



Impact of changes caused by the pandemic on the current state and development of oil and gas companies

Impacto de los cambios causados por la pandemia en el estado actual y desarrollo de las empresas de petróleo y gas

Lyutsiya Mugtabarovna Gaisina^{1,*}, Rafael Badretdinovich Shaykhislamov², Lenara Mauzatovna Semenova³, Svetlana Aleksandrovna Yaminova³, Eliza Rinatovna Musina¹, Elena Valentinovna Lopatina¹

¹ Ufa State Petroleum Technological University, Ufa, Russia.

² Bashkir State University, Ufa, Russia.

³ Bashkir State Agrarian University, Ufa, Russia.

² Bashkir State University, Ufa, Russia.

*Corresponding author E-mail: glmug@mail.ru

(recibido/received: 01-noviembre-2021; aceptado/accepted: 12-febrero-2022)

ABSTRACT

The results of sociological research in the oil and gas industry are presented in the article, revealing the recent social changes with a major impact on the Russian oil and gas market and the personnel management system. The article deals with demographic reasons and the role of the pandemic, which endangered post-millennials. The authors reevaluate the impact of digitalization on the Generation Z, which led to the reduction of working digital natives, since they will not live to work, but they will work to live. Gender, age, and professional characteristics of employees in oil and gas companies have been analyzed, as well as the current state and development trends of the labor market. The article emphasizes the priority of individual characteristics of "digital people", rather than staff numbers and pay level of the employees. This view resulted from the new reality of COVID-19 pandemic, geopolitical trends, sanctions policy, the global spread of digital technologies, mixing of socio-economic orientations and personal development. These people are unwilling to depend on anyone, but the ideal manager for them is the one who sets tasks most clearly and definitely.

Keywords: The 4th Industrial Revolution. Generation Z. Labor Market. Pandemic. Oil And Gas Companies.

RESUMEN

En el artículo se presentan los resultados de la investigación sociológica en la industria del petróleo y el gas, que revelan los cambios sociales recientes con un gran impacto en el mercado ruso del petróleo y el gas y el sistema de gestión de personal. El artículo trata sobre las razones demográficas y el papel de la pandemia, que puso en peligro a los post-millennials. Los autores reevalúan el impacto de la digitalización en la Generación Z, que llevó a la reducción de nativos digitales trabajadores, ya que no vivirán para

trabajar, pero trabajarán para vivir. Se ha analizado el género, la edad y las características profesionales de los empleados de las empresas de petróleo y gas, así como el estado actual y las tendencias de desarrollo del mercado laboral. El artículo enfatiza la prioridad de las características individuales de las "personas digitales", en lugar de la cantidad de personal y el nivel salarial de los empleados. Esta visión resultó de la nueva realidad de la pandemia de COVID-19, las tendencias geopolíticas, la política de sanciones, la difusión global de las tecnologías digitales, la combinación de orientaciones socioeconómicas y el desarrollo personal. Estas personas no están dispuestas a depender de nadie, pero el gerente ideal para ellos es el que establece las tareas de manera más clara y definida.

Palabras claves: La 4ª Revolución Industrial. Generación Z. Mercado Laboral. Pandemia. Compañías de petróleo y gas.

1. INTRODUCTION

Modern Russian socio-economic processes are characterized by constant transformations caused by the 4th Industrial Revolution (artificial intelligence, robotization, robot vehicles, 3D printing, nanotechnology, biotechnology, etc.), and crisis fluctuations in the world and domestic economies. Stability is a real challenge for companies nowadays. It can only be achieved through observing the principles of constant exchange with the external environment, of emergence, and effective adaptability. Modern company management tends to be rather contradictory, since a company should be both flexible and adaptable to constantly changing conditions, but very stable and solid in its self-reproduction. Russian oil and gas complex is no exception to this rule. Its instability is aggravated by the restructuring processes, the redistribution of assets from relatively small enterprises to large corporate structures, sanctions and statements against the Russian Federation in general, and Russian oil and gas international projects in particular. Therefore, there is growing competition for human resources of all levels, from qualified drilling crews to investment specialists and top managers (Gorokhova et al., 2018; Gaisina et al., 2018).

