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Trends of Labor Market Change in the Countries of the European Union and Russia under Conditions of Digitalization of the Economy

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ABSTRACT

The aim of the study is to test the hypothesis that the development of the digital economy contributes to a change in the structure of the labor market, the release of part of the labor force, and the growth of demand in the field of information technology. Monographic and statistical research methods, methods of economic analysis, economic and statistical modeling, tabular, graphical methods were used in the work. The research information base was made up of official data from European and Russian statistics, data from the Ministry of Science and Higher Education of the Russian Federation for the period from 2009 to 2018. The proportion of specialists using the Internet for the period from 2009 to 2018 in the countries of the European Union increased from 43 to 55%. However, digitalization is affecting a changing labor market, with a growing percentage of people working part-time. In the EU countries, this indicator increased to 18.5% in 2018, i.e. 1.2 percentage points over ten years. The results of the correlation-regression analysis showed that there is a positive relationship between the rate of computer and Internet use by employees in organizations and the percentage of part-time workers is ($R^2 = 49\%$). Over the past ten years in the Russian Federation, the total labor force has increased by 6%. Digitalization through entrepreneurial education penetrates almost all spheres of the life of society and helps to increase economic efficiency and increase labor productivity, changing the structure of employment.

INTRODUCTION

The world is moving from a market economy to a digital one; this process inevitably requires resolving the contradictions between the needs of the economy, the state, the labor market, and the expectations of employers (Zeer et al., 2019; Belz et al., 2019). Among the main features of the functioning of the labor market in the digital economy, it is worth highlighting those related to the accumulation and use of human capital as the main factor of production in the context of digitalization (Snieska et al., 2020). Thanks to technological advancement, changes and diversification of means of communication,

we can, without communicating personally with other people, regardless of distance, solve certain issues in completely different areas of entrepreneurship. Two main indicators are used to determine the scale of digitalization in Europe - the State ICT Development Index (IDI) and the DESI index (Rotz et al., 2019). The Digital Economy and Society Index (DESI) characterizes the level of digital activity and allows evaluating productivity at the level of: a) digital connections; b) digital competencies, c) online activities, d) business digitization, and e) digital public services. The indicator helps European Union countries identify areas that require investment and develop priority primary measures. The level of digital services in various sectors of the economy is very differentiated. The DESI indicator is calculated to indicate the progress of the European Union countries in relation to the digital economy and society, however, according to scientists, the methodology of this indicator is not without drawbacks, since the main indicators of this index do not apply to development indicators (Karnitis et al., 2019). The European Union is particularly interested in deploying a smart re-industrialization strategy, which, according to the industry concept 4.0 put forward by the German government and business structures, is especially relevant (Grzyb, 2019). It is important to remember that entrepreneurial education and the digital economy are not just the use of new technologies that increase the efficiency of business processes by increasing labor productivity, increasing the speed and accuracy of work, but a whole system of interrelated changes that entail changes in social and labor sphere. The digitalization of the economy can influence the social consequences through the quality of working life and only those innovations that lead to cost savings are currently recognized (Sadovaya, 2018; Prodani et al., 2019; Razif et al., 2020; Vinichenko et al., 2020; Adeniran et al., 2020).

High innovative activity in the economy is a fundamental factor determining the potential for generating new solutions in the field of information and communication technologies (Alibekova and Bapiyeva, 2019). Technological changes alone are not enough; Digitalization profits require an innovative business model (Parida et al., 2019). The digital revolution shortens distances and increases the efficiency of a temporary resource, technology imports bring improvements in services, and the ubiquity of disruptive innovations is truly unprecedented (Neamtu et al., 2019). Digitalization affects the efficiency of investments in fixed assets and the implementation of a sustainable investment strategy in the region. In recent decades, developed capitalist states have increasingly used digital technology to provide public services and public sector restructuring institutions (Schou and Hjelholt, 2019). Thus, in the digital economy, the main competitive advantages of entrepreneurial education are not only the competencies of employees, but also the quality of the teaching staff, as well as the availability of economic opportunities to implement innovative solutions, increase the level of informatization, computerization, and others.

