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## The impact of the digital economy on employment and labour market transformations: The main trends

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### Abstract

This article aims to identify the main transformations in the system of social and labor relations caused by the digital economy formation. At the preparatory stage of the study, the authors conducted a consistent review of scientific literature on the problem of transformation of social and labor relations in digital economy. The main part of the study was devoted to an expert survey in which thirty-two experts were interviewed and online discussions were conducted. The experts were chosen according to their professional experience. The heads and HR directors of IT businesses were a part of the expert group. Expert interviews made it possible to identify the key characteristics of the modern labor market and its developments in the context of the development of the digital economy. The authors highlight key findings from the study, such as how human values and motivations for work have changed, how employee management has changed, how social and labor interactions are intertwined, and how organizations have changed from vertical to horizontal management structures. The study's findings enable us to draw the conclusion that the transformation of social and labor relations necessitates new approaches for managing human resource and taking into account the worker as the key player in the technological process.

**Keywords:** Freelance, Information society, Social and labour relations, Social and labour sphere.

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### 1. Introduction

The modern development of society and the socio-economic system cause significant transformations in the social and labour sphere, due to the formation of the 6th technological paradigm, [1, 2]. New technologies constantly reduce production costs, change the processes of production organization and distribution of goods and services, and create the

basis for stable growth of opportunities [3, 4]. At the same time, the formation of new products and industries with powerful investment opportunities has created a socio-economic imbalance and prerequisites for the transformation of employment and social and labour relations models [5, 6].

The technological basis for the functioning of the digital economy is the trigger of such shifts. The Internet and other information and communication networks are used extensively in the digital economy because they greatly speed up the processes of information receiving, processing, and transmission. [7, 8]. The acceleration of scientific and technological progress and the development and spread of information and communication technologies (especially Internet technologies) lead to the appearance of new forms of labour activity organization. [9]. Global networks serve as platforms for interaction between the parties involved in social and labor connections, fundamentally altering those relationships.

Therefore, the problem of the research is the understanding of modern new challenges facing the sphere of social and labor relations to select directions for their qualitative modification and develop adequate mechanisms for their regulation.

The characteristics of the labor process, forms of employment, labor organization, and the nature of the relationship between the employer and the employee all show discernible changes in the context of the development of the digital economy.

Researchers dealing with the transformation of social and labor relations in the digital economy list the constant expansion of the role of knowledge and information as a resource base of society [10] its main economic value [11] and the largest potential source of wealth [12] as well as a high level of information technology involvement as characteristics of the post-industrial direction of social development that affect the development of new social and labor relations. [14]. An analysis of theoretical concepts and views on the features of modern society allows us to assert that the basis of a new stage of social development is knowledge that spreads to all areas of economic activity through information processing [15]. The role of professions associated with a high saturation of knowledge and information is growing [16] therefore, according to experts, the most significant trend is the spread of non-standard forms of employment.

Thus, commitment to a place of employment and following a rigorous schedule often become optional. Remote employment, flexible working hours, and other alternatives are replacing them. [17, 18]. This situation gives rise to several problems in modern society, in particular, precarization, which is accompanied by a decrease in the level of social responsibility and the unstable nature of social and labor relations [19] personal desocialization (isolation), the spread of social disunity, and the decline in social cohesion [20].

These changes are accompanied by unfavorable social processes, including the growth of social exclusion [23], instability and desocialization of labor relations [22], a decline in social cohesion, and asymmetry in economic and social development [21].

The formation of qualitatively new relations in the sphere of labor [24] as well as the formation of a digital economy [25] make the analysis of their impact on the transformation of social and labor relations relevant [26].

### *1.1. Research Hypothesis*

The transformation of social and labor relations in the context of the digital economy formation can be characterized by the development of their main subjects.

### *1.2. Research Objectives*

- i. To identify the main employment and labor market development trends.
- ii. To examine the main social and labor sphere trends.
- iii. To characterize the main directions of the transformation of social and labor relations in the context of the formation of the digital economy.

## **2. Methodology**

The main research method was an expert survey. Thirty-two experts (leaders and HR managers of IT companies) took part in the survey.

At the first stage of the expert survey, the experts were asked to fill in a semi-formalized questionnaire voluntarily. The questions were aimed at determining employment and labor market development trends, social and labor sphere trends, and the directions of the transformation of social and labor relations in the context of the formation of the digital economy.

