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DIGITAL PERSONNEL IN THE SYSTEM OF KNOWLEDGE MANAGEMENT IN HIGH-TECH PRODUCTION

Anastasia A. Sozinova[1]
Nadegda K. Savelyeva
Dmitriy V. Chuprakov
Victoria A. Saidakova

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A B S T R A C T

This paper elaborates on the issue of digitalisation of labour, development of digital competencies, and integration of digital technologies into production and managerial processes of companies in combination with the problem of knowledge management in high-tech companies. In the context of this research, the problems of hiring and involving employees with ICT competencies are analysed, the problem of involving intellectual resources by companies of the high-tech sector is considered, and expectations from digital transformation of the labour market in the context of the development of digital programme solutions, which can partially replace workforce, are studied.

The research methodology is based on the concepts of digital personnel from the position of a combination of digital technologies and human labour (digitalisation of labour, digital workplace, automatized digital system, autonomous intelligent platform, etc.). It involves the study of the environment of the development of digital personnel and knowledge management in high-tech companies, which are based on the methods of statistical and mathematical analysis, as well as general scientific methods of observation and generalisation.

The main contribution of this work lies in the systemic consideration of the conditions of digitalisation of companies' work from the position of search and hiring of employees, substantiation of the need for high-tech production for intelligent resources, and description of trends and expectations from the integration of digital technologies and systems of knowledge management into the systems of high-tech companies' management.

1. INTRODUCTION

The modern conditions of development of the economy and society are closely connected with global transformations, caused by the Fourth Industrial Revolution. Their features are manifested in the previously unseen convergence of intelligent cyber-physical systems, big data analytics, the Internet of

[1] Corresponding author: Anastasia A. Sozinova
Email: Aa_sozinova@vyatsu.ru

Things, cloud technologies, robotisation, and other digital technologies with production and managerial processes. This is primarily manifested in the sectors of high-tech production or the sphere of connected services. Such a situation offers completely new opportunities for economic development and growth of productiveness and innovativeness of production and expands the potential of human labour.

Together with digital technologies, the main attention within these processes is paid to human capital – highly qualified personnel, who possess digital competencies and skills of the interaction with current ICT systems and platforms that serve data and knowledge management, ensure the generation of innovative solutions, and offer new means of interaction and cooperation. Thus, the formation of analytical skills and development of critical thinking and the ability to process large arrays of data by company employees, which is achieved in symbiosis with digital solutions, are considered a key factor of companies' competitiveness.

Given quick changes and high dynamics of digitalisation, the system of education cannot ensure a sufficient number of specialists for the economy's and, especially, high-tech companies', needs. This problem is increased by the complexity of the integration of employees into companies' digital environments. Therefore, the system of knowledge management in high-tech companies must be closely integrated into the HR service, departments of innovations and developments, and automatized systems of accounting and management. Ensuring well-coordinated interaction between humans and digital systems, achievement of free exchange of knowledge and experience, and continuous training and development of competencies in these conditions are a guarantee of sustainable innovative development of companies. Thus, the study of the problem of the formation and development of digital personnel and their integration into the system of knowledge management and an increase in the influence of high-tech companies' development forms a relevant scientific task, which allows for a new way of development of the companies' innovative potential and an increase in its impact on competitiveness.

2. EXPERIMENTAL SECTION

The notion of "digital personnel" is flexible depending on the context. The reason for such treatment of the definition is its nature, which is manifested in the combination of digital technologies and human labour. The large variability of such combination from the minimum use of digital technologies to the full autonomy of intelligent automatized systems forms a large number of different treatments and approaches to the considered problem. In this context, consideration of all options for the use of digital technologies by humans to solve production tasks can be viewed from the position of digital personnel. It may include the concepts of digitalisation of labour, digitalized workplace, automatized digital systems, autonomous intelligent platforms, etc. The differences between such concepts are manifested in various ways and levels of intensity of interaction between humans and the tools of automatization and AI. However, even within each concept, there may be a large differentiation of the means of the interaction of the human and cyberphysical systems. On the other hand, digital personnel are a component of the system of employment and management of human resources, as well as their use in the context of socioeconomic processes.

Thus, the research methodology is comprised of the interdisciplinary combination of approaches, theories, and concepts, which cover the sphere of labour relations and employment, socioeconomic production relations, the processes of intellectual development, which include education and adaptation of employees, and the sphere of digitalisation of socioeconomic processes with a focus on intelligent and automatized systems. The basis of the methodological apparatus of the research is general scientific methods of analysis and synthesis, observation and generations, which are combined with the table method and correlation analysis. The information basis of the research is formed by the data on the activities of companies in countries of the European Union.