1. RESEARCH METHODS

The information base of the study was secondary official data. For the European Union, the source of information was data from the official Eurostat website. For Russia, the research information base was made up of official data from the Federal State Statistics Service of the Russian Federation, data from the Ministry of Science and Higher Education of the Russian Federation for the period from 2009 to 2018. Future entrepreneurs need to study trends in the labor market in order to choose the direction of entrepreneurial training for successful adaptation to professional activities in the context of the digitalization of the economy. In the work we used monographic and statistical research methods, methods of economic analysis, economic and statistical modeling, tabular, graphical methods. To identify the relationship between factors influencing the "U" indicator - the use of computers and the Internet by employees in organizations with a level of employment of 10 or more people (all enterprises, without financial sector, percentage of total employment), we conducted a special regression analysis. As an influencing factor, we chose the indicator of the number of persons aged 20 to 64 years employed part-time (total % of total employment). As a result, it was found that the coefficient of determination is equal to $R^2 = 0.7^2 = 0.49$. To analyze the correlation of deviations, the Darbin-Watson statistics were used: since $1.5 < 1.73 < 2.5$, there is no autocorrelation of residues.

2. RESEARCH RESULTS

The number of people with an entrepreneurial education in the field of information and communication technologies in the countries of the European Union is growing from year to year. From 2009 to 2018, the growth rate was almost 25%. In more detail, the dynamics of changes in the number of persons with education in the field of information and communication technologies in table 1.

Table 1. Persons with education in the field of information and communication technologies by labor status (thousand people)

