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Human Capital of Siberia in The Epoch
of the Digital Economy Development

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The change of employees' functions and the creation of network interaction conditions have led to employment expansion, change of working time patterns, blurring of geographical boundaries, increased flexibility of work and transfer of economic and social activities to cyberspace. In the era of digital economy, human capital has become in more demand and has gained greater impact. This is confirmed by calculations and interpretation of the modified Mintzer's equation. Employees should be constantly engaged in personal development, continual education; they should be able to think critically and systematically, quickly adapt to changing environment; be fluent in foreign languages, strive to achieve goals, and be set up for success. The results of the survey show that freelancers meet these requirements better in contrast to workers with a standard form employment.

Keywords: Digital Economy, Network Interaction, Human Capital, Psychodiagnostic Methods, Modified Mincer's Equation.

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Research area: economics.

As noted by V.I. Vernadsky, the noosphere is a harmonic connection of nature and society, the triumph of reason and humanity, where science, community development and public policy merge together for the benefit of man, a world without weapons, wars and environmental problems, it is a dream, a goal, facing the people of good will, a belief in the great mission of science and humanity, armed with science. This is a single organized whole all parts of which are harmoniously connected on various levels and act in concert with each other. A necessary condition for its existence is a fast, reliable, long-distance connection between these parts,

a continual material exchange between them, and a comprehensive exchange of information (Vernadsky, 2004). V.I. Vernadsky singled out the basic prerequisites for the advent of the noosphere:

‒ man's occupation of the whole surface of the planet and their victory in competition with other biological species;

‒ the discovery of new sources of energy, such as nuclear energy, which enables human activity to become an important geological force;

‒ the victory of democracy and the increased role of the masses in matters of foreign and domestic policy;

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Table 1. Distinctive features of the digital economy

Feature	Type of economy	
	Industrial	Digital
Formation of a network method of economic relations coordination (Smorodinskaya, 2015)	The system with vertical subordination and the control center The traditional market system with price signals	Cluster-network systems with horizontal connections and collaboration mechanism
The development of economic activities	Mining and processing industry	Services: education, entertainment, health, finance, etc. Transfer of Activities to Cyberspace
The predominant form of knowledge	explicit	implicit
Type Society	Industrial	Post-industrial, information
The prevailing types of innovation	Scientific and Technical	Open
Main resources	Capital, entrepreneurial ability	Information, human capital
Approaches to research and development work	Growth of investments in industry and agriculture	Growth of investments in creative and information industries

– the development of worldwide communication systems, the creation of a unified information system for humanity;

– a significant increase in the population's science involvement (Vernadsky, 2004).

It can be said now that we are in the process of implementation of the fourth and fifth stages. Information and knowledge have become the main source of competitiveness for an employee or an industrial enterprise.

Back in 2003, researchers began to write about the emergence of cyberspace and arising socio-economic effects (Vdovenko, Kharchenko, 2003; Kuehl, 2009).

The developing digital economy is changing the ways of economic relations coordination, the type of society and its needs, necessary basic resources and types of activity, the approach to research and development and the role of knowledge (Table 1).

With the increasing information capacity of economic systems and the transition to the postindustrial economy, there is a move away from the strict hierarchy of organization and interaction. Vertical structures are too rigid to meet the sharply increased dynamism of the external environment. A new method of coordination is required, expressed in cluster-network systems with horizontal links and the collaboration mechanism (Smorodinskaya, 2015).

Knowledge in a broad sense is understood as all the acquirements and abilities of a person which can be used to solve problems, make decisions and understand received information. In cyberspace, it is consciously or unconsciously used by individuals (Badinger, Tondl, 2002).

As far back as 1994, R.F. Abdeev singled out the main components of the intensification of information processes which have appeared now: a constantly increasing speed of message transmission; an increase in the amount of information transmitted; a higher speed of information processing; fuller use of feedbacks; an increase in the volume of new information and the speed, at which it is implemented; a visual display of information to a person during operations; more technically equipped management work (Abdeev, 1994).