The problems of the use and development of digital personnel in the sphere of knowledge management of high-tech production cover a wide range of scientific research, which contain in-depth theoretical and practical conclusions on the differences in the development of high-tech and low-tech productions, including differences in their intellectual development (Law et al., 2021); substantiation and analysis of the perspectives of labour in the conditions of digitalisation (WEF, 2023); understanding of general trends and demands for digital competencies, which are necessary for the effective work at high-tech productions (Nwasuka et al., 2022); intellectual economic growth in the context of the "knowledge economy" (Sozinova et al., 2023); understanding of the influence of the culture of organisation and knowledge management on the treatment of innovative activities (Lam et al., 2021); importance of quality education for training of highly-qualified digital personnel, who can effectively work in the conditions of quick technological change (Chukreev, 2023); the need for constant upgrade of knowledge and skills of employees for ensuring competitiveness in the market, which changes quickly under the influence of new technologies (Poloskov et al., 2020); specifics of the development of current digital competencies in the conditions of quick transformation of the labour market (ITU-D, 2021) and justification of the risks of labour digitalisation (Marsh et al., 2022), new treatment of digital personnel and their ability to combine human labour with autonomous digital platforms (Blueprism,

2024; Digital Workforce, 2024), including in the systems of knowledge management (Mozzaik365, 2024).

The main objective of this research lies in the description of new trends that characterise the use of digital personnel in the systems of knowledge management, with an emphasis on high-tech companies' activities. This objective involves detailed research of the specifics of personnel and intellectual support of the high-tech sector, identification of interconnections between the needs and hiring of employees with digital skills, identification of other regularities and trends, and assessment of the prospects for the development of digital employment and knowledge management in the sector's companies. Based on the theoretical and methodological substantiation of the problem, the main hypotheses of the research are as follows:
H1: High-tech productions require rational knowledge management to a larger extent than sectors with a low technological level;
H2: High-tech productions have a large need for digital personnel to solve production tasks.

3. RESULTS

High-tech production is treated differently in scientific works, depending on the context. In the EU, regulatory documents in the form of methodological recommendations for statistical reports use three main approaches to assigning a production sector to the high-tech sphere: industry, product, and patent. The industry (sectorial) one is based on the EU-recognised classification of the types of economic activities (NACE Rev.2). According to it, high-tech production includes the production of the following:

- Basic pharmaceutical products and medicines (21);
- Computer, electronic, and optical products (26);
- Air and space aircraft, as well as equipment for them (30.3) (Eurostat, 2018).

The product approach is oriented towards the level of technological intensity of products, which considers R&D expenditures compared to the total volume of sales. The patent approach considers the high-tech character of patents according to the International Patent Classification (IPC) (Eurostat, 2022).

High-tech sectors, including the production of medical and pharmaceutical products, aircraft and spaceships, electronic and telecommunication equipment, computer and office equipment, and medical and measuring tools, are based primarily on internal sources of information, components, or software. They demonstrate innovative behaviour, which is based on the individual capabilities of large companies, creating new products to improve quality and involve the necessary resources. The innovative behaviour of low-tech companies is primarily characterised by the imitation of involved technologies and the use of high-tech processes or popular innovations.

Thus, there is a significant difference between the conditions of knowledge management in high-tech and low-tech companies. Large high-tech companies depend on internal sources of knowledge and ideas, while companies of low-tech sectors are oriented towards the attraction of external knowledge, ready technologies, or group training. In these conditions, a large part of the system of knowledge management in high-tech companies is oriented towards the generation of knowledge and this ability defines the success of the company's development. Unlike this, in low-tech companies, the main source of technological development is the ability to adapt new knowledge, including knowledge received in high-tech spheres, to its conditions (Law et al., 2021).

The complexity of digital functions defines several current processes of the system of employment, which is manifested through a constant increase in demand for employees with digital competencies, the formation of the gap between digital vacancies and offers, the gradual transition of the share of ICT functions to outsourcing, etc. These processes have empirical conformation in the analysis of statistical data.