| GEO/TIME | 2009 y. | 2010 y. | 2011 y. | 2012 y. | 2013 y. | 2014 y. | 2015 y. | 2016 y. | 2017 y. | 2018 y. | 2018 y. in % to 2009 y. |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------------|
| E. Union - 28 | 2451.3 | 2 432.7 | 2 455.6 | 2 431.3 | 2 530.2 | 2 673.4 | 2 703.2 | 2 936.7 | 2 915.0 | 3053.6 | 124.6 |
| Germany | 335.9 | 339.8 | 410.8 | 399.2 | 412.8 | 437.1 | 471.6 | 494.8 | 521.2 | 509.8 | 151.8 |
| Spain | 325.3 | 303.9 | 318.4 | 316.5 | 300.8 | 355.6 | 269 | 404.6 | 377.8 | 406.9 | 125.1 |
| Poland | 262 | 253 | 258.5 | 281.3 | 297.1 | 323.6 | 328.3 | 335.6 | 328.9 | 336.8 | 128.5 |
| Un.Kingdom | 428.6 | 427 | 356.4 | 331.8 | 324.7 | 299.5 | 341.3 | 379.8 | 340.9 | 334.3 | 78.0 |
| France | 238.2 | 245.1 | 259.9 | 237.7 | 274.9 | 273.4 | 288.8 | 283.7 | 301.3 | 321.7 | 135.1 |
| Italy | 195.9 | 179 | 171.6 | 184.7 | 176.1 | 179.2 | 168.4 | 154.5 | 161.8 | 173.0 | 88.3 |
| Netherlands | 89.3 | 95.8 | 98.1 | 94.2 | 112.3 | 132.9 | 136.3 | 116.7 | 111 | 124.6 | 139.5 |
| Switzerland | 53.4 | 56.5 | 62.6 | 69.4 | 76.2 | 73.7 | 76.1 | 74.6 | 71.3 | 81.9 | 153.4 |
| Hungary | 55.7 | 61.4 | 63.5 | 71.8 | 72.7 | 82.2 | 79.7 | 84.5 | 70.5 | 81.6 | 146.5 |
| Greece | 75.4 | 76.8 | 71.4 | 66 | 71.8 | 72.7 | 71.1 | 75.4 | 76.4 | 77.1 | 102.3 |
| Romania | 94.5 | 83.3 | 78.5 | 79.5 | 84 | 63.1 | 69.5 | 67.9 | 68.0 | 71.4 | 75.6 |
| Czechia | 20.4 | 24.4 | 34.8 | 32.1 | 40.9 | 50.1 | 57.9 | 68.2 | 54.8 | 68.0 | 333.3 |
| Portugal | 60.6 | 59.6 | 39 | 47.7 | 51.9 | 56.5 | 59.7 | 60.8 | 55.4 | 65.9 | 108.7 |
| Finland | 34.7 | 33.3 | 31 | 26.3 | 33.1 | 36.4 | 36.8 | 65.5 | 66.9 | 64.1 | 184.7 |
| Ireland | 38.2 | 36.4 | 36.9 | 37.2 | 37.9 | 40.8 | 33.3 | 22.3 | 38.1 | 61.7 | 161.5 |
| Sweden | 39 | 42.2 | 44.6 | 45.3 | 47.4 | 48.7 | 52.9 | 55.8 | 60.2 | 60.5 | 155.1 |
| Belgium | 52.1 | 57.2 | 55.3 | 48.8 | 51.8 | 56.4 | 53.4 | 61 | 55.2 | 58.3 | 111.9 |
| Austria | 19.7 | 17.7 | 19.8 | 22 | 24.5 | 26.7 | 33.7 | 33.8 | 37.4 | 40.2 | 204.1 |
| Bulgaria | 7.9 | 11.7 | 16.9 | 14.1 | 17.1 | 18.3 | 25 | 29.5 | 35.0 | 38.8 | 491.1 |
| Slovakia | 11.3 | 15.3 | 13.7 | 12.9 | 16.1 | 22.8 | 21 | 27.5 | 29.0 | 30.2 | 267.3 |
| Croatia | 8.6 | 10.5 | 12.5 | 13.6 | 13.2 | 20.3 | 17.8 | 21.9 | 20.1 | 26.0 | 302.3 |
| Denmark | 20.6 | 17.6 | 19.4 | 21.6 | 20.9 | 20.2 | 24.7 | 26.4 | 26.1 | 25.6 | 124.3 |
| Serbia | - | 9 | 12.2 | 16.4 | 13.7 | 22.1 | 20.7 | 30.9 | 26.6 | 25.2 | - |
| Lithuania | 12 | 14 | 13.5 | 10.9 | 12.2 | 15.8 | 17.8 | 17.3 | 18.7 | 19.4 | 161.7 |
| Slovenia | 3.3 | 4 | 4.1 | 4.8 | 4.3 | 5.9 | 9.3 | 9.4 | 12.0 | 14.3 | 433.3 |
| Estonia | 7.2 | 6.1 | 6.8 | 8.8 | 9.3 | 11.4 | 11.4 | 12.8 | 13.7 | 13.0 | 180.6 |
| Latvia | 4.6 | 6 | 7.5 | 6.9 | 6.6 | 8.2 | 8.5 | 10.8 | 14.4 | 9.5 | 206.5 |

Source: Official website of the statistics of the European Union (<https://ec.europa.eu/eurostat/en/data/database>)

From the data of table 1 it follows that the largest share of people with an entrepreneurial education in the field of information and communication technologies among the countries of the European Union is concentrated in Germany - 16.7%, in Spain - 13.3%, in Poland - 11%, in the UK - 10.9%, in France - 10.5%, in Italy - 5.7%, in the Netherlands - 4.1%, in Greece - 2.5%, in Switzerland - 2.7%, in Hungary - 2.7%, in Romania - 2.3%, in the Czech Republic - 2.2%, in Portugal 2.2%, in Finland - 2.1%, in Sweden - 2%, in Belgium - 1.9%.

Consider the level of use of computers and the Internet by employees in organizations in all enterprises, except for the financial sector in table 2.