Networking has engulfed not only social communities, but also administration at all levels of government, economics and education. There are certain advantages of network structures:

– adaptability to changing conditions, fast reaction to market changes;

– concentration of network participants on their key competencies and unique processes;

– a significant reduction in transaction costs, their rational structure;

– no risk of functions duplication by network members;

– the possibility of cooperation in projects within the network for competent partners, who have necessary resource potential;

– an effective mechanism for information exchange between network members, replicating best practices.

The following strategic guidelines for the development of the digital space by 2025 have already been determined:

– improved seamlessness of economic processes and the service environment as a result of their transformation to a digital format;

– digitization of physical objects and territories;

– system digital transformations of countries' economies in the direction of integration and business initiatives;

– creation and launch of joint digital tools for expansion into global markets;

– effective use of open data in the interests of business entities and citizens;

– the qualitative growth in the number of jobs in the digital economy;

– the reduction of complex economic risks;

– reducing costs of citizens, small and medium-sized businesses in the operation in digital environment;

– the emergence of sustainable digital ecosystems (Gimpel'son, Luk'yanova, 2006).

In our opinion, digitalization of the economy is possible under the following conditions:

– the development of digital infrastructures and communication standards;

– ensuring information security;

– the growth of online education;

– provision of free access to the network for all citizens and online communications within it;

– an improved control of data flows and knowledge in digital ecosystems;

– the formation of digital culture and accumulation of human capital.

The key factor in the success of digital transformation is the development of digital culture and providing organizations with relevant specialists. This conclusion is supported by the results of the Digital IQ study, which examines the effect of investments in digital technologies and systems (De la Fuente, Ciccone, 2002). Eventually, the success of the transformation will depend not on special sensors, algorithms or analytical tools, but on human capital. Organizations need to attract, retain and train "digital generation" specialists, employees who can safely work in dynamic digital ecosystems.

Theoretical framework

The technological revolution fundamentally changed human capital management in organizations. With the optimization of logistics tasks in cyberspace, increased speed of information transfer and reduced costs of its search new social and labor forms appeared, access to talents became wider, and the "wars" for them have increased (Fulk, DeSanctis, 1995; Privman et al., 2013, Kane et al., 2017). Digital economy development and flexible approaches to the organizational structure led to a significant growth of distributed work in cyberspace (Aubert, Kelsey, 2003). As a result, new ways of accumulating human capital appeared.

Adam Smith, in his book "An Inquiry into the Nature and Causes of the Wealth of Nations", asserted that wages should compensate or equalize the difference in the advantages and disadvantages of different work activities (Government of the RF, 2011). It was him who developed the concept of human capital.

G.N. Tuguskina defines human capital as an aggregate of the following components: innate abilities, health, motives and interests, creative and cultural potentials, accumulated and developed as a result of knowledge investment and professional experience, which are necessary for a certain sphere of professional activity, contribute to the growth of labour productivity and bring income (Tuguskin, 2009). Consequently, the components of human capital can be represented by innate abilities, health, motives and interests, knowledge, professional experience, creative and cultural potential.

G. Becker's point of view coincides with the previous one. He notes that not only knowledge and skills acquired by an individual, but also motivation is important in human capital (Becker, 1975).

V. Radaev regards human capital as a limited resource, which can be accumulated, possesses liquidity i. e. the ability to turn into the money form, as well as the ability to convert, reproducing in the process of the continuous circuit in forms and bringing new, additional cost (Radaev, 2003). R. Nureyev points out two aspects in the interpretation of human capital:

– human capital as a reservoir, that is a specific form of capital embodied in the person himself; it's a reservoir of health, knowledge, skills, abilities, motivations that a person possesses and that contributes to the growth of his labor productivity and brings income in the form of wages or rent. Its structure comprises innate abilities, general culture, special knowledge, acquired abilities, skills and experience, as well

as the ability to apply them in appropriate time and place;

– human capital as a stream of earnings due to investments in this resource (Nureyev, 2009).