At the second stage of the expert survey, the collected information was processed and arranged according to its significance. All this was followed by the compilation of tables and the interpretation of the results.

At the third stage of the expert survey, the main directions of the transformation of social and labor relations in the context of the formation of the digital economy were identified according to the results of the previous stages of the survey and discussed in detail.

## **3. Results and Discussion**

According to the experts, new challenges for the social and labor relations and requirements for their further qualitative development shape the following trends in the development of the employment sector and the labor market both in Russia and the world [Table 1](#).

**Table 1.**

Employment and labor market development trends.

No.	Trends	Percent*
1	Growth of employment in the service sector	84
2	Growth of the educational level of the population	81
3	The increased economic activity of the population (Growing involvement of women, young people, in particular students, in economically active life)	78
4	Increased labour mobility	72
5	Increased spatial and sectoral concentration	72
6	Growth of unstable short-term contracts	69
7	The gradual transformation of “economic man” into “creative man”	66
8	Increased competition in the labour market for unique human resources: Creativity and inventiveness	66
9	The increased importance of non-material motives in the life of the economically active population	59

Note: \*Percentage of expert references.

Therefore, in general, the experts characterized the situation in the social and labour sphere by the following trends (Table 2).

**Table 2.**

Social and labour sphere trends.

No.	Trends	Percent*
1	Diverse changes in the labour market and its segmentation	81
2	Unstable nature of social and labour relations, the spread of precarization and decrease in the level of social responsibility of their subjects	78
3	Emergence and spread of new (Non-standard) forms of employment	72
4	Desocialization (Isolation) of a person and decreased social cohesion	69

Note: \*Percentage of expert references.

**Table 3.**

Directions of the transformation of social and labour relations in the context of the formation of the digital economy.

Directions of transformation	Consequences
New (Non-standard) forms of employment	Short-term employment, loss of job security, temporary arrangements
New human relations	Characterized by the use of new communications (Transition to virtual communications); Loss of interpersonal skills; decreased involvement of the economically active population to collective interaction
New human-technology relations	Manifested through computerization and virtualization of work processes; turn the employee into the main link in the technological process
New employee-employer relations	Their special characteristics are the individualization of the subjects of social and labour relations (One’s interests are the top-priority); Decreased importance of collective bargaining regulation; instability, desocialization
New labour organization	Changes in jobs, working conditions, motivation; the new nature of interaction in teams and the new nature of their management; The need to stimulate teamwork, collective projects, collective interaction
New life-work balance	Reflected in the imbalance, changes in the content of free time and working hours, blurring of the boundaries between free time and working hours
New type of worker	New requirements for intelligence and creativity; High level of education; high level of the development of competencies, especially the digital one; High level of mobility; Lack of need for stability, confidence in the future; Focus only on profit; Changes in attitudes towards labour and changes in the employee’s motivational attitudes
New type of personality	Formed depending on its individualization and atomization; increased level of human freedom; self-realization; Expanding the personal space; Changes in value attitudes; Loss of a sense of belonging to a certain community; loss of opportunities for social adaptation; reducing or breaking ties with society

According to the experts, these trends are becoming reality as the digital economy takes shape, as changes in the social and labour spheres are greatly deepened by the slow advancement of social development and the shift to an information digital society.

In general, according to the experts, the formation of digital information society and the digital economy creates a new world of labour and predetermines the following main transformations of social and labour relations (Table 3). At the same

time, each of the transformations determines the need for qualitative changes in social and labour relations, and their modification depends on the negative manifestations, which follow them.

As we noted earlier, occupation with a high saturation of knowledge and information are becoming more important [16]. Therefore, the growth of new non-standard forms of employment is the most significant trend, according to experts, and this is also confirmed by our study.

Let us consider in more detail the main directions of the transformation of social and labour relations influenced by the formation of the digital economy.

The distribution of information, communication, and computer technologies change the perception of the standard workplace. Opportunities for additional, remote, flexible or virtual employment are expanding [27]. This is consistent with the data of the study [15] according to which during 2014-2018, Americans tended to choose freelance work, despite the strengthening of the labour market, which offered more full-time jobs. Thus, during the above-mentioned period, 3.7 million people began to choose to freelance, and now in the US, 56.7 million people are freelancers. Thus, the human relations are changed, one out of three American employees believe that it is main work. At the same time, today lifestyle has become the priority for both freelancers and non-freelancers, not income. Freelancers are more likely to get the desired lifestyle. Full-time freelancers are 21% more likely to say that their work allows them to live according to their wishes (84% of freelancers versus 63% of non-freelancers) [15].

