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AND SOCIAL  
CHANGES:  
FACTS, TRENDS, FORECAST**

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## ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

A peer-reviewed scientific journal that covers issues of analysis and forecast of changes in the economy and social spheres in various countries, regions, and local territories.

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The formation of the scientific personnel with an active life position, a great demand for Institute's investigation, academic community's support of the new journal published by ISEDT RAS, which combined efforts of the economic institutes of RAS in the Northwestern Federal District, and furthermore development of international ties have become the main outcomes of the last years.

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Due to the Resolution № 96 by the Presidium of Russian Academy of Sciences dated from March 31, 2009 VoIRC RAS carries out investigations in the following fields:

- problems of economic growth, scientific basis of regional policy, sustainable development of territories and municipalities, and transformations of socio-economic space;
- regional integration into global economic and political processes, problems of economic security and competitiveness of territorial socio-economic systems;
- territorial characteristics of living standards and lifestyle, behavioral strategies and world view of different groups of the Russian society;
- development of regional socio-economic systems, implementation of new forms and methods concerning territorial organization of society and economy, development of territories' recreational area;
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# EDITORIAL

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## “...And Most Importantly, There Will Be No Destitute People in Russia”

“Capitalism for the Few” – a Key Problem of National Security



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**Abstract.** The article deals with the problem of poverty and other consequences of the inefficient current system of public administration. The current state of affairs concerning the implementation of the May 2012 decrees, the long-term dynamics of official statistics and sociological surveys, concrete facts, and assessments of many experts suggest that the orientation of the ruling elites toward obtaining personal benefits is the main threat to the implementation of the tasks set out by the President (overcoming the lag; finding breakthrough solutions to the country’s internal problems) and to the achievement of specific development indicators that he pointed out in the Address to the Federal Assembly on March 1, 2018. The article provides information on major results of the 2012 and 2018 presidential elections indicating a significantly increasing support for Vladimir Putin in Russian society (especially in large cities) and at the same time the people’s rising hopes for his showing the political will and making decisive action on the nationalization of the elites that hinder the implementation of national interests in the dynamic development of the standard of living and quality of life. Vladimir Putin’s fourth presidential term, as

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well as the previous one, begins in an unstable and extremely tense international political situation that, obviously, will require additional attention from him, thus bringing to the fore the problem of responsibility and professionalism of the ruling elites that are first of all responsible for the implementation of national security priorities in domestic socio-economic development. According to many experts and a significant part of the population, it is possible to achieve the targets for the coming years and specific indicators set out in the May 2012 decrees of Vladimir Putin after his Address to the Federal Assembly only if there is a cohesive team focused on national interests and working in unison with the President who has assumed personal responsibility for resolving key problems of the country, as reflected in the 2016 national security strategy.

**Key words:** national security, public administration efficiency, “capitalism for the few”, Address to the Federal Assembly, President’s orders.

March 18, 2018, the RF presidential election took place; in the course of the event, Russians showed a significant increase in the level of support for the current head of state and in the turnout at polling stations<sup>1</sup>.

Russians highly appreciated the results of Vladimir Putin’s work as President and gave a special mandate of trust to the current course for the next six years. However, many people went to the polls only because the national leader remains for them **the main and only hope** in the resolution of the acute problems of life resulting from the ineffectiveness of administration carried out by the officials who ignore national interests in favor of their personal benefit.

This is evidenced by a heart-cry of that part of society that daily faces the consequences of public administration inefficiency and, most importantly, believes less and less in the possibility of their constructive resolution. Such emotional tension of public opinion in certain population groups may be observed in an open letter to the President from the Board of “Kizvizvech” – the Kamchatka Krai union of ancestral and family

fishing communities of the indigenous minorities of the North, Siberia and the Far East. The letter was published in the newspaper *Argumenty nedeli* (Arguments of the Week)<sup>2</sup> in April 2018.

The material was published under the title “President! Don’t sell us!”, and the nature of its content is unlikely to leave anyone indifferent... In this regard, we find it appropriate to make a quote from this letter the title of the editorial. It is, of course, not only about the number of the destitute in Russia. Poverty is a result of deeper and more negative phenomena in the system of administration, which have lasted for more than 25 years.

\* \* \*

In early 2012, Russian President Vladimir Putin made an unequivocal statement that it was time for Russia to “turn over the page” of the 1990s, to end this period... so that the society really adopted the options for closing the problem of the 1990s, the unfair privatization, to put it bluntly<sup>3</sup>. These words were followed by specific management decisions in the form of the May

<sup>1</sup> Compared with the 2012 Russian presidential election, voter turnout increased from 65.34 to 67.54%, and the proportion of those who support Putin – from 63.60 to 76.69%.

<sup>2</sup> *Argumenty nedeli* is a social and analytical weekly newspaper distributed in all regions of the Russian Federation, and also in the CIS and Europe. Total circulation of the newspaper is 587 thousand copies. The readership of the print version of the newspaper in Russia, according to TNS Media, is 1.1 million people, and with foreign circulation – 1.3 million people. In the category of socio-political publications, *Argumenty nedeli* ranks 4th according to the size of its readership, thus outstripping such newspapers as *Izvestia* and *Kommersant*. More than two million visitors of its website [www.argumenti.ru](http://www.argumenti.ru) view more than four million pages per month (source: official website of the newspaper *Argumenty nedeli*. Available at: <http://argumenti.ru/pub/doc/an.pdf>)

<sup>3</sup> Vladimir Putin’s speech at the Congress of the Russian Union of Industrialists and Entrepreneurs (February 9, 2012).

2012 decrees establishing the main directions of internal development and the target indicators for the performance of the Government. In addition, one of the most significant events of the President's third six-year term was the adoption of a new national security strategy, which has two fundamental differences from the previous strategy that was signed by Dmitry Medvedev in 2009:

1. "The implementation of the state policy of the Russian Federation in the field of national security is carried out through the coordinated action of all elements of its support system **under the leadership of the President of the Russian Federation** and with a coordinating role of the Security Council of the Russian Federation", that is, the head of state assumes personal responsibility for ensuring the implementation of the priorities identified in the Strategy–2015.

2. The new strategy significantly strengthened the emphasis on the priorities of economic security and people's quality of life. The new priorities are "to improve the quality of life of Russian citizens, enhance economic growth, promote science, technology and education, health, culture"; the list of key threats now contains "risks of misuse of budgetary funds"; the indicators of the state of national security, contain "citizens' satisfaction with the degree of protection of their constitutional rights and freedoms, personal and property interests", "life expectancy", "GDP per capita".

However, despite the focus on domestic development issues at the beginning of the third presidential term, the period of 2012–2018 was remembered, first of all, by the rapid dynamics of international events, in which Russia was dragged against its will. The Ukrainian conflict and the Syrian crisis have demanded maximum effort and political tact from the Supreme Commander-in-Chief and from Russian diplomacy so that it would be possible to prevent the escalation of the conflict; and Russian diplomacy has successfully coped with this task. The accession of Crimea and Sevastopol to the Russian Federation was perhaps

the strongest consolidating event for Russian society in the post-Soviet period, and Russia's participation in the Syrian campaign showed that the modernization in the Armed Forces is going on quite well, and this largely influenced the high level of support that Vladimir Putin had at the presidential election of 2018.<sup>4</sup>

The need for priority attention to the settlement of the foreign policy situation demanded that the issues of internal development be transferred to the Government, and today, looking back at the recent past, we can say that this **has become an irrefutable proof of the unreliability of "manual control"; the inability of the entire political system to ensure national security interests without V. Putin's personal participation. First of all, because during all his presidential terms, the main problem of national security has not been eliminated – the ruling elites still focus on their own personal economic interests, which is the essence of "capitalism for the few"**.

In Russia, it is no secret that Putin is responsible for the growth of the military-industrial complex and for the strengthening of the army, mineral exploration, including on the continental shelf, their development, production and implementation. Medvedev is responsible for agriculture, forestry, fishery, waterways, rivers, ports, the development of cities and towns, housing and utilities, etc.

**Wherever there is personal control or, if you like, personal interest of V. Putin, everything is fine. Where there is responsibility of the Government and its certain members, almost everywhere there is devastation, corruption and an economy driven by export of raw materials<sup>4</sup>.**

According to experts, "the Russian elite has neither the sense of nationhood nor state thinking. It is not interested in alleviating poverty of the majority of citizens, it is indifferent to the fate of national science and innovation economy; all this can be explained by the syndrome of

<sup>4</sup> President! Don't sell us! *Argumenty nedeli*, 2018, no. 13 (606), April 5. Available at: <http://argumenti.ru/society/2018/04/568556?typeLink=openlink>

rapidly enriched people who care only about themselves and their environment. This “set” of values in many ways determines not only the essence, but also the form and methods of implementation of public administration”<sup>5</sup>.

In his Address to the Federal Assembly in 2012, Vladimir Putin assured Russian citizens that all the instructions contained in the May Decrees “will be executed to the fullest extent”. **However, actual practice shows that the Government has failed in this task (see Appendix 1). So far, most of the President’s instructions remain “on paper”, and Russia carries this “baggage” with it as it enters V. Putin’s new and last six-year term in office.**

**V. Putin:** “Recently, just a few months ago, in the articles written during the presidential election campaign and then in the executive orders signed in May 2012 I set out our position and our short and medium term plans. They covered all areas of our work and our lives: the economy, social sphere, domestic policy, international affairs and security issues. These documents describe our plans in detail, sometimes citing specific figures and deadlines. Some of them are already being implemented, for example raising teachers’ wages and some other tasks. We have put together the required regulatory framework with regard to all other items on our agenda. **The work has begun. I want to assure all citizens of our country that it will continue; we will tackle all the tasks we have set without fail**”<sup>6</sup>.

The<sup>6</sup> constitutional majority that the United Russia party gained in the 2016 State Duma election, a record-breaking voter turnout and high level of support for Vladimir Putin in the presidential election of 2018, including an increase in the proportion of people who voted for the President, in all cities with a million-

<sup>5</sup> Korotaev S.A., Shkaratan O.I. Post-soviet statehood and society: the evolution of social contract and legitimizing of authority. Part 3. The strengthening of statehood and social contract between society and authorities. *Obshchestvennye nauki i sovremennost’*, 2018, no. 1, pp. 59-73.

<sup>6</sup> Address of the President to the Federal Assembly, December 12, 2012. *Official website of the President of the Russian Federation*. Available at: <http://www.kremlin.ru/events/president/news/17118>

plus population, including Moscow and Saint Petersburg (*Tab. 1*) – all this can certainly be considered a mandate of trust issued by the Russian society. **But it has been issued first of all to the national leader.** “The high result, as experts point out, signifies both the recognition of Vladimir Putin’s achievements during the third term and a serious mandate for the next six years, although it is important to understand: the mandate is for the President, and not for the elites”<sup>7</sup>.

Table 1. Proportion of those who voted for V. Putin at the 2018 presidential election in cities with a million-plus population (Central Election Commission data, in %)\*

City	2018	+ / – to the outcome of the 2012 presidential election
Rostov-on-Don	78.18	+ 19.57
Volgograd	77.14	+ 15.36
Ufa	76.04	+ 11.86
Voronezh	75.88	+ 23.77
Nizhny Novgorod	75.78	+ 15.52
Kazan	75.68	+ 2.10
Saint Petersburg	75.01	+ 16.24
Krasnoyarsk	74.92	+ 19.86
Samara	74.85	+ 13.59
Perm	74.29	+ 17.61
Yekaterinburg	73.88	+ 17.14
Chelyabinsk	71.88	+ 11.72
Moscow	70.88	+ 23.93
Novosibirsk	70.45	+ 18.63
Omsk	65.14	+ 15.54

\* Arranged according to the decrease in the level of support.

The results of the presidential election reflect the personal victory of Vladimir Putin, who has shown once again that he is a national leader who enjoys an unprecedented level of people’s trust. The 2018 campaign is unique in the following aspect: unlike previous presidential campaigns, this one had a single actor – the President himself, to whom the people gave their personal support<sup>8</sup>.

<sup>7</sup> Skorobogatyi P., Gurova T. A mandate for development. *Ekspert*, 2018, no. 13, March 26 – April 1. Available at: <http://pressa.ru/ru/reader/#/magazines/ekspert/issues/13-2018/pages/10/>

<sup>8</sup> Russians voted for actual deeds. *Nezavisimaya gazeta*. Available at: [http://www.ng.ru/politics/2018-03-23/2\\_7196\\_russian.html](http://www.ng.ru/politics/2018-03-23/2_7196_russian.html)

In the Address to the Federal Assembly on March 1, 2018, V. Putin accurately reflected the nature of public sentiments and voters' expectations: the landmark nature of the historical moment, mobilization breakthrough in domestic development, overcoming the backwardness, ensuring the security from external threats, achieving economic stability compared to the 1990s and the ability of the economy to formulate new answers to global challenges, including with regard to the qualitative improvement of the living standards of the wider public – all of these emotional messages made on the eve of the voting day, could not but find a response in Russian society; and against the background of weak political opposition and strengthening of anti-Russian sentiment in the West has predetermined Vladimir Putin's victory in the election.

As in the beginning of 2012, “Russia is going to pass one more bifurcation point in its history, after which the system will acquire new properties and a new life or it will be lost. The results of this process is determined by the combination of circumstances, the chief one among which is a national leader concentrating political will and knowledge necessary for the further development of the country. We can doubt Vladimir Putin's ability to fulfill this mission. **But it's doubtless that there is no person apart from him at this phase of our history to implement it**”<sup>9</sup>.

Nevertheless, the components of success, which provided the President with a broad mandate of trust, do not guarantee the implementation of a strategic goal for the next six years – the goal of “achieving a decisive breakthrough in the efforts to preserve the people of Russia”<sup>10</sup>. “Trying to figure out a “change of the current economic course” (though mobilization, or in any other way) will

<sup>9</sup> Glazyev S.Yu. Why is Putin? *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz*, 2012, no. 2, p. 37.

<sup>10</sup> Address of the President to the Federal Assembly, March 1, 2018. *Official website of the President of the Russian Federation*. Available at: <http://www.kremlin.ru/events/president/news/56957>

not lead to any result, except an increase in the number of publications and debates between the participants of numerous talk shows, **because you cannot change the “economic course” without changing the political course**”<sup>11</sup>.

Mobilization impetus has been mentioned more than once among the targets that the President speaks about. In the article headlined “Russia muscles up”, which was released on the eve of his third presidential term, he wrote: “The recovery period is over. The post-Soviet stage in the development of Russia, as well as in the development of the whole world, is ended. All the prerequisites for moving forward have been created – on a new basis and in a new quality”<sup>12</sup>.

“At present, Russia needs more ambitious goals. Higher growth rates”, Putin said in April 2002, repeating this idea almost word for word 16 years later and using the words “breakthrough” and “leap” several times in his Address to the Federal Assembly”<sup>13</sup>.

The landmark nature of the historical moment was emphasized by V. Putin in his Address to the Federal Assembly in 2012, when he said that “the coming years will be decisive and, perhaps, they will even become a turning point, and not only for us, but virtually for the whole world, which is entering an era of fundamental change, and maybe even shocks”<sup>14</sup>.

**Thus, the call for the consolidation of society against the background of an extremely difficult situation in which Russia is increasingly involved by “our foreign partners” finds response in the**

<sup>11</sup> Belkin S. Mobilization practice. *Gazeta “Zavtra”*, 2018, March 14. Available at: [http://zavtra.ru/blogs/praktika\\_mobilizatsii](http://zavtra.ru/blogs/praktika_mobilizatsii)

<sup>12</sup> Russia muscles up – the challenges we must rise to face. *Gazeta “Izvestia”*, 2012, January 16. Available at: <https://iz.ru/news/511884>

<sup>13</sup> Kolesnikov A. The pool of successors. *Gazeta.ru*, 2018, March 20. <https://www.gazeta.ru/comments/column/kolesnikov/11688265.shtml>

<sup>14</sup> Address of the President to the Federal Assembly, December 12, 2012. *Official website of the President of the Russian Federation*. Available at: <http://www.kremlin.ru/events/president/news/17118>

**opinion of the vast majority of Russian citizens. However, every time a “decisive breakthrough” in the internal development is hindered by the system of oligarchic capitalism in post-Soviet Russia, the system that determines the unwillingness and inability of the Government to fulfill the tasks of the head of state.**

The fact that the elites have no interest in the implementation of national interests determines the existence of such factors which are incompatible with the future of Russia as a dynamically developing sovereign state pursuing its independent foreign and domestic policy, and acting as one of the centers of a multipolar world. So, for example, “Russia’s relative monetary poverty is higher than in the vast majority of OECD countries, and this excess is very significant...but the main social risks are formed not so much by poverty as by inequality. Our country is the world’s leader in terms of inequality in the distribution of wealth. One percent of the richest Russians account for 71% of all household assets in the country. On average, this figure is 46% in the world, 37% in the U.S., and 17% in Japan”<sup>15</sup>.

The problem of inequality in Russia has emerged relatively recently: **contemporary Russian inequality – inequality is not historical; it was formed in the 1990s–2000s...** If we compare the scale of inequality in Russia with that in other countries, we can say it is most similar to the situation in Latin America, in particular – in Argentina<sup>16</sup>.

Another striking example of “capitalism for the elite” can be found in a series of arrests of the leaders of Summa Group (Z. Magomedov, M. Magomedov, A. Maksidov), which, according to experts, is “the most opaque private holding structure in the country; a giant diversified holding that combines assets in port logistics,

<sup>15</sup> Gontmakher E.Sh. Russian social inequalities as a factor in social and political stability. *Voprosy ekonomiki*, 2013, no. 4, pp. 68-82.

<sup>16</sup> Bobylev S.N., Grigor’ev L.M. (Eds.). *UN sustainable development goals and Russia: the human development report in the Russian Federation*. Analytical center for the Government of the Russian Federation, 2016. P. 55.

engineering, construction, telecommunications, oil and gas and other sectors”; and it goes without saying that this business empire could not have achieved so impressive a success if it did not have the patronage of the Government<sup>17</sup>.

The pursuit of personal interests, which is an indispensable attribute of “capitalism for the elite”, is transferred from the highest ranks of state power to the regional level of management and on to economic entities. A related series of corruption scandals at the local level of government is more and more often followed by the tragic events that cannot be explained in any other way.

Of course, he [the President] cannot be directly responsible for every case of bungling. But any minor slob, like the security guard who shut down the fire alarm in Zimnyaya Vishnya shopping mall, has their superior, and so on... And all the major disasters of the last decade show that if the top bosses are close enough to the Kremlin, they always come out with clean hands... There were no consequences for Moscow Mayor Yuri Luzhkov after 68 people had been crushed by the roof of the state unitary enterprise Basmanyi rynok. No charges were raised against Chairman of the Board of RAO UES Anatoly Chubais after 75 people had been killed during the accident at the Sayano-Shushenskaya Hydroelectric power station. The leading shareholder of Evraz Group Roman Abramovich and his partners remained unpunished after the explosions in the Rospadskaya mine and the release of methane at the Ulyanovsk mine – the disasters that had claimed the lives of 201 people. There were no claims to the owner of JSC Shipping Company Kamskoye Rechnoye Parokhodstvo Mikhail Antonov for the death of 122 passengers and crew members of the vessel “Bulgaria”...