Consequently, at the present time human capital is viewed as the result of targeted investments into a person. This is the part of human personality, determined by natural and social properties and abilities. We hold the view that human capital is a set of accumulated knowledge, abilities and skills, health, a system of motivation which can influence organizational and increase a person's income.

In the conditions of economy digitalization, human capital, which has the following properties, is mostly needed (Table 2).

In "The Atlas of new professions" there are ten cross-professional competencies which are in great demand in the conditions of innovative economy. They are systems thinking, cross-industry communication skills, ability to manage projects, lean manufacturing, programming, robotics, intelligence, client focus, multilingual and multicultural abilities, working with people, ability to work under

uncertainty, creative abilities (Gimpel'son, Luk'yanova, 2006). Emerging new professions require that specialists use software. The change in the functions of employees and the created conditions for network interaction led to the expansion of forms of employment, the change of working time patterns, blurring of geographical boundaries, increased flexibility of work and transfer of economic and social activities to the Internet environment.

In order to maintain competitiveness, organizations need to create innovations, therefore, employees must change their behavior. This requires an innovative culture. The key competencies of the innovation community, reflected in the draft Concept of Innovative Development until 2020, are:

Table 2. Main features characterizing a psychological portrait of human capital which are the most significant for the digital economy

Feature group	Feature	Literary sources
Intellectual	Ability and readiness for continual education	(Government of the RF, 2011; Schultz, 1971; Levchenko, Tsarenko, 2016)
	Striving for improvement	(Levchenko, Tsarenko, 2016)
	Readiness for retraining	(Schultz, 1971; Levchenko, 2016)
	Professional mobility	(Kupriyanovskiy et al., 2017)
	Openness to novelty	
	Ability to think critically and systematically	(Luksha et al., 2014; Government of the RF, 2011; OECD, 2016)
	Creativity	(Government of the RF, 2011; Kupriyanovskiy et al., 2017)
	Self-development, self-improvement	(Government of the RF, 2011)
	Seeking for non-standard solutions	(Kupriyanovskiy et al., 2017)
Communicative	Fluency in foreign languages	(Luksha et al., 2014)
	Readiness to work independently as well as in a team	(Government of the RF, 2011; Kupriyanovskiy et al., 2017; Persinger et al., 2011)
	Freedom, independence from people and commitments	(Persinger et al., 2011)
Motivational	Reasonable risk acceptance	(Government of the RF, 2011)
	Entrepreneurial spirit	(Government of the RF, 2011)
	Self-reliance, self-confidence	(Kupriyanovskiy et al., 2017)
	The pursuit of success	(Persinger et al., 2011)
	Flexibility, adaptability	(Kupriyanovskiy et al., 2017)

– ability and readiness for continuous education, continuous improvement, retraining and self-education, professional mobility, love of novelty;

– the ability to think critically;

– ability and readiness for reasonable risk, creativity and enterprise, ability to work independently and readiness to work in a team, readiness to work in a highly competitive environment;

– a broad command of foreign languages as communication tools for effective participation in the processes of globalization, including the ability to communicate freely in English on every day, business and professional topics (Government of the RF, 2016).

T. Schultz writes: "All human resources and abilities are either congenital or acquired. Every person is born with individual set of genes, defining congenital human potential. Under human capital we mean valuable qualities acquired by a person that can be strengthened by corresponding investments" (Schultz, 1971). The ability to learn faster than competitors is perhaps the only sustainable competitive advantage (Kirnen, 2004). Continuing education is also mentioned in the works of O.M. Levchenko, I.O. Tsarenko (Levchenko, Tsarenko, 2016).

Scientists E.S. Persinger, E. Civi, S.W. Vostina write about such important properties as risk tolerance, trust and reciprocity, the value of autonomy, purposefulness, highlighting a new understanding of the effects from their return (Persinger et al., 2011).

