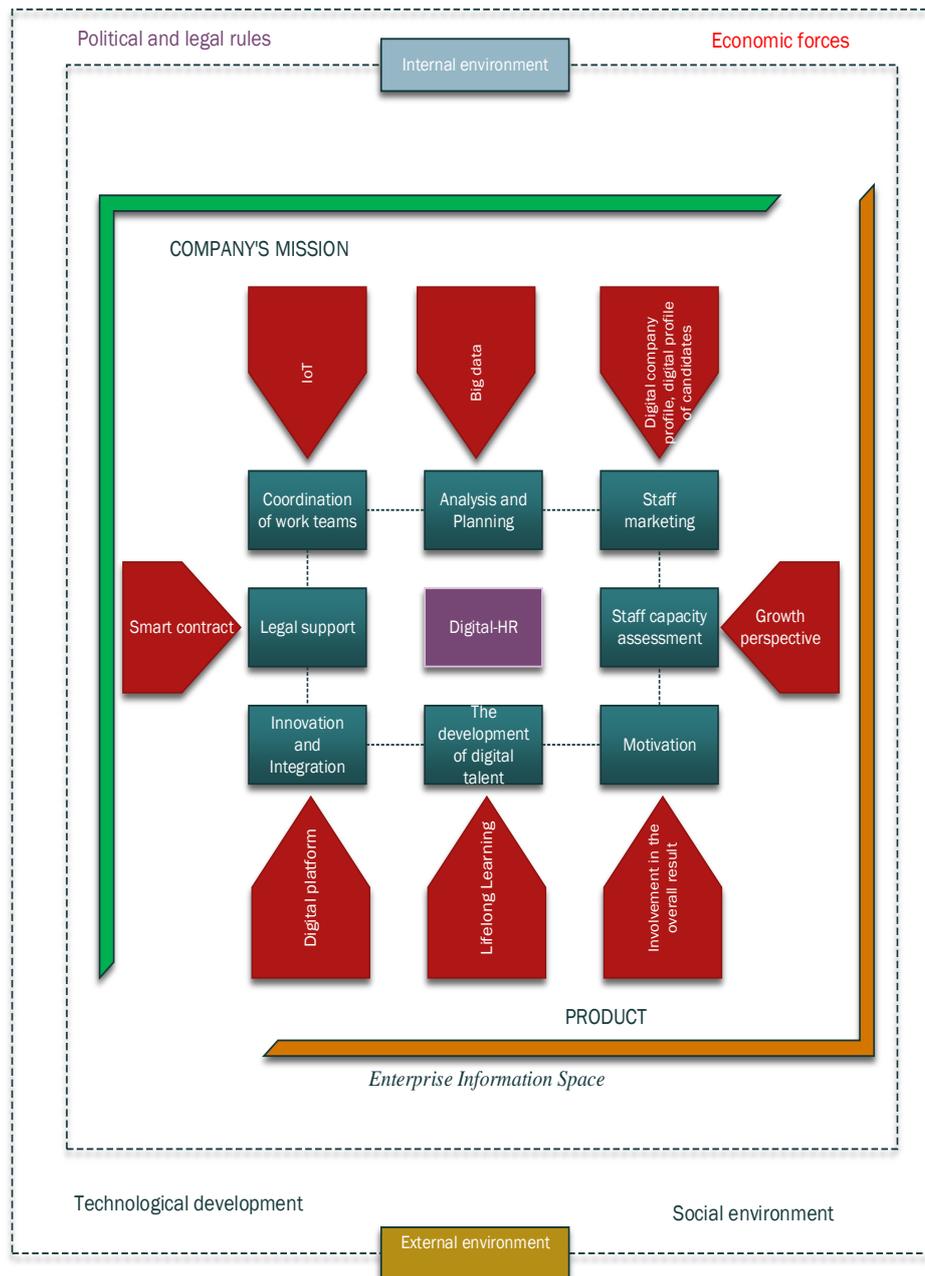
2. Relationship Management:

- staff behavior changes towards cooperation and mutual responsibility;
- managers and ordinary workers destroy traditional hierarchical relations.