Being aware of their own immunity, such individuals just sit back and connive at the mess their subordinates make. The latter do not pay attention to the carelessness of their own subordinates, and it goes on and on right to the bottom, including the fire alarm security guard<sup>18</sup>.

<sup>17</sup> A decisive blow to Dvorkovich. And to Medvedev. Available at: <http://politinform.su/tochka-zreniya/89036-reshayuschiy-udar-po-dvorkovichu-i-po-medvedevu.html>

<sup>18</sup> Nekrasov Yu. Do not burn down before Putin is elected president! *Gazeta “Zavtra”*, 2018, March 28. Available at: [http://zavtra.ru/blogs/ne\\_sgorajte\\_do\\_viborov\\_putina](http://zavtra.ru/blogs/ne_sgorajte_do_viborov_putina)

The fire in the night club *Khromaya Loshad* (Lame Horse), mass poisoning of children with landfill gas in Volokolamsk, plane crashes that have already become regular<sup>19</sup> and, of course, the recent tragedy in Kemerovo, which claimed the lives of 64 people, including more than 40 children, – all this is not only tragic events for Russia, but also **an indisputable proof that in manual mode, without a well-functioning system of management at all levels, any “breakthrough development” is out of the question.** Because “since the time of Charles Montesquieu, the 18th century French philosopher, nothing more sensible than the separation of powers has been invented”<sup>20</sup>.

In 2018–2024, the urgency of the task of ensuring national security goes to **a qualitatively new level.**

First, because the “hybrid warfare” against Russia “enters an active phase of implementation”, which the situation around the so-called “Skripal case”; a new package of economic sanctions threatening both the economic and political situation in the country; as well as another round of escalation of the Syrian conflict, which was provoked by an alleged chemical attack in the Syrian city of Douma.

According to experts, “the intense hysteria in the West is, no doubt, a means to prepare the population to the fact that a blow to Russia is morally justified and practically necessary. Hatred of Russia captures entire segments of the population, it becomes completely irrational. This is what we will live with in the coming years”<sup>21</sup>.

<sup>19</sup> Major air crashes in Russia occur virtually every year, and they have claimed the lives of more than 350 people over the past six years: February 11, 2018 (71 people); November 15, 2017 (6 people); December 25, 2016 (92 people); March 19, 2016 (10 people); October 21, 2014 (4 people); November 17, 2013 (50 people); September 11, 2012 (10 people); April 2, 2012 (33 people); September 7 and June 21, 2011 (44 people in each crash).

<sup>20</sup> Varykhanov S. Top-priority task for Putin’s fourth term. *Nezavisimaya gazeta*, 2018, March 22. Available at: [http://www.ng.ru/kartblansh/2018-03-22/3\\_7195\\_kartblansh.html](http://www.ng.ru/kartblansh/2018-03-22/3_7195_kartblansh.html)

<sup>21</sup> Fursov A. On the insidiousness of the British and on “Banderization” of Ukraine. *Argumenty nedeli*, 2018, no. 13 (606), April 5. Available at: <http://argumenti.ru/society/2018/04/568551?typelink=openlink>

**L. Ivashov:** “The hybrid warfare against Russia has been going on according to a definite plan. It has been running since the imposition of sanctions in 2014; August 2, 2017, the operational plan was finally approved; and in 2018, the warfare entered an active phase of its implementation. The idea of the enemy’s operation can be formulated as follows: “Economic weakness of Russia, lack of a stable system of public administration, full-scale multi-level corruption of public authorities, the world’s highest income gap, dissociation and apathy of the serving officers, the tendency of a large number of officers and high-ranking officials to serve anyone for the sake of money, comfort and pleasure – all this must be used to carry out an offensive operation of a hybrid type with the purpose of elimination of the Russian state and bring the remnants of the Russian Federation under the full control of the government, Congress and the Federal Reserve System of the United States, to deliver a major blow to Russia’s system of public administration, manufacturing sector and financial system”<sup>22</sup>.

Second, because time is running out and, as V. Putin rightly pointed out, “the speed of technological progress is accelerating sharply. It is rising dramatically. Those who manage to ride this technological wave will surge far ahead. **Those who fail to do this will be submerged and drown in this wave...**”

**V. Putin:** “It is our obligation to focus all resources and summon all our strength and willpower in this daring effort that must yield results. **Otherwise, there will be no future for us, our children or our country. It is not a question of someone conquering or devastating our land. No, that is not the danger. The main threat and our main enemy is the fact that we are falling behind.** If we are unable to reverse this trend, we will fall even further behind”<sup>23</sup>.

<sup>22</sup> Ivashov L. Hybrid wars. *Gazeta “Zavtra”*, 2018, March 28. Available at: [http://zavtra.ru/blogs/gibridnie\\_vojni](http://zavtra.ru/blogs/gibridnie_vojni)

<sup>23</sup> Address of the President to the Federal Assembly, March 1, 2018. Official website of the President of the Russian Federation. Available at: <http://www.kremlin.ru/events/president/news/56957>

We should note another important point: “landmark nature of the historical period”, “mobilization of society”, “readiness of the Russian economy to respond to global challenges” – Putin has already mentioned all this in his speeches before, **but there exists an objective criterion – his last six-year term in office.**

“People’s dissatisfaction with the behavior of the elite during the previous political cycle naturally flows into the next social contract. There is no certainty that the Russian elites will cope with the challenges of the cold war, with the economic modernization breakthrough outlined in the President’s Address, and with the transition period of Putin’s present term in office. Perhaps the main problem is still related to the subjectivity of the Russian elite concerning the signing of a new social contract and its agenda. Simply put, what the elite can offer to people in exchange for delegated powers. After all, many important points have obviously reached an ideological impasse... What could be the terms of this social contract? The elite receives the right to prepare the country for the transition period and obtains an opportunity to integrate into the new system of power, that is, the chance to remain an elite after 2024. People, in turn, are willing to get the following:

1) justice – the elites must associate themselves with society;

2) security and protection against external threats;

3) steady growth of income and opportunities to realize at least their own labor potential with the help of economic development;

4) preservation of social guarantees and their protection against accounting reforms;

5) support for the development of real political competition”<sup>24</sup>.

Thus, world development trends impose increasing demands on the efficiency of public

<sup>24</sup> Skorobogatyi P., Gurova T. A mandate for development. *Ekspert*, 2018, no. 13, March 26 – April 1. Available at: <http://pressa.ru/ru/reader/#/magazines/ekspert/issues/13-2018/pages/10/>

An excerpt from an open letter to the President from the Board of “Kizvizvech” – the Kamchatka Krai Union of ancestral and family fishing communities of the indigenous minorities of the North, Siberia and the Far East.

“Vladimir Vladimirovich, we voted for you. And we want to show you in percentage terms why Russians, including Kamchatka, voted for you:

20% of votes were cast for your achievements in the military-industrial complex, strengthening the army and protecting Russia’s external sovereignty;

40% of votes cast for you signify our belief that you **will change the government completely, and therefore, you will change the approach to national development, in which the officials will no longer treat hard workers and honest businessmen as trash;**

40% of votes were cast for you, because we want to believe that you and your team **will restore the law that will not only put thieves in jail, but also confiscate all their property and the property of their close relatives, which has been acquired illegally.** Then there will be no more such terrible fires as in Kemerovo, asphalt paving will not be done in the rain, and building a stadium will not cost like building an entire city. Russia’s GDP will grow overnight by an average of 40% of its present value, and the annual economic growth rate will be ahead of that in China. **And most importantly, there will be no destitute people in Russia. It will become dangerous to steal, because there will be no mutual responsibility between crooks. The fear of the inevitability of punishment for all officials will make them equal before the law.** And the state will have the funds for everything”<sup>25</sup>.

administration; that is why in 2018, Vladimir Putin set no less (and, in fact, even more) ambitious goals than in the May 2012 decrees:

– “by the middle of the next decade, to increase GDP per capita in 1.5 times”, that is, from 627 thousand rubles (according to Rosstat<sup>26</sup> for 2017) up to 941 thousand rubles;

<sup>25</sup> President! Don’t sell us! *Argumenty nedeli*, 2018, no. 13 (606), April 5. Available at: <http://argumenti.ru/society/2018/04/568556?typelink=openlink>

<sup>26</sup> Our own calculations based on Federal State Statistics Service data (source: [www.gks.ru](http://www.gks.ru))



– “by the end of the next decade, join the ranks of countries with life expectancy over 80 (although this correlates neither with the current dynamics nor official statistics forecasts)<sup>27</sup>;

– build an economy “whose growth rate exceeds the global one” (although according to the World Bank, in 2012–2016, global GDP growth rate increased from 2.4 to 2.5%; and in Russia, it decreased from 3.7 to -0.2%<sup>28</sup>);

– etc. (see *Appendix 2*).

The Government was given the task “to reduce poverty at least twofold in six years”, which, in fact, means a decrease in the proportion of people who live below the subsistence level, from 13.8 to 6.9% of the total Russia’s population, or from 20.3 to 10.1 million people<sup>29</sup>. However, so far, neither official statistics (*Fig. 1*), nor people’s subjective estimates (*Fig. 2*) provide any clue as to the means of achieving such a significant breakthrough in the dynamics of the standard of living and quality of life. At least, since 2008, no significant changes have been observed in this regard.

**The practice of the current system of public administration indicates that the breakthrough in domestic development that the President spoke of (which in the future should become a foundation for Russia’s high and stable geopolitical position on the world stage) will occur only if the mobilization momentum mentioned by V. Putin in his Address does not sink into oblivion, but instead receives support in the form of relevant management decisions made by authorities at all levels.**

<sup>27</sup> According to Rosstat, in 2000–2017 life expectancy in Russia has actually (and significantly) increased, but the increase for this period was only 7.34 years (from 65.34 in 2000 to 72.70 in 2017). Accordingly, in order to implement the President’s order, the rate of growth of life expectancy should increase in 1.5–2 times. According to Rosstat forecasts, life expectancy in Russia in 2030 will be as follows: according to the pessimistic forecast – 74.15 years; according to the average forecast – 77.22 years; according to the optimistic forecast – 79.76 years (source: [http://www.gks.ru/free\\_doc/new\\_site/population/demo/progn7.xls](http://www.gks.ru/free_doc/new_site/population/demo/progn7.xls)).

<sup>28</sup> World Bank data. Available at: <http://databank.worldbank.org>

<sup>29</sup> Rosstat data for the period from January to September 2017 (source: [http://www.gks.ru/bgd/free/B04\\_03/IssWWW.exe/Stg/d03/252.htm](http://www.gks.ru/bgd/free/B04_03/IssWWW.exe/Stg/d03/252.htm)).

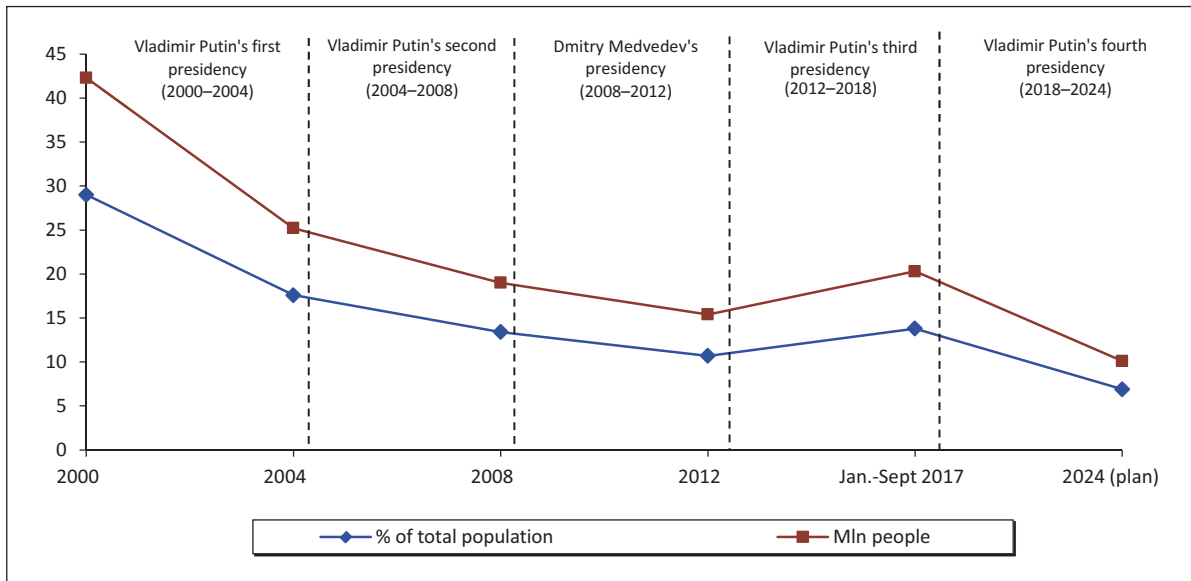
**To achieve this goal, the head of state needs to strip the ruling elites of their vices, in the first place of those related to values and ideology. V. Putin must also create a mechanism for system-wide and effective elimination of “capitalism for the elite” within the system of public administration, in which the “patching of holes” in manual mode is what we can expect at best.** “The major and pressing task of V. Putin’s fourth presidential term, regardless of whether he and his entourage wish it or not, **will objectively consist in an actual rebuild of Russia.**

The previous “incorporating” project is obviously exhausted, to try and cling to this project further is detrimental to the people and the country, and – what is important – for that part of the elite that remained loyal to the President. Such a rebuild will soon have to start due to absolutely objective reasons: amid increasing confrontation, current economic and political models are becoming less effective. Designed for completely different purposes and in fundamentally different conditions, they can no longer guarantee the ruling circles of the Russian Federation even simple survival in any long term... Western strategists of the new cold war, whether deliberately or not, exacerbate the project crisis in Russia and increase turbulence.

So far, the way out of this turbulence seems vague, but it is quite obvious that the problem can not be solved by simply leaving things as they are, which is, probably, what many among the Russian leadership would prefer. **Internal restructuring, whether soft and voluntary or rigid and forced – this is what the logic of current historical process is driving our country to. Such restructuring will no doubt be accompanied by an internal crisis. But it is necessary to understand another point: cowardly denying the need for such a restructuring will most probably lead Russia to a historical defeat, even more heavy than the one it suffered in 1989–1991**<sup>30</sup>.

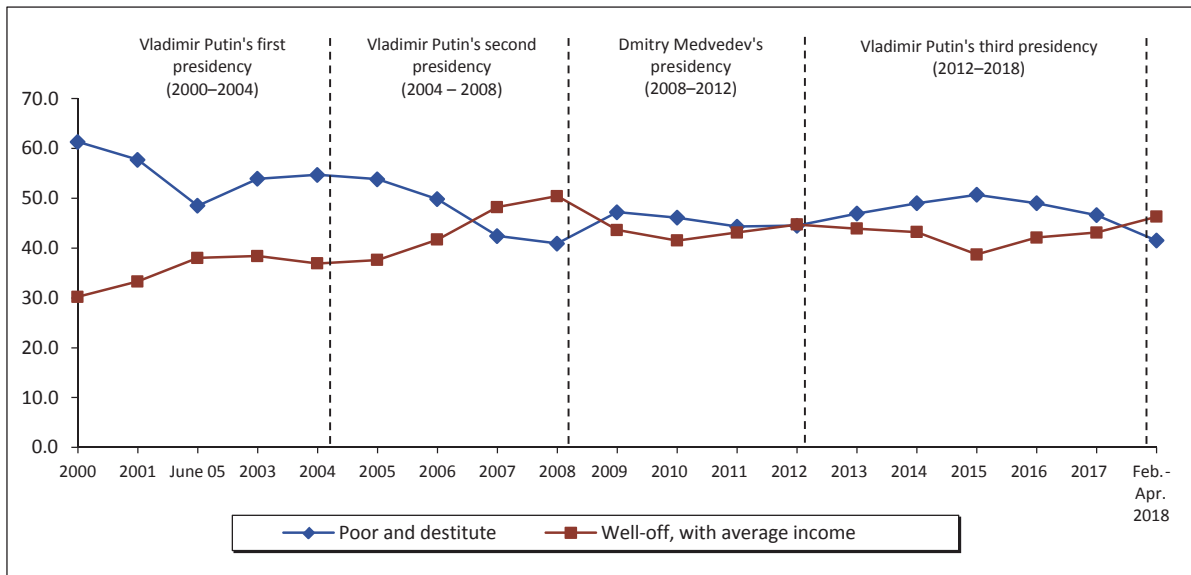
<sup>30</sup> Boikov I. Crisis of restructuring. *Gazeta “Zavtra”*, 2018, March 29. Available at: [http://zavtra.ru/blogs/krizis\\_perestrukturizacii](http://zavtra.ru/blogs/krizis_perestrukturizacii)

Figure 1. Population with monetary incomes below subsistence level (percentage of total population)\*



\* We calculated the indicators for 2024 with the use of Rosstat data, proceeding from the task “to reduce poverty rate at least twofold in six years”, set out by the President in his Address to the Federal Assembly on March 1, 2018.  
Source: Rosstat data ([http://www.gks.ru/free\\_doc/new\\_site/population/urov/urov\\_51g.doc](http://www.gks.ru/free_doc/new_site/population/urov/urov_51g.doc))

Figure 2. Dynamics of people’s social identification (question wording: “Which group do you belong to, in your opinion?”, percentage of respondents)



Source: VolRC RAS.

In many of his speeches, V. Putin stressed his conviction that Russia is ready to respond to global challenges and that **we not only must but also can** deal with the key challenges that Russia is facing. And, judging by the results of the presidential election, society is as optimistic as the head of state in this matter. However, judging by the experience of implementing the May 2012 decrees, if the value priorities of the ruling elites do not change, we cannot but share the skepticism and fears of experts who believe that **“after the 2018 presidential election, no significant change in the Government is to be expected either in its policy or in its composition. However, it is difficult to hope that if any changes occur, no matter how sensational they might be, they will be for the better”**; **“we are likely to expect a period of serious turbulence, and in the next year and a half we shall see how severe it will be...”**<sup>31</sup>

Thus, without going into details of a social transformation that has been going on for almost 30 years, we note that since the collapse of the Soviet Union (when, according to many scientists, “progressive development of the Russian society was disrupted”<sup>32</sup>) Russians survived the crisis-ridden decade of the “turbulent” 1990s, the stabilization (adaptation) period of the “fat” 2000s, after which a critical mass began to accumulate in Russian society in anticipation of changes, so that people could be proud of their country not only for its sport, military or historical achievements, but, above all, for the dynamics of the standard of living and quality of life.