Estimates of private norms of the return of human capital appeared in the 1940s. 20th century. G. Becker calculated the private rates of return for college graduates on the basis of data from the 1940 and 1950 censuses and of the subsequent years. His estimates of the rates of return were 14.5 % in 1939, 13 % – 1949, 12.4 % – 1956 and 14.8 % in 1958, similar estimates for graduates of higher schools (general secondary school in the Russian classification) were 16 %, 20 %, 25 % and 28 %, respectively (Becker, 1975). It can be said that a one year increase in education resulted in the growth of earnings by the rate of return in the USA at that period of time.

The research of A. de la Fuente and A. Ciccone shows that the additional year of education raises wages at an individual level by 6.5 % on average in European countries and this effect reaches 9 % in EU member states with a less regulated labor market. In addition, a year of additional field experience increases wages by almost 5 %. The authors believe that in member countries of the Organization for Economic Cooperation and Development, human capital provided up to 22 % of the observed productivity growth during the period 1960-1990 and up to 45 % of differences in labor productivity on average for these countries in the 1990s (De la Fuente, Ciccone, 2002).

E. Helpman describes research proving that during the 20th century in the United States, about a quarter of the increase in the income indicator per employee was associated with an increase in the level of education (Helpman, 2009).

J. Psacharopoulos note that private rate of return of education is usually higher than the social rate of return where the latter is defined on the basis of private benefits but total (private plus external) costs (Psacharopoulos, 1994).

J. Mincer introduced a "production function of earnings", which describes the dependence of the logarithm of a worker's salary on the level of his education, length of service, length of time worked and other factors. He showed that the coefficient at a variable level of education would be equivalent to the value of the internal rate of return, which made it possible to significantly simplify the evaluation of the effectiveness of investments in education (Mincer, 1975).

The most interesting example of calculating the private rate of return of education in Russia is the study of a group of authors who consider the factors of differentiation of wages (monthly earnings and hourly rates) in terms of level of education, length of service, age and professional status (Gimpel'son, Luk'yanova, 2006). As a result of the calculation of the standard Mincer's equation, the economic impact of higher education was about 82 % (compared to the average general education), that is, about 16 % per year of education.

There are many attempts to obtain such estimates, but they vary greatly. Since macroeconomic estimates include most of the induced external benefits, while microeconomic estimates are only a fraction of these benefits, the difference between these two estimates can be interpreted as a measure of the magnitude of the externalities arising from human capital.

The importance of research on the use of human capital has been increasing for the last decades, as the role of knowledge and scientific and technological progress is increasing in the modern economy.

Statement of the problem

In the conditions of the emerging digital economy, factors affecting human capital are becoming more important. It becomes urgent to examine its characteristics, which serve as differentiation factors of employees' wages, i. e. to assess their rates of return.

Methods

The authors suggest that apart from classical factors such as education, experience, place of residence, affecting the formation of human capital, other factors such as entrepreneurial abilities, high motivation for success and goal achievement, work in cyberspace can be also significant. The data were obtained on the basis of a survey of Siberian workers. The questioning is based on a group of general questions, questions about social and labor relations and the use of ICT, psychodiagnostics.

For the research, the following methods were used: psychodiagnostics of the degree of readiness for risk by Schubert (Golovey, Rybalko, 2001; Mironova, 2006); method of psychodiagnostics of personality on the motivation for the success of T. Ehlers (Golovey, Rybalko, 2001; Mironova, 2006); methodology for assessing the need to achieve Yu.M. Orlova (Golovey, Rybalko, 2001; Mironova, 2006); modification of the model of J. Mincer (Mincer, 1975).

Let's take a closer look at them.

Methodology of A.M. Schubert allows to evaluate the features of behavioral reactions of a person in situations associated with uncertainty, requiring violation of established norms, rules. It is recommended for the selection of employees suitable for work in a risk environment. The test consists of 25 questions, each of them has a list of suggested answers: I fully agree; rather yes than no; cannot say; rather no than yes; I strongly disagree. The score for each answer ranges from -2 to 2 points. In order to use this technique in combination with the techniques by T. Ehlers and Yu.M. Orlova, it is necessary to come to a single system of points scoring, so let's move the numerical axis of the score values to the range from 0 to 4. The result of the questionnaire is calculated according to the scored points (Table 3), on the basis of which a conclusion is made about a person's inclination to risky behavior.