3. Coordinative work:

- new technologies become a powerful resource stimulating the use of innovative methods of cooperation, information distribution and information exchange;
- wide access to information creates a climate of collective responsibility, common ownership and group problem solving.

The structure of digitalized personnel management is presented in Figure 01.



**Figure 01.** The structure of digitalized personnel management (Source: Authors)

The consequences of these organizational changes manifest themselves at all stages of the personnel management life cycle. And they will spread their influence not only on the internal environment of the organization, but also form a special labor market (Richman, 2015; Stachoa et al., 2017) (Table 02).

**Table 02.** Digitalization impact on HR-processes

<b>Consequence of digitalized personnel management paradigm</b>	<b>Structural changes in the personnel management activity</b>
Structural changes in staff requirements	Need for “digital talents” (Molotkova & Khazanova, 2017)
Production automation	Replacing of mid-market professionals with machines
Focus on digital talents development	Employee value transformation
Active change of competencies required by the company	Orientation to HiPo-employees
Digitalization of jobs (Sandri, 2012; Tapscott & Williams, 2010)	Hygonomics
The introduction of automated accounting systems of performance indicators based on IoT technologies	Decentralization of managerial functions, up to the complete abolition
Increase of productivity	Reduced work schedules
Transition to project work	Active leadership development
Ubiquitous use of e-learning	Redistribution of responsibility in the field of employee training
Orientation to innovative development	The introduction of design thinking

Let us consider each of the structural changes in more detail (Avdeeva, Golovina, & Parakhina, 2017; Nagibin, Anakin, & Shchukin, 2017). The need for “digital talents”. The change in the quality staff requirements will entail a change in the demand for a number of specialists in the labor market. Thus, a number of professions (“retired professions”) will disappear under the influence of automation, a number of professions will undergo transformations and in the medium term, a number of new professions will emerge on the labor market. The forecast for new professions was drawn up by the Agency for Strategic Initiatives of the Russian Federation and set forth in the Atlas of New Professions (Vlachos, 2009).

An example is the profession of:

- consultant for healthy old age;
- bio ethic;
- architect of zero houses;
- infostylist;
- coach of creative states (Luksha, Luksha, Peskov, & Korichin, 2016).

Replacing of mid-market professionals with machines. The medium-term perspective implies an active transition to automating the organization’s business processes with expert systems application, but human labor will not be replaced in areas where unique knowledge and personal contact with the client are used. Automation of routine processes today is at an active stage of its development. If some time ago, only ancillary business and production processes fell under automation, today many predict changes in service processes as well under the influence of the digital era and the “digitalization” of business processes. So, most customer support centers are switching to a robotic format. The processes of personnel management are also in the field of active digitization. The results of Coleman company study conducted in the second quarter of 2017, in which representatives of the HR services of 38 Russian and international companies shared their opinions and experience, suggest that more than 2/3 of the respondents' companies use digital technologies in HR activities. The main goal of company HR

processes automating is to improve the quality of projects: selection optimization, compensations and benefits calculation, data collection automation. So believe 69% of respondents. 19% believe that these activities are necessary to reduce costs. 12% rely on building a predictive HR analytics system.

Transformation of employee value and focus on HiPo-employees (High Potentials). In the conditions of digitalization, the value of the employee is the necessary competence for the company in the “here and now” format. An employee with the necessary competence is “bought” on the labor market for the highest price than a broad specialist (Pecherskaya, Zvonovskiy, Merkulova, Matskevich, & Pleshakov, 2014; Spencer & Spencer, 1993; Zhuo, 2017); hard skills are less important than soft skills (Masie, 2017). Among the requirements for candidates are increasingly found such as:

- Customer focus (Service orientation).
- Cognitive flexibility.
- Creativity.
- Critical thinking. This competence is viewed among the key in the forecasts for 10-15 years.
- Skills Coordination and interaction skills. Fifth place in the ranking of the World Economic Forum. According to Russian forecasts, the significance of this competence is somewhat higher.
- Judgment and speed of decision making.
- Negotiation skills.
- Complex Problem Solving. The need for owners of such competence will increase by 52%.
- People management.
- Emotional intelligence (Stein & Book, 2006).