Labor shortage was caused by aging of qualified workers, a high level of professional mobility, unstable social conditions in Russian society, modification of the motivation system under crisis in the oil and gas industry. Active and able-bodied population of the country is gradually decreasing. The number of regions with population growth is declining. The process is as follows: the last year when the USSR recorded a high birth rate and population growth was 1980. Then, due to economic and political cataclysms, the fertility curve went down, and in 1995, there was a significant decline, which continues to this day. Thus, fewer and fewer potential candidates are entering the labor market. If until recently companies had no difficulties at least in attracting young specialists born in 1980-81s, currently, when the late 90s generation enters the labor market, even young graduates are in short supply (A blow to youth..., 2021).

For the post-millennial generation entering the labor market (also called Generation Z, born in the late 1990s and early 2000s) the digitalization of society has become a new trend with its network communications, virtual space, the value paradigm of the digital society, the digital environment benefits, the digitalization of education, economy, etc. Accordingly, today's "zoomers" are called "digital people", "digital-ities", "post-millennials," "digital natives". Their so-called clip consciousness and perception are fragmentary, superficial, rapid and short-term, with low reflection level, lack of attention to details, insufficient analyticity, and emotional scarcity. But even mature people born in the second half of the 20th century cannot help reacting to the challenges of reality and the information field impact (Gaisina et al., 2018; Litvinenko et al., 2021; Litvinenko et al., 2021).

2. METHODS

In 2017–2019 a sociological study was conducted to determine the effectiveness of social management systems according to certain criteria of social orientation of managerial impacts under the concept of

socially-oriented management. Fifteen oil and gas enterprises belonging to 10 vertically integrated oil and gas companies (LUKOIL, Tatneft, Surgutneftegaz, Gazprom, Bashneft and others) were the object of the study. Within the quota sampling, 100 people were interviewed at each enterprise, regardless of the average number of employees in each enterprise. Such sampling provides the same proportion of representation of enterprises in the sampling frame to exclude the distortion of the research results due to the dominance of large companies in terms of staff numbers. The number of employees and the scale of the company's activity were excluded as insignificant factors for the study results. Experts from consulting firms relevant to the study of management problems in the oil and gas sector (HR managers, HR consultants, specialists in labor sociology, industrial psychology – 95 people in total) also took part in the study (Table 1).

Table 1. Sociological study components

Aim	Determining the effectiveness of social management systems		
Object	Oil and gas enterprises (15)		
Subject	Efficiency of social management systems		
Methods	Major executives survey	Employees survey	Expert survey
Sampling	Total	Quota (100 person / 1 enterprise)	Random
General population	627	17151	–
Sample population	627	1500	95
Confidence level/sampling error	100%	92 – 98%/3	–

3. RESULTS

As studies have shown, there are fewer and fewer representatives of Generation Z on the Russian labor market. In addition to demographic reasons, the pandemic factor has put this category of personnel at risk. According to Rosstat, a fifth of the Russian unemployed are post-millennials under 25 years old. The workforce of 15 years and older in March 2021 amounted to 75,0 million people, of whom 71,0 million were classified as economically active and 4.1 million as unemployed, meeting the criteria of the International Labor Organization (ILO) of having no job or profitable occupation, actively seeking for jobs and ready to start working. The unemployment rate (the ratio of the unemployed to the active population labor force of the same age) was at 5,4% in March 2021. The employment rate (the ratio of the employed population to the total population aged 15 years and older) in March 2021 was 58,7% (Employment and unemployment in the Russian Federation..., 2021).

Research conducted in 2020 by FinExpertiza international audit and consulting network shows that the youngest age group (15-19 years old) saw the greatest decline in workforce, i.e. newcomers to the labor market and students seeking part-time employment in their free time. The second age group with the greatest employment decrease included 25-29-year-old able-bodied young employees with some experience in the labor market, at the most important stage of their professional formation and consolidation. There was a 4,5% percent drop of people aged 20-24 (by 163,000, making a total of 3,47 million workers), who had recently started to work during their studies or after graduation, the so-called Generation Z members. A slightly steeper decline of 5,6% was among older workers (by 17,000 people, to total 285,000), solely due to women, while older men employment was on the rise. In addition, employment among 50-54-year-old workers decreased noticeably by 4,9% (Fig. 1) (Grigorenko et al., 2016).