The test can be carried out either individually or in a group. Total testing time is about 7 minutes. The overall assessment of the test is given on a continuous scale as a deviation from the mean. Positive responses indicate an inclination to risk. The author of the methodology notes that high readiness for risk is often accompanied by low motivation to avoid failures (or in other words, protection).

This test has an area of uncertainty in the ranges (–30; –10) and (10; 20), which may be called a drawback of this technique. But for our research, only the respondent's high risk appetite is important, which is typical only for the range [20; 50], or in new scoring system – the range [70; 100].

Thus, it is possible to form a new table with an interpretation of the results of the survey (Table 4).

The following method of diagnosing of a person's motivation for success by T. Ehlers assesses the degree of aspiration to achieve the goal, success. The test has 41 questions. The degree of motivation to success is characterized

Table 3. Conclusions about a respondent's inclination to risky behavior according to A.M. Schubert using the new proposed score system

No.	The number of points by A.M. Schubert	The number of points after changing their values	Conclusions
1	Less than –30	Less than 30	Too cautious
2	–10 to +10	40-60	Mean values
3	More than +20	More than 70	Are prone to risk

Table 4. Changed interpretation of the results of the questionnaire based on the method of A.M. Schubert to identify risky behavior

№	Score Range	Conclusions	Interpretation
1	[0; 70]	A high risk appetite is absent	Not typical for intrapreneurs
2	[70; 100]	There is a high risk appetite	Characteristic of intraprenrators

Table 5. Results of the test of the degree of motivation for the success of respondents by T. Ehlers's method

No.	Number of points	Conclusions
1	1-10	Low motivation for success
2	11-16	Average level of motivation
3	17-20	Moderately high level of motivation
4	More than 20	Too high level of motivation for success

Table 6. Conclusions about the level of respondents' need to achieve their goals by the method of Yu.M. Orlova

No.	Number of points	Level of motivation	Conclusions
1	Less than 9	1	Low level of achievement
2	10	2	
3	11	3	
4	12	4	Average level of achievement
5	13	5	
6	14	6	
7	15	7	
8	16	8	High level of achievement
9	17	9	
10	More than 18	10	

by the number of points that coincide with the rating system.

The higher the score, the higher the level of motivation to achieve success is. Possible test results are shown in Table 5.

The motivation for success is one of the main characteristics of human capital, therefore, respondents who received 11 or higher scores will be of interest for the study.

The methodology for estimating the need for achievement was proposed by Yu.M. Orlov in 1978. It is aimed at studying the features of motivation of achievements. The test is recommended for studies of the impact of achievement motivation on the performance of organizations. Questionnaire Yu.M. Orlova includes 23 statements. The scoring scale contains values from 0 to 23 points. The possible results of the questionnaire are given in Table 6.

By analogy with the methodology for diagnosing a person's motivation for success by T. Ehlers, the most interesting group of respondents for the research is the one with a higher level of motivation. Let us set the threshold value – 12 points, the achievement and exceeding

of which will show the employee's motivation to achieve the goal.

The results of psychodiagnostics can be used in the modification of the Mincer's model, ensuring by their inclusion a high indicator of determination. *W*

J. Mincer proposed "the production function of earnings", which describes the dependence of the logarithm of a worker's salary on the level of his education, work experience, duration of working time and other factors. In a simplified form, the equation will be:

$$\ln W_i = A + b_1 h_i + g_1 s_i + g_2 s_i^2 + u_i \quad , \qquad (1)$$

where W_i is the wage in rubles; h_i – education level of the i-th respondent in years; s_i – work experience of the i-th respondent.