High potential is, first of all, learning ability, interest, broad outlook, ability to communicate with people, willingness to share one’s knowledge. The largest digital holdings take HiPo employees into their team, with a focus on their further development and high loyalty.

Orientation to HiPo-employees defines another vector, namely, the development of corporate training. Corporate universities began to appear in Russia since 1999. The first one is Beeline University, created by “VimpelCom” company. It actively developed its sphere of influence, the network of suppliers and service providers. To capture the market, they needed personnel that understood not only the basics of the business, but also the company’s policy. Currently, more than 260 internal coaches are working in the framework of the Beeline University. 30 people organize the learning process in the company.

It is worth mentioning that network companies were the first to create universities, and this is quite understandable. They need to train a lot of employees who have similar competencies, while taking into account the high staff turnover and the emergence of new geographic segments. According to recent media reports many companies have their own corporate universities, among them “Rosgosstrakh”, “Ilim Pulp”, “Wimm-Bill-Dann”, “PROTEK”, “RUSAL”, “Norilsk Nickel”, “Sibneft”, “Intergosstrakh”, “Sukhoi Design Bureau”, “Rostelecom”, “Rosinter”, “Severstal”, etc. Western companies Coca-Cola, McDonald’s, Motorola, which came to the Russian market, were among the first to introduce corporate universities.

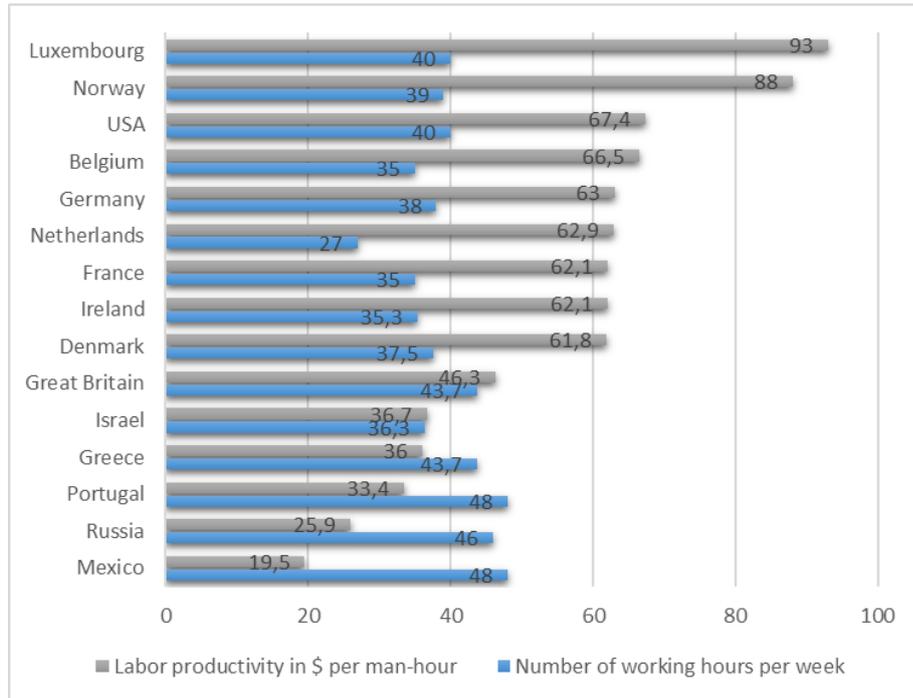
At the annual speech to partners, German Gref said that Sberbank's corporate university will soon be available to its competitors, as the company is focused not only on its own development, but also on the development of the industry as a whole.