Table 2. Use of computers and the Internet by employees (percentage of total employment) all enterprises, without the financial sector (10 or more employees)

| GEO/TIME | 2009 y. | 2010 y. | 2011 y. | 2012 y. | 2013 y. | 2014 y. | 2015 y. | 2016 y. | 2017 y. | 2018 y. | 2018 y. in to 2009 y. (+/-) |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------------------------|
| E. Union (28) | 43 | 43 | 45 | 47 | 48 | 49 | 50 | 51 | 54 | 55 | +12 |
| Sweden | 63 | 65 | 69 | 71 | 70 | 72 | 73 | 75 | 76 | 82 | +19 |
| Denmark | 64 | 64 | 64 | 67 | 71 | 71 | 73 | 73 | 75 | 77 | +13 |
| Finland | 64 | 65 | 65 | 64 | 70 | 70 | 70 | 70 | 72 | 74 | +10 |
| Netherlands | 58 | 57 | 57 | 58 | 62 | 61 | 63 | 69 | 69 | 69 | +11 |

| | | | | | | | | | | | |
|------------|----|----|----|----|----|----|----|----|----|----|-----|
| France | 44 | 46 | 45 | 49 | 51 | 53 | 54 | 55 | 61 | 62 | +18 |
| Un.Kingdom | 47 | 49 | 51 | 53 | 54 | 56 | 56 | 57 | 60 | 61 | +14 |
| Belgium | 55 | 50 | 50 | 51 | 52 | 53 | 55 | 56 | 59 | 59 | +4 |
| Germany | 49 | 52 | 52 | 51 | 52 | 52 | 53 | 54 | 58 | 59 | +10 |
| Austria | 42 | 42 | 43 | 44 | 47 | 52 | 53 | 55 | 55 | 58 | +16 |
| Ireland | 47 | 45 | 46 | 49 | 46 | 46 | 52 | 51 | 54 | 55 | +8 |
| Spain | 44 | 43 | 47 | 47 | 47 | 49 | 50 | 51 | 51 | 52 | +8 |
| Slovenia | 43 | 45 | 48 | 48 | 47 | 48 | 51 | 51 | 53 | 52 | +9 |
| Italy | 33 | 36 | 37 | 38 | 39 | 41 | 43 | 45 | 48 | 50 | +17 |
| Malta | 35 | 34 | 37 | 39 | 43 | 46 | 44 | 45 | 45 | 50 | +15 |
| Estonia | 43 | 44 | 44 | 45 | 42 | 42 | 44 | 46 | 48 | 47 | +4 |
| Lithuania | 28 | 37 | 39 | 40 | 38 | 39 | 40 | 43 | 44 | 47 | +19 |
| Luxembourg | 54 | 53 | 55 | 53 | 43 | 44 | 45 | 46 | 46 | 47 | -7 |
| Czechia | 32 | 33 | 34 | 36 | 38 | 37 | 37 | 42 | 43 | 46 | +14 |
| Croatia | 36 | 37 | 38 | 45 | 42 | 45 | 44 | 44 | 45 | 46 | +10 |
| Latvia | 26 | 38 | 39 | 40 | 41 | 41 | 41 | 42 | 44 | 44 | +18 |
| Slovakia | 33 | 37 | 39 | 40 | 38 | 39 | 41 | 42 | 43 | 44 | +11 |
| Cyprus | 34 | 36 | 36 | 37 | 40 | 39 | 41 | 42 | 43 | 43 | +9 |
| Poland | 33 | 35 | 36 | 37 | 36 | 38 | 39 | 40 | 40 | 43 | +10 |
| Hungary | 29 | 26 | 33 | 33 | 35 | 34 | 37 | 39 | 41 | 42 | +13 |
| Greece | 34 | 33 | 33 | 37 | 37 | 38 | 38 | 38 | 38 | 38 | +4 |
| Portugal | 30 | 31 | 32 | 35 | 35 | 36 | 36 | 38 | 37 | 38 | +8 |
| Romania | 23 | 28 | 26 | 28 | 29 | 30 | 28 | 32 | 34 | 31 | +8 |
| Bulgaria | 20 | 21 | 22 | 24 | 24 | 25 | 26 | 27 | 28 | 29 | +9 |

Source: Official website of the statistics of the European Union (<https://ec.europa.eu/eurostat/en/data/database>)