Among companies in the EU countries, execution of the ICT functions by their personnel only is not very popular. Thus, 46.9 % of EU companies (with 10 or more employees) perform ICT functions only with the help of hired employees. The largest number of such companies is observed in Greece (60.7 %), and the lowest – in Finland (26.1 %). Dynamics for the EU on the whole demonstrates a slight increase in the number of companies that transfer ICT functions to outsource. As for the reverse indicator of the execution of ICT functions by own personnel only, its value for the EU, on the whole, equals 12.0 % with negative dynamics (-1.3 % over 2 years). The scatter of indicators for the EU countries is also substantial: from 6.0 % in Italy to 43.4 in Latvia. Combining these results with similar dynamics with the domination of the trend of execution of ICT functions by external personnel (76.3 % vs. 40.0 % on the whole for the EU), it should be noted that digital skills gradually form specific competencies, which, to a great extent, are passed to external partners or contractors, given their gradual complication (Eurostat, 2024b).

Previous dynamics are set onto processes that are peculiar to the labour market. Thus, in 2022, only 5.6 % of companies tried to hire employees for jobs that require special ICT skills. This was by 1.85 less than in 2020. The largest number of such companies in 2022 was observed in Denmark (16.0 %), the smallest number – in Romania (3.0 %). Contrary to previous

conclusions, the number of companies that did not have problems with hiring the considered category of employees in the EU on the whole in 2022 was 3.3%. This is the minimum value for the research period, which is 0.1% lower than the previous year's value. The largest number of companies without problems with search and hiring of ICT employees was observed in Denmark and Spain (7.7 % of the total number), and the smallest – in Croatia and Romania (1.4 %).

Correlation analysis of the studied indicators, which includes the share of companies of the EU member states that searched and hired employees for jobs with ICT competencies, the share of companies that had problems with such search and hiring, and the share of companies that did not have such problems showed results presented in Table 1. There is a close direct correlation between the first and the second indicators - r=0.897, which is a sign of the lack of accessible employees with digital skills in the labour market. According to this, the more companies look for employees of such type the more they face the corresponding difficulties.

Table 1. Results of the correlation analysis of the shares of companies that hired employees for ICT jobs and had or did not have difficulties with this

Indicators		x_1	x_2	x_3
Hiring or trying to hire employees for jobs requiring special skills in the sphere of ICT	x_1	1		
Having difficulties with hiring for jobs that require special ICT skills	x_2	0.897	1	
Not having difficulties with hiring for jobs that require special ICT skills	x_3	0.698	0.310	1

Source: Made by the authors based on Eurostat (2024c)

Analysis of the trends and interdependencies shows an increase in tension in the environment of search and hiring of digital employees in EU countries. The growth of demand for such employees, complications of ICT functions, and possible problems with the training of a sufficient number of specialists demonstrate risks faced by high-tech companies.

High-tech production is science-intensive and requires large intellectual resources. One of the manifestations of the intellectualisation of labour is the level of obtained education. The higher the level of education, the higher the level of employees' qualifications. In this context, the data from Table 2 show that the share of people with higher education who are employed in high-technology sectors is much higher than the share of people with higher education who are employed in the economy on the whole. On average for the EU, this difference is +28.2 % (37.78 % vs. 66.0 %).

Table 2. Share of employees with higher education who are employed in all sectors of the economy and high-technology sectors of the EU countries based on the 2023 data

Country	Employed in all sectors of the economy, thousands of people			Employed in high-tech sectors* (HTS), thousand people			Share of people with higher education in HTS vs. share of people with higher education who are employed in the economy, +-
	Total	People with higher education	% of people with higher education	Total	People with higher education	% of people with higher education	
EU-27	204,899.8	77,499.0	37.8	10,304.7	6,800.3	66.0	+28.2
Belgium	5,021.7	2,528.7	50.4	276.1	214.9	77.8	+27.5
Bulgaria	2,924.0	995.5	34.0	150.3	104.7	69.7	+35.6
Czechia	5,042.0	1,374.1	27.3	273.4	145.9	53.4	+26.1
Denmark	3,001.5	1,220.9	40.7	192.1	124.2	64.7	+24.0
Germany	42,826.8	14,290.4	33.4	2,458.1	1,414.2	57.5	+24.2
Estonia	694.6	297.8	42.9	45.4	24.3	53.5	+10.7
Ireland	2,667.8	1,420.9	53.3	267.3	214.1	80.1	+26.8
Greece	4,186.8	1,593.1	38.1	142.2	94.3	66.3	+28.3
Spain	21,163.4	9,803.3	46.3	924.7	757.1	81.9	+35.6
France	28,539.1	13,248.0	46.4	1,320.8	1,059.1	80.2	+33.8
Croatia	1,600.4	524.9	32.8	76.1	50.8	66.8	+34.0
Italy	23,501.9	5,992.0	25.5	1,005.6	455.0	45.2	+19.8
Cyprus	461.3	241.0	52.2	26.8	22.0	82.1	+29.8
Latvia	884.2	367.2	41.5	46.3	28.5	61.6	+20.0
Lithuania	1,435.5	716.5	49.9	70.9	55.1	77.7	+27.8

