

# THE ATTITUDE OF EMPLOYEES TOWARDS THE TRANSFORMATION OF PROFESSIONAL ACTIVITIES IN THE CONTEXT OF GLOBAL RISKS OF INDUSTRY 4.0

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## Abstract

The article is devoted to the problem of changing the sphere of labour in the conditions of the fourth industrial revolution. The transformation of the labour sphere is accompanied by both positive phenomena and entails economic and social risks. The purpose of the article is to identify the subjective attitude of representatives of various professions to their professional future in the conditions of Industry 4.0. A written narrative analysis was used as a method of empirical research. The analysis of theoretical sources allowed us to identify potential areas of exposure to global risks of Industry 4.0 on the psychological safety and well-being of employees. The study identified individual characteristics of employees' perception of the opportunities and global threats of Industry 4.0. The planned strategies of professional behaviour of respondents in case of changes in labour functions are analysed. The results of the analysis showed that the majority of respondents have low awareness of the fourth industrial revolution and do not believe that the changes will affect their professional activities. A small part of the respondents have already faced changes in their work functions and are ready to improve their professional competence in order to be competitive in the new conditions.

**Key words:** economic risks, social risks, psychological safety, well-being of workers

**JEL Code:** J21, J6

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## Introduction

The fourth industrial revolution will inevitably lead to a qualitative change in all spheres of human life. Experts predict technological breakthroughs in a wide range of fields from nanotechnology and biotechnology to the emergence of artificial intelligence and the robotization of most areas of human life (Schwab, 2017). Fundamental changes are taking place in the world of work at this moment. These changes will lead to opportunities for new combinations of mental, physical, and mechanical work, as well as for "Machine-to-Machine" communication. Traditional industrial robots are now mainly play the role of assistants to

people. Robots do the most dangerous, hard, and monotonous work. Further development of Industry 4.0 will lead to a fundamentally different interaction between people and machines. Modern intelligent machines will have to perform production tasks together with people. In this way, robots will be able to perceive, act, reason, and learn the necessary actions from humans (Bloom et al, 2014). The question of the forms and specifics of the coexistence of man and machine in the real production process is not fully resolved. Burh discusses the probability of three scenarios developing. In the automation scenario, the value of a person as a labor force decreases. The role of monitoring and control will be taken over by "smart" machines. The hybrid scenario involves people and machines working together. The specialization scenario focuses on the defining role of skilled workers. In the hybrid scenario, as in the specialization scenario, people are skilled decision-makers (Buhr, 2015). Thus, two of the three possible scenarios involve active involvement of staff in the process of labor reorganization. However, it is not known what scenario will develop this or that sphere of labor or industry. A number of researchers suggest that even professions such as lawyers, accountants, medical professionals, pharmacists, financial analysts, insurance agents and journalists can be replaced. They point out that the fourth industrial revolution, compared to previous ones, creates new jobs in significantly smaller numbers (Li, Hou, & Wu ,2017). In this regard, issues related to the well-being and psychological safety of employees in the transition to Industry 4.0 become relevant.

The purpose of our research is to study the subjective attitude of employees to their professional future in connection with the expected changes in the labor sphere. In other words, we empirically study what employees themselves think about possible changes in the labor market? How do they perceive these changes? Are they ready for them? How do they plan their professional future? Do they understand that the fourth industrial revolution can significantly change their daily work, functions, and even profession? This will allow us to understand how we can solve the problem and overcome some theoretical contradictions in finding a balance between the opportunities and threats of the fourth industrial revolution for the workforce.

### **Materials and Methods**

Researchers emphasize the unprecedented transformations associated with Industry 4.0. These transformations are associated with both technological innovations and the reorganization of the labor market. Widespread automation will change the organization of work and the structure of jobs and professions. Consequently, there will be a major redistribution of skills