Over the past 18 years, the President has prepared the ground for modern Russia to face the issues that the USSR faced in the late 1980s and was unable to handle – we speak about the

task of transforming the country in accordance with the changed world order without losing its geopolitical status. **In his Address, Vladimir Putin took the next step toward a new stage by setting new goals and providing mobilization impetus for their achievement. The second step was made by**

At some point the Soviet Union faced the tasks of achieving a new level of prosperity and freedom. Once it almost made it in the 1960s, but history knows very few tasks that were fulfilled once and for all. And at the end of the 1980s the Soviet Union failed completely... We are facing the same task now. But we must understand that what Putin is doing is not reviving the USSR, but returning to the task that the USSR was facing; the task which has not been solved... There has been something that is rare in history. We have created a chance with our own hands to repeat what once failed, having learned the lessons<sup>33</sup>.

**society when it provided similar “mobilization” support to the national leader’s action program.**

**Throughout this period, the “oligarchic capitalism” of the ruling elites impeded the implementation of national interests; thus, staff reshuffle in the Government may become the third step on this way, and it can take place in the coming months, after the inauguration of the head of state.** “The elite does not understand or just underestimates all the risks accumulated in society. Moreover, it believes that the President’s landslide victory gives is a free hand to move at the same pace and manage with the same methods. And we will allow ourselves to ask a radical question: does Vladimir Putin’s triumph spare us the possibility of a “Russian Mайдan” – a global political crisis – in 2024? Alas, it does not. And it is not about the President, it is about the elite. At present, it thinks it has six years to prepare for smooth transition of power outside the Putin era.

<sup>31</sup> Delyagin M. Russia is being led to the same abyss as Ukraine. *Official website of “Severo-Zapad” political news agency.* Available at: <http://www.apn-spb.ru/opinions/article27881.htm>

<sup>32</sup> Toshchenko Zh.T. *The Phantoms of Russian Society.* Moscow: Tsentr sotsial’nogo prognozirovaniya i marketinga, 2015. Pp. 14-15.

<sup>33</sup> Putin made Russia great again. *Ekspert*, 2018, no. 10 (1066), March 5. Available at: <http://expert.ru/expert/2018/10/putin-sdelal-rossiyu-snova-velikoj/>

The elite will not bother to execute the May 2012 decrees and will just follow the well-worn path, while simultaneously preparing the capital and connections for a victory in 2024. It is an illusion. **If every month, every quarter, every six months we do not see that the country is growing, developing internally, and accumulating strength, then every month, every quarter and every six months we will more and more rapidly lose the consolidation capital that we acquired on March 18, 2018. And we will lose it long before 2024. Two years will be enough**<sup>34</sup>.

“Everything flows, everything changes”, said the President after the election, answering a journalist’s question about possible changes in the system of administration<sup>35</sup>. And we cannot argue with that, but there is less time for decisive action, because the situation concerning the presidential election may be completely different and much tenser in 2024. **In what condition will Russia come to this yet another landmark period? Will it be able to preserve and strengthen its sovereignty in the face of an escalating international situation and a growing geopolitical competition? Will the public administration system be able to operate in unison with the national interests of the general population? We will get answers to these questions very soon.**

Just like at the beginning of 2012, the President’s intentions to carry out a mobilization breakthrough in addressing the country’s internal problems are seriously complicated by the situation on the external political arena, which will likely require him to focus his attention on international relations. Under the circumstances, the President’s orders to reach the goals set out

<sup>34</sup> Skorobogatyi P., Gurova T. A mandate for development. *Ekspert*, 2018, no. 13, March 26 – April 1. Available at: <http://pressa.ru/ru/reader/#/magazines/ekspert/issues/13-2018/pages/10/>

<sup>35</sup> Transcript of Vladimir Putin’s answers to journalists’ questions after the 2018 presidential election. *Official website of the President of the Russian Federation*. Available at: <http://kremlin.ru/events/president/news/57085>

in his Address to the Federal Assembly in 2018 may suffer the same fate as the May 2012 decrees. To prevent this, the President needs a close-knit team of like-minded people who just like him are aware of and take **personal responsibility for ensuring national security**.

**V. Putin:** “Every country has its own interests. Russia, countries of Middle East: Iran, Saudi Arabia, Egypt, Turkey, Israel, Jordan. Such global players as the United States, China and India have their own interests... The first thing that must be done is to respect their interests, while making sure they respect ours... If someone decides to destroy Russia, we get a legitimate right to respond. Indeed, it will be a global catastrophe for humanity, a global catastrophe for the world, but as a citizen of Russia, as the head of the Russian state, I’m asking myself: **and why do we need such a world if there is no Russia in it?**”<sup>36</sup>

At present, when all the efforts of the “collective West” led by the United States and the UK are aimed at restraining Russia’s economic and political growth which they rightly associate **with Putin himself**, we would like to wish him good luck in his efforts to withstand another round of pressure from “foreign partners”, to ensure that his political experience and resolute actions as the head of state helped him to save the country from the betrayal of the elites, the goal that our “overseas friends” are so relentless in pursuing (this technique worked in 1991, and it should not be repeated again), and finally, to assemble a team of responsible professionals, who give priority to national interests rather than personal benefit.

**Then and only then “will there be no destitute people in Russia...”, and the President will be able to implement to the fullest extent the major provisions of the National Security Strategy, for which he assumed personal responsibility.**

<sup>36</sup> World Order-2018: a Documentary Film by V. Solovyov.

**Information on the achievement of indicators on some orders,  
established in the President's May 2012 decrees**

Source	Presidential order	Fact*	Deviation
Decree of the President of the Russian Federation of May 7, 2012 No. 596 "On long-term state economic policy"	"Improving the position of the Russian Federation in the World Bank's Doing Business rating, moving it from 120th place in 2011 to 50th in 2015 and <u>20th in 2018</u> "	35th place** (2018)	- 15 units
	"Increasing the share of high-tech and knowledge-based industries in the gross domestic product <u>by 2018 in 1.3 times compared to 2011</u> "	22.1% (2017)***	- 3.5%
	"Creating and upgrading <u>25 million high-performance jobs by 2020</u> "	15983,279 thousand units (2016)	- 9.02 mln
Decree of the President of the Russian Federation of May 7, 2012 No. 597 "On the activities to implement state social policy"	" <u>Raising real wages in 1.4–1.5 times by 2018</u> "	100.8% (2016)****	-56%
Decree of the President of the Russian Federation of May 7, 2012 No. 598 "On improving state policy in the field of health care"	"Reducing death rate due to neoplasms (including malignant neoplasms) to 192.8 cases per 100 thousand population"	196.9 per 100 thousand population (2017)	- 4.1 per 100 thousand population
	"Reducing death rate due to traffic accidents to <u>10.6 cases per 100 thousand population</u> "	13.6 per 100 thousand population (2017)	-3 per 100 thousand population
Decree of the President of the Russian Federation of May 7, 2012 No. 599 "On the measures to implement state policy in the field of education and science"	Increasing domestic expenditure on research and development to <u>1.77 percent of gross domestic product by 2015</u> "	1.10% (2016)	-0.67%
Decree of the President of the Russian Federation of May 7, 2012 No. 600 "On the measures to provide citizens of the Russian Federation with affordable and comfortable housing and to improve the quality of housing and communal services"	"Before 2020 to provide affordable and comfortable housing to <u>60 percent of Russian families who want to improve their living conditions</u> "	5% (2016)	-55%
Decree of the President of the Russian Federation of May 7, 2012 No. 606 "On the measures to implement the demographic policy of the Russian Federation"	" <u>To raise life expectancy in the Russian Federation to 74 years by 2018</u> "	72.7 years (2017)	-1.3 years

\* Federal State Statistics Service data ([www.gks.ru](http://www.gks.ru)).  
\*\* Source: Doing Business 2018. The World Bank has published a report which ranks countries on the ease of doing business. Available at: <http://novorusmir.ru/archives/31784>.  
\*\*\* In 2011, the share of high-tech and science-intensive industries in the gross domestic product was 19.7%. According to the President's order, it is necessary to reach the level of 25.6% by 2018.  
\*\*\*\* In 2012, the real accrued salary as a percentage of the previous year was 108.4%.

According to Rosstat data for 2016–2017, many of the President's orders set out in the May 2012 decrees remain unfulfilled, and this applies to a variety of areas: economy, science, demography, the standard of living and quality of life of the population. In his Address to the Federal Assembly in 2018 the President mentioned that when implementing the 2012 May decrees there were "some shortfalls", but they are quite sufficient for experts to arouse reasonable suspicions of experts: "The work to eliminate mistakes that has not been carried out makes us think: what is difficult to implement from the current bulk of plans, what has entered the text in a hurry or in a hope that people have a short memory?"<sup>37</sup>

<sup>37</sup> Komrakov A. Sociologists estimated the reaction of the population to Vladimir Putin's promises. *Nezavisimaya gazeta*, 2018, March 14. Available at: [http://www.ng.ru/economics/2018-03-14/4\\_7189\\_putin.html](http://www.ng.ru/economics/2018-03-14/4_7189_putin.html)

**List of orders to be implemented, based on the President’s Address  
to the Federal Assembly, March 1, 2018**

Order	Deadline	Persons responsible
Population increase, increasing life expectancy to 78 years by 2024 and to 80 years by 2030	<u>Before April 15, 2018</u> to develop a draft decree of the President of the Russian Federation	A.E. Vaino (Administration of the President of the Russian Federation)
Raising the standard of living, ensuring sustainable growth of people’s real incomes and growth of pensions that would exceed inflation, reducing poverty by half in the country		
Becoming one of the world’s top five economies, ensuring economic growth above the global average		
Providing a comfortable environment, including improved housing conditions for at least five million families each year		
Creating conditions for fulfilling citizens’ potential, forming the mechanisms for search and support of talents		
Designing national goals, relevant targets and strategic objectives in the field of health, education, demography, housing and urban environment, international cooperation and exports, labor productivity, small business and support of individual entrepreneurial initiative, safe and quality roads, environment, digital economy		
To develop target parameters and main objectives for a comprehensive plan on upgrading and expanding the main infrastructure until 2024, developed on the basis of the strategy of spatial development of the Russian Federation		
To introduce the changes in the legislation of the Russian Federation that provide for improving the procedure for determining the cadastral cost of real estate objects so as to prevent the value of cadastral cost of real estate objects that exceeds its market value to be used for taxation purposes	July 15, 2018	D.A. Medvedev (Government of the Russian Federation)
Taking into account earlier instructions, to complete the work on consolidating the legal status of self-employed citizens		
To submit proposals for improving the mechanisms of social assistance to the population, ensuring its provision on the basis of the principles of justice, targeting and need		
In order to support agricultural producers, to ensure the extension of preferential tariffs for the transportation of grain by rail and to provide for additional purchases of grain in regions remote from markets		
To prepare and submit proposals on the directions and mechanisms of regulatory support to improve the conditions of business, with participation of the Chamber of Commerce and Industry of the Russian Federation and leading public associations of entrepreneurs	July 15, 2018	D.A. Medvedev, E.S. Nabiullina (Government of the Russian Federation, Central Bank of Russia)
To develop and approve an action plan to accelerate the growth rate of investment in fixed assets and increase their share in the gross domestic product to 25 percent		
Submit proposals for the decriminalization of certain acts committed by entrepreneurs in connection with the implementation of their business activities, providing, if necessary, subsequent qualification of such acts as administrative offences	December 1, 2018	A.E. Vaino, V.M. Lebedev (working group on monitoring and analysis of law enforcement practice in the field of entrepreneurship together with the Supreme Court of the Russian Federation)

The instructions that the President voiced in his Address to the Federal Assembly contain specific targets, deadlines for development of measures for their implementation, and point out personal responsibility of officials. This confirms the seriousness of Vladimir Putin's strategic goals for 2018–2024: to narrow the knowledge gap and make a decisive breakthrough in population preservation. “The vast majority of citizens (81%) consider the tasks voiced by the President to be concrete and real, but only 34% believe that they will be implemented in the near future, and 47% believe that due to corruption and bureaucracy in power they will not be fulfilled”.<sup>38</sup>

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<sup>38</sup> Komrakov A. Sociologists estimated the reaction of the population to Vladimir Putin's promises. *Nezavisimaya gazeta*, 2018, March 14. Available at: [http://www.ng.ru/economics/2018-03-14/4\\_7189\\_putin.html](http://www.ng.ru/economics/2018-03-14/4_7189_putin.html)

# SOCIO-ECONOMIC DEVELOPMENT STRATEGY

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## The Transport Complex of the Far East: Development Trends and Economic Role



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**Abstract.** The mutual influence of transport and economic development has been the focus of scientific research for a long time. Despite this, to date there has not yet formed a single point of view; the results of different authors' assessments are contradictory. Russian Far East is a region whose transport complex importance is difficult to overestimate. The additional relevance of this research area at the present stage is determined by the use of new forms and tools of the region's state policy, as well as the emergence of new promising areas of foreign economic cooperation in the field of transport. The purpose for the present study is to analyze the performance of the role of transport in the economy of the Russian Far East during 2000–2016, as well as to study the factors affecting the significance of transport in the regional economy at the present stage. The methodological research framework lies in the system approach and methods of system-functional and statistical analysis. Estimates of the contribution of the transport complex to the overall economic performance are obtained by applying the method of structural changes. The paper presents the calculations of decomposition of incremental employment indicators and the average annual value of fixed assets of the transport complex of the Far East (with decomposition broken down by Russia's constituent entities in the Far Eastern Federal District (FEFD)) during 2000–2016 into three components: national, regional and sectoral. It is noted that while maintaining transport as a specialization sector of the economy of the Far East (localization factors by employment, investment and fixed assets exceed 1), there is a decrease in the number of employees in this region's sector. The obtained negative estimates of the regional component of employment performance indicate "unrealized" employment in

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Russia's constituent entities of the FEFD due to negative regional make-up of the transport complex. Analysis of the average annual value of fixed assets has determined the positive impact of the sectoral and regional components. Further research on assessing the role of transport complex in the economy of the region, as well as study of the impact of new factors on the development of transport in the Far East will become a relevant research area.

**Key words:** regional economy, transport complex, transport economy, Russian Far East, transport development factors, method of structural changes.

### Introduction

The presence of a transport complex functioning according to the needs of economy in a certain territory is one of the basic development conditions. The revealed non-linear relations between the change in transport parameters (transportation costs) and the change in the range of economic activity, the performance of its structure and location of production facilities, which followed from the postulates of the new economic geography, has confirmed the idea of a close correlation between economic and transport development [1; 2]. Further theoretical research and analysis of practical cases of the current economic situation in world's national economies and individual regions, state the increasing role of transport in the economic development of countries and international trade<sup>1</sup>.

At the same time, within the framework of separate national economies there are specific features both in terms of formation of transport development factors and in regional peculiarities of the transport complex performance for a certain territory. In connection with the above, the study of the role of the transport complex, factors determining its importance in the economy, as well as specific features of transport development in a certain region, the performance of the transformation

of the transport complex parameters, etc., is an important research area.

The purpose for the present study is to analyze the performance of the role of transport in the economy of the Far East. At the same time, the main research objectives include the study of theoretical approaches to assessing the role of transport in the economy and review of factors affecting the significance of transport in the regional economy at the present stage.

The Russian Far East<sup>2</sup> is presented as a research object. The research period covers 2000–2016.

Research publications in the framework of this issue consist of several content blocks. The study of interrelations between transport (its separate types) and economy, specification of factors determining the degree of the transport complex development in individual countries seems to be more general in terms of the scope of objectives. The conclusions in the works of this block are not firm. Thus, A. Ansar et al. [3] argue that there is no positive correlation between investment in the transport infrastructure development and economic growth. The author used a cost-benefit assessment method for 95 projects (roads, including bridges; railway lines excluding high-speed railway) in China. As a result, it was concluded that the benefits from a major part of projects under consideration were significantly

<sup>1</sup> *World Development Report 2009: Reshaping Economic Geography*. World Bank. Available at: <https://openknowledge.worldbank.org/handle/10986/5991>; *World Development Report 1994: Infrastructure for Development*. World Bank. Available at: <https://openknowledge.worldbank.org/handle/10986/5977>.

<sup>2</sup> Hereinafter, the Russian Far East is considered within the borders of the Far Eastern Federal District (FEFD).

overestimated, while the costs and risks were underestimated. This resulted in the absence of a long-term positive effect from transport infrastructure investment (the positive effect in most of the studied projects was generated only during the construction period due to increased number of jobs and involvement of related sectors). Moreover, the author notes the negative aspects for the economy manifested due to the implementation of transport projects: the diversion of significant resources to inefficient projects; the growing debentures arising from accumulation of financial resources for the implementation of projects; increased money issue. Risks of transport projects implementation include incomplete consideration of traffic safety issues in the operation of facilities and underestimation of environmental damage in construction and operation. The work by Xueliang though presents positive estimates of the elasticity of infrastructure development in relation to economic growth for Chinese provinces during 1993–2009, however, argues that “the theories of Western countries suggesting that investment in transport contribute to regional economic growth turned out to be wrong for many developing countries” [4, p. 24-25].

The ambiguity of the idea about the positive impact of the transport infrastructure development on the economic development is noted in a number of papers based on the study of the specification of particular projects. Thus, the work by Cheng, Loo and Vickerman [5] provides comparative analysis of building high-speed railways in the EU (the North European road network linking major cities in several countries) and China (national road network linking coastal and inland cities). The author concludes that there is no universal approach to the development of transport infrastructure, as the very fact of construction of new roads does not guarantee a positive impact on the

economic processes. Additional factors such as network configuration, the possibility of developing the territories included in the service area of new routes, the state’s targets when creating new infrastructure elements, etc., are becoming decisive. Later Cheng and Vickerman [6], considering the impact of constructing high-speed railways on the economic structure of urban agglomerations in China and the UK, noted the dependence of the resulting effects from the initial type of economy and its degree of development. The author concludes that building a HSRN (High Speed Rail Network) in the region with a more developed economy to a greater extent contributes to convergence between agglomerations associated with the new infrastructure, as well as increases the region’s economic attractiveness to the production sector of adjacent territories. The region with a less developed economy may demonstrate increased sectoral specialization resulting in an increase in convergence of total productivity, rather than economic structure.

In foreign scientific literature there is a number of significant publications related to the assessment of the impacts of transport infrastructure development on the economic parameters of the region or national economy with the use of the “cost-benefit” approach. Works by Eliasson [7], Borjesson et al. [8], Eliasson et al. [9], Annema et al. [10], Torsen and Torsen [11], etc. assess the efficiency of investment in the transport infrastructure taking into account both traditional – reduced time period and direct costs for transportation, expanded market access for producers, etc. – and additional factors: changes in competition terms at markets for goods and labor, changes in the value of time distribution for the population and increase in labor efficiency while reducing transportation time, etc.