One of the reasons for choosing to freelance, according to experts, is the ability to work remotely, as well as the growing popularity of digital platforms and common software tools such as Slack, Dropbox and Google Docs, which have made the possibility of employment much easier than ever before, which is consistent with the research data [16, 28] according to which three out of four freelancers say that modern technology makes it easier to find and perform freelance work, which, in our opinion, affects the change in the life-work balance.

Since the human-technology interactions are increased, digital platforms reduce the costs of employers to find employees with the appropriate qualification and facilitate the search for jobs that match the skills of freelancers, rather they create the conditions for economic growth. According to Williams and Horodnic [21] by 2025 digital platforms can add 2.7 trillion dollars to global gross domestic product (GDP) and they can gradually mitigate many permanent problems in global labour markets.

At the same time, according to the experts, the subjects of social and labour relations are developing and the nature of the interaction between employer relations is changing. Investments in personal development become more relevant, which distracts from investments in material aspects of production. The transformation of a person into the main production factor, alongside with the creation, activation, and determination of the ways of using technology, puts forward new requirements for physical and intellectual capabilities”.

In turn, Kadar, et al. [22] put forward several assumptions, in accordance with necessary labour organization that transform the activities and management of a company in the context of an information digital society. One of such assumptions is that highly qualified personnel should play a fundamental role [22]. This explains the growth of the employee’s educational level [29, 30]. Therefore, in the digital economy, it is education and the lifelong educational process of a person that acquires particular importance. The need for a continuous educational process is connected with the rapid development of technologies when the professions and specialties or their modifications quickly become outdated [31]. Also, it has to do with how businesses’ organizational structures are constantly changing and how workplaces are evolving. [32]. Consequently, the social status of an employee and the level of income are significantly determined by the intelligence, abilities, and quality of education.

At the same time, according to experts, the importance of the employer as a subject of social and labour relations in learning process organization increases significantly. the findings of the study [13] state that many companies, on-the-job training and staff development programs become an important part of the organizational and corporate strategy for the development of the enterprise. Training becomes an important element in the personnel development system. The development of certain abilities through training is a goal of this group of tools, which are thought of as kinds of cooperative learning. These skills help employees be more motivated, adapt to new situations more quickly, and work more effectively.

The study [33] points out that, when there is a distance between the employee and the employer, the implementation of virtual work connected to information processing with the aid of a computer plays a significant part in the higher educational level of employees.

Experts point to the fact that the widespread distribution of progressive means of labour and the latest technologies change the very nature of human- technology relations, which brings us to the formation of a new type of worker. In the digital economy, the role of physical manipulation of production means is decreasing.

The study [22] argues the above by saying that the place and role of the labor force in social production is being transformed: the worker is no longer a mechanical performer with a machine, but the main link in the technological process. There is a clear shift in emphasis from individual manufacturing operations to the process of product creation as a whole. The main task of the employee is no longer the modification of the final product, but the fullest possible improvement of the processes leading to its creation. There is a shift from production to innovative solutions that have special relations with the formation of the final result.

Additionally, analysts claim that the development of a professional space, which is characterized by the appearance of new professions and professional directions, is a component of the digital economy. Following the introduction of information technology, they ensure the long-term development of the information environment and bring about changes in conventional professional practices. All this is followed by the intellectualization of professions and the accumulation of

knowledge in the labour process. At the same time, the share of the information component in professional activities is growing, which leads to the virtualization of certain professional areas. [Bejaković and Mrnjavac \[23\]](#) believe that modern social and labour relations are characterized by the modernization of the professional structure associated with a higher increase of jobs that require higher qualifications in comparison with the categories of lowest level of social and labour relations [23].

Under such conditions, a new character of labour appears, which is manifested in the individualization of labour, where creativity is singled out as the main type of activity. The influence of individualization on social and labour relations can be considered, bearing in mind the weakening of the person's connections with a certain social environment or group, increased professional mobility of people, and the emergence of new individualized types of labour [14]. The individualization of labour in the social and labour relations is manifested in the personification of the personnel motivation system and individual employment contracts, which take into account the personal characteristics, experience, and competence of the employee [15]. Short-term employment contracts become widespread, which contributes to the deformalization of social and labour relations and the increase in the uncertainty of working life. In general, the transition to the digital economy reduces the impact of circumstances, caused by the social environment, on the employee [21].

