

THE IMPACT OF LABOUR PROCESS DIGITALIZATION ON CONDITIONS AND QUALITY OF WORK LIFE

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Abstract

The digitalization of work stipulates the processes of optimizing the professional activities of staff, as well as the need to master new competencies for employees. The transformation of the content and organization of labour, which is taking place rapidly today, determines the relevance of studying the impact of production processes digitalization on the conditions and quality of work life of employees. The objects of the presented research are two Russian organizations that implement digital technologies in various production processes of their activity. To participate in a sociological survey conducted using the questionnaire developed by the authors, 86 respondents were involved: 35 workers of the state postal network operator and 51 employees of the municipal medical institution. An analysis of the empirical results of the study contributes to an understanding of how the requirements for competencies and job responsibilities of employees change, as well as how these changes affect their psychosocial well-being in the workplace. A comparative analysis of the survey results obtained in two organizations operating in different sectors of the economy allows us to identify similarities and differences in the phenomenon of labour transformation, and to generalize the problems that employees face when introducing digital technologies into their work.

Key words: digitalization of work, digital technologies, digital competencies, psychosocial well-being in the workplace, quality of work life

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Introduction

Modern society can be called electronic society, in which digital competences become basic. If a person wants to function effectively in his/her workplace, he/she must possess digital competences; this ability is even called a "survival skill" in electronic society (Sineva and Yashkova, 2018). Demand for specialists who can work in the digital format is growing rapidly; the scale of non-standard employment is expanding (project work, remote work, and

flexible schedule). An important factor is the employee's ability to keep up with the times, constantly learn new technologies, and adapt to a dynamically changing corporate culture. The key property of the personality becomes nonlinearity of thinking, skills of working with various platforms, formats and large flows of information, ability to isolate the necessary, generating multichannality of learning and broadcasting of information (Martin et al., 2006). People and machines develop symbiotic relationships that create new challenges in organization of staff work, introduction of new HR processes of virtual command management (Lisenkova, 2018). The HR manager of the future is not just a leader who freely implements the basic functions of human resource management; his knowledge, skills in management should be integrated with competencies in the field of information technology (Bawden, 2008).

Digital systems and technologies are used in various fields of activity; borders are erased, which leads to a constant expansion of requirements for digital competencies of staff (Deloitte, 2017). The digitalization process requires organizations to rethink what types of competencies are needed within a particular organization (Wahlund and Wählberg, 2018). Today, the main digital competencies include: digital information processing skills, PC and standard office software skills, knowledge of information analytical technology and information security, skills in creating digital content, digital collaboration, network etiquette, etc. (Vasilieva et al., 2018).

This article discusses the process of digitalization of labour functions and its impact on the quality of working life of staff in two companies of the Russian megalopolis. Methods of improving the quality of working life (QWL) are one of the essential tools in the processes of human resource management in companies. The economic indicators that increase welfare, in general, can often simultaneously negatively affect the subjective parameters of the employee's QWL that attracts a wide range of specialists and scientists from various research fields. Thus, in the last five years, the Scopus database contains more than 22,000 scientific works one or another way devoted to QWL, and the Web of Science database includes more than 30,000 of them.

The most significant number of works related to QWL concerns the medical aspects of the work process and workers (or a member of their families) with various physical or mental problems, and ways to overcome them to improve QWL, despite the existing ailment (Courpasson and Monties, 2017; Follmer and Jones, 2018) and gender and age differences of workers in the labour market (Menzio et al., 2016; Sudbury-Riley, 2014; Andrade and

Westover, 2018). Thus, the impact of digitalization of labour on the workers' QWL requires further research.

Two companies are operating in different sectors of the economy. Despite the fact that the studied organizations operate in different areas of the business, the process of introducing digital technologies into labour activity is associated with certain consequences for the staff (Fedorova and Katashinskikh, 2015), changes in the quality of working life (Fedorova and Polents, 2016), which is the subject of the research presented in the article.

1 Methods: collection of empirical data

In order to study the impact of digitalization of production processes on the conditions and quality of working life of employees, the authors conducted empirical data collection through a sociological survey of different categories of workers in the organizations:

1) the operator of the Russian state postal network – the company occupies 97% of the written correspondence delivery market, 96% of the parcel delivery market, 69% of the subscription and periodical delivery market, 49.5% of the pension delivery market, 45% of the money transfer market in Russia. The study was conducted in three departments of this company. The total number of employees in three departments is 68 people;

2) the municipal autonomous institution is one of the largest multidisciplinary health facility of the city. It has 32 departments in three clinical services: therapeutic, surgical and obstetric-gynaecological. The total number of hospital staff is 476 people.