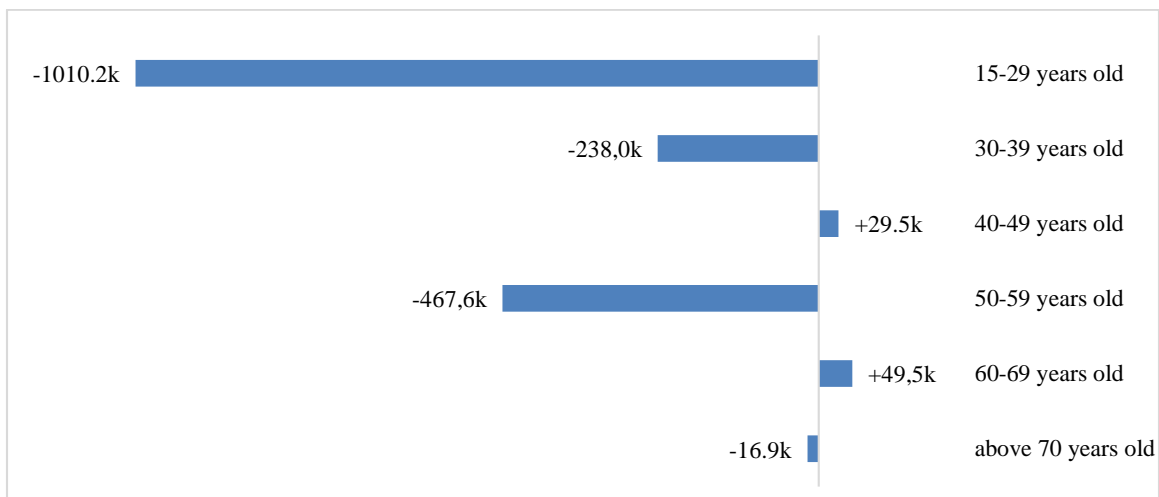


Figure1. Decrease in the number of employed in 2020 by age group (thousands of people)

Despite the general shortage of young people in the labor market, they were the first to be made redundant during the pandemic. Most experts attribute this to industry factors. Under crisis employers tend to rely primarily on the experienced, highly skilled older professionals. Moreover, it takes more time and money to train and develop younger employees.

The analysis of oil and gas companies' reports has shown that personnel reduction is a noticeable trend. Large companies of the oil and gas sector reduce their staff numbers by about 1% per year. Rosneft is the only company to annually increase its staff through establishing new enterprises (table 2) (Gaisina et al., 2021).

Table 2. Changes in the number of employees of major oil and gas companies (based on annual reports)

Company	Staff numbers, thousand people	Changes (%) compared to 2016
Rosneft	302,1	↑16,2
LUKOIL	103,6	↓1,8
Surgutneftegaz	113,6	↓0,6
Gazprom	469,6	↑0,4
NOVATEK	8,145	↑8,4
Transneft	114,2	↓0,2
Tatneft	21,124	↑1,1
Bashneft	33, 815	↓6,1

The sociological study results showed that 30% of the personnel of oil and gas companies belong to the category of major executives (Fig.2).