Some authors, while recognizing the value of the input-output approach, note that it is

applied less frequently and, in this regard, analyze its drawbacks and opportunities for improvement. Thus, Jones et al. [12] in their work consider the “bottlenecks” of the method related to inaccurate (upward) assessment of the transport flow forecast, the underestimated cost of the project, inaccurate estimates of the time saved for transportation with the use of the new infrastructure, underestimated risks of accidents and life assessment, difficulties in assessing the distribution of effects from the project at the local, regional and national levels, etc. Laird at al. [13] also emphasize the need to develop the “input-output” method when analyzing the infrastructure projects which cause significant changes in conditions of transport accessibility for the population and producers. The study by Lakshmanan [14] is related to the assessment of a wide range of effects from the infrastructure development, which the author classifies by level of their manifestation (local, regional, global) and time periods (short-term, long-term and “very long”).

Works by Russian researchers devoted to the assessment of the impact of transport on the economy hardly ever apply the method of “input-output”. They research the correlation between the transport complex parameters with separate macroeconomic indicators of national or regional economy (GDP, GRP, population’s monetary income, etc.). A similar approach is used in works by Macheret D.A. et al. [15], Sherbanin Yu.A. [16], Vakhrameev I.I. [17], Galskaya Yu.N. and Kuznetsova I.A., [18], Lapidus B. M. [19] etc. A number of works are related to the application of input-output balance sheet to assess the interaction of transport with other economic sectors: Pozamantir E.I. [20], Ivanter V.I., Uzyakov M.N., Shirov A.A. et al. [21]. The issues of studying the specific features of regional transport development, including factors determining it, analysis of

key transport indicators performance as part of the regional economic system are covered in works by Ivanova O. [22], Petronevich M. [23], etc.

### Research methodology

The author’s methodological framework in this research includes the system approach, as well as methods of system-functional and statistical analysis. The application of these methods helps analyze the transport complex as part of the regional economic system, receive quantitative indicators of changes in the role of the transport complex in regional economy in the breakdown of separate indicators (employment, fixed assets).

Assessment of the contribution of a particular industry to the overall economic performance can be obtained by various methods. One of the methods widely used in regional research is the method of structural changes. It analyzes the relative performance of the regional indicator against the background of the national performance. The method of structural changes includes the expansion of the regional indicator into three components, including the national and regional components and the component of the sectoral structure [24].

Using this approach we analyzed the performance of separate indicators of the Far Eastern transport complex (as well as Russia’s constituent entities included in it) for the period from 2000 to 2016 in the context of these three components. The national component of the transport complex ( $NS_{ir}^t$ ) is defined as:

$$NS_{ir}^t = E_{ir}^{t-1} \frac{E_N^t}{E_N^{t-1}}.$$

The national component characterizes a part of the regional indicator increment (employment, investment, etc.) of the transport complex performance in proportion to the all-Russian indicator increment.

The regional component of the transport complex performance ( $RS_{ir}^t$ ) determines the deviation between the actual and potential growth values (if the regional transport complex grew at a rate corresponding to the national transport complex):

$$RS_{ir}^t = E_{ir}^{t-1} \left( \frac{E_{ir}^t}{E_{ir}^{t-1}} - \frac{E_{iN}^t}{E_{iN}^{t-1}} \right).$$

The sectoral component ( $MS_{ir}^t$ ) shows what the increase in the corresponding indicator of the regional transport complex would be if it grew up at a rate corresponding to the national one:

$$MS_{ir}^t = E_{ir}^{t-1} \left( \frac{E_{iN}^t}{E_{iN}^{t-1}} - \frac{E_N^t}{E_N^{t-1}} \right), \text{ where}$$

$E_{ir}^{t-1}$  – characterizes the state of the regional transport complex in the base period (2000);

$E_{ir}^t$  – characterizes the state of the regional transport complex in the current period (2016);

$E_N^{t-1}$  – characterizes the state of the national indicator in the base period (2000);

$E_N^t$  – characterizes the state of the national indicator in the current period (2016).

The application of the method of structural changes within the framework of this study helps assess the regional features of the transport complex performance in the Far East and in FEFD constituent entities, which may be more or less effective compared to the national performance of the transport complex.

### Research results

The development of the transport infrastructure has become one of the priorities for the Eastern regions of Russia at the present stage. Since 2000, various transport projects have been or are being implemented in the Far East. The most significant of them include: the construction of Kuz'mino specialized

oil loading port, the construction of bridge crossings over Zolotoy Rog Bay to Russky Island, the reconstruction of Knevichi Airport, the construction of the railway connecting the airport with Vladivostok in Primorsky Krai; the reconstruction of the railway at Sakhalin Island; the construction of the second order of the railway bridge across the Amur River, a highway bridge to Bolshoy Ussuriysky Island, the reconstruction of the Kuznetsovsky railway tunnel and the construction of a new tunnel in Khabarovsk Krai; the development of the road network and continued construction of the Amur-Yakutsk railway in The Sakha (Yakutia) Republic, etc.

The implementation of large-scale projects (large-scale including in terms of investment capacity, timing, the technological component) has obviously led to a change in the region's transport complex characteristics. In this regard, the performance of key the transport complex functioning indicators can serve as a tool for determining the vectors of changes in the macroeconomic role of transport, as well as be used to indirectly assess the real impact of transport and infrastructure projects implemented in the East of the country on the economy.

At the same time, the choice of approaches and adequate assessment methods remains debatable. The latter depend on a variety of factors: the unequivocal attitude to the internal content of the transportation process, the objectives of analysis, the scale of the objects under review, the informational framework of the study, etc.

In this paper, we consider transport as one of the spheres of material production<sup>3</sup>, using indicators within the framework of available official statistics on within the Far Eastern

<sup>3</sup> Excluding the consideration of transport as an element of the service sector. See details in [25].

Federal District (with specification of individual indicators and processes in the context of individual constituent entities of the Russian Federation in the Far Eastern Federal District).

Transport has traditionally been classified as one of the Far East primary economic sector. Assessing the localization index calculated as the ratio of shares of the corresponding indicator (employment, investment, value of fixed assets) and the transport complex of the Far East and Russia, we note that during 2000–2016 the situation has not changed fundamentally (*Tab. 1*).

The calculation of transport localization indices indicates that remains one of priority economic in the Far East<sup>4</sup>. At the same time, there was a relative decrease in the index in

terms of employment rate and an increase in the localization index of the value of fixed assets.

However, the Far East is significantly differentiated in economic terms. Realizing this, we perform a decomposition in the breakdown of Russia's constituent entities in the Far Eastern Federal District and consider the components of the changes noted during the study period in more detail.

*Employment.* Transport has always been one of the main economic sectors in terms of attracting labor resources of the Far East. However, during 2000–2016 the number of people employed at transport enterprises decreased by 15.9 thousand people (5.1%), in absolute terms (*Tab. 2*).

Table 1. Localization indices of FEFD transport

Indicator	2000	2010	2016
Employment	1.5	1.3	1.3
Fixed investment	1.2	1.5	1.3
Fixed assets	1.2	1.3	1.7*

\* – data for 2015.  
Compiled from: *Russian regions. Socio-economic parameters, 2015*. Moscow: Rosstat, 2015. 1266 p.; *Russian regions. Socio-economic parameters, 2017*. Rosstat. Available at: [http://www.gks.ru/bgd/regl/b17\\_14p/Main.htm](http://www.gks.ru/bgd/regl/b17_14p/Main.htm) (accessed: 20.12.2017); *Transport and communication in Russia – 2016*. Rosstat. Available at: [http://www.gks.ru/bgd/regl/B16\\_5563/Main.htm](http://www.gks.ru/bgd/regl/B16_5563/Main.htm) (accessed: 20.12.2017).

Table 2. Performance of employment at transport enterprises

Administrative-territorial unit	Change in the number of employed at transport enterprises, 2000–2016		Share of employed at transport enterprises in total employment, %	
	thousand people	%	2000	2014
Russia	938.5	22.7	6.4	7.0
FEFD	-15.9	-5.1	9.6	9.2
Sakha (Yakutia) Republic	-2.8	-5.9	10.0	9.2
Kamchatka Krai	-1.5	-12.2	6.6	6.5
Primorsky Krai	13.7	16.3	8.9	9.9
Khabarovsk Krai	1.2	1.9	9.1	9.2
Amur Oblast	-23.3	-39.5	13.5	9.0
Magadan Oblast	-5.4	-45.8	10.6	6.9
Sakhalin Oblast	2.3	9.8	8.4	9.1
Jewish Autonomous Oblast	0.4	7.0	8.0	8.8
Chukotka Autonomous Okrug	-0.5	-17.9	8.6	7.2

Compiled from: *Russian regions. Socio-economic parameters, 2015*. Moscow: Rosstat, 2015. 1266 p.; *Russian regions. Socio-economic parameters, 2017*. Rosstat. Available at: [http://www.gks.ru/bgd/regl/b17\\_14p/Main.htm](http://www.gks.ru/bgd/regl/b17_14p/Main.htm) (accessed: 10.12.2017).

<sup>4</sup> The criterion for inclusion in the priority sector is the value of the localization index greater than 1. Source: [24, p. 16].

The performance of employment at transport enterprises in the breakdown of administrative-territorial entities in the study period was uneven (*Fig. 1*).

The decline in employment was due to various reasons. For example, in the Magadan Oblast, the overall population decline led to a gradual change in the system of passenger transportation accompanied by the reduction in employment, including in the transport sector. In the Amur Oblast, in the framework of cost optimization at OAO Russian Railways a number of railway transport enterprises (Shimanovskaya railroad shed, Blagoveshchensk railway station, etc.) were closed down.

In some Russian regions of the Far East, the number of employed in transport in the period under review increased. For example, in Primorsky Krai, the number of workers employed by transport companies increased by 13.7 thousand people. It should be noted that in Primorsky Krai in 2000–2016 a number of

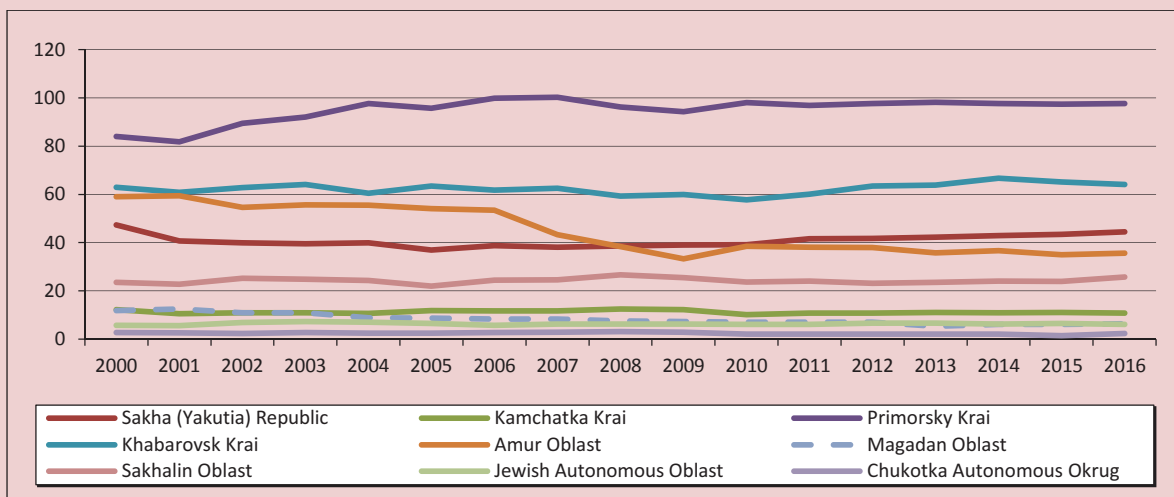
projects to build a new transport infrastructure generating positive effects in the labor market: Kuz'mino specialized maritime oil loading port and a railway connecting the airport and the city of Vladivostok has been built, etc.

The share of transport in the overall employment structure during the period under study decreased in most Russian regions included in the Far eastern Federal District. The greatest decrease was observed in the Amur Oblast where the share of employed in transport enterprises decreased from 13.5 to 9.0%.

For a more detailed analysis of indicators of employment in transport we used calculations using the method of structural changes (*Tab. 3*).

The national component in this case characterizes employment at transport enterprises in the Far East (and Russia's constituent entities in the Far East), which could be formed in the case of compliance with proportionality related to the national rate of changes in employment in the economy. At present, the actual employment at transport

Figure 1. Performance of employment at transport enterprises of the Far East, thousand people



Compiled from: *Average annual number of employed in the economy*. Rosstat. EMISS. Available at: <https://fedstat.ru/indicator/43216> (circulation date: 20.03.2018); *Transport in Russia (2002–2009)*. Rosstat. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1136983505312](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1136983505312) (accessed: 20.03.2018).

Table 3. Performance of components of employment in transport in the Far East (2000–2016, thousand people)

Administrative-territorial unit	Sectoral component	Regional component	National component
FEFD	32.9	-86.0	346.5
Sakha (Yakutia) Republic	5.0	-13.5	53.0
Kamchatka Krai	1.3	-4.3	13.8
Primorsky Krai	8.9	-5.3	94.1
Khabarovsk Krai	6.7	-13.1	70.5
Amur Oblast	6.3	-36.7	66.1
Magadan Oblast	1.3	-8.1	13.2
Sakhalin Oblast	2.5	-3.0	26.3
Jewish Autonomous Oblast	0.6	-0.9	6.4
Chukotka Autonomous Okrug	0.3	-1.1	3.1

Compiled from: *Russian regions. Socio-economic parameters, 2015*. Moscow: Rosstat, 2015. 1266 p.; *Russian regions. Socio-economic parameters, 2017*. Rosstat. Available at: [http://www.gks.ru/bgd/regl/b17\\_14p/Main.htm](http://www.gks.ru/bgd/regl/b17_14p/Main.htm) (accessed: 14.12.2017).

enterprises in all constituents excluding Primorsky Krai is lower than the calculated values of the national component. The greatest discrepancies are noted for the Magadan (52%) and Amur (46%) oblasts.

The negative values of the regional component estimate the decrease in employment in transport in the Far East and all constituent entities of the Russian Federation due to lagging growth rates of the regional transport complex in relation to the national transport complex. These are the assessments of “unfulfilled” employment in Russia’s constituent entities in connection with the negative regional specific features of the transport sector development.

The sectoral component characterizes the increase in regional employment at transport enterprises during 2000–2016 explained by the peculiarities of the sectoral structure of the regional economy. It assesses the potential importance of employment in transport in the Far Eastern Federal District and its constituent entities, which would exist if the region’s transport complex region was changing at a rate corresponding to the national economy as a whole.

*Fixed assets.* Next we consider the performance of the average annual value of fixed

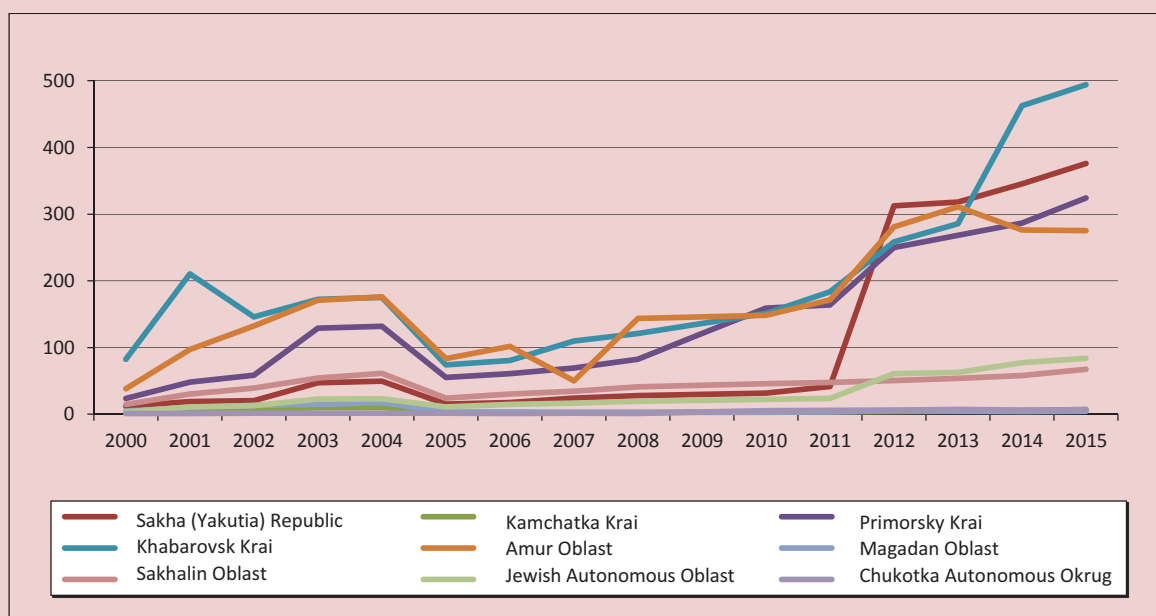
assets of the transport complex. This indicator with a certain time lag reflects investment activity in this economic sector (*Fig. 2*).

There is a clear increase in activity with regard to the transport infrastructure development in the Far East during 2008–2015 expressed in particular: in the development of the transport network of Primorsky Krai (in the framework of preparation for 2012 APEC Summit), large-scale road construction in the Sakha (Yakutia) Republic, the (re) construction of the railway and road infrastructure in Khabarovsk Krai and the Amur Oblast. Similar to the previous subsection, we consider the impact in the context of three components<sup>5</sup> (*Tab. 4*).

In this case, there is a positive effect of the sectoral structure on fixed assets: the obtained negative estimates show what the value of fixed assets performance of region’s transport complex (and Russia’s constituent entities) would be if this figure changed at a rate corresponding to the national economy as a whole. The greatest effect according to the estimates is generated in Khabarovsk Krai.

<sup>5</sup> The most relevant currently available are data on the value of fixed assets of transport organizations for 2015. In this regard, analysis was necessarily limited to this period.

Figure 2. Performance of the value of fixed assets of transport enterprises in the Far East, billion rubles



Compiled from: *Transport in Russia (2002–2009)*. Rosstat. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1136983505312](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1136983505312) (accessed: 20.03.2018); *Transport and communication in Russia (2012, 2014, 2016)*. Rosstat. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/3e4fc4004e3423529616fe18bf0023dd](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/3e4fc4004e3423529616fe18bf0023dd) (accessed: 20.03.2018).

Table 4. Components of the performance of the value of fixed assets in the transport complex of the Far East (2000–2015, mln.)