supply and demand in the labor market. In the near future, the employment structure will change significantly. Most jobs will have non-standard forms, such as part-time work, temporary work, remote work, or freelancing. In the context of high-tech digital production, jobs will be divided into smaller tasks. Cloud employment will be actively developed (there will be a large number of online platforms for interaction between employers and job seekers). The trend will be talent management, due to the increasing need for innovative human capital (Kergroach, 2017). New jobs will require new competencies and new skills, particularly the development of digital skills, lifelong learning skills, and soft skills (Li, Hou & Wu 2017). The above-described trends of the fourth industrial revolution concurrently open up new opportunities and carry certain social and economic risks for the workforce. The possibilities of the fourth industrial revolution are primarily related to increasing the flexible organization of labor in time and space. Digitalization and development of distance employment will help to alleviate existing gender inequality in the labor market. Women will be able to take full advantage of flexible employment to create a balance between work and family responsibilities (Tonkikh & Peshya, 2019). Researchers associate the main economic and social risks of Industry 4.0 with increasing job polarization and income inequality among the working population. As a result, social inequality and technological unemployment will increase. A number of employees of modernizing enterprises will not be able to adapt to technological changes in a timely manner. This situation will lead to a digital "gap" between employees. The polarization of labor will manifest itself in the fact that middle-level jobs will actually be at risk of disappearing. At the same time, demand for highly qualified employees will increase disproportionately. Professionals will have to perform tasks aimed at creative problem solving and complex social interaction. Low-skilled employees who perform service tasks that are difficult to automate will also be in demand (Buhr, 2015). Obviously, only highly intellectual or high-tech work requiring special skills and competencies will be paid well. Hard physical labor will continue to be in demand, as it is economically unprofitable for some countries and business owners to digitize and automate production. This is confirmed by the low rate of automation in several countries. Compensation for workers may remain more beneficial for the owner compared to the acquisition and maintenance of high-tech machines or intelligent machines. Unfortunately, the payment of low-skilled labor in the realities of the fourth industrial revolution will decrease. Of course, this will have a negative impact on the well-being of certain groups of the population. There is no consensus in the scientific literature on the extent and strength of the impact of the fourth industrial revolution on the demand for labor resources. Some experts predict serious problems in the labor market and

indicate that widespread automation will lead to job losses (Ford, 2015). At the same time, there will be a demand for new jobs, and new professions will arise. The main objective of companies is to create conditions for adaptation of workers to new technologies through timely training. There are interesting suggestions for staff training that will help improve the process of integrating people and cyberphysical systems (Fantini, Pinzone & Taisch, 2018). A research in the UK showed that a lack of qualified personnel would be a major concern for companies during the fourth industrial revolution (Cordes & Stacey, 2017). Other researchers make more optimistic forecasts, focusing on the positive side effects of Industry 4.0 in various areas (Morrar, Arman & Mousa, 2017). The importance of finding a long-term balance between technology and new jobs is emphasized. Peters reports that the software industry employs 2.5 million people. This industry supports job growth in other areas (Peters, 2017). Drawing a comparison between industrial revolutions and the eras of civilization, scientists draw a number of conclusions. First of all, there is an increase in labor productivity in each successive era. At the same time, many jobs created in the previous era are being destroyed and reduced. In the first three ages of civilization (the hunter and gather age, the agricultural age, the industrial age), the production of goods and services using physical labor prevailed. In the next two periods (the information worker age and the emerging age of wisdom), priority was given to knowledge workers (Xu, David & Kim, 2018). As part of an empirical research, we will show how employees themselves represent their professional future in Industry 4.0. We used the method of written narrative interviews, which has proven itself in a variety of qualitative studies (Fedorova et al, 2019). The narrative can be written or oral texts or fragments of texts and statements.

## **Results**

The research was implemented in 2020 in the Russian Federation. Participation in the research was voluntary. First, the respondents were introduced to the definition of Industry 4.0, and then they were asked to write an essay on the topic: "My profession in the conditions of Industry 4.0". The following phrase was used as a narrative impulse: "Describe your work, as well as your thoughts, feelings and possible actions regarding your professional future in the context of the fourth industrial revolution. How does this affect / do not affect your work (professional activity) now? In the near future?" After 10 years?".

The processing of narratives was carried out as follows: Coding of the main thematic kernels in each story; Quantitative processing of thematic cores; Qualitative comparison of respondents' answers to identify compliance and differences; Extrapolation of thematic

kernels and cross-comparison of segments (taking into account the gender and professional identity of respondents); Analysis of individual cases (identifying features for each segment). The research involved 205 people. The gender distribution of the respondents was 75.6% female and 24.4% male. All respondents are under 40 years of working age. The upper limit of the working age in the Russian Federation is 60 years for women and 65 years for men. In other words, all respondents have more than 20 years of work left, which makes them think meaningfully about their professional future. The professional affiliation of the subjects is wide. There are professions with the advantage of physical labor (crane operator, salesman, electrician, technician, farmer, cook, clerk, waiter, flight attendant, mechanic, makeup artist, mountain digger, driver, fitness trainer, Metallurgist, etc.) and intellectual (accountant, teacher, doctor, psychologist, educator, designer, Manager, medical worker, financial consultant, personnel specialist, and others). Both categories of the economically active population are represented among the respondents: the employed and the temporarily unemployed. The official level of respondents is quite broad: senior and middle managers; Executive managers; employees of the main and auxiliary production; technical performers; individual entrepreneurs.