According to Eurostat, the proportion of specialists using the Internet for the period from 2009 to 2018 in the countries of the European Union increased from 43 to 55%, i.e. 12 percentage points. At the same time, the largest share of employees using the Internet in their work process (at a level higher than the average value for the European Union) is noted in Sweden (82%), Denmark (77%), Finland (74%), and the Netherlands (69%), in France (62%), Great Britain (61%), Belgium (59%), Germany (59), Austria (58%). The smallest - in Bulgaria (29%), in Romania (31%), in Portugal and Greece (38% each), in Hungary (42%), in Poland and Cyprus (43% each), in Slovakia and Latvia (44% each), in Croatia and the Czech Republic (46% each) and so on. An increase in the use of computers and the Internet can increase the number of part-time workers.

According to official Eurostat data, it can be concluded that the growth rate of the percentage of people working part-time in the EU countries increased from 17.3% in 2009 to 18.5% in 2018, i.e. 1.2 percentage points. The largest percentage of people working part-time are in the Netherlands (46.8%), Switzerland (38.5%), Austria (27.6%), Germany (26.8%), and Belgium (24%), in the UK (23.3%), in Sweden (21.2%), in Denmark (20.7%).

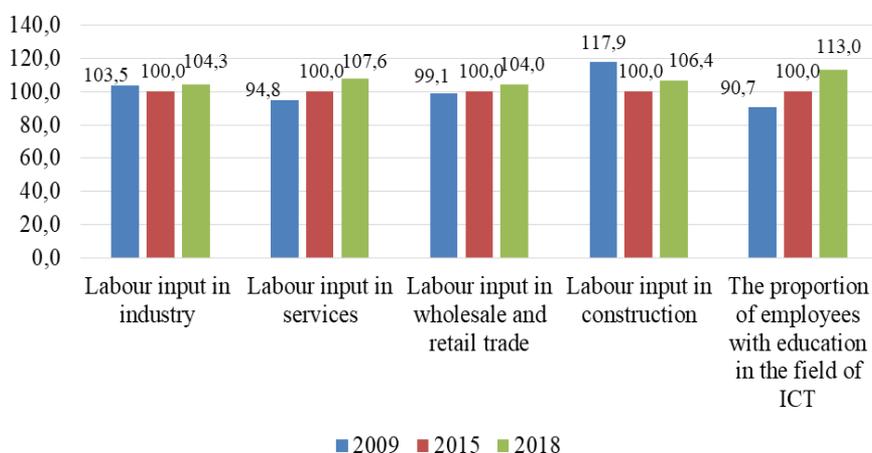


Figure 1. Employment rate in various sectors of the economy in the countries of the European Union and in the Russian Federation (percentage of 2015)

Source: Official website of the Federal State Statistics Service of the Russian Federation (<http://www.gks.ru/>)

Our correlation and regression analysis revealed that in the studied situation, 49% of the total variability of Y (the use of computers and the Internet by employees in organizations with a level of employment of 10 or more people (all enterprises, without the financial sector, percentage of total employment)) is explained by the change in the indicator X (the number of persons aged 20 to 64 years employed part-time (total%)). It was also established that the model parameters are statistically significant. An economic interpretation of the model parameters is possible - an increase of X by 1 unit. rev. leads to an increase in Y by an average of 0.922 units. The obtained estimates of the regression equation make it possible to use it for forecasting. At $x = 16$, Y will be in the range from 32.89 to 74.68 units of ism. and with a probability of 95% will not go beyond these limits. Thus, there is a direct connection between the use of computers and the Internet by employees in organizations with a level of employment of 10 or more people and the percentage of people aged 20 to 64 years working part-time. The remaining 51% are due to other factors. Consider the dynamics of changes in the level of employment of people in various sectors of the economy in the countries of the European Union and Russia in Figure 1.