Administrative-territorial unit	Sectoral component	Regional component	National component
FEFD	-367.2	320.2	1686.6
Sakha (Yakutia) Republic	-23.5	291.5	108.1
Kamchatka Krai	-6.4	-15.8	29.5
Primorsky Krai	-47.0	155.5	215.8
Khabarovsk Krai	-165.2	-99.3	758.8
Amur Oblast	-76.6	0.1	351.9
Magadan Oblast	-10.1	-31.9	46.2
Sakhalin Oblast	-29.7	-39.4	136.4
Jewish Autonomous Oblast	-7.0	58.7	32.1
Chukotka Autonomous Okrug	-1.7	0.7	7.7

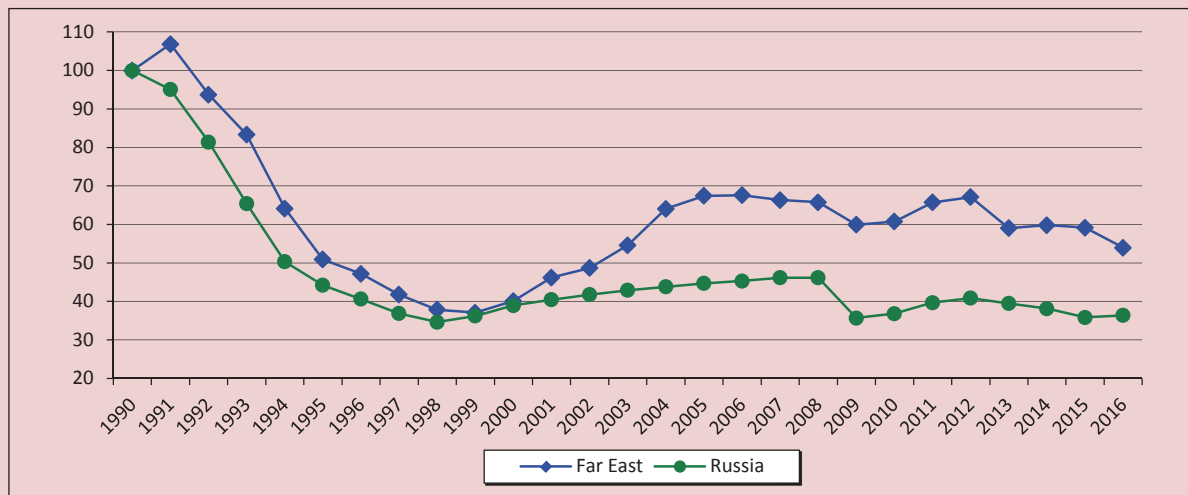
Compiled from: *Russian regions. Socio-economic indicators. 2015*. Moscow: Rosstat, 2015. 1266 p.; *Russian regions. Socio-economic indicators, 2017*. Rosstat. Available at: [http://www.gks.ru/bgd/regl/b17\\_14p/Main.htm](http://www.gks.ru/bgd/regl/b17_14p/Main.htm) (accessed: 20.12.2017); *Transport and communication in Russia – 2016*. Rosstat. Available at: [http://www.gks.ru/bgd/regl/B16\\_5563/Main.htm](http://www.gks.ru/bgd/regl/B16_5563/Main.htm) (accessed: 20.12.2017).

Positive values of the regional component for the majority of Russia's constituent entities in the Far East describe the positive difference between the real and perceived increase in the value of fixed assets in transport, if the figure was growing at a rate corresponding to

the growth rate of the value of fixed assets in transport. Negative estimates of this component (competitive effect), according to calculations, were obtained for the Northern territories of the Far East: the Sakhalin, Magadan oblasts, and Kamchatka Krai. The Sakha (Yakutia)



Figure 3. Performance of the index of freight transportation in the transport complex o Russia and in the Far East, %



Note: excluding pipeline transport.

Source: Bardal A.B. Russia's transport complex during the reform period: far eastern perspective. *Spatial Economics*, 2017, no. 4 (52), pp. 100-129.

Republic, which is actively implementing the program for the transport system development (the length of paved roads network has increased over the period 2000–2016 by 4.5 thousand km, or 60%), has the most significant assessment for this component.

Considering the factors affecting the development of the transport system in the Far East, we note that their range is rather wide. Traditionally, there are geographical (location, terrain, climate), economic and historical (features of the settlement system, established economic ties), economic and political (foreign economic relations, state sectoral policy), socio-economic factors (scale of economic activity, demographic potential, population density and structure, demand for transport services, competition on transport markets, sectoral structure of the economy, region's specialization, natural resource potential, scientific and technological progress), etc. [26; 27; 22].

All these factors to varying degrees affect the development of the transport complex in the Far East. However, the specific features of

transport in the region is determined largely by the border position (China, North Korea, Japan, the USA), focal system of settlement and localization of economic activity, low population density, predominance of bulk cargo transit in the transportation structure (fuel and raw materials from Eastern Siberia). It is under the influence of these factors that the existing structure of the transport network and the transportation structure and scale has formed (Fig. 3).

After the initial decline of the 1990-s, during 2000–2006 the transport complex in the Far East stabilized and began to improve. The transformational shock for the region's transport system was mitigated by the re-focus of the geographical structure of markets and transportation lines. The strengthening of foreign economic relations, the restoration of relations with China, the removal of restrictions from part of the previously closed areas of the region led to an increase in the structure of export-import cargo. The Far East has become a transit territory for cargo flows from Siberia, the Urals and Central Russia. The financial and

economic crisis that began in 2008 interrupted the revival in the transport sector. Temporary stabilization at the end of the crisis was soon replaced by a new recession after 2013. In general, the period from 2007 to 2016 is characterized as a period of weak stagnation.

In our opinion, the priorities among the development factors in the Far East at the present stage are changing. Foreign economic and economic and political are becoming the most significant. The former are related to potential expansion of cooperation with China set by: a) a unique situation of countries' co-ownership of Bolshoy Ussuriysky Island; b) expanded cooperation within the regional implementation level of China's The Silk Road Economic Belt initiative.

The latter – economic and political factors – are determined by the use of new economic techniques and forms of state development of the Far East, which require, inter alia, the establishment of an appropriate transport infrastructure: the territory of advanced socio-economic development, the Far Eastern hectare, the free port zone. Studying the opportunities and limitations to the development of the region's transport complex associated with the manifestation of new development factors can be one of the areas of future research.

### **Conclusion**

The study of the transport complex performance and its impact on the territory's economic development can be carried out through various methods. One of the most common is currently the method of cost-benefit analysis which assesses the impact of the implementation of a specific infrastructure project or a set of projects on the economy. The use of this method in modern conditions is complicated by limited available statistics annually reduced by Rosstat at the level of Russia's constituent entities. The application of the method of structural changes makes

it possible, taking into account all data limitations, evaluate the components of a certain indicator performance.

We analyzed the main elements of the employment performance and production potential (value of fixed assets) in the transport complex in the Far East during 2000–2016 in terms of their contribution to the overall economic performance against the background of national trends. As a result, we note a decrease in employment in the transport complex in the Far East, which contradicts the all-Russian trend in this economic sector. The provided calculations of the employment performance component have identified a negative impact of the regional component, characterizing the decrease in employment during the studied period, on transport in Russia's constituent entities in the Far East, incurred due to the negative regional development trends in the transport sector. Examples of regional manifestations in the transport complex of the Magadan and Amur oblasts are presented in the article.

Given the region's specific features – a large area, low population density and focal settlement system, border position stimulating active foreign economic cooperation (requiring an adequate level of transport links development) – a decreased number of people employed in the Far East transport complex beyond optimal parameters can have negative consequences for the economy. In this regard, further research of the transport sector in terms of employment performance, analysis of prospects and consequences of the ongoing changes is relevant.

The second indicator under review is the performance of the value of fixed assets in the transport complex in the Far East during 2000–2016. Estimates of this indicator analyzed in the breakdown of three components – sectoral, regional and national – indicate positive trends in all three reviewed components. It

is confirmed by the active state policy on the development of the transport complex in the Far East. Within its framework, a number of major investment transport projects have been implemented since 2000.

The development of the transport infrastructure in the East of Russia still continues. Projects related to Eastern railways modernization, development of the railway network in the Sakha (Yakutia) Republic and towards the Pacific coast, the development of seaports terminal capacities and road network – all these projects can completely change the region's transport landscape. Assessment of the impact of the implementation of such large-scale investment projects to labor markets, changing the boundaries of commodity markets, production costs, increased budget revenues, etc. – is one of the most urgent objectives of future research in this area.

One more relevant area of scientific and applied research is the study of new factors in the region's transport complex development

presented in the paper. Potential cooperation within the framework of the Silk Road Economic Belt initiative has not yet been assessed. The development of transport cooperation between Russia and China within the borders of the Far East is characterized by both mutual interest and certain contradictions when considering particular issues. Research in this area can help find mutually acceptable solutions and improve the efficiency of the ongoing processes.

Scientific and research support is also necessary when applying new forms of development in the Far East, which are being actively implemented at the state level, including in the transport complex. The evaluation of effectiveness of applying various mechanisms, the development of approaches to the definition of criteria and boundaries of specific tools for transport development – all these should first of all become the object of research with the result laying the grounds for effective action.

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# DISCUSSION PLATFORM

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## Opportunities for the Consolidation of Rating Products in the Internet Environment\*



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**Abstract.** The article reveals the experience of a project on consolidation of rating products within the single portal with related services for users. We describe the ideology of an open Internet platform, its structure and navigation, and specially designed analytical tools. We focus on the developed and tested trust index in relation to all the ratings on the website, which helps approach a possible solution to the problem of rating verification. We point out the fact that the proposed analytical verification tools are vulnerable to manipulation that is manifested in users' hostile attacks on selective ratings by giving the ratings deliberately low trust scores. The paper shows the relevance of the portal designed, which is manifested not only in the number of views of its content, but also in the public reaction to various ratings of both individuals and organizations. In addition, we disclose the experience of using academic ratings over the period of several years to reveal undesirable trends and emerging threats in the market

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of economic research. We show an attempt to combine different ratings for the purpose of determining the extent of using educational and scientific potential of Russian regions. Video interviews allowed us to formulate ten principles in the development and use of ratings: neutrality (disinterest of the developer as a participant); pluralism (diversity of ratings); duration of the period of preparation; improvement of development methodology; openness of the object of rating and ranker; selectivity (optionality) of application, etc. These principles help raise the work of rankers to a higher level. We outline the ways of using the portal for communication between rankers and the expert community, for establishing a constructive dialogue between them and improving rating tools.

**Key words:** ratings, databases, modeling, verification.

### Introduction

Probably, it will be no exaggeration to say that the 21st century is a century of various ratings. Today, anything can be rated: countries, companies, universities, magazines, governors, athletes, etc. This situation is a consequence of the socio-economic life becoming more complex and the goods becoming more diverse, when people are no longer able to find their way in the huge mass of artifacts. They need clues – and they get them with the help of various ratings.

However, a rapid increase in the flow of rating information, in turn, raises serious concerns about the growing complexity of its selection and processing. For example, there are quite a few global rankings of universities, among which at least six are widely recognized: Academic Ranking of World Universities (ARWU), The Times Higher Education (THE), QS University Rankings, Webometrics, Performance Ranking of Scientific Papers for World Universities (PRSP), Center for World University Rankings (CWUR). Since the information presented in them is quite controversial, there emerge big disputes and disagreements both in the scientific and in the social environment. Not only the results obtained but also the methodologies used, the data sources, and their comparability with other rated products give rise to criticism.

In connection with the above, practical work on rating has led to the emergence of an independent direction in economic science, which is actively gaining momentum. For Example, Ph. Baty studies the accuracy of the sample used by rankers [1]; D. Jobbins examines the so-called “rating wars” between rankers [2]. L. Borghans and F. Corvers consider in detail the phenomenon of “Americanization” of European education under the influence of ratings [3]. Ph. Van Parijs discusses the validity of the weighting factors in the rating system and the “semantic” application of ratings [4]. D. Smith studies public opinion on issues of public awareness and trust in the existing ratings [5]. I.F. Aguillo et al., S. Van de Walle and R. Van Delft determine the consistency of different ratings [6; 7]. Interesting aspects of the problem of ratings manipulation were revealed by M. Scully and K. Watt [1], as well as by E. Gertler and his colleagues [8]. The use of bibliometric indices is considered in the works of D. Arnold and K. Fowler [9]; A.D. Alves, H.H. Yanasse and N.Y. Soma [10]; B. Hammarfelt and A.D. Rushforth [11].

Russian economists are also actively involved in the research on ratings. For example, E.D. Sverdlov, Yu. M. Arsky, V.A. Markusova and N.F. Chumakova study issues related to citation [12; 13]. In the works of S.S. Donet-

skaya we find the application of university ratings to the problem of assessing their competitiveness [14]. A lot of research work was carried out by A.M. Karminsky and A.A. Polozov; they study the rating movement, reveal its basic laws and assess ratings as a special type of expertise [15]. The problems of ranking Russian economic journals are considered in the works of A. Murav'ev, V. Polyakova, O. Tret'yakova, A. Rubinshtein, N. Burakov, O. Slavinskaya, F. Aleskerov and his colleagues [16; 17; 18; 19; 20; 21], etc.

The research presented in the article is a step toward streamlining the available information on ratings. To do this, a special section headlined "Ratings" was created on the Nonergodic Economy website in 2016; the section was intended to become an open portal on rating. To date, this portal exists for over two years<sup>1</sup>. It should be noted that the practice of creating information and analytical databases of rating products already exists in Russia. In particular, there are several portals that "collect" all sorts of ratings on their pages. To date, the Internet-edition "Humanitarian technologies" is the most systematized and scientifically structured analytical website about the main directions and markets of humanitarian knowledge and technologies in Russia and abroad<sup>2</sup>.

Despite the existence of some experience in consolidation of rating products, some aspects of the present work are still poorly represented in analytical practice. So far, there have been no attempts to create and integrate a series of academic rankings, the need for which has been made obvious in recent years. Besides, there is

no unified evaluation of the quality, reliability and popularity of rating products. These gaps need to be filled.

This situation was addressed in 2016 when the information-analytical portal "Ratings" was created; it specializes in the rating products of various phenomena in the sphere of economy; it focuses on the integration of academic ratings, consolidates the expert community on a single information platform by providing access to information for a wide range of users who can comment and discuss the proposed ratings; and it uses new online analytical support tools to assess the level of trust in a particular rating.

The purpose of the present article is to reveal the experience of creating the rating portal, to describe the problems that arose during the implementation of the project, and to determine the prospects of this project in improving the level of expert assessment of existing rating products.

#### **Ideology and structure of the rating portal**

The portal was created in order to achieve the following interrelated goals.

1. *Creating an open interactive content of an information-analytical database of ratings.* The fact is that the number of ratings in general and ratings that evaluate the same phenomenon is expanding at an increasing rate. Russia has accumulated a huge number of uniform rating products that are scattered on the Internet. This makes professional work with them extremely time-consuming. Thus, the task was to create an automated system for collecting and processing the entire array of rating products in Russia in the form of an open interactive information system to which any interested person can get free access.

Our work resulted in the creation of the "Ratings" portal<sup>3</sup>, which is an open archive of

<sup>1</sup> The project was implemented in 2016–2017 and supported by the Russian Foundation for Basic Research (Project 16-02-12015).

<sup>2</sup> Available at: <http://gtmarket.ru/>

<sup>3</sup> Available at: <http://nonerg-econ.ru/cat/9/>

rating products of various phenomena at different levels (local, regional, national, global, etc.).

2. *Subject structuring of rating products.* To ensure more comfortable user navigation on the portal all the ratings were classified into five groups: country, regional, academic, educational and corporate. Although such a gradation of information materials is somewhat conditional, it helps navigate faster in the original array of ratings. By 2018, 31 rating products were placed on the portal, each of which accumulated rating results for several years (taking into account annual information, the portal contains about 90 ratings). This approach allows us to analyze the dynamics of ratings, and therefore the changes taking place in the respective markets.

We note that rating products were uploaded on the portal exclusively by the developer according to a simple rule: the core of the content consisted of exclusive ratings of the developers themselves; the core of “own” ratings gradually expanded due to “foreign” products in accordance with the structure of the portal. Thus, “foreign” ratings were uploaded in process of their detection in the Internet environment, and they went through preliminary information processing under the unified template for all rating products. The developer organizations whose ratings were posted on the portal include the Financial University under the Government of the Russian Federation, the Higher School of Economics, Expert RA Rating Agency, the New Economic Association, Internet title *Nation's Capital*, Internet portal *Career.ru*, information and service portal “Indicator”. It should also be noted that due to the lack of a single portal of ratings it is currently not possible to estimate the size of not only the entire Internet market of these products, but also local (thematic)

markets, which in turn does not allow us to establish the share of markets represented on the author's portal.

3. *Creating a “passport” of ratings.* The spontaneity of the rating movement is also manifested in the fact that only the final results of ratings appear in the information field, while many aspects related to the product developers and the methodology of its preparation remain hidden from the general public. In this regard, the portal that we created differs from its predecessors in its specialization that goes hand in hand with the widest thematic field; besides, each rating product has a unified structure that requires additional processing of all the ratings presented on the website. Thus, each rating product is provided with a template table (actually, the “passport”), which includes information about the developer, date of creation and the frequency of rating preparation, official source of information (if the rating is borrowed from other portals and information resources), additional information on rating research, description of the rating technique, tabular data with the results of ranking by year. Such an approach corresponds to the global tradition of creating personalized scientific products in modern economic science. Thus, each rating has the addressee of the developer, who is responsible for possible inaccuracies in the data, irregularity of their provision, etc.

4. *Availability of additional interactive options.* Creating an open information and analytical database of ratings makes it possible not only to structure the available rating information, but also to present the opinion of users about the ratings in the form of a semantic link between the user profile and the corresponding rating publication. Semantically structured content provides easy access to the information on the website both to unregistered



and registered users. However, compared to the former, the registered users have certain advantages associated with the two options available on the portal. The first one provides an opportunity to leave comments and to send messages and receive them from other registered users. The second option allows users to express the degree of their trust in a particular rating. For this purpose each table with the rating data has a special questionnaire in the form of a pop-up window that allows you to choose one of the answers to the question: “How much do you trust this rating?” The four answers provided are simple and qualitative: I fully trust ( $X_4$ ); I sooner trust ( $X_3$ ); I sooner don't trust ( $X_2$ ); I don't trust at all ( $X_1$ ). Each user can fill in the form only once. In the future, the questionnaire information is processed to calculate the trust index (I) for the corresponding rating by the following simple formula:

$$I = (0 \times X_1 + 0,4 \times X_2 + 0,6 \times X_3 + X_4) \times 100\%,$$

where  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$  are the answer options that represent a Boolean variable; i.e., for example,  $X_1=1$ , if the user specified this answer, or  $X_1=0$ , if the user specified some other answer.

Thus, each answer option is assigned its own score. The overall trust index of the rating is the average of all scores of the users who participated in the voting. The presence of this procedure is reflected in the “passport” of the rating in the form of two parameters – the trust index (percentage) and the number of respondents (persons) involved in the formation of this trust index. The trust index itself lies in the range from 0 to 100% and has a transparent interpretation: if  $I \leq 50\%$ , then the rating as a whole falls into the zone of low trust; otherwise it is in the zone of high trust.

5. *A series of specialized video interviews.* A database of video interviews of authoritative

Russian experts<sup>4</sup>, which is a digest on the problems of compiling and using ratings, is one of the original options of the project. Experts who are directly involved in the preparation and use of ratings expressed non-trivial comments on the rating movement both in Russia and in the world. We chose the interviewees so that they could highlight comprehensively the most important aspects of rating, which in itself is of great importance for proper work with rating products.