Luxembourg	321.1	175.4	54.6	18.9	13.5	71.4	+16.8
Hungary	4,724.3	1,498.1	31.7	292.2	158.5	54.2	+22.5
Malta	297.6	104.6	35.1	19.3	8.9	46.1	+11.0
Netherlands	9,737.0	4,007.5	41.2	542.6	348.2	64.2	+23.0
Austria	4,471.8	1,737.2	38.8	226.1	149.6	66.2	+27.3
Poland	17,268.5	7,173.9	41.5	743.7	564.7	75.9	+34.4
Portugal	4,946.1	1,613.1	32.6	216.3	145.4	67.2	+34.6
Romania	7,689.3	1,754.3	22.8	246.2	156.7	63.6	+40.8
Slovenia	987.8	363.4	36.8	55.0	37.5	68.2	+31.4
Slovakia	2,607.7	824.6	31.6	129.1	80.1	62.0	+30.4
Finland	2,627.7	1,114.9	42.4	176.2	112.6	63.9	+21.5
Sweden	5,270.1	2,517.7	47.8	363.1	260.3	71.7	+23.9

Note: *high-technology manufacturing and knowledge-intensive high-technology services.
Source: Made by the authors based on Eurostat (2024a)

Almost 2/3 of all employees in high-technology sectors have higher education. In the EU member states, this indicator is within the range of 25-55 % (Malta, Italy, and Hungary) to 80 % (Ireland, Spain, France, and Cyprus). Such a situation points to the necessity of using rational mechanisms of knowledge management in the sphere of high-tech production due to its critical dependence on intellectual resources. For comparison, only 14.7% of employees have higher education in agricultural production, while this indicator for industrial production is 27.7 %.

Thus, hypotheses on the topicality of the need for knowledge management for high-tech production (H1) and such companies' need for digital personnel (H2) are justified. They demonstrate the relevance of the problem of further analysis of the environment of digital personnel development, their involvement in the system of knowledge management in high-tech companies, and the necessity of assessing the perspectives of integration of digital employment into the systems of knowledge management and labour resources of companies.

Large-scale transformation processes, initiated by Industry 4.0 and accelerated by the COVID-19 restrictions, led to the need for structural changes in the systems of employment, recruiting, labour, and productiveness. In these conditions, the high-tech productions' need for employees' possession of digital skills becomes one of the key factors in the achievement of technological leadership. A large volume of innovations is achieved due to the successful use of the potential of digital technologies, AI, big data analysis, automatization, robotization, etc. In these conditions, the formation and development of digital skills with employees becomes a general need and necessity in the context of intellectual development.

The traditional system of education cannot satisfy the need for high-tech productions that are oriented towards technological innovations. They need a new type of thinking, which combines human and machine capabilities and achieves a high level of symbiosis of human intelligence and AI. Such a level of interaction allows combining the productiveness and precision of machines with the creativity and talents of humans. However, for this employees have to possess deep digital knowledge.

The inclusiveness of the workforce in the conditions of digitalisation envisages the mandatory possession of basic digital skills, which are set onto certain digital specialisations. According to this, digital competencies are integrated into the system of management of labour resources of high-tech companies, which is manifested in the conditions of selection of employees, their training, adaptation, and motivation. In totality, this essentially changes the understanding of workplace and work processes and, accordingly, transforms the very essence of employment (ITU-D, 2021).

The WEF "The Future of Jobs Report 2023" emphasises the fact that in the next five years, new technologies will remain the main drivers of technological and innovative changes. This is confirmed by most of the respondents of the research; they say that digital transformation affects most of their activities and demands reorientation and transformation of their managerial systems. In this regard, the sphere of employment will be closely connected with digital technologies. This will require a constant increase in the number of employees with the corresponding competencies and development of an internal system of knowledge management and development of personnel, which will allow supporting a high level of intellectual development of personnel and will facilitate the achievement of economic effects (WEF, 2023).