In 2009, the industry of the European Union countries employed 103.5% of people in relation to 2018, in 2018 the value of this indicator increased to 104.3%. Thus, the actual growth of people employed in industry was insignificant and amounted to 0.8 percentage points. The share of people employed in the services sector of the EU countries in 2009 was equal to 94.8% of the level of 2015, by 2018 the value of this indicator increased to 107.6%, i.e. an increase of 12.8 percentage points. The share of people employed in the wholesale and retail trade of the EU countries in 2009 was 99.1% compared to 2015, in 2018 it began to be 104%, i.e. increased by 4.9 percentage points. In the construction sector of the EU countries, the employment level in 2009 was 117.9% by 2015, in 2018 it was 106.4%, i.e. in 2018, a decrease to the level of 2009 amounted to 11.5 percentage points.

In the field of information and communication technologies of the EU countries, the level of employment of the population from year to year has a positive growth trend. In 2009, the level of employment in the field of information and communication technologies of the EU countries was 90.7% compared to the level of 2015, and by 2018 it became equal to 113%. In this area, the growth rate is the highest and amounted to 22.3 percentage points. Thus, during the period from 2009 to 2018 in the European Union countries there is an increase in employment of people in the field of information and communication technologies by 22.3 percentage points, then in the service sector - by 12.8 percentage points. Obviously, due to the growth of tourism and economic consumption in wholesale and retail trade, the employment rate increased by 4.9 percentage points.

It is important to note that in the EU industry, the employment growth rate was the smallest among other sectors of the economy and amounted to only 0.8 percentage points for the analyzed period. The construction sector market is in crisis, the level of employment for the period from 2009 to 2018 decreased by 11.5 percentage points. In the Russian Federation for the period from 2009 to 2018, trends similar to the European Union generally took place: growth in employment was observed in the services, trade and information and communication technologies, and decline in the construction sector of the economy. In Russia, there is a decrease in the level of employment of people in industry, in contrast to the countries of the European Union, where they are growing. Thus, in the countries of the European Union, due to the digitalization of the economy, growth in the level and quality of life of the population, the influx of a significant number of tourists into the countries of the European Union, we clearly observe an increase in employment in the services sector (by 12.8 percentage points) and information - communication technologies (by 22.3 percentage points). We believe that this trend will continue to be observed.

Over the past ten years in the Russian Federation, the highest growth rate of employment occurred in hotels and restaurants - by 51.2%, in the field of transport and communications - by 33.6%, in financial activities - by 27%, in construction - by 19.5 %, in wholesale and retail trade - by 14.4%, in the field of mining by 7.4%. The total labor force over this period increased by 6.1%. This is due to the entry into working age of a generation of children born in the 80s of the twentieth century in the country. A decrease in the number of labor resources is noted in real estate transactions - by 63.8%, in public services - by 34.7%, in agriculture - by 26.1%, in the production and distribution of electricity, gas and water - by 15.8%, in the education system - by 8.7%, in the field of scientific research and development - by 6.3%,

in the public administration - by 5.7%, in the healthcare sector - 4.9%, in manufacturing industries - by 3.2%.

Consider the structure of employment in the Russian Federation for the period from 2009 to 2018 in table 3.

Table 3. The structure of employment by type of economic activity in the Russian Federation from 2009 to 2018 yy. (as a percentage of the total number of employees)