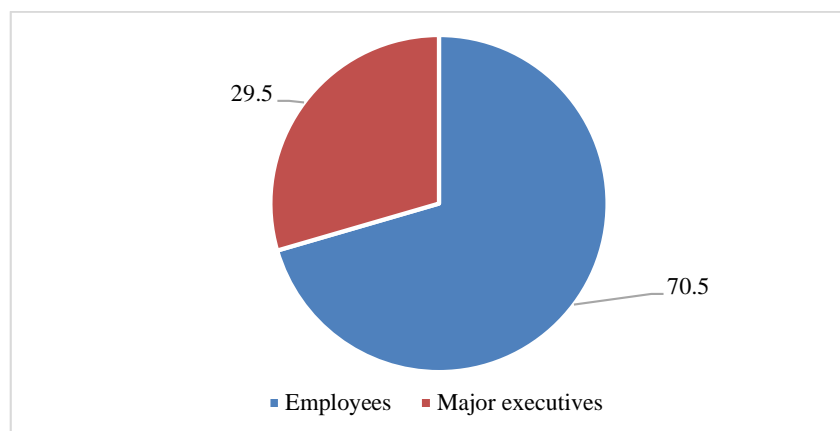


Figure 2. Ratio of professional groups employed in the oil and gas sector

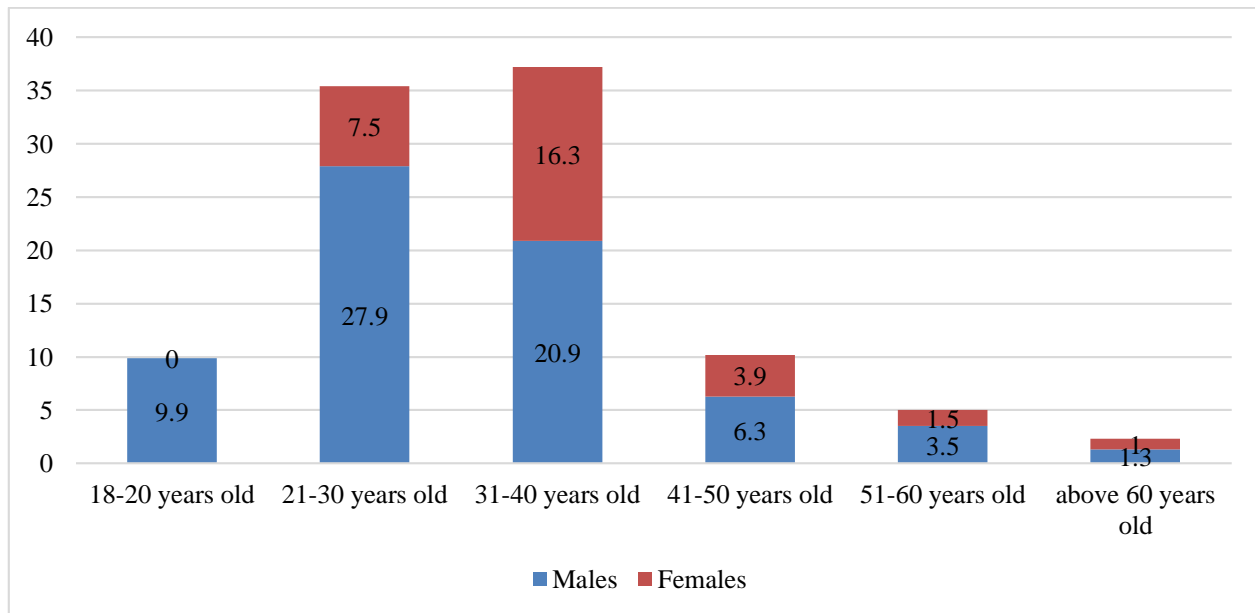
The study showed that the vast number of major executives are males (81,6%), most of them being above 45 years old (70,2%), while Generation Z representatives amount to 29,8%. Such gender and age peculiarities are characteristic of the oil and gas industry, as they reflect the specifics of work (Table 3) (Sekerin et al., 2018; Gaisina et al., 2019).

Table 3. Major executives by age and gender

Age, years old	Males		Females		Total	
	Number of people	Share, %	Number of people	Share, %	Number of people	Share, %
18-25 y.o.	8	1,3	0	0	8	1,3
25 до 35 y.o.	53	8,5	8	1,3	61	9,8
35 до 45 y.o.	98	15,6	19	3,1	117	18,7
45 до 55 y.o.	173	27,6	30	4,8	203	32,4
55 до 60 y.o.	128	20,4	37	5,9	165	26,3
Above 60 y.o.	51	8,2	21	3,3	72	11,5
Total	512	81,6	115	18,4	627	100

A study of "rank-and-file employees" of oil and gas companies showed that the majority of them are males (69.8%) aged between 18 and 40 (58.7%), which corresponds to the average distribution of workers in the industry (Fig. 3), i.e. they are mostly Generation Z representatives. Women accounted for less than a third of all employed. Such results are directly related to the specifics of working conditions (toxic chemical production, hard physical labor, harsh weather conditions, work on a rotational basis, separating workers from their families and homes), imposing special requirements on the oil and gas industry employees, as being strong, enduring, physically healthy, ready for frequent relocations, highly adaptable to new conditions) (Bakhtizin et al., 2016; Litvinenko et al., 2019; Litvinenko et al., 2017).

Figure 3. Distribution of employees by gender and age (% of the total number)



In general, expert managers of oil and gas companies consider irresponsible attitude to work (70%) and problems with self-discipline (56%) to be the main drawbacks of "digital natives". Under crisis, when many companies are fighting to survive, such shortcomings can be critical. However, the new reality of COVID-19 pandemic, geopolitical trends, sanctions policy, the global spread of digital technologies, mixing of socio-economic orientations and personal development made "post-millennials" quicker to adapt to the labor market problems. As the current crisis was accompanied by the transition to remote work, the interest in young personnel increased, as they are deeper connected to modern digital technologies. Simultaneously, "digital-ities" will not live to work, they will work to live. They are in search of a balance that would give them choices and allow them to work, build a career, and have enough resources to be satisfied with their lives. They resist artificial barriers limiting personal growth within the organization. They will not fit into the system as easily as previous generations, thus evoking changes in the organization structure. This generation is driven by financial and personal goals. Reduction in the number of vacancies coupled with declining salaries made available positions unattractive to the "zoomers".