He showed that the coefficient at the variable level of education will be equivalent to the value of the internal rate of return, which made it possible to significantly simplify the evaluation of the effectiveness of investments in education (Mincer, 1975).

In our opinion, it will be interesting to include in the model new fictitious variables such as a "place of residence" (allowing to make territorial gradation), "risk appetite" (which gives an opportunity to assess the influence of entrepreneurial abilities of an employee), "motivation for success" and "achieving the set goal" (As the characteristics of human capital, which can be considered together). The modified model takes the following form:

$$\ln W_i = A + b_0 HC_i + b_1 h_i + g_1 s_i + g_2 s_i^2 + $$
$$+ d_1 D_1 + d_2 D_2 + d_3 D_3 + b_3 R_i + u_i \quad , \qquad (2)$$

where the variable D1 is the dummy variable which equals to 1 if the person lives in a metropolis, and 0 if in another place; D2 is the dummy variable equaling to 1 if the person lives in another regional center, 0 if in another place; D3 is a dummy variable that is equal to 1 if a person lives in the north areas, and 0 if in another place (this allows to allocate groups according to their place of residence); HCi is a dummy variable equal to 1 if the interviewee had a high motivation for success and sought to achieve the goals set and 0 – in the opposite case. Ri is a dummy variable equal to 1, if the respondent had a risk appetite and 0 in the opposite case.

Thus, the authors attempted to modify Mincer's model by introducing new factors for assessing externalities arising from human capital

Discussion

The analysis of the average wage level of workers in the Siberian Federal District, including freelancers, differs significantly from the data of the Federal Statistics Service of the Russian Federation (Fig. 1).

The high variation in the level of wages from official statistics is due to a small number of respondents. The sampling in 2013 was – 199 respondents, in 2014 – 178 people, in 2015 – 152 respondents, in 2016 – 181 people. The sample of freelancers in 2013 was 105 respondents, in 2014 – 80 people, in 2015 – 325 respondents, in 2016 – 52 respondents. According to the survey of freelancers in the Siberian Federal District, their average wage in 2015 was 28,430.77 rubles, in 2016 – 43,288.46 rubles.

During the same period, the following characteristics of freelancers were obtained. Their average work experience as a freelancer was 3.4 years. The average age of respondents is 28.1 years. The number of simultaneously executed orders strongly depends on the scope of employment and its size and amounted to 1.62 units. The average maximum duration of project absence is 13.5 days. The share of net freelancers was 37.14 %, we include those respondents who
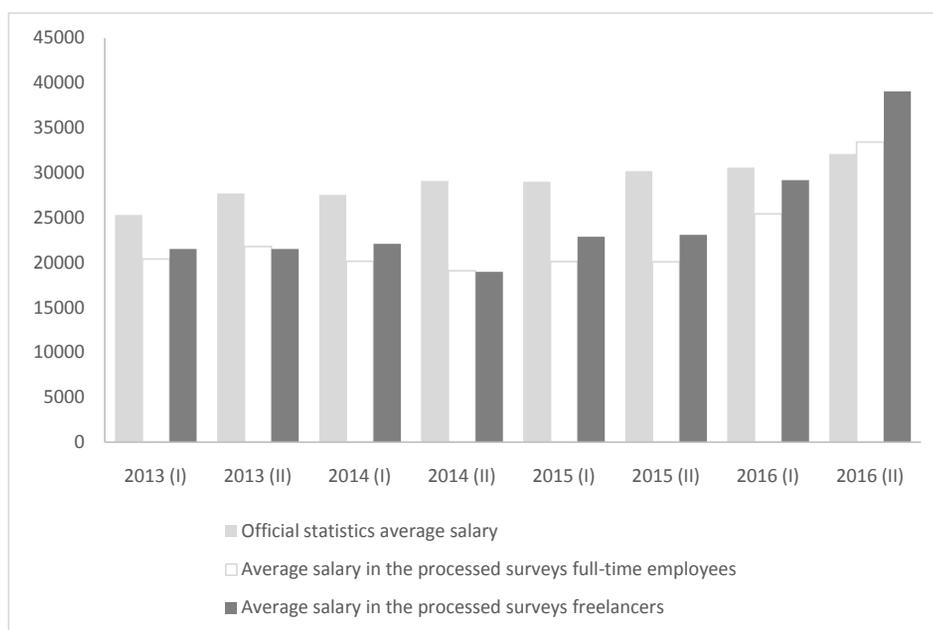
Fig. 1. Dynamics of the average wage level of workers in the Siberian Federal District