### Relevance of the project results

The functioning of the portal shows that the general public has an ambiguous attitude toward the project we have implemented. On the one hand, the statistics of views of the portal materials clearly indicates that a wide audience of users shows a certain interest in and demand for these materials (*Tab. 1*). For example, the list of top 10 ratings of the portal shows that the potential of the demand for ratings ranges from several thousand to tens of thousands of readers. Strong fluctuations in the number of views for various materials can be partly explained by the fact that the information on the rating products was uploaded on the website unevenly – the difference in the life span of some materials reaches 1.5–2.0 years.

On the other hand, the recorded number of views of the materials clearly did not meet the expectations of the portal developers. In all likelihood, to increase the popularity of the site, it is necessary to take additional measures to promote it in the Internet environment and social media. This work was not carried out specifically, which is the direct reason for the modest statistics of visits to the portal. If the portal is properly managed, then in our opinion, we can count on attracting the attention of tens and hundreds of thousands of users, and in this

<sup>4</sup> Available at: <http://nonerg-econ.ru/cat/21/>

Table 1. Number of views of top 10 ratings as of February 11, 2018

No.	Rating	Number of views
1.	Rating of academic performance and popularity of economists of Russia	16725
2.	Rating of leading Russian economic journals	12035
3.	“Golden” rating of academic performance and popularity of economists of Russia	6117
4.	Academic rating of Russian higher economic schools	4611
5.	“Olympic” educational rating of schools of Moscow	3378
6.	“Olympic” educational rating of Russian regions	3226
7.	Rating of information openness of regional development corporations of Russia	3053
8.	Academic performance rating of Russian regions (economy)	3051
9.	“Core” rating of academic performance and popularity of economists	2898
10.	Educational rating of Russian regions	2471

Source: <http://nonerg-econ.ru/cat/15/18/>

sense we can talk about underutilization of the project capabilities and its incompleteness.

However, the demand for the portal is not limited to its traffic statistics, even if it were very impressive. The fact is that the information posted on the portal causes a certain reaction of market participants and thus indicates their interest in the project. For example, two Financial University ratings – the rating of academic performance and popularity of economists of Russia and the “golden” rating of academic performance and popularity of economists of Russia – arrange the positions of domestic economists depending on their performance (publication rate in academic journals) and popularity (citation rate in academic journals). At the same time, the second rating clarifies the first one by considering the existing distortions in the information system and the facts of manipulating the original information.

Analysis of the Internet space has shown an increase in the popularity of the rating products under consideration; it is manifested primarily in the growing number of organizations that highlight in the media the fact that their employees are included in these ratings. Moreover, it is noteworthy that there emerges an interesting trend that the researchers now include the fact of their presence in these

ratings in their biography. Thus, we can say that these ratings have received some recognition among the economists and are used as a kind of quality mark of scientists’ work. As of March 2017, there were 15 organizations that responded to the academic ratings of the portal. Some of them are as follows: Voronezh State University; ISEDT RAS [now – VolIRC RAS], P.A. Stolypin Ulyanovsk State Agricultural Academy, Volgograd State University, Bashkir State University; Saratov Socio-Economic Institute (branch) of Plekhanov Russian University of Economics, Tver State University, Dagestan State University; Peter the Great St. Petersburg Polytechnic University<sup>5</sup>, etc.

Another information product of the portal – the rating of information openness of regional development corporations – was also in demand by the market of regional development corporations, and they immediately reacted to its appearance. Thus, the developers received a letter from the Tula Development Corporation with the request for clarification of their assessment and indication of additional sources of information on the activities of the corporation. In addition, general director of JSC Development Corporation

<sup>5</sup> Academic ratings of the Financial University increase their popularity. *Nonergodic Economy*, 2016, May 22. Available at: <http://nonerg-econ.ru/cat/13/315/>.

of Bashkortostan Republic sent a letter of gratitude to the rating developers; he pointed out the importance of the rating and expressed willingness for further cooperation<sup>6</sup>. Of course, the regional mass media paid increased attention to the activities of corporations that were ranked as leaders in the new rating. Regional journalists interpreted these events as the success of local business structures under the patronage of the state. At the same time, the corporations that were placed at the end of the rating were not left without attention. Thus, regional journalists paid due attention to all of their “heroes”: to those who appeared at the top of the rating and to those who have been less successful in the process of informing the public about their activities. All this testifies to the fact that this information product was in demand by society. As of March 2017, there were nine regional development corporations that were mentioned in the news and media comments on their performance. They include the Development Corporation of Bashkortostan Republic, Development Corporation of the Omsk Oblast, Development Corporation of the Republic of Karelia, Development Corporation of the Smolensk Oblast, Development Corporation of the Kaliningrad Oblast, Development Corporation of the Vologda Oblast, Development Corporation of the Tula Oblast, Development Corporation of the Murmansk Oblast, Development Corporation of the Vladimir Oblast<sup>7</sup>.

#### **Analytical capabilities of the portal**

Analytical work based on the portal materials is one more area in which the portal

materials can be in-demand. In particular, based on the three waves of the regions' academic performance rating (economy) for 2013–2015, we revealed alarming trends and hidden threats in the market of economic research. The analysis has led to the conclusion that the three components of this rating – the market of economists, economic journals, and higher economic schools – are subject to total concentration. An increasing number of regions are excluded from competitive processes in the Russian market of scientific research. Almost all subjects of economic science are grouped in a limited spatial area, while other regions remain without prospects for further development. Thus, we have found out that only 8–9 “active” regions form the leading regional core of Russia's scientific space; in these constituent entities the best economic journals of the country are concentrated and, therefore, all the most valuable information in the field of economic science is collected in them [22]. Consequently, the rating products considered in dynamics allow us to carry out diagnostics of topical economic problems.

A similar analysis of the dynamics of the Rating of Russia's leading economic journals for 2013–2015 has revealed the core of publications that consistently held the leading positions. In addition, it was possible to establish a relationship between the scientific level and reputation of journals, to give an economic interpretation of the relationship and to provide examples supporting it. We considered the important difference between the concepts of a journal's reputation and the desire to publish an article in it. In addition, the analysis made it possible to build a typology of errors that impede the success of economic journals, to reveal their essence and authority with the help of specific examples. Among the typical mistakes the following were considered:

<sup>6</sup> Employees of the Financial University made a rating of information openness of regional development corporations. *Nonergodic Economy*, 2016, May 20. Available at: <http://nonerg-econ.ru/cat/13/314/>.

<sup>7</sup> A new rating of Financial University employees received a wide resonance in the regional media. *Nonergodic Economy*, 2016, May 22. Available at: <http://nonerg-econ.ru/cat/13/316/>.

unsatisfactory title of a journal, disregard for academic aesthetics, failure to meet the criteria of the national edition, flaws in the content policy, review failures, etc. [23]. Thus, in this case, the dynamics of the rating data allowed us to formulate proposals for the development of the market of economic journals and to help many of them adjust their development strategy.

The original analysis was carried out due to the substantial conjugation of two rating products – the regions' academic performance rating (economy) and the educational rating of Russian regions. For this purpose, in particular, an assessment of the relation between the academic performance of regions in the field of economic science and their educational potential was carried out. The calculations have shown that only 12% of Russia's regions produce research findings that correspond to their scientific and educational potential. At the same time, the core of effective regions is gradually shrinking, while the scientific and educational periphery is expanding [24]. Consequently, the educational potential of many regions is idle, which requires adjustment of the current scientific and educational strategy of regional development in Russia.

The academic community is discussing with increased interest the question of rating techniques, in particular, the legality of the use of standard indicators of the Russian Science Citation Index (RSCI), as well as the comparability of the results obtained. Different ratings available on one site facilitate the work in this direction by giving the researchers an opportunity to analyze their dynamics and consistency of the findings depending on the methodology of their construction. For example, researchers from Belgorod State University analyze two rating products posted on the site – the rating of academic performance and popularity of Russian

economists and the golden rating of academic performance and popularity of economists [25]. Their poor consistency is shown and it is concluded that the calculation of scientists' ratings on the basis of RSCI standard indicators without their reference to journal publications is erroneous, as it does not allow filtering out the citations of textbooks and monographs, dissertations and their abstracts. To be fair, we should note that the discrepancies in the results of the analyzed ratings are due to the very attempt of the developers to carry out such filtering. Nevertheless, the conclusions obtained by the authors led them to an idea of creating their own IF-coring Rule method that takes into account journal citations and impact factor of journals and makes it possible to identify significant errors in RSCI statistics on individual author profiles [26].

The rating movement on evaluating Russia's leading economic journals generated a more powerful and effective discussion wave among the expert community. At the moment, we can say that there exist five most important ratings of Russian economic journals: A. Muraviev's rating based on scientometric indicators of the RSCI system [16]; I. Sterligov's rating based on expert assessments [27]; E. Balatsky and A. Ekimova's hybrid rating<sup>8</sup>; A. Rubinshtein's "cluster" rating, based on expert survey data [28]; O. Tretyakova's RSCI-based rating of the journals that are issued by RAS economic institutes [18]. The existence of alternative ratings did not go unnoticed, and it contributed to the emergence of works on their comparative analysis [29], their possible aggregation [30] and the construction of consensus ratings<sup>9</sup>.

Thus, the concentration of rating products on the single portal is intended to facilitate analytical work on the search and processing of

<sup>8</sup> Available at: <http://nonerg-econ.ru/cat/18/8/>

<sup>9</sup> Available at: <http://nonerg-econ.ru/cat/18/281/>

available information. However, under-utilization of the potential of the site, which was mentioned above, brings forward the issue of mass involvement of analysts to the capabilities of this portal.

#### Experience in verification of rating products

Despite the universal expansion of the rating movement, there are no recognized techniques of rating verification. In fact, today every ranker independently develops methods to verify their ratings and prove that they work. In the vast majority of cases, the verification methods thus devised are extremely specific and cannot be applied to other rating products. However, the problem of ratings verification is on the agenda and needs to be addressed. This problem is especially evident in the presence of alternative ratings, each of which claims to reflect the reality correctly, but all of them give very different results.

Competitive ratings are also available in the framework of the consolidated rating portal we created. In particular, the market of the country's academic economic journals is represented by five alternative rating products, which we have already mentioned above: the rating of journals in economics and related disciplines (A.A. Muraviev's rating), the rating of Russian scientific journals of the Higher School of Economics (economics) (I.A. Sterligov's rating), the "cluster" rating of Russian economic journals (Rubinshtein's

rating), the rating of Russia's leading economic journals (Balatsky and Ekimova's rating) and the united consensus rating of Russia's leading academic journals. With regard to these ratings, it is quite legitimate to put a meta-scientific problem of assessing their adequacy and choosing among them the most acceptable and reliable one.

As mentioned before, in order to solving the task, the portal has been provided with an option to calculate the trust index. In theory, a rating that receives the highest value of this index could claim to be the "best" and most respected by users. Of course, this approach is only one of the possible methods of ratings verification, but in the absence of other methods its value increases and it allows us to solve the problem of evaluation of rating products at the expert level. However, the experiment on its practical implementation produced a negative result, showing that Russian society is unprepared for an adequate perception of the new analytical tool. Let us consider this issue in more detail.

The observation of five competing ratings of journals (*Tab. 2*) has resulted in the following findings. According to the academic rankings of journals and economists developed by the Financial University under the Government of the Russian Federation, the average number of respondents did not exceed 100 people until November 2017. At that, the trust indices were

Table 2. Verification parameters for economic journal ratings

No.	Rating product	Number of respondents, persons	Trust index, %
1.	Rating of leading Russian economic journals	256	5.6
2.	Consensus rating of Russia's leading economic journals	99	7.5
3.	Rating of journals in economics and related disciplines	88	86.6
4.	HSE rating of Russian academic journals (economics)	61	79.9
5.	"Cluster" rating of Russian economic journals	30	62.0

about 70.0%. However, in the following period we observe a sharp increase in the number of respondents with a significant decline in the trust index. At the same time, analytical characteristics of the website register an almost simultaneous entry and voting of more than 100 respondents. This statistical “outlier” suggests a deliberate hostile action against specific rating products by means of manipulating the trust index estimates.

The absence of objectivity and logic in the estimates we have studied can be demonstrated as follows. The fact is that the consensus rating of Russia’s leading economic journals is an averaging of four competitive original rating products, three of which received a trust score from 62 to 86% (see Tab. 2). This means that the consensus rating of journals is by 3/4 a rating with a sufficiently high degree of trust, and therefore its trust index, according to our calculations, would have to be at least in the area of 58.5%, whereas in fact it was at 7.5%. This understating of trust in the integrated rating can only be explained by its affiliation with the developers of the rating of leading Russian economic journals, which were subjected to an artificial campaign of biased voting.

Thus, today the expert community of economists of Russia does not have the necessary objectivity and tolerance, which generates spontaneous impulses to manipulate the data on the portal by organizing pronounced “outbreaks” of increased activity of respondents. We recall that the manipulation of individual data within the RSCI became epidemic in its scale [31, 32]. And the situation worsens year by year. Thus, the index of academic ethics in Russia in 2016 amounted to 69.6%, and in 2017 – 64.9%. For the cities of the country, with the exception of Moscow and Saint Petersburg, the index in

these two years amounted to 55.7 and 52.0%, respectively<sup>10</sup>. The experiment carried out on the consolidated rating portal showed that scientometric manipulation by analogy with PR-campaigns can be “white”, i.e. aimed to improve their own image, and “black”, aimed to undermine unfriendly subjects – individuals and organizations.

However, it would be wrong to deny a new analytical approach based on the trust index. For example, if we do not take into account rating products, whose trust indices were tampered with, the average trust index for the rest of the ratings was 64.6%. This figure allows us to conclude that society tends to trust the rating products available at the information portal. In other words, when manipulating actions are neutralized, it can be expected that the existing ratings can become a working analytical material for many interested persons.

#### **Attitude of the expert community toward the rating movement**

The database of video interviews of Russian experts on the portal was designed on the premises that the interviewed specialists included the main participants of the process of compiling and using academic ratings. For this purpose, comments were taken from RAS academicians V.M. Polterovich (head of mathematical economics laboratory, Central Economics and Mathematics Institute of the Russian Academy of Sciences, deputy director of Moscow School of Economics, Lomonosov Moscow State University) and N.I. Ivanova (first deputy director of Primakov Institute of World Economy and International Relations). The opinion of the academic community was supplemented by an interview with

<sup>10</sup> The Financial University presented the three waves of academic ratings in CEMI RAS. *Nonergodic Economy*, 2017, April 4. Available at: <http://nonerg-econ.ru/cat/13/321/>.

E.B. Len'chuk (director of RAS Institute of Economics) and A.Ya. Rubinshtein (editor-in-chief of the *Journal of the New Economic Association*, head of the scientific field "Theoretical Economics" at RAS Institute of Economics). The university community was represented by I.A. Bronnikov (deputy dean for academic affairs, political science department, Lomonosov Moscow State University), S.N. Sil'vestrov (director of the Institute of Economic Policy and Economic Security at the Financial University under the Government of the Russian Federation), and S.A. Tolkachev (first deputy director of the department of economic theory, Financial University under the Government of the Russian Federation); A.V. Savvateev (rector of Dmitry Pozharsky University) represented private higher education institutions. A. Gaganova (faculty of journalism at Lomonosov MSU) expressed the opinion of students. O.V. Tret'yakova (head of the department of editorial and publishing activity and scientific and information support, Vologda Research Center of RAS, deputy editor-in-chief of the journal *Economic and Social Changes: Facts, Trends, Forecast*) spoke as a representative of the publishing community. This whole range of views was supplemented by an opinion of a representative of the rankers community D.V. Petrosyants (an expert at the research group "National University Rankings" of Information Group "Interfax"). The domestic business, on whose behalf E.A. Gaganov (business development director of AO Italion) spoke, was not ignored either.

The uniqueness of the implemented project lies in the fact that each of the interviewed experts noted such a side of the rating process, which is not obvious at first glance. At the same time, some statements of experts were extremely categorical and radical, which helped

"expose" the problems existing in this area. Let us consider the main points that were made by the experts in their interviews.

1. In today's highly *unstable* environment and in the entire system of relations between market participants, ratings are necessary, as they allow us to *record* the situation, assess it and understand the changes taking place (S.N.Sil'vestrov). Moreover, many experts supported the idea of creating a *single rating portal* and supported its further maintenance and development (I.A. Bronnikov).

2. Ratings are necessary and very useful for research purposes, but they should not be used as the *main* source of information, but rather as a kind of *auxiliary* statistical array that helps organize and structure the analyzed subject area and denote certain landmarks (E.B. Len'chuk). Reassessment of ratings and their importance is extremely dangerous and counterproductive. We agree with D.V. Petrosyants, who pointed out: "A rating's a lie, but it's got a hint..." A rating is not an absolute truth, but it always contains important information about the object of evaluation. In other words, correct attitude toward ratings is the key to their effective use. For example, journal ratings are of interest to academics who publish their papers in them, but they are to no lesser extent needed by journal publishers, who can see their own place in the market and find tips on how they should adjust their development strategy (O.V. Tret'yakova).

3. Since ratings are influenced by many incoming circumstances, they are often one-sided and should be used very cautiously to build systems of *financial incentives* (and sanctions!) (E.B. Len'chuk). Incentives and sanctions trigger the so-called Goodhart's law with its inherent mechanisms of manipulating information and distorting the true picture. For example, attempts to evaluate researchers

and scientific organizations only on the basis of bibliometric information give negative results. This thesis is a direct development of the previous one.

4. Ratings should not be turned into *commercial projects*. As a rule, business projects are extremely vulnerable both at the stage of collection and at the stages of their processing and use (N.I. Ivanova). The commercial interests of rankers can not only distort market information, but directly provoke its purposeful falsification.

5. Ratings should deal with not only and not so much (!) the *best*, but also the *worst* market participants (N.I. Ivanova). The fact is that the ratings are aimed at monitoring a limited number of market leaders, while outsiders who did not get into the ratings continue to work and make a negative contribution to the development of the economy. This state of affairs is the case for scientific journals, many of which do not claim to be in the top lists of the ratings, but are included in the VAK list and publish obviously poor and anti-scientific materials for a price. In other words, market participants who fall into the category of “dangerous” outsiders must not be overlooked. We can say that ratings should become a kind of full-fledged market research covering the entire market.

6. Rankers should comply with the principle of *neutrality* (disinterest as a participant). Otherwise, when rankers themselves are participants of the rating, it is likely that strong qualities of the rankers will be part of the rating technique, which will bring them to the forefront (E.B. Len’chuk).

7. Ratings should be based on three key principles: *pluralism* (diversity), *duration of the period* of preparation, and *improvement of their formation technique* (S.N. Sil’vestrov). Otherwise, the monopoly of the rating (absence

of competing rating products), its point values (for one date) and one and the same (outdated over time) formation technique can cause serious harm due to errors and disorientation of the consumer.