The experts believed that the development of social and labour relations in the digital economy is also associated with a change in human values and motives for work, which is formed the new type of personality. According to one of the respondents (Vladimir P., senior manager in an IT company), "there are obvious trends in the increasing value of non-material values, such as self-realization, professional growth, as well as family, safety, freedom, etc. In the context of the digital economy formation, the impact of motivating a person by the desire for material comfort, which acts as the main motive for action in the industrial economy, weakens. Instead, the promises of social status advancements, the potential for learning new things, and the potential for the employee's self-realization come to the fore".

According to the analysis of the gender aspect, there is a trend of the increasing use of female labour and its share only grows in the intellectual labour sector. This leads to the replacement of men by women and makes changes in the organization of work and the family structure [24]. Some scientists believe that there may be a change in the demographic aspect of social and labour relations since only one group of people of certain social status and age is most involved in labour activity. This group include educated people aged 25-40 years, and its representatives possess modern information and computer technologies [25].

Experts predict that the development of the digital economy will lead to changes in employee management and the way the subjects of social and labour relations should be interacted. This will manifest itself in communication and dialogues. According to one of the experts (Sergey O., senior manager in an IT company), "human interaction prevails in the information digital society, which is based on communication between people, and not on the interaction with machines and mechanisms. The communication is carried out both face to face and remotely, with the help of various telecommunications (virtually)". This evolution line allows talking about the virtualization of social and labour relations as one of the regularities of the development of social and labour relations in the digital economy. At the same time, with the transformed nature the working process loses human interaction. According to [Holtgrewe \[26\]](#) elements of the so-called "human relations" arise within the work environment, which increases labour productivity, since employees feel their importance to the company to the full extent.

In connection with the above-mentioned information, the nature of personnel management is changing, since the employee is not only an object of management but also a subject. In other words, it is a person who grows within a certain cultural tradition. Besides this, the employee has the freedom of choice, which presupposes the existence of such working conditions that make it possible to choose and not to act according to the plan. On the one hand, the employer, as a subject of social and labour relations, keeps the rights and opportunities to make decisions regarding the ways and directions of the company's development, as well as to control the performance of the functions assigned to employees. On the other hand, the creation of favourable conditions by the employer for enhancing the potential of employees is of particular importance. The success of employers in the digital economy is possible when they focus on the fullest use of high-tech processes and systems, can innovate in their field of activity, and involve educated professionals with creative thinking in the work.

The follow-up of the described trend of transformation of personnel management is the transition from a vertical management organization to a horizontal one, which is activated in the context of the digital economy formation. [Heavin and Power \[34\]](#) when characterizing the directions of the modern business development, noted, that large and diversified companies of tomorrow may not even have a vertical management organization. In reality, the vertical system of management organization is more and more complemented with horizontal interactions. Hence, the advantages, that the digital structure creates in terms of organization, are beginning to be actively used. [Huws \[35\]](#) mentioned the gradual blurring of the boundaries between managers and employees, the destruction of the formal control system that stimulates the development of a kind of quasi-self-employment. In his opinion, wage labour, when the employee is the "owner" of a part of the elusive means of production (owner of the specialized knowledge) largely controls some aspects of the production process and in some ways is similar to a freelancer.

As a result, a qualitatively new type of coordination of employees' activities is developing teamwork [1]. The basis for the effective functioning of a team is the internal consistency of interests, guidelines, and aspirations of each team member. Yet, everyone in the team has a common goal, and decisions are made not by the majority, but by an agreement [1]. Following all of this, there is a rapid expansion of the social and economic spheres, which is reflected in a variety of interpersonal ties and prompts the emergence of new economic sectors and ways of living. Employees can execute a variety of tasks, including those that are outside of their immediate responsibilities, thanks to informal team relationships and an emphasis on completing a shared task.

#### 4. Conclusion

The results of the study confirmed the hypothesis that the transformation of social and labour relations in the context of the digital economy formation can be characterized by the development of their main subjects. There is a transformation of the place and role of workers in social production. The worker becomes the main link in the technological process. Further researches should focus on new approaches to the social and labour relations regulation in the context of the digital economy formation and mechanisms development for the adaptation of modern social and labour relations systems to the new challenges.

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