Table 7. The results of psychodiagnostics of Russian workers for the period 2014-2016

Type of employees	Sample size, respondents	Risk propensity, %	Motivation to success, %	Achievement of the goal, %
Freelancers	376	2.93	99.2	100
Employees only with standard employment	470	15.11	36.17	34.26

do not have a permanent place of work. The rest of the freelancers are the last year students, graduate students; Workers with whom employment contracts are concluded on a permanent basis in various organizations, considering freelance as an additional income or temporarily unemployed.

The results of psychodiagnostics by modified methods. By Schubert, T. Ehlers, Yu.M. Orlov gave the following interesting results (Table 7).

Freelancers have a high motivation for success and achievement of the goal (99.2 % and 100 % respectively), they are vivid examples of human capital. The inclination to risk is quite specific, it is significantly lower than that of employees with standard employment. Respondents whose performance was high in all three tests, in our opinion, can be attributed to intrapreneurs. They

are quite rare, because not all employees have entrepreneurial abilities. According to the results of our study, approximately the same results were obtained for the two groups of workers under consideration – 2.93 % and 2.77 %.

Thus, employees who carry out their activities in cyberspace have a high motivation for success and achievement of the goal. They are the most competitive in modern conditions. If they also have a risk appetite, this speaks more about their entrepreneurial potential, which is necessary in any organization. It is this potential that will ensure competitiveness for the employee and the organization.

With the help of the modified Mincer's model, the impact of the level of education, work experience and other qualitative characteristics

of Russian workers on their level of wages for the period 2014-2016 has been estimated. If the variables were not significant, they were excluded from the model. As a result, the following statistically significant models were obtained:

$$\ln W_i = 0,974 + 0,421 HC_i + 0,047 h_i + 0,002 s_i + 0,070 D_1 h_i + 0,42 D_3 h_i + u_i, \qquad (3)$$
$$(0,139) \quad (0,044) \quad (0,010) \quad (0,002) \quad (0,004) \quad (0,003)$$

the coefficient of the regression equation determination is 0.617, the Fisher criterion (F) is 184.13, the significance is 0.000, the number of respondents is 577; all the coefficients of the given regression equation are statistically significant at the 1 % level;

$$\ln W_i = 0,966 + 0,083 h_i + 0,005 s_i + 1,313 D_1 + 1,241 D_2 + 0,790 D_3 + u_i, \qquad (4)$$
$$(0,132) \quad (0,010) \quad (0,002) \quad (0,063) \quad (0,146) \quad (0,046)$$

the coefficient of the regression equation determination is 0.618, Fisher's exact test (F) 184,83, the significance is 0.000, the number of respondents – 577 people; all the coefficients of the given regression equation are statistically significant at the 1 % level;

$$\ln W_i = 0,529 + 0,0361 HC_i + 0,062 h_i + 0,004 s_i + 1,183 D_1 + 1,041 D_2 + 0,683 D_3 + 0,228 R_i + u_i, \qquad (5)$$
$$(0,148) \quad (0,041) \quad (0,009) \quad (0,002) \quad (0,061) \quad (0,138) \quad (0,044) \quad (0,077)$$

the coefficient of the regression equation determination is 0.667, the Fisher criterion (F) is 163.21, the significance is 0.000, the number of respondents is 577; all coefficients of the given regression equation are statistically significant at the 5 % level;

$$\ln W_i = 0,128 + 0,515 HC_i + 0,11 h_i - 0,0004 s_i - 0,104 D_3 h_i + 0,022 D_3 s_i + 2,069 D_3 + 0,184 R_i + u_i, \qquad (6)$$
$$(0,183) \quad (0,047) \quad (0,012) \quad (0,002) \quad (0,029) \quad (0,006) \quad (0,456) \quad (0,091)$$

the coefficient of the regression equation determination is 0.540, the Fisher's criterion (F) is 96.89, the significance is 0.000, the number of respondents is 577; all the coefficients of the given regression equation are statistically significant at the 10 % level;