The identification of attitudes towards Industry 4.0 occurred through the identification of threats and opportunities that respondents noted in the essay. The 45.4% of the respondents showed equal importance in perceiving threats and opportunities. 41% - indicated that Industry 4.0 is exclusively an opportunity, and the threats are insignificant for their work. The 8.3% - focused solely on the perception of threats. The 5.3% of respondents showed an indifferent attitude to the impact of Industry 4.0 on the future. Industry 4.0 features. for respondents are: facilitation of labor functions of a person; development and training; increase in income of employees and companies; the growing need for unique human abilities; increase of labor interest and exclusion of monotony; automation and mechanization; reduction of production defects; increase in the efficiency of human activity and production. The perception of threats was reflected as: a large reduction in jobs and human labor; loss of need for an existing profession; decrease in income; poverty; increased nervous tension; long-term unemployment; “war” of people and robots, etc. Men are more positive about the prospects for Industry 4.0. The 52% of men surveyed see only positive opportunities. The 32% of the men surveyed do not deny the negative trends of Industry 4.0, but they do not ignore the opportunities.

The total majority of respondents (92%) have a positive or neutral attitude to the professional future in the conditions of Industry 4.0: career growth and professional development; change

of profession in combination with demand; increasing the official level; growth of personal and professional efficiency; success; opening your own business; etc.). The 8% of respondents see the pessimistic future: uncertainty of the future; a sense of inevitability of job loss and uselessness; displacement of a person; job search.

About 33% of respondents described that they have no real experience of changing work functions under the influence of digitalization processes. The 6.4% noted that they received a negative effect from the introduction of digitalization in their work functions. Reasons for negative experience: “raw” software technologies; inconsistency within the organization; instability of software; increased work volume. The 61.5% have a positive experience of digitalization of labor functions, this is expressed through: labor facilitation; rational use of working time; the ability to do more and better; flexibility of working time; reallocation of functions; optimization of labor costs; more free time for remote employment.

Based on the analysis of all the received narratives, the authors suggested that it is possible to specify several types of professional behavior strategies. The planned strategies for professional behavior of labor resources in the labor market are active and passive. The authors identified 5 types of strategies: the respondent notes that Industry 4.0 will not affect his professional activities in any course of events; the respondent recognizes and understands that there are and will be changes in the work but considers himself more competitive in comparison with artificial intelligence; the researcher notes that there are no changes so far and plans to adapt to them only when they appear; a person is ready for changes and will meet them if his employer or the state creates the conditions for the adoption of a new one; a person is aware of the changes that are taking place and prepares for them in advance.

## **Discussion**

The analysis of theoretical sources devoted to the fourth industrial revolution shows that there will be new jobs for highly qualified specialists. However, today, there is no clear answer to the question of whether new jobs match the existing workforce. In this regard, in our opinion, the fears of scientists about the possibility of fully satisfying the basic human needs, including physical and psychological security, are fully justified. Many people may face a limited choice of jobs with decent conditions and pay in the near future (Hirschi, 2018). Industry 4.0 sets new requirements for career development. They are related to the fact that the employee will need to show even more independence and flexibility in career development throughout their life. Traditional labor relations will change. Permanent employment with a single employer will be the exception rather than the rule. Therefore, each person will have to

constantly provide themselves with work to meet their basic needs. New non-standard working conditions will require finding meaning in the work role. Of particular importance are issues related to professional identity (Kemmerling, 2017). Thus, a limited number of employees has the potential to develop in new realities. Will all employees who have lost jobs due to changes in job functions be able to master new competencies, gain new professions? Will each employee have the personal resources and abilities to adapt to the rapid and rapid changes in the labor market? This question remains open.

## **Conclusion**

Summarizing the research, we can identify a number of trends in the professional behavior of labor resources in the labor market in the conditions of Industry 4.0. About half of all respondents in narratives described a passive position of actions regarding digitalization. This can be explained by a lack of awareness, lack of self-confidence and lack of psychological security in changing conditions. More than 33% of narratives reflect negative experiences of transformation of labor functions. In our opinion, it is likely that the past negative experience will have a retarding effect on the adaptation of the workforce to the new digital environment and reduces the level of psychological security.

An exceptionally positive perception of your personal professional future is not a guarantee of success in your professional activity. Positive reinforcement of prospects is possible only with an adequate and rational perception of individual threats. In our opinion, the majority of respondents do not fully assess the threats to Industry 4.0. Without a balance of perception of threats and opportunities, it is virtually impossible to form a stable psychological security of an employee. False security can lead to disorientation of the person in the labor market during the period of active employment transformation.

The survey showed that most of respondents have an idea about Industry 4.0. However, they perceive the threats of the future not relative to themselves, but indirectly. In other words, the most of respondents do not associate such risks as unemployment, reduced competitiveness, or loss of income with their future. At the same time, more than 70% of respondents are representatives of professions that are at risk of being eliminated or changed by digital technologies.

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