8. The use of ratings should be based on the *principle of openness* of the object of rating and the ranker (D.V. Petrosyants). For example, when making a rating of journals, it is necessary that their texts are freely available; otherwise, a paradox arises: the more interesting an article, the less it is available. This effect prevents the formation of an adequate rating. The principle of ranker openness suggests that rankers have a good feedback from the community of rated entities. For example, when a rating is built, it should be discussed with the professional community to avoid resentment and discontent; if necessary, adjustments should be made to the rating technique and to the way the data are made public. Only in this case the rating itself acquires the necessary potential of “legitimacy” and trust.

9. For ratings to be used correctly, the principle of *selectivity* and *optionality* must be observed. This principle means that market participants voluntarily decide to use certain ratings in their activities. A striking example of this practice can be found in U.S. universities, which have two different systems of employment. In the most prestigious universities (Harvard, Stanford, Princeton, etc.), the decision on a particular candidate for the position is based on the assessment of their academic performance by university experts and the conclusion of the relevant commission; formal bibliometric data are not taken into account. In the weaker and peripheral universities, as a rule, there are no qualified experts able to assess an applicant adequately, this is why bibliometric data of an individual are actively used (V.M. Polterovich).



This example illustrates the basic rule: the use of ratings is due to the lack of expertise (A.I. Rubinshtein). In other words, ratings and the expert community are mutually substituting mechanisms for evaluation. Meanwhile, there are other options for assessing the professional suitability of employees of U.S. universities. Thus, in the most prestigious universities, to obtain a permanent position, an employee must publish their papers in the most prestigious (top-rated) journals, whereas in the weaker universities there are no such requirements (V.M. Polterovich). In recent years, Russian universities are increasingly assessing employees according to their own rating systems. In other words, the rating and its user must correspond to each other in a certain sense.

10. Currently, it is necessary that *quantitative* ratings based on measurable indicators, and *qualitative* ratings based on expert surveys should coexist and, in some cases, combine. Some respondents speak in favor of quantitative ratings because of their clarity and transparency in contrast to anonymous experts whom we have no reason to trust (A.E. Gaganova). Other experts are equally categorical about the fact that it is not the ratings, but specific people who need to be trusted, and this approach forms the table of ranks directly in the mind of an individual on the basis of communication with other people (A.Ya. Rubinshtein). It was suggested that the rating of a university can be measured only by determining the level of intellectual debate between students and professors; therefore, the correct rating can only be in the mind of the person who goes to universities and participates in such discussions, while any quantitative indicators reflect completely different aspects of the work of an organization (A.V. Savvateev). The lack of consensus on what ratings are better means that the use of both is legitimate.

These principles and approaches to the development and use of ratings can prevent many errors associated with this assessment tool.

### Conclusion

The experience of implementation of the project on consolidation of rating products described above has shown that there is currently a certain confrontation between the rating movement and the expert community, which extends to the confrontation between quantitative and qualitative ratings. In fact, we are faced with an ambivalent process: inadequate quantitative ratings are the result of a low qualification of experts (rankers), and similar inadequate and excessively subjective expert assessments are produced by a weak expert community and require the methods of evaluation to be more objective. Apparently, mutual adjustment of these two directions in Russia will go on for quite a while, until a reasonable equilibrium can be gradually reached. An important thing is that the growing practice of making ratings and the dialogue of rankers with the wider expert community will contribute to improving the quality of both the former and the latter. And the open Internet platform that we created for consolidation of various rating products can become a serious help in this mutual improvement.

Taking into account the thematic diversity of rating products, we should point out that their consolidation within the single portal is likely to lead to its “overload” and complicate the browsing considerably. In this regard, in the future it would be advisable to create a set of specialized rating portals, each of which would reflect the local (thematic) market as fully as possible. Moreover, within such portals it is necessary to upload not only domestic, but also foreign rating products, if possible.

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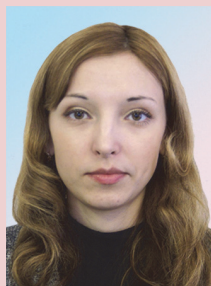
# INNOVATION DEVELOPMENT

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## Social Innovation in Spain, China and Russia: Key Aspects of Development\*



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**Abstract.** As traditional methods of governance are unable to promptly respond to the conglomerate of issues brought about by system-wide changes and modernity, social innovation is seen as a promising alternative. Its uptake, however, is facilitated and hindered by a variety of factors. Using Spain, China, and Russia as country cases, this article explicates the findings of a systems-based comparative analysis on the drivers and barriers to the development of social innovations as effective tools in addressing social problems. In depth research projects carried out at national or regional levels provides the background knowledge to analyze the scope, size, trajectory, goals and target groups of the initiatives, as well as the

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geographical, historical and socio-economic frameworks and environments of the social innovations studied. It was found that there is a need to further clarify the concept of social innovation and to stimulate awareness and public support for social entrepreneurship across all three cases. Specific fiscal, legislative, and social measures are also identified for social innovation initiatives to flourish in each of the three countries analyzed. These findings provide a valuable contribution to public policy by illuminating practical ways to move forward in making social innovation an effective and sustainable strategy for addressing pertinent societal issues.

**Key words:** social innovation, social policy, drivers, barriers, social entrepreneurship, management, social development.

### Introduction

In the context of deeply-rooted, globalized, and system-wide societal challenges (unemployment, social inequality, poverty, etc.), the global community is searching for effective ways and methods to address the emerging new drivers of modernity (global migration, demographic change and ageing population, transformation of employment, etc.). Practice shows that traditional methods of government and market regulation cannot always respond in a timely fashion to ongoing changes; this leads to so-called “government failure” and “market failure”. In this regard, social innovation is considered and is increasingly used as an effective tool to address such downturns.

Generally, innovation is understood as something new that aims to solve social problems or mitigate their negative consequences. In this regard, it is noted that during crisis periods, social innovation has traditionally helped achieve sustainable growth, increase income, preserve jobs, and promote competitiveness [2].

Civil society, non-profit organizations and business entities have a critical role to play in the development and implementation of such initiatives. For instance, in the field of the “silver economy”<sup>1</sup>, one of the aims of which is to prolong the working lives of people in

Europe, related initiatives and programs have been implemented on the basis of public-private partnerships [1].

Unlike traditional technological innovation, social innovation has, in general, a wider scope of application and is difficult to assess, especially with quantitative means, as its effects are not manifested quickly and are not easily traceable with the issue of attribution<sup>2</sup> of social impact. As a rule, the impact of social innovation on the socio-economic development of territories is complex; it usually manifests itself via the introduction of one innovation that leads to a number of interrelated transformations [3, p. 76], with processes emerging from collective creativity and/or collaborations.

Despite the growing demand from the state and society for social innovations, their development is hampered by many factors, which vary depending on the level of socio-economic development of each country, its political structure, the availability of relevant legal framework, the state of civil society, etc. All these factors emphasize the relevance of this paper, which seeks to identify the drivers

<sup>1</sup> Social innovation can be regarded as a major component of the “silver economy” [1, p. 34].

<sup>2</sup> Leeuw F. and Vaessen J. address the attribution problem in: Leeuw, F., Vaessen, J. (Eds.) *Impact Evaluations and Development – Nonie Guidance On Impact Evaluation*. Washington: Nonie, 2009; Rowan M. Refining the attribution of significance in social impact assessment. *Impact Assessment and Project Appraisal*, 2009, no. 27:3, pp. 185-191; Epstein M.J., Yuthas K. *Measuring and Improving Social Impacts: A Guide for Nonprofits, Companies, and Impact Investors*. Berrett-Koehler, San Francisco, 2014.

of and barriers to the development of social innovations as effective tools for addressing social problems in different regions of the world. For this study, regions in three countries – Spain, China and Russia – have been chosen as their geographic and civic features help reveal the specificities of the development of social innovation with three cases: a mature example from the Basque Country, a developed region in Spain as part of a Southern European country; a large Communist Asian country, China; and Russia, also a large country, that has assimilated some features of the other two types of society.

#### **Conceptual framework and methodology**

The origins of social innovation date back to the works of R. Owen, K. Marx, M. Weber, E. Durkheim [5, 6, 7, 8] and others. “Social innovation” began to be used as an economic term in the second half of the 20th century in the works of P. Drucker and M. Young [9, 10]. Later on, as the attention of the scientific and political community grew and focused on this subject, more concepts and theories of social innovation emerged. E. Pol and S. Ville, based on a review of the experiences to date, identified the following four areas:

- social innovation as a driving force of institutional change (R. Martin, S. Osberg, R. Scott, etc.);
- social innovation as a new idea aimed at achieving social goals and satisfying social needs (J. Mulgan, S. Tucker, B. Sanders, etc.);
- social innovation as an idea of public good (Center for Social Innovation, etc.), as a new solution to social problems aimed at improving the quality of life of the whole of society rather than individuals (J. Phills, K. Deiglmeier, D. Miller, etc.);
- social innovation as a new way to overcome social problems that are not susceptible to market influence (OECD, European Commission, etc.) [11].

Analysis of modern scientific literature suggests that two main directions have emerged in the development of social innovation

concepts [12, pp. 66-69]: The functionalist approach, which regards social innovations as producers of social services demand for which cannot be met by the state and the market [13]; and the transformationalist approach, which defines social innovation as a process that initiates or promotes the institutionalization of new practices and rules for the purpose of the socio-political transformation of society [14; 15].

This paper takes a combined system approach and defines social innovations as new social practices in a particular sphere of life that are purposefully initiated by individual actors/groups of actors in order to satisfy the needs of the population/address social issues; if institutionalized, these social practices can lead to system-wide social change. This interpretation enables us to consider the essence of this phenomenon more widely and to show its importance for the socio-economic development of territories.

A social innovation can be a new product (assistive technologies for people with disabilities), a service (mobile banking), a process (peer-to-peer collaboration and crowdsourcing), a market development (fair trade or time banking), a platform (legal or regulatory frameworks, ways of providing assistance), an organizational form (community interest companies), a business model (social franchising), or a combination of the above [4, p. 25].

A comparative analysis of three benchmark social innovation projects in three different countries (Spain, Russia, and China) is used to identify common and specific features, key drivers of, and barriers to the development of social innovation in certain regions of the world.

In order to understand processes of social innovation more profoundly, we use benchmarking for the most successful social innovation projects in the countries under consideration.

## Heterogeneous responses to employment challenges: examining benchmark social innovation initiatives in Spain, China and Russia

*Experience of Spain.* A long tradition of social innovations in Spain<sup>3</sup> (e.g. the Emaus movement in the Basque Country and Eco-villages in Catalonia) reflects bottom-up, collaborative and/or creative changes in response to societal challenges linked to specific contexts and moments in time (e.g. Catalonian and Basque social economy entrepreneurial initiatives). However, according to the Social Innovation Index 2016 published by The Economist Intelligence Unit (EIU) [14], Spain ranks 28th, making it one of the lowest-performing countries in relation to its income level, along with Japan. Spain stands out as being consistently below average in all four dimensions analyzed (institutional policy framework, financing, entrepreneurship, and civil society). One explanation is that “social innovation” is a relatively recent and to date seldom-used term in Spanish public policy and programs and in the position papers of social entities and umbrella organizations. Furthermore, the term “social innovation” evokes different visions and understandings amongst stakeholders as it is a term with little consensus [5]. It is mostly understood as modernization<sup>4</sup> or as an opportunity to give legitimacy to the third sector. Fernández,

<sup>3</sup> Since the 1970s, long before the concept ‘Social Innovation’ was coined, a number of innovative social projects have been developed in Spain to tackle social problems to which no-one from the public or private sectors had responded (one example is the Eco-villages in Catalonia as a way to raise new green models in times of crisis; another is Emaus in the Basque Country, which has facilitated the inclusion of people at risk of social exclusion through different projects, programs, actions, and partnerships, following the principles and values of the social and solidarity economy).

<sup>4</sup> The main instrument for promoting innovation nationwide is the 2013–2020 Innovation Strategy (e2i) deployed by the Ministry of the Economy and Competitiveness (2013), involving multi-sectoral as well as public and private economic actors. Other significant instruments include the 2013–2016 National Action Plan on Social Inclusion. In these plans, social innovation is mostly understood as a modernization strategy.

Pineda and Chaves consider social innovation in Spain as part of the so-called “social innovation model”, which responds to the different dimensions of the crisis in the welfare state [15]. These authors present social innovation as a solution to the crisis in Spain, heading towards the development of a new socio-economic paradigm.

With the onset of the economic crisis in 2008, Spain began to experience dramatic changes in unemployment, budget cuts, and social services. By 2015 Spain, Greece, and Croatia were showing the slowest recoveries and the heaviest losses in the EU from the 2008 socio-economic crash. Unemployment in Spain peaked in the first quarter of 2013 at more than 25%. Levels have since improved steadily, with the number of unemployed (aged 15–74) dropping to well under 5 million in 2016 and to under 3.9 million in the second quarter of 2017<sup>5</sup>.

The crisis was a driver of social innovation in that actors had to mobilize civil society to tackle the problems that arose at the time in parallel with the reduction of the welfare state, especially unemployment subsidies and labor activation schemes. Social innovation started to gain importance in the regional strategies of several of Spain’s Regional Autonomous Communities (especially the Basque Country, Andalusia, Catalonia, Asturias, and Navarre), and in the municipalities of Madrid and Barcelona. Support for the development of social innovation in Spain and its regional strategies, as noted by the European Commission [16], has been based mainly on:

The weight of the social economy sector, given that (according to Luca Jahier<sup>6</sup>): “Un-

<sup>5</sup> See data available at: [http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Unemployment\\_map\\_2015.jpg](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Unemployment_map_2015.jpg) and [http://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica\\_C&cid=1254736176918&menu=ultiDatos&idp=1254735976595](http://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica_C&cid=1254736176918&menu=ultiDatos&idp=1254735976595)

<sup>6</sup> President of the Various Interests Group, European Economic and Social Committee.

*doubtedly, the social economy<sup>7</sup> is a sector which makes a significant contribution to employment creation, sustainable growth and to a fairer income and wealth distribution. It is a sector which is able to combine profitability with social inclusion and democratic systems of governance, working alongside the public and private sectors in matching services to needs. Crucially, it is a sector which has weathered the economic crisis much better than others and is increasingly gaining recognition at the European level” [17].*

A favorable legal framework, as social innovation policies in Spain have been encompassed with public policies (social inclusion and research & innovation) in alignment with the Europe 2020 Strategy [18].

An increasing number of actors who deal with numerous compelling social issues, such as high unemployment rates among young people, the long-term unemployed, and those at risk of exclusion (Tarifas Blancas, Obra Social La Caixa, Peñasal, S. Coop.). Special attention has been paid to issues such as the low level of participation of civil society in public matters, school drop-outs, lifelong learning and the socio-economic and cultural inclusion of immigrants (Instituto de Innovación Social ESADE, FAGEDA). Other significant challenges faced at national level in the medium term include the ageing population and its impact on the health sector, housing and leisure, transport in large cities, access to energy sources, and the social integration of rural areas (Guifi.net, Afables, mYmO).

As far as geographical coverage is concerned, SI stakeholders in Spain are located not just in large cities such as Madrid and Barcelona but

<sup>7</sup> A significant proportion of Europe’s economy is intended to make profits for people other than investors or owners. Known as the ‘social economy’, it includes cooperatives, mutual societies, non-profit associations, foundations and social enterprises. They operate a very large number of commercial activities, provide a wide range of products and services across the European single market, and generate millions of jobs. Social enterprises are also a driver for social innovation. [http://ec.europa.eu/growth/sectors/social-economy\\_es](http://ec.europa.eu/growth/sectors/social-economy_es)

also in regions such as Andalusia, where the focus is on socially innovative solutions to energy-related issues, and the Basque Country, which is a trend-setting region in terms of social innovation. The Basque social innovation strategy is one of the most prominent related regional policies developed in Spain. It has long been supported by a pre-existing dynamic, solid social economy sector. Formally promoted by Innobasque<sup>8</sup>, it has gradually been integrated into a broader regional innovation master plan, known as the Smart Specialization Strategy (RIS3). It has supported the development of a social innovation network, understood as a tool for socio-economic development at regional level, enhancing the application of innovative ideas and practices in the sphere of public management to create social value [19; 20].

As highlighted by the European Commission, a noteworthy role has been played by research institutes working in the social economy and in social entrepreneurship, many of which are run by Jesuit universities (in particular the ESADE Institute for Social Innovation in Catalonia and the University of Deusto in the Basque Country), and are significant actors in the promotion of social innovation in the country.

This paper focuses on a long-lasting, well-established benchmark initiative for employment promotion in the Basque Country: the Peñasal Cooperative<sup>9</sup>, an organization that promotes training, the development of human capabilities and job placement companies. The Peñasal Foundation is a benchmark for social integration and job placement, especially for vulnerable people and those at risk of exclusion in the province of Biscay. In the 30 years since its creation (1986-2016), the Peñasal Coop. has helped over 35,000

<sup>8</sup> A private non-profit association aimed at promoting a strategy for social innovation in the Basque Country.

<sup>9</sup> This is based on Ph.D. research that gave rise to a doctoral thesis [21].



people<sup>10</sup>, increasing and diversifying its activity in times of both prosperity and crisis. It was set up in the Peñascal neighborhood of Bilbao by a group of Catholic priests and educators who were concerned with school dropout rates, the lack of occupational qualifications, high unemployment, and job insecurity resulting from a period of socio-economic crisis and profound changes in the structure of production in Spain.

In a context in which unemployment in the Basque Country rose from virtually zero in 1973 to 22.5% in 1984<sup>11</sup>, job placement programs became key instruments of social action and the 1980s were a time when there was considerable momentum for the establishing of promoters of job placement companies. At least eight such promoters – Peñascal Coop., IRSE, Suspergintza, Sartu, Gaztaroa, Euskadi Training Fund, Bagabiltza, and the Association for the Promotion of Gypsies – were created during that period. This was an effort to create mechanisms to protect vulnerable people against poverty and provide more comprehensive measures to supplement the monthly benefits paid under “Social Wages” or ‘Minimum Income Programs’. In the late 1980s the Norabide program and zero-interest loans were set up by Caritas to promote self-employment.

Peñascal Coop. focuses on improving people’s occupational qualifications and personal development. It works mainly in the promotion of education, employment, and business. It stands out for its innovation, continuous improvement, social commitment, personalized attention, the quality of its

resources, and the commitment of its staff. Since its start-up, it has emphasized networking with social partners as a key to success. In 2016 Peñascal Coop. had eight “job placement companies” registered and actively working in various sectors such as hospitality/catering, plumbing, carpentry, and refurbishment work. These companies combine personalized training and employment programs, offering vulnerable people jobs and employment contracts.

With a commitment to respond to a lifelong learning strategy, the Peñascal Coop. became the first Basque center to implement Basic Vocational Training courses and, together with public bodies and companies, to combine training and employment in Dual Training. The cooperative has received several awards, including recognition by the EU presidency in the list of best practices in its report on the fight against poverty and exclusion<sup>12</sup>. It has been recognized for its work with young people outside the regular education system and the public aid system.