In postal network (further – Company №1) 35 employees participated in the study (51.5% of the total number of employees), in city medical institution (further – Company №2) 51 employees (10.7% of the total number of employees) were involved. The survey of respondents was conducted online during one month (October, 2019).

Author's questionnaire includes 16 questions: 3 questions were devoted to socio-demographic factors, in other questions there were following main topics of the survey:

- digital technologies used in the workplace;
- digital technologies that are necessary in the organization;
- changes in job requirements for employees in the context of digitalization of labour process;
- effectiveness of personal performance indicators of employees and indicators of the entire company;
- psychological well-being of employees in the context of labour digitalization;

- digital competencies that are necessary for employees to develop, and the willingness to develop them.

The structure of respondents includes the following categories of employees:

- Company №1: manual workers – 56%; department heads – 9%; interns – 9%; specialists – 26%;

- Company №2: top medical personnel – 67%; nursing staff – 31%; administrative staff – 2%.

The demographic characteristics of the respondents of both companies are presented in Tab. 1.

Tab. 1: The structure of respondents by gender and age, 2019

| Characteristic | Response options | Company №1 | | Company №2 | |
|----------------|------------------|------------|------|------------|------|
| | | People | % | People | % |
| Gender: | female | 24 | 69.8 | 24 | 69.8 |
| | male | 11 | 30.2 | 11 | 30.2 |
| Age: | 20-30 | 19 | 54.3 | 19 | 54.3 |
| | 30-40 | 9 | 25.6 | 9 | 25.6 |
| | 40-50 | 3 | 9.5 | 3 | 9.5 |
| | > 50 | 4 | 10.6 | 4 | 10.6 |

Source: Authors' elaboration

Most of the respondents in both companies are women. There is domination of respondents aged 20 to 30 years (54% of respondents) in Company №1, and the majority of respondents are aged 40 to 50 years (37%) in Company №2. To study the impact of labour digitalization on the employees' QWL a comparative analysis of the responses of employees of two different companies was carried out.

2 Results: comparative analysis

The fact that unites the two studied organizations is the positive attitude of the staff towards the processes of labour digitalization in general. Almost all employees (87%) of Company №1 have a “very positive” or “positive” attitude towards the introduction of digital technologies in the labour organization; no one has expressed a negative attitude. The majority of employees of Company №2 have a positive attitude toward digitalization trends (86.2%), but there have also been employees who negatively relate to these trends (7.7%).

Tab. 2: Responses given to the question: “How do you feel about current trends in automation, computerization and the introduction of digital technologies in labour organization?”, 2019

| Response options | Company №1 | | Company №2 | |
|--|------------|------|------------|------|
| | People | % | People | % |
| - very positive, I like to be a participant in the digital revolution | 15 | 43.4 | 12 | 23.5 |
| - positively, digital technologies make my life more convenient | 15 | 43.6 | 32 | 62.7 |
| - it doesn't matter, life develops according to its own laws | 2 | 4.5 | 1 | 2.2 |
| - negatively, I do not understand anything in digital technologies and I can work without them | 3 | 8.5 | 2 | 3.9 |
| - very negatively, digital technologies complicate my life and it makes me stressed | 0 | 0.0 | 4 | 7.7 |

Source: Authors' elaboration

Among the digital technologies used by employees of the postal network at workplaces were named: computers and tablets, instant messengers, a queue management system, and a corporate website. Most respondents of medical institution also use computers and tablets, a queue management system, but slightly more than a third of them uses mobile applications.

Most of the respondents of both organizations claim that in the context of digitalization at work, the requirements for their posts have changed (Tab. 3).

Tab. 3: Responses given to the question: “What is the change in the requirements for your position/post?”, 2019

| Response options | Company №1 | | Company №2 | |
|--|------------|------|------------|------|
| | People | % | People | % |
| - new knowledge and competencies are needed | 20 | 57.1 | 27 | 60.0 |
| - additional training or skills development are needed | 5 | 14.2 | 20 | 44.4 |
| - new professional tasks have appeared | 23 | 65.7 | 25 | 55.6 |
| - new job functions have appeared | 31 | 88.6 | 33 | 73.3 |
| - job descriptions have changed | 3 | 8.6 | 18 | 40.0 |
| - the volume of reporting has increased | 17 | 48.6 | 32 | 71.1 |

Source: Authors' elaboration

It can be concluded that digitalization entails expansion of functionality and requirements to competencies of employees, in particular, digital competencies.