| Indicators | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2018 in to 2009 (+/-) |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|-----------------------|
| Wholesale and retail trade | 17.7 | 17.9 | 18.0 | 18.1 | 18.3 | 18.7 | 18.9 | 18.9 | 19.0 | 19.1 | +1.4 |
| Manufacturing industry | 15.4 | 15.2 | 15.2 | 15.0 | 14.8 | 14.6 | 14.2 | 14.2 | 14.2 | 14.1 | -1.4 |
| Transport and communication | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.0 | 8.2 | 8.3 | 9.6 | 9.9 | +2.0 |
| Construction | 7.9 | 8.0 | 8.1 | 8.3 | 8.4 | 8.4 | 8.8 | 8.6 | 8.8 | 8.9 | +1.0 |
| Education | 8.9 | 8.7 | 8.6 | 8.4 | 8.2 | 8.1 | 7.7 | 7.7 | 7.7 | 7.6 | -1.2 |
| Agriculture, hunting and forestry | 9.9 | 9.8 | 9.7 | 9.5 | 9.4 | 9.2 | 7.5 | 7.5 | 7.1 | 6.9 | -3.0 |
| Health and social services | 6.9 | 6.8 | 6.8 | 6.7 | 6.7 | 6.6 | 6.4 | 6.4 | 6.2 | 6.2 | -0.7 |
| Public administration | 5.7 | 5.8 | 5.6 | 5.5 | 5.5 | 5.5 | 5.1 | 5.1 | 5.1 | 5.1 | -0.6 |
| Real estate operations | 7.9 | 8.0 | 8.1 | 8.4 | 8.6 | 8.7 | 9.9 | 9.9 | 2.7 | 2.7 | -5.2 |
| Hotels and restaurants | 1.7 | 1.7 | 1.8 | 1.8 | 1.9 | 1.9 | 2.2 | 2.3 | 2.3 | 2.4 | +0.7 |
| Financial activities | 1.6 | 1.7 | 1.7 | 1.8 | 1.9 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | +0.4 |
| Mining | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.5 | 1.6 | 1.6 | 1.6 | 0.0 |
| Research and development | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.3 | 1.3 | 1.2 | -0.2 |
| The provision of other services | 5.5 | 5.6 | 5.6 | 5.6 | 5.4 | 5.5 | 6.4 | 6.2 | 12.4 | 12.3 | +6.8 |

Source: Official website of the Federal State Statistics Service of the Russian Federation (<http://www.gks.ru/>)

In 2009, the largest share of employees was in wholesale and retail trade (17.7%), followed by manufacturing (15.4%), agriculture (9.9%), education (8.9%), transport and communications (7.9%), construction (7.9%), real estate operations (7.9%), healthcare (6.9%), government (5.7%), hotels and restaurants (1.7%), financial activities (1.6%), mining (1.6%), research and development (1.4%), the provision of other services (5.5%). In 2018, the largest share of the employed population was in wholesale and retail trade (19.1%), manufacturing (14.1%), transport and communications (9.9%), construction (8.9%), and education (7.6%), agriculture (6.9%), healthcare (6.2%), public administration (5.1%), real estate operations (2.7%), hotels and restaurants (2.4%), financial activities (2%), mining (1.6%), research and development (1.2%), etc.

Among the “male sectors” of the economy, where the largest share of men is occupied, they include: manufacturing 16.9%, transportation and storage 12.9%, construction 12%, state administration 8.2%, agriculture 7.6%, electricity, gas and water 3.8%, mining 3.7%, informatization and communications 2.2%, water supply 1%. The sectors dominated by female labor are: trade - 20.3%, education - 16.1%, healthcare 12.9%, hotel and restaurant activities 3.9%, financial and insurance activities 3.2%, activities in the field of culture, sports, education 2.5%, in other types of services - 3.6%. The total number of people employed in the field of information and communication technologies over the past three years has

increased by 9%, including men - by 10.4%, women - by 2.8%. Thus, it is clear that over the past ten years, the labor market has undergone significant shifts in the increase in the number of jobs and an increase in employment in the field of trade, as well as transport and communications, construction, hotels and restaurants, and financial activities. The reduction in the share of employed workers is noted in agriculture, in real estate operations, in research and development, in manufacturing, in education, in health care, and in public administration.

The growth in demand for entrepreneurial education with the use of information and communication technologies is growing from year to year. So, over the past seven years, the growth rate of demand for this specialty in Russia amounted to 25%, and the level of actual admission increased by only 12.4%. The competitive situation in these areas of training increased from 5.8 to 6.4 people per place. At the expense of the federal budget, in 2013, 55% of students studied, in 2019 - 45%. At the expense of the budget of the constituent entities of the Russian Federation in 2013, 0.8% of students studied, in 2019 - 1.7%. On a commercial basis - in the commercial form of training, 45% of students studied in 2013, in 2019 - 54%. This means that the demand for students in the field of information and communication technologies is growing from year to year.