Thus, respondents' self-assessments supplement their objective characteristics, that is, variables: the level of education of an employee, length of service and fictitious variables that characterize residences that are all statistically significant regressors, and provide an increase in the level of wages.

The private rate of return of education at first glance turned out to be quite low – 4.7 % per year of education. This is true for small towns and villages. The coefficients for the variables $D_3 h_i$ and $D_l h_i$ are 4.2 % and 7 %, respectively. Consequently, in the large regional centers of Siberia the private rate of education is higher than the average and is 8.9 %, and in northern cities and towns it is even higher (11.7 %). The level of wages according to our analysis, on average, irrespective of the level of education and seniority was higher in the large cities of Siberia and northern cities and towns. Introduction of additional variable D1si into the model made it possible to reveal the following features. In northern Siberia, work experience

has a significant positive effect on wages, an increase of more than 2 % per year of service. At the same time, unlike other regions, the average private rate of return of education is lower, the year of education adds less than 1 % to wages. It can be concluded that at the enterprises of the primary industries prevailing in the north of Siberia, human capital is less valued, the practical experience of work is more in demand.

A separate study was conducted for freelancers and employees only with standard forms of employment. According to the data of 2015, the rate of private pay for education was 11.2 % for each year of education. The increase in total length of service for one year increased wages by 3.6 %. The work experience as a freelancer increased the wage level by 7.2 % in the first case (Aletdinova, 2016). They are close to the indicators of Siberian workers with standard employment. The data for 2016 show the already differentiated level of wages against the background of its overall growth. Statistically significant for the data of 2016 was an indicator of the propensity to take risks.

Conclusion

Digitalization of the economy is possible with the development of digital infrastructures and communication standards; maintenance of information security in it; expanding online learning; creation of free access to all citizens for the network and online communications in it; improving the management of information flows and knowledge in digital ecosystems; the formation of digital culture and the accumulation of human capital. In these conditions, the requirements for labor resources are changing, workers are not enough to receive only a classical education. They must engage in constant self-improvement, self-development, continuous education; be able to think critically and systematically, quickly adapt to rapidly changing conditions; fluent in foreign languages. The authors analyzed the main factors affecting the level of workers wages in Siberia. Cyberspace workers, such as freelancers, are distinguished not only by high labor mobility, but also by a high motivation for success and the need to achieve this goal. Human capital in the era of the digital economy development has a greater return and is becoming more and more in demand.

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Человеческий капитал Сибири
в эпоху развития цифровой экономики

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Смена функций работников и созданные условия сетевого взаимодействия привели к расширению форм занятости, изменению режимов рабочего времени, стиранию территориальных рамок, повышению гибкости труда, переноса хозяйственной, общественной деятельности в киберпространстве. В эпоху развития цифровой экономики человеческий капитал стал более востребованным и имеет большую отдачу. Это подтверждается расчетами и интерпретацией модифицированного уравнения Минцера. Работники должны заниматься постоянно саморазвитием, непрерывным образованием; уметь мыслить критически и системно, быстро адаптироваться к меняющимся условиям; свободно владеть иностранными языками, стремиться к достижению поставленных целей, быть настроенным на успех. Результаты анкетирования показывают, что фрилансеры в отличие от работников со стандартной занятостью больше соответствуют этим требованиям.

Ключевые слова: цифровая экономика, сетевое взаимодействие, человеческий капитал, методы психодиагностики, модифицированное уравнение Минцера.

Научная специальность: 08.00.00 – экономические науки.