Despite of the changes associated with the introduction of digital technologies in the organization, almost all respondents from Company №1 believe that their personal performance indicators have not changed in any way, but the effectiveness of the whole organization has increased (Tab. 4).

Tab. 4: Responses given to the question: “How does computerization affect your personal performance and the effectiveness of the organization as a whole?”, 2019

| Response options | Effectiveness of personal performance | | | | Effectiveness of the organization | | | |
|------------------|---------------------------------------|------|------------|------|-----------------------------------|------|------------|------|
| | Company №1 | | Company №2 | | Company №1 | | Company №2 | |
| | People | % | People | % | People | % | People | % |
| - positively | 10 | 28.6 | 21 | 41.2 | 31 | 88.6 | 34 | 66.7 |
| - not changed | 24 | 68.6 | 24 | 47.1 | 4 | 11.4 | 10 | 19.6 |
| - negatively | 1 | 2.8 | 6 | 11.7 | 0 | 0.0 | 7 | 13.7 |

Source: Authors' elaboration

The psychological well-being of the third of employees of the postal service has not changed since the digital technologies introduction in the organization; 40% of respondents said that this process arouses interest and positive emotions. Respondents in medical institution disagreed on this issue: 39.2% of respondents were interested in the digitalization process, but one fifth of them are stressed by the need to develop new competencies. 5.9 % of employees suggested their option – they are stressed when work programs/computers “freeze” and slow down the working process (Tab. 5).

Tab. 5: Responses given to the question: “What impact has the process of computerization of labour influenced on your psychological well-being?”, 2019

| Response options | Company №1 | | Company №2 | |
|---|------------|------|------------|------|
| | People | % | People | % |
| - “I feel stressed about the need to develop new competencies” | 5 | 14.3 | 11 | 21.6 |
| - “I am stressed because my knowledge, skills and abilities are out of date” | 5 | 14.3 | 5 | 9.8 |
| - “My psychological well-being has not changed” | 11 | 31.4 | 12 | 23.5 |
| - “I am interested in learning new things; I feel positive emotions during the development of new competencies” | 14 | 40.0 | 20 | 39.2 |
| - Own option: “I am stressed when work programs / computers “freeze” and slow down the working process” | - | - | 3 | 5.9 |

Source: Authors' elaboration

According to the majority of the general sample of respondents, they need to develop such digital competencies as: computer literacy and working with digital devices, performing financial transactions using digital technologies, and the ability to work on the Internet. Working with digital devices includes both computer literacy and the ability to receive and process information in electronic form. This is one of the basic digital competencies that an employee should possess (Tab. 6).

Tab. 6: Responses given to the question: «What new competencies do you need to learn in the context of digitalization?», 2019

| Response options | Company №1 | | Company №2 | |
|--|------------|------|------------|------|
| | People | % | People | % |
| - computer literacy and working with digital devices | 34 | 97.1 | 41 | 80.4 |
| - ability to work on the Internet | 5 | 14.3 | 15 | 29.4 |
| - carrying out financial transactions using digital technologies | 17 | 48.6 | 8 | 15.7 |
| - using social media functionality | 13 | 37.1 | 9 | 17.6 |
| - production of multimedia content | 16 | 45.7 | 12 | 23.5 |
| - own option: program 1C | 11 | 31.4 | - | - |

Source: Authors' elaboration

Respondents of Company №1 are fully prepared to learn new digital competencies or ready to learn them if it is necessary. Almost all employees of Company №2 are ready to master digital competencies. At the same time, 2% of respondents indicated that they are not ready, but will try to do it to keep their workplace (Tab. 7).

Tab. 7: Responses given to the question: «Are you ready to learn new digital competencies?», 2019

| Response options | Company №1 | | Company №2 | |
|---|------------|------|------------|------|
| | People | % | People | % |
| - "I am completely ready to master new competences. It is interesting to me" | 15 | 42.9 | 20 | 39.2 |
| - "I will learn new competences if it is necessary for to work" | 15 | 42.9 | 30 | 58.9 |
| - "I am not ready to master new competences, but I will try to keep the workplace" | 5 | 14.2 | 1 | 2.0 |
| - "I am not ready to gain new knowledge, abilities, skills, to master new competences. It's hard for me." | 0 | 0.0 | 0 | 0.0 |

Source: Authors' elaboration

Thus, the effect of labour digitalization on the employees' QWL of Company №1 and Company №2 was studied. In both companies, the staff is faced with the need to develop digital competencies for further work in the context of the introduction of new digital technologies.