4. DISCUSSION

The study revealed that there are problems with the wage rates. As it was established by the Public Opinion Foundation, the wage amount is one of the main motives of labor activity. Thus, the majority of respondents when choosing a job, consider the wage rate to be the determining factor (34%). In the second place (5%) the respondents refer to their interest in work and the moral satisfaction it brings.

As for the management levels, it was revealed that major executives are mostly satisfied with their salaries, while among workers and employees the share of unsatisfied ones amounted to 75.8% (Table 4).

Table 4. Respondents' satisfaction with pay levels (%)

Category	Satisfied	Partially satisfied	Unsatisfied	Absolutely unsatisfied	Total
Top-level managers	47,6	52,4	0,0	0,0	100
Middle-level	0,0	60,0	40,0	0,0	100

managers					
Workers and employees	6,3	17,9	52,8	23,0	100
Total	7,7	28,1	47,0	17,2	100

For the final results, the dissociation index of employees' and managers' opinions, as well as the consensus index of their assessments are to be calculated. Dissociation is a measure of divergence (overestimation or underestimation) in the pay level views and is calculated as the difference in the percentages of the responses of the respective groups for each of the answer options. In this case the answers of workers and employees were taken as the base. Thus, the value of overestimation of the workers with an adequate pay level is 4.2 (the share of workers who think they are paid adequately is higher than the share of managers who assume workers are paid enough).

Accordingly, this dissociation manifests itself in an underestimation and overestimation of the extent to which wages are over- or underpaid. Thus, workers and employees are more inclined to believe that their colleagues earn more than they deserve (dissociation index = 15). Note that fewer managers support this view, resulting in a consensus of 9.1, and the discrepancy between the consensus and the dissociation indexes is a measure of the subjectivity and unreliability of the earnings information available to workers. The dissociation and consensus indexes according to the opinions of the "workers and employees" and "top managers" groups are presented in Table 5.

Table 5. Dissociation and consensus indexes according to the "workers and employees" and "top managers" groups

Overestimation (+) / Underestimation (-)	Workers and employees		Middle-level managers		Top-level managers	
	+ / -	Consensus	+ / -	Consensus	+ / -	Consensus
Adequate	4,2	77,5	-10,7	23,9	66,3	66,3
Overestimated	15,0	9,1	10,2	69,7	33,7	33,7
Underestimated	-19,2	13,5	0,4	6,4	0,0	0,0

On a more positive note, line managers responded about undeserved underpayment (i.e., some workers believe their pay is adequate, while their supervisors believe they deserve more) (Litvinenko et al., 2016; Gladkova et al., 2018).

5. CONCLUSION

The results of the study allowed us to conclude that the Generation Z representatives have a positive attitude and they are eager to start their own business, but they are not prepared to take any risks. These are people who do not want to depend on anyone, but the ideal boss for them is someone who sets tasks most clearly and definitely. While these people value interesting jobs the most, one of their priorities is to get promoted quickly. In Russia, young people are mostly very ambitious and aimed at starting their own business rather than working for hire.

However, there are still many unresolved problems in the personnel management system, primarily due to social changes. Consequently, the employees turned out to be mostly unmotivated, with low self-esteem, underestimated self-importance, lacking any prospects for development, and with no incentives for the internal potential to be used to the full. Pay level satisfaction is also low enough, which is confirmed by the results of the survey.

In the course of the study, it was proved that the multidimensional content and multitasking of the modern oil and gas management system require a revision of the theoretical and methodological approach towards

the principles of synergetics, which considers the functioning of open complex systems under conditions of uncertainty.

The article was prepared as part of the Program of Fundamental and Applied Scientific Research on the topic "Ethno-cultural diversity of Russian society and strengthening of all-Russian identity" in 2020-2022.