Hygonomics or the free money economy is a consequence of the active development of freelancing, which was enabled by the development of telecommunication networks. In 2016, a survey conducted by the consulting company McKinsey showed that about 20% or 30% of the working population in Europe and the United States were engaged in some kind of additional independent part-time work. The US Bureau of Labor Statistics confirms that for 10 million of US citizens, freelancing is the main way of earning. For comparison: 12 million are engaged in production and about three million work as teachers. According to the AliResearch estimates, by the year 2036, more than 400 million people in China will be participants in hygonomics, the preconditions for which are the following data:

- 60 thousand specialists are registered on the platform Ziwork, the Chinese version of UpWork.
- 70% of full time employees in China are looking for additional side jobs.
- 50% is the number of Indian software freelancers, according to a PayPal report.

Freelance in Russia, as part of the entire labor market, on the contrary, shows a very conservative pattern. Experts point to the "sore spot" of our labor system: the dominant factor in the Russian organizations' personnel management is the work process itself, not its result. Major companies also do not risk recruiting to remote work out of office, for reasons of security of confidential data (for example, maintaining commercial secrets). On the contrary modern small and medium businesses, as well as organizations that have just start their development, do not suffer from such «conspiracy phobias». They are willing to attract specialists «online», if the format of the business suggests the possibility, for example, of working through the Internet. According to the Higher School of Economics (HSE), about 1.5 million people (less than 2% of the total working-age population) are employed in freelancing in Russia. So, as of October 2, 2018 in the Russian Federation more than 4.7% of the labor market proposals on the hh.ru portal suggest the format of remote work. Hygnomics also creates conditions for one employee to work for several companies.

Management without managers (holacracy). A unique property of digitalized personnel management is management without managers, since modern expert systems that solve the problem of project management realize the complete cycle of managerial functions: they plan, control, analyze and correct. The ideologists of holacracy are considered to be entrepreneurs Brian Robertson and Tom Thomison. It was they who in 2007 founded the company HolacracyOne. In 2009, they created the first version of the "Constitution of holacracy". This document defines the rules of life for companies in accordance with this model. Holacracy involves the decentralization of power, in which any employee can influence decision-making. At the same time, the components of the PDCA cycle are digitized to the maximum. The ideal organization in terms of holacracy is a community of people with common goals and aspirations, not burdened with excessive control (Vlachos, 2009). Total digitalization must necessarily be accompanied by an increase in the labor efficiency (Starodubtseva & Markova, 2018), which will entail the working week reduction, as in (Figure 02) and the rational use of knowledge.



**Figure 02.** Labor productivity and workweek length (Source: Authors)

The transition to digitalized personnel management should be a logical continuation of the rethinking of the company's position in the market. The primary in structural changes is a change in the strategy of the company as a whole, focused on the release of a competitive product, which in terms of quality meets the requirements of the final user.

At the second stage, the company should determine its mission in the field of human resource management, define for itself a strategic vision of this direction and form an image of the desired future.

The third stage is the update of management technologies. It is a turning point for the company as a whole and for the staff in particular. Upgrading tools for recruiting, staff evaluation, training and development, as well as control systems and performance should be carried out taking into account the latest achievements of the digital market, while avoiding critical resistance from the current staff of the company. Technology updates should be accompanied by the active development of the company's information space, which requires adherence to the principles of transparency, openness, wealth of knowledge and mobility.

Thus, the modernization of digital personnel management methods may require significant investments in technology and communications, but the consequences of non-compliance with consumer experience can be crucial not only for the brand's reputation, attracting and retaining employees, but also for achieving the goal.

## 7. Conclusion

In the process of research, new questions and problems have arisen that require their solution:

1. It is necessary to detail the problem areas of personnel management under the influence of digital transformation. Namely, to consider in more detail such areas as motivation and work with changes.

2. Work with resistance presents particular interest. There is no doubt that rapid changes within companies can create social crises and staff resistance to innovations. Preventive work technologies within the confines of the transition to a new paradigm are also fractionally considered in modern literature.

The transformation of personnel management processes is inevitable in view of the evolution of the organization management as it will result in an increase in the activity efficiency and in the shift of personnel employment in more creative professions requiring unique knowledge and skills. Undoubtedly, such qualitative transformations will affect not only the internal environment of the organization, but also the labor market as a whole, and in conjunction with it the education system. To achieve the positive effect of such transformations, complex work is needed on their implementation both at the level of individual enterprises and at the level of the national economic system.

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