Conclusion

The study showed that interviewed staffs in studied organizations have a positive attitude to current trends in the digitalization at work. At their workplaces, they mainly use computers and tablets, in the field of postal services, employees use messengers, and in the field of medical services, they use mobile applications. Respondents claim that the requirements for their posts have changed in the context of labour digitalization; it has become necessary to develop new competencies. At the same time, it should be noted that new professional tasks appeared in the postal network, and the volume of reporting increased in the medical institution.

An important conclusion is the fact that, according to the respondents of both organizations under study, the introduction of digital technologies in the labour functional does not affect personal performance indicators in any way, but it contributes to the efficiency of the whole organization. Also, most of the interviewed employees do not feel any influence of digitalization on their psychological well-being; more often they experience positive emotions and interest in studying new digital technologies.

All interviewed employees are ready to learn new competencies, but this willingness is determined by the fact that employees need them for further work. The main competencies that employees in all areas need are computer literacy and ability to work with digital devices. For postal workers, competencies in performing financial transactions are also important, as they work with people who send / receive parcels and letters, make money transfers. The ability to work on the Internet is also important for medical employees.

Thus, the study shows that there are both similarities and differences in the estimates of employees in two organizations of different sectors of the economy, introducing digital technology in production and labour processes. It is obvious that the labour functional of the staff and the requirements for competencies are changing, there is a willingness of employees to train and develop, but models for managing professional development of staff in the field of digital technologies should take into account the specifics of production processes and professional tasks. The question of why the introduction of digital technology does not

contribute to improving personal efficiency in the workplace, as well as the quality of working life, is the subject of further research.

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References

- Andrade, M. S., & Westover, J. H. (2018). Generational differences in work quality characteristics and job satisfaction. *Evidence-Based HRM*, 6(3), pp. 287-304.
- Bawden, D. (2008)/ Origins and Concepts of Digital Literacy. In: Lankshear, C., Knobel, M. (eds.) *Digital Literacies: Concepts, Policies & Practices*, pp. 17-32.
- Courpasson, D., & Monties, V. (2017). "I am my body". Physical selves of police officers in a changing institution. *Journal of Management Studies*, 54(1), pp. 32-57.
- Deloitte (2017). *Tech trends 2018: The symphonic enterprise*. Deloitte Insights. Available at: <https://documents.deloitte.com/insights/TechTrends2018> (accessed 10 October 2019).
- Fedorova, A., & Katashinskikh, V. (2015). Toxic elements of labour relations under conditions of growing precarization of the employment. In the 9th International Days of Statistics and Economics (pp. 751-760). Prague: Melandrium, Czech Republic.
- Fedorova, A., & Polents, I. (2016). Toxic Working Conditions and Social Policy within Companies. Conference Proceedings of the 4th International Conference on Advances in Social Science, Humanities, and Management (ASSHM 2016), Guangzhou, China, 24-25 December, 2016, pp. 453-456.
- Follmer, K. B., & Jones, K. S. (2018). Mental illness in the workplace: An interdisciplinary review and organizational research agenda. *Journal of Management*, 44(1), pp. 325-351.
- Lisenkova, A. A. (2018). Challenges and opportunities of the digital age: the sociocultural aspect. *Liberal Arts in Russia*, 7(3), pp. 217-222.
- Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and Tools for Digital Literacy Development. *ITALICS: Innovations in Teaching & Learning in Information & Computer Sciences* 5, pp. 246-264.
- Menzio, G., Telyukova, I. A., & Visschers, L. (2016). Directed search over the life cycle. *Review of Economic Dynamics*, 19, pp. 38-62.

Sineva N. L. & Yashkova E. V. (2018.) The activities of the personnel service in the digitalization of the Russian economy. *Innovative Economics: Prospects for Development and Improvement*, 27, pp. 57-71.

Sudbury-Riley, L. (2014). Unwrapping senior consumers' packaging experiences. *Marketing Intelligence and Planning*, 32(6), pp. 666-686.

The program "Digital Economy of the Russian Federation": approved by order of the Government of the Russian Federation No. 1632-r dated July 28, 2017.

Vasilieva E.V., Pulyaeva V.N., & Yudina V.A. (2018). Digital competence development of state civil servants in the Russian Federation. *Business Informatics*, 4(46), pp. 28-42.

Wahlund, F., & Wählberg, V. (2018). *Digitalization & Competence Management. A study of digitalization and competence management within the telecommunications industry.* Gothenburg, Sweden.

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