New technologies penetrate production processes and acquire the status of the key factors in the competitive struggle and development. Generative AI, blockchain, the Internet of Things, the meta world, and other notions of the digital economy change the type and character of work at all levels of the economy, especially in the sphere of high-tech production. In such conditions, demands for employees, the list of their competencies, and approaches to the organisation of productive activities change. Changes in the labour market, accelerating simultaneously with the rates of technological progress, set the trends and form the gap between the current labour resources and proposed vacancies (WEF, 2023).

Assessing the influence of knowledge management on the company's activities, scholars (Law et al., 2021) confirm the presence of a connection between the factors of knowledge management and indicators of innovativeness and productiveness of production. At that, the system of knowledge management is assigned the role of moderator of innovations, creation of new products, and growth of efficiency due to the search for new means of execution of production, managerial, or other tasks.

Transformation of the systems of employment in the sector of high-tech production achieves a completely new treatment of employees from the position of possession of digital skills. In this context, a combination of human intelligence and AI, together with business processes and automatization tools, allows ensuring deep automatization of work processes and offering the concept of a "Digital Workforce". "Digital Workforce" is algorithms and virtual programmes that can execute different production tasks with the minimum participation of humans. Such programmes use different intellectual technologies:

- Management of business processes;
- Robotized automatization of processes;
- Chatbots based on AI;
- Intelligent processing of documents;
- Other cognitive solutions for the optimisation of business processes.

Digital Workforce can manage an individual task or a group of tasks and can learn from practice, as well as determine the priority of actions and reveal and react to exceptions. Depending on the need, Digital Workforce can be placed at a workplace or be connected to the workplace with the help of hardware or cloud technologies. This allows scaling the successful experience of digital employees and raising the effectiveness and productivity of labour (Digital Workforce, 2024).

SS&C Blue Prism (Blueprism, 2024) is an example of an effective Digital Workforce. It combines the capabilities of AI, machine learning, management of business processes, processing of natural language, and robotized automatization processes – components of intellectual automatization (IA) – and allows for automatization of routine tasks to raise the effectiveness, reduce costs, and focus human resources on strategic initiatives. The advantages of a digital workforce are its ability for 24/7 functioning, scaling of critical business operations, and constant development of new capabilities for growth. It offers variability of autonomous use of digital employees or in cooperation with humans, depending on the tasks or level of the automatization of business processes. SS&C Blue Prism belongs to active systems, which constantly improve, learning and adapting to new conditions. Thus, the use of this system allows companies to successfully use the potential of digital transformation and achieve a high level of competitiveness in dynamic conditions (Blueprism, 2024).

Knowledge management in the conditions of a digital work environment is characterised by many features, which differentiate it from traditional conditions. This is connected with communication capabilities, processes of collection, processing, and analysis of data, methods of execution of joint work, and dissemination of knowledge and ideas. Despite all differences, traditional and digital work conditions have a common feature: only a small share of organisations' knowledge (around 5 %) is recorded in the database. This knowledge is identified as available and is found in patents, instructions, organised processes, etc. At the same time, most of the knowledge remains closely connected to employees. Organisations can use this knowledge only in connection with concrete employees and there is a risk of losing them in case of firing the employees. That is why an important task of organisations is the transformation of covert knowledge into available knowledge and ensuring conditions for constant exchange of knowledge.

Integration of the system of knowledge management into the digital workspace allows organisations to codify, preserve, and disseminate valuable knowledge, facilitating cooperation, training, and improvement of effective activities. In some companies, such effect is achieved due to organisational transformations, the creation of a department or position of knowledge management officer with the functions of expansion, structuring, or support for the relevance of corporate database of knowledge with the corresponding regulation of information flows that conform to the needs of the teams (Mozzaik365, 2024). Knowledge management could be integrated into the digital work environment as a separate portal of access to documents, service block in different departments of Intranet, or document basis for project teams or communities of practitioners.

Summing up the above, it should be noted that many dynamic processes take place in the sphere of labour relations, which form a new configuration of education, employment, production, and technologies. According to this, technological progress forms new opportunities for companies, creating a resource vacuum, including an intellectual one. This vacuum is filled largely by the labour resources of companies, which is achieved due to the systems of internal training and knowledge management. Additionally, digital tools offer their intellectual resources in the form of AI, digital solutions and platforms, which can partially replace human labour. This process takes place simultaneously and dynamically, which requires constant reconsideration of the internal processes of companies in the sphere of HR and intellectual policy.