3. DISCUSSION

Throughout the civilized world, the level and quality of life of people is growing, so the scope of the application of entrepreneurial education using digital technologies is multifaceted. People want to live better, consume quality service and travel. Digitalization also covers such an important sector of the economy as the real estate industry (Bodenbender et al., 2019). Due to digitalization, there is a transition from the traditional economy to bioeconomics (Watanabe et al., 2019). Another widespread use of digitalization is the automotive industry (Nick et al., 2019), as well as the transportation market. In the system of online transport services there is an increase in the speed and volume of information processing; facilitation of statistical accounting in online services (taxi online), the ability to collect data in real time allows you to speed up the analysis of information and facilitates management decisions (Simonova and Mamiy, 2019).

Developed countries are successfully modernizing their economies, rapidly developing innovative technologies that are dominated by artificial intelligence, automation and digital platforms, acceleration from digital transformations in agriculture, the formation of a digital agricultural sector of the economy, which largely depends on the investment climate in the country, increasing investments in the development of the industry (Rivza et al., 2019). Digitalization and entrepreneurial education are very actively developing in socially significant areas, where this is connected with the activities of people with disabilities. For such people, the Internet is the main way to earn money. In addition to the sheer number of positive effects of digitalization on the development of the economy, there are certain risks and threats (Clarke, 2019). Cybercrime threats are increasing, which can occur everywhere. For a person - in online banks, when paying for checks from bank cards in stores, at the time of purchasing all types of tickets in online Internet systems, wherever there is information about personal data of people and their money. For organizations, cybersecurity threats can be fraught with the leak of classified business data that is interesting to their competitors. At present, digitalization is an international phenomenon in which cybersecurity threats arise (). That is why a coordinated international policy is needed to protect the interests of respectable citizens and organizations. On the one hand, digitalization simplifies communication between people and countries, raises the quality of social services and labor productivity, creates new opportunities for business activity and employment of the educational process and continuous improvement in professional qualifications (Glonti et al., 2020). On the other hand, an increase in labor productivity should hypothetically contribute to an increase in wages (Kuznetsova et al., 2019). The development of the digital economy is associated not only with progress in the field of information and communication technologies, but also with a change in the structure of the labor market and the emergence of new professions. This conclusion is confirmed by our analysis of the data of European and Russian statistics, as well as the conclusions of Russian researchers.

CONCLUSIONS

Digitalization penetrates almost all spheres of society: in entrepreneurial education, in tourism and services, in the automotive industry, the transport system, in the service sector, including public services, it contributes to the development of innovations, increased labor productivity, scientific and technological progress, and increased competitive benefits, the import of technology, the development of agriculture, the disclosure of human capital, especially for people with disabilities and much more. In the digital economy, the main competitive advantages of entrepreneurial education are not only the competencies of employees, but also the availability of economic opportunities for implementing innovative solutions, increasing the level of informatization, computerization and others.

Between 2009 and 2018, the growth rate of the number of people with an entrepreneurial education in the field of information and communication technologies in the countries of the European Union amounted to almost 25%. At the same time, the proportion of specialists using the Internet for the period from 2009 to 2018 in the countries of the European Union increased from 43 to 55%, i.e. 12 percentage points. It is important to note that the increase in the number of people with an entrepreneurial education in the field of information and communication technologies occurs precisely in the same countries where the largest share of employees using the Internet is noted, as well as in these countries and the largest percentage of people employed part time. The level of employment in the field of information and communication technologies in the countries of the European Union in 2009 was 90.7% compared to the level of 2015, and by 2018 it became equal to 113%. In this area, the growth rate is the highest and amounted to 22.3 percentage points.

In Russia, the level of employment of people in the service sector has increased from 97% to 102%. The employment level of the economically active population in industry decreased from 116% in 2009 to 92% in 2018. Thus, in the Russian Federation during the period from 2009 to 2018, trends similar to the European Union generally took place: employment growth was observed in the services, trade and information and communication technologies, and a decrease in the construction sector of the economy. In Russia, there is a decrease in the level of employment of people in industry, in contrast to the countries of the European Union, where they are growing.

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