REFERENCES

A blow to youth: the Russian labor market lost more than a million young workers. (2021). Available at: <https://finexpertiza.ru/press-service/researches/2021/udar-po-molodezhi/>

Bakhtizin, R., Gaisina, L., Ignatova, Y., Sagitov, S., Ustinova, O. (2016). Polysubjective approach to the management of the higher education system of the state: the experience of Kazakhstan. *International Journal of Environmental and Science Education*, 11(9), 2699-2710.

Employment and unemployment in the Russian Federation in March 2021. (2021). Rosstat data. Available at: https://gks.ru/bgd/free/B04_03/IssWWW.exe/Stg/d02/77.htm

Gaisina, L.M., Dorozhkin, Yu.N., Yakupova, G.A., Gainanova, A.G., Gainanova, E.I., Averkina, E.V. (2018). The Impact of the socio-demographic characteristics of the young rural family on the territories' development. A study case – the Republic of Bashkortostan. *Scientific Papers. Series "Management, Economic Engineering in Agriculture and Rural Development"*, 18(3), 139-149.

Gaisina, L.M., Dorozhkin, Yu.N., Yakupova, G.A., Rasuleva, Iu.V., Dallakian, G.R., Shakirova, E.V. (2018). Influence of contemporary socio-cultural factors on young rural family as a problem of rural development. A study case – the Republic of Bashkortostan. *Scientific Papers. Series "Management, Economic Engineering in Agriculture and Rural Development"*, 18(3), 131-138.

Gaisina, L.M., Shayakhmetova, R.R., Mingazetdinova, R.F., Minakov, I.P., Shakirova, E.V., Rakhimkulova, L.A. (2021). Social responsibility during the Covid-19 Pandemic (The Republic of Bashkortostan). *Laplace Em Revista*, 7(3A), 226-234.

Gaisina, L.M., Shaykhislamov, R.B., Shayakhmetova, R.R., Kostyleva, E.G., Goremykina, L.I., Gainanova, E.I. (2019). The essence and structural elements of a healthy lifestyle of students. *Espacios*, 40(21), 10.

Gladkova, V.E., Yakhyaev, M.A., Korolkov, V.E., Smirnova, I.A., Litvinenko, I.L., Pinkovetskaya, Ju.S. (2018). The access of Russian small enterprises to public procurement markets: data analysis. *Amazonia Investiga*, 7(15), 20-31.

Gorokhova A.E., Gaisina L.M., Gareev E.S., Shutov N.V., Shakirova E.V. (2018) Application of coaching methods at agricultural and industrial enterprises to improve the quality of young specialists' adaptation. *Quality – Access to Success*. Vol. 19, No. 164, pp. 103-108.

Grigorenko, O.V., Klyuchnikov, D.A., Gridchina, A.V., Litvinenko, I.L., Kolpak, E.P. (2016). The development of Russian-Chinese relations: prospects for cooperation in crisis. *International Journal of Economics and Financial Issues*, 6(S1), 256-260.

Litvinenko I.L., Smirnova I.A., Solovykh N.N., Aliev V.M., Li A.S. (2019) The fundamentals of digital economy. AD ALTA: Journal of Interdisciplinary Research. Vol. 9. No1 S7, pp. 30-37.

Litvinenko, I., Gaisina, L., Semenova, L., Averkina, E., Gabdrakhmanov, E. (2021). Transformation of institutions of socio-economic development in the conditions of a long-term viral pandemic. AD ALTA: Journal of Interdisciplinary Research, 11(2(S21)), 220-224.

Litvinenko, I., Gaisina, L., Shakirova, E., Yaminova, S., Medvedeva, A. (2021). An innovative component of widespread digitalization: scopes and perspectives. AD ALTA: Journal of Interdisciplinary Research, 11(2(S21)), 225-230.

Litvinenko, I.L., Gurieva, L.K., Baburina, O.N., Ugryumova, M.A., Kataeva, V.I. (2016). Tendencies and features of innovation management in business activities. International Business Management, 10(22), 5397-5405.

Litvinenko, I.L., Kireev, S.V., Panichkina, M.V., Shichiyakh, R.A., Tikhomirov, E.A. (2017). Development of industrial-innovative clusters in Russia. International Journal of Applied Business and Economic Research, 15(12), 193-202.

Sekerin, V.D., Gaisina, L.M., Shutov, N.V., Abdrakhmanov, N.Kh., Valitova, N.E. (2018). Improving the quality of competence-oriented training of personnel at industrial enterprises. Quality – Access to Success, 19(165), 68-72.