Thus, it is expected that competition for talents and intellectual resources, which can work in the conditions of cyber-physical convergence, will grow in the following years. This will increase the problem of HR support of high-tech companies but will be a stimulus for the development of autonomous systems of the digital workforce, which can replace some production and business processes with software solutions. Thus, there will be high dynamics in the sphere of digital personnel's penetration into production and economic systems of companies, which will be accompanied by the gradual shift of emphases of human labour to more highly intellectual, research, and creative. Depending on how high-tech companies can adapt to new conditions, the results of their effectiveness and the level of competitiveness will be formed.

4.DISCUSSION

The issue of the use of digital personnel in the system of knowledge management of high-tech companies, despite the presence of a range of in-depth and systemic studies, contains a large number of open and debatable questions. This is due to the high variability of the means of combining human intellect with technologies in the work processes of high-tech companies, as well as the novelty of this phenomenon, which, due to its dynamics, constantly shifts emphases of relevance and scientific challenges.

The most important debatable provisions of this problem include ethical issues of the interaction between humans and technology. These issues focus on the risks of losing control over technologies, the possibilities of unfair use of technologies by humans, and the problem of possible replacement of human intellect with artificial intellect. The development of this discussion is the problem of technological unemployment, which can appear as a result of automatization and robotization of production processes, in which there will be no vacancies for new employees.

Certain discussion issues, which require resolution, are found also in the sphere of economic assessment of the effectiveness of using digital personnel in high-tech companies, which involves maximisation of the economic effect. The main discussion in this context lies in the imposition of short-term, mid-term, and long-term, goals of such companies' development, according to this, implementation of digital solutions in the labour resources management or production processes in the short-term may be considered economically inexpedient, while in the long-term, certain solutions may lose their topicality due to quick replacement of technologies. On the other hand, the system of knowledge management at companies of such type can become a key factor in ensuring sustainable economic development, which is achieved due to the flexibility or adaptability of the mechanism of internal systems of intellectual development.

Further research should be given to the problem of social and psychological aspects of the digitalisation of human labour. In this context, the focus should be made on an increase in the intellectual burden on employees, which is connected with the growth of the level of stress at work, as well as the popularisation of remote employment, which is manifested through the reformatting of social relationships between the members of work groups and teams. These problems need in-depth experimental research and, in certain cases, enough time to track the influence of technological factors on human physical and mental health in the long term.

5. CONCLUSION

Digital technologies are among the main drivers of the technological development of society and economy. Most innovations and scientific developments are a result of the use of AI, the Internet of Things, analysis of big data of robotization, cloud technologies, etc. Thus, the availability of digital competencies for employees in the sphere of high-tech production becomes more relevant. In these conditions, the essence of digital personnel is gradually deepened – from the simple use of digital technologies to solve certain production tasks to the organisation of a comprehensive digital workplace and the creation of a fully automatized autonomous intellectual platform that can solve certain production or managerial tasks without human participation.

High-tech companies are characterised by features inherent to internal systems of knowledge management, which involves orientation at internal knowledge and development. While low-tech productions should focus on the ability to attract external knowledge and adapt it to their needs. According to this, high-tech companies have a much larger need for the involvement of intellectual resources and their digital skills. The current trends in the labour market demonstrate the gradual increase in the problem of hiring employees with digital skills, which is often faced by companies in the high-tech sector.

Given this, it is important to take into account the forecasts and trends of the development of the situation in the labour market in the conditions of digitalisation and an increase in intellectualisation. These trends show the formation of new opportunities to solve the problem of the lack of intellectual resources, which can be resolved due to the development and use of automatized software solutions based on the algorithmization of human labour within intelligent systems or corresponding programmes. These processes offer a new vision of the notions of digital personnel and digital workforce, which is treated primarily as machine means that can solve production and managerial tasks. However, in

these conditions, the need for an increase in employees' digital competencies does not disappear but transforms according to the needs of such systems' development and management.

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Anastasia A. Sozinova
Vyatka State University,
Kirov,
Russia
Aa_sozinova@vyatsu.ru
ORCID 0000-0001-5876-2823

Nadegda K. Savelyeva
Vyatka State University,
Kirov,
Russia
Nk_saveleva@vyatsu.ru
ORCID 0000-0002-9497-6172

Dmitriy V. Chuprakov
Vyatka State University,
Kirov,
Russia
usr10381@vyatsu.ru
ORCID 0000-0003-0042-3700

Victoria A. Saidakova
Vyatka State University,
Kirov,
Russia
usr21787@vyatsu.ru
ORCID 0000-0002-6299-0519