*Experience of China.* In China the state has encouraged innovation practices in the field of employment service by enacting several policy guides and implementing relevant measures in the last ten years. These policy documents include the National Medium- and Long-term Plan for Technology Development (2006–2020) published by the State Council in February 2006 and the “Deepening the System Reform to Accelerate the Rate of Implementation on Innovation-Driven Development Strategy”<sup>13</sup> issued by the CPC Central Committee in 2015. The State Council has also issued “Opinions on Policy Measures for Vigorously Promoting

<sup>10</sup> Peñascal S.Coop., unpublished annual activity report 2016.

<sup>11</sup> The 1980s crisis in the Basque Country was the result of a long crisis that the region suffered from 1974–1975 onwards. The iron and steel industry in Biscay was obsolete, shipbuilding was at a standstill and the capital goods industry had practically no markets. Moreover, based mainly on this intensive industry sector, small and medium-sized semi-family businesses did not have the capacity to grow and develop.

<sup>12</sup> Available at: [http://www.effectiefarmoeedebeleid.nl/files/3614/6668/9668/WEB\\_93954\\_EUNL\\_Brochure\\_A4.pdf](http://www.effectiefarmoeedebeleid.nl/files/3614/6668/9668/WEB_93954_EUNL_Brochure_A4.pdf), pp. 32-33, accessed January 12, 2018.

<sup>13</sup> National Assembly of the PRC. Deepening the System Reform to Accelerate the Rate of Implementation on Innovation-Driven Development Strategy. Available at: [http://www.gov.cn/xinwen/2015-03/23/content\\_2837629.htm](http://www.gov.cn/xinwen/2015-03/23/content_2837629.htm).

Public Innovation” to support innovation<sup>14</sup>. Meanwhile, the government has also made policies to enforce the market-oriented running of business. The central idea of these documents is to enhance entrepreneurship and innovation [23]. At operational level, local governments have made efforts to promote the incorporation of small business, with this policy line being seen as the future direction for economic growth in China [24]. Accordingly, many public and private actors have established programs to facilitate innovation-driven projects for business activities.

The major social innovation drivers at the top level are CPC and the Central Government. The 19th CPC National Congress gave great importance to strengthening social innovation and social management. The report of the 19th CPC National Congress points out that it is necessary to “accelerate the construction of an innovative country” and clarifies that “innovation is the primary driving force for development and the strategic supporter of modern economic system” [25]. The CPC and the central government have also emphasized the construction of social management and service systems at grassroots level. The Party and the government require local government to strive to enhance the functions of urban and rural community service, to strengthen the responsibilities of enterprises, public institutions, and people’s organizations in social management and services. It is also the government’s responsibility to guide social organizations for their healthy development and encourage people to participate in social management to play their basic roles in social innovation.

The second social innovation driver in China is social need. With the development of economy and society, social needs of people are

<sup>14</sup> National Assembly of the PRC. Opinions on Policy Measures for Vigorously Promoting Public Innovation. Available at: [http://www.gov.cn/zhengce/content/2015-06/16/content\\_9855.htm](http://www.gov.cn/zhengce/content/2015-06/16/content_9855.htm).

changing. For example, ageing, the low fertility rate, pollution, and the imbalance in development between urban and rural areas are four of the most significant social problems in China, which stimulate the demand for elderly care services, childcare services, female employment services, and social equality. If these demands are not satisfied, more serious social problems will arise which will lead to sharp social conflicts. Hence, new social needs should be satisfied through social innovation, especially in the current diversified, open, dynamic social environment, in which it is easier to diffuse social conflicts, trigger extreme actions, and destroy social harmony. For example, more than 10 thousand people took to the streets to protest at the construction of a waste incineration power plant in Jiaying city on April 21, 2016<sup>15</sup>. These social needs push the government to consider social innovation as the means to ease the contradictions.

The third social innovation driver in China is the development of technology. With the rise of information technology, new technologies are continuously applied in daily life. This provides a new platform for social innovation. For example, the development of communication technology is the foundation of promoting e-governance, which is a growing, typical example of social innovation. Hangzhou is one of the best examples: It has operated a of “Smart City” program<sup>16</sup> since 2016. People in this city can utilize their mobile phones to enjoy more than 60 kinds of services, e.g. services from the local government and medical services, and to pay public transport fares. Thus, the continuous progress of technology is becoming an important driving force for social innovation.

<sup>15</sup> Netease. The problem of pollution in Changzhou has not yet been solved: Haiyan town in Jiaying city has another accident. Available at: <http://help.3g.163.com/0409/16/0423/10/BLB56MNB040900M7.htm>.

<sup>16</sup> Li B. White Paper on “New China’s Smart City”: Hangzhou is the Smartest City. Available at: <http://money.163.com/16/1227/13/C9A0KR67002580S6.html>

The fourth driver in China is the third sector. Because the main function of the government is administration, it is difficult for the government to undertake all social management affairs, including social innovation. Thus the third sector, which has professional functions, is needed to organize and carry out social innovation. Moreover, the third sector pushes the government to support social innovation based on its own interests. This kind of driver is reflected in collaboration between the government and NGOs, i.e. volunteer organizations and academic organizations. For instance, at community level, volunteer organizations often take on the task of conducting demand surveys and making plans for innovation. Meanwhile, the government provides the funding for the third sector. The functions and effects of the third sector are particularly significant in Zhejiang Province and Jiangsu Province [26].

The most critical of the major barriers to social innovation in China are cost and risk. Innovation is a kind of systematic program which requires quantities of human resources, funding, and time; local governments must consider their financial situation and the cost. Some regional governments have to renounce innovation due to the burden of cost. Furthermore, the barrier of cost always goes hand in hand with risk. Because the rationality of decision makers and innovation participants is limited, and also the environment varies from region to region in such a big country, it is hard to forecast the risk of innovation, and the consequence of failure is more serious than in small countries. Therefore, in the current environment with all its variety and uncertainty, cost and risk are the primary barriers.

The second barrier to social innovation in China comes from the resistance of interest groups. The third sector plays an important role in driving social innovation, but it can also be a barrier because innovation means change that

breaks the old balance. Before a new stage of social innovation, a stable power relationship between the third sector and governments has already been formed. The authorities in charge are afraid of losing their own rights and interests and tend to maintain the existing organizational structure and resist any form of innovation. Moreover, the redistribution of resources induces resistance. The interest groups that possess power often regard innovations that reduce their interests as threats. All in all, the process often has a greater impact on the members of the original government agencies and the audience due to the fact that it mainly involves the redistribution of power and resources, which can trigger conflicts. Hence, the process of innovation may harm the interest of the third sector, which then resists social innovation.

The third barrier to social innovation in China lies in culture. Ideology and organizational culture inertia significantly influence the motivation for social innovation, which is typically reflected by the ideology of local government as well as local society. A conservative, backward ideology will have a huge impact on social innovation and influence the development of social management. Simultaneously, organizational culture is a flexible system that can effectively control and coordinate employees. Once formed, regardless of its merits or defects, it will produce a kind of inertia for the new organizational culture to inhibit its development. It can effectively promote the growth and development of an organization under existing conditions, but it will hinder innovation. At present, the “official-based” ideology has a particularly obstructive effect on social innovation.

As an example from one of our case studies, we consider a “honeycomb” building designed to be used by entrepreneurs; it was set up in April 2015 in one of the core CBDs in Hangzhou. The honeycomb program provided

facilities for young entrepreneurs and created a favorable environment for generating business projects<sup>17</sup>. This program was set up by the Zhedawangxin Company together with several universities and colleges, such as the International College of Innovation, Zhejiang College for Young Entrepreneurs, Cloud Coffee, etc. At this location, the company offers the coffee bar and office space to entrepreneurs for meetings, with easy communication channels, cheap housing rent and facilities, and equipment in good condition. The program encourages young entrepreneurs to use these offices with good facilities free of charge (such as drinking water and meeting rooms). The purpose is to provide space for doing business, especially for young people with small business establishments. Meanwhile, the company also provides a large conference room free of charge. It is large enough for more than 100 people and there is a shared business room and convenient services for room renters.

The company conducts assessments of various aspects for applicants for this program and then selects companies engaged in the field of the Internet, online education, and online shopping. The management system has adopted the business model applied by residential building construction companies with the focus on a better environment for people's living with good facilities to attract renters. In the operation of the program the company manager selects applicants by assessing their capacity for business growth [27].

The outcome of the program is remarkable. The building has the advantages of convenient communications and transportation. The program established its basis by providing people who had innovative ideas with services and

facilities and eventually reached an incubation rate of 20% (the proportion of renters who have been successful in establishing new companies and developing sustainably) [28]. The program has obtained support from the local government through financial and policy measures. It also cooperates with the mass media and organizes advertising campaigns in order to attract more business structures<sup>18</sup>. At present, the issue of enhancing the program's sustainability is being discussed, as it intends to become a self-regulated program so that there will be more chances for young people to get jobs and design innovative projects.

*Experience of Russia.* Social innovation is a relatively new phenomenon in Russia. In contrast to the situation in the developed European countries, where the impact of civil society is of crucial importance, in Russia it is mainly the government authorities that play a major role in the dissemination of social initiatives, since they acknowledge the significance of their development and promote social activity in the most important areas considered by the government. This is so for several reasons. First, administrative, legislative, financial, and other barriers hinder the implementation of social innovation [6]. An example of such barriers can be found in the fact that innovation policy in Russia is focused on science and technology and there is no legislation that could govern the development of social innovation. Second, Russians have low community commitment. A survey carried out by the Russian Presidential Academy of National Economy and Public Administration (RANEPA) states that this is the main problem that non-governmental organizations have to face [29, p. 11]. Third, Russian people have a closed mindset which leads them to tend to treat with apprehension any innovations and changes in social circumstances [30].

<sup>17</sup> INSIGMA. Wangxin entrepreneurship honeycomb-like building Settled in Qiantang Smart City. Available at: <http://www.insigmagroup.com.cn/news/%E7%BD%91%E6%96%B0%E5%88%9B%E4%B8%9A%E8%9C%82%E6%88%BF%E5%85%A5%E9%A9%BB%E9%92%B1%E5%A1%98%E6%99%BA%E6%85%A7%E5%9F%8E>.

<sup>18</sup> Wang X. Dr. William F. Miller visits entrepreneurial honey-comb like building. Available at: <http://news.163.com/15/0630/04/ATB5TASJ00014AEF.html>

The first major initiative to support social innovation and, in particular, social entrepreneurship, came from private business, specifically from LUKOIL President Vagit Alekperov, who founded the Regional Social Programs Fund (RSPF) “Our Future” in 2007. In 2011, the Government of the Russian Federation established the Agency for Strategic Initiatives, an autonomous non-profit organization providing support to non-profit organizations (NPOs). One of the goals of the Agency is to find promising initiatives in the field of social entrepreneurship in Russian regions. Since 2013, the Agency for Strategic Initiatives has created centers for innovation in the social sphere (CISS), and there are currently about 23 CISS in Russian regions. They are established for the purpose of promoting social entrepreneurship. In practice, however, the priority in providing support is given to small and medium business rather than socially oriented NPOs. A similar tendency to neglect NPOs is observed in the work of the “Our Future” Fund; according to experts, this is because government interests focus on social business rather than on socially oriented NPOs, and also because social entrepreneurship is considered to be similar to small and medium business [31]. At the same time, a study carried out by the Center for Social Entrepreneurship and Social Innovation of the National Research University “Higher School of Economics” (HSE) shows that there is a pronounced social need in the activities of non-profit organizations in the field of social services in Russia; however, this is hampered by the underdevelopment of infrastructure [32].

Despite certain difficulties, social innovation in Russia is being implemented nationwide. According to RSPF “Our Future”, the Fund promoted 187 innovation projects<sup>19</sup>

<sup>19</sup> Annual report of the Regional Social Programs Fund “Our Future”. Available at: [http://www.nb-fund.ru/about-us/about\\_annual\\_report\\_t/](http://www.nb-fund.ru/about-us/about_annual_report_t/)

in Russia in 2007–2016. However, according to the Agency for Strategic Initiatives, only 1% of entrepreneurs work in the social sphere<sup>20</sup>. In 2017, at the Second Forum on Social Innovation in Russian Regions, the first Russian social innovation cluster established in the Omsk Oblast was presented<sup>21</sup>; it includes Russia’s first School for Social Entrepreneurs, the Club of Mentors and Investors, social innovation centers, enterprises, and business structures. The advantages of the cluster include the possibility of minimizing costs and mobilizing resources, expanding the scale of business, ensuring greater stability in the market, etc.

Besides the active participation of the government in providing support for social innovation projects, other major drivers of social innovation in Russia can be pointed out, such as active demand on the part of the people themselves, the growing sector of socially oriented non-profit organizations, and the development of non-state funds to support social initiatives.

Social innovation in Russia is implemented mostly in areas related to the core functions of the welfare state: health and social care, education, inequality reduction, employment, and the environment (*Figure*).

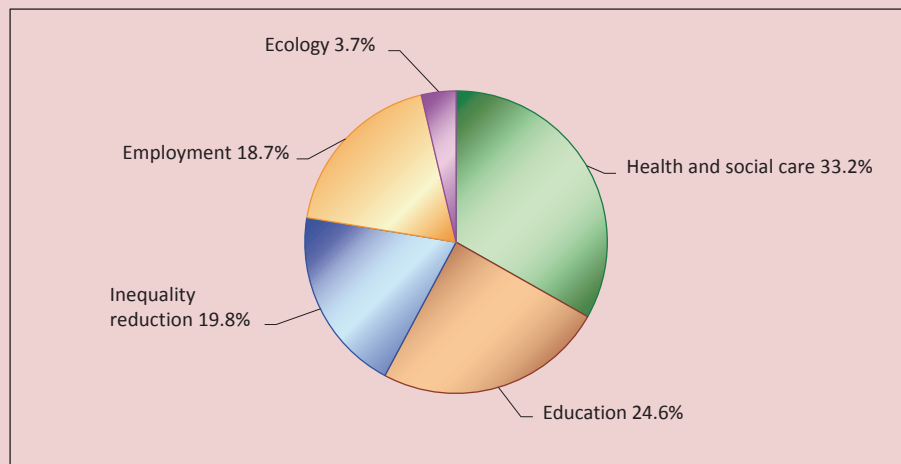
A good example of the Russian social innovation model can be found in the “Mama Works” project, the goal of which is to help women combine work and childcare [33, p. 138]. Employment of women who are on maternity leave is quite an acute issue, because the government has not made much progress in dealing with this problem [6, pp. 73-77].

The history of the project started with an idea to open a social fund called “Road to Life”

<sup>20</sup> Official website of the Agency for Strategic Initiatives. Available at: <https://asi.ru>

<sup>21</sup> Governor Viktor Nazarov presents Russia’s first social innovation cluster. *Ministry of Economy of the Omsk Oblast*. Available at: <http://www.mec.omskportal.ru/ru/RegionalPublicAuthorities/executivelist/MEC/news/2017/06/08/1496930259246.html>

Distribution of social innovation projects implemented in Russia, broken down by fields of activity



Source: our own compilations based on the data from the “Our Future” Fund.

in Moscow. Ms. Olesya Kashaeva, the founder of “Mama Works”, was herself a young mother in need of a job, so she tried to find a solution by creating a project that covered several aspects (education, job search, starting a business, psychological support, job creation). The main goal of “Mama Works” is to help young mothers with many children, single mothers, and mothers with children in a difficult life situation get an education, find a job or start their own business (*social objectives*). “Mama Works” provides psychological support and a certain distraction from domestic chores. The project also provides employment for women on maternity leave both at home and on-site (*economic objectives*). Under the auspices of the project, a clothing manufacturer called “MamySami” (“moms do it themselves”) has been launched; it produces eco-bags made of cotton<sup>22</sup>.

The project was established on an altruistic basis, so the support obtained in the initial stages was crucial for its development. This support came from the Greenhouse of Social

Technology, Public Relations Committee of Moscow, Civic Chamber of the Russian Federation, and Moscow Oblast Governor (later, the project received a Presidential grant and won the contest “Social Entrepreneur – 2014”). Currently, the project is funded largely via its own resources. At the moment, the financing for the project is obtained from people’s own resources, which permit micro-financing for business projects by young mothers (to date over 120 business projects have received support) and help for mothers with young children to become successful in business. In addition, “Mama Works” cooperates with the Russian New University within the program “Mamaster”. Education is provided in 11 specialties. In this case, an individual program of full-time studies for young student mothers is drawn up making it possible for them to combine studying and childcare. After completing their education, young mothers are provided with assistance in employment within the specialty that they have obtained<sup>23</sup>. Since the project started up, more than 3,500 applications have been received from

<sup>22</sup> “Mama Works”: about us. Available at: <http://mamaw.ru/>

<sup>23</sup> *Ibidem*.

Table 1. Comparative features of benchmark social innovation initiatives in Spain, China, and Russia

Feature	Spain	China	Russia
<b>Social needs and problems which social innovation addresses</b>	<ul style="list-style-type: none"> <li>– assistance in finding employment (especially for socially vulnerable population groups);</li> <li>– ageing population;</li> <li>– promotion of business growth and entrepreneurial activity;</li> <li>– educational activity;</li> <li>– poverty and vulnerability or the risk of exclusion;</li> <li>–disadvantaged neighborhoods;</li> <li>– migration (especially low-skilled labor);</li> <li>– enhancement of civic engagement, etc.</li> </ul>	<ul style="list-style-type: none"> <li>– assistance to young entrepreneurs in starting a business;</li> <li>– employment;</li> <li>– promotion of self-employment and flexible forms of employment;</li> <li>– improving quality of life;</li> <li>– environmental issues;</li> <li>– educational and medical services;</li> <li>– ageing population;</li> <li>– reducing social inequality, etc.</li> </ul>	<ul style="list-style-type: none"> <li>– assistance in finding employment (especially for socially vulnerable population groups);</li> <li>– population ageing;</li> <li>– creation of new jobs for socially vulnerable population groups;</li> <li>– training in occupations that are in demand;</li> <li>– environmental problems;</li> <li>– promotion of social inclusion;</li> <li>– enhancing quality of life;</li> <li>– educational and medical services;</li> <li>– reducing social inequality, etc.</li> </ul>
<b>Actors</b>	<ul style="list-style-type: none"> <li>– public sector;</li> <li>– private sector;</li> <li>– non-profit organizations;</li> <li>– educational organizations;</li> <li>– scientific research organizations;</li> <li>– private individuals;</li> <li>– companies;</li> <li>– promoting entities, foundations, cooperatives;</li> <li>– networks; and networks of networks</li> </ul>	<ul style="list-style-type: none"> <li>– public sector;</li> <li>– private sector;</li> <li>– educational organizations;</li> <li>– scientific research organizations;</li> <li>– the mass media;</li> <li>– non-profit organizations</li> </ul>	<ul style="list-style-type: none"> <li>– public sector;</li> <li>– private sector;</li> <li>– non-governmental organizations;</li> <li>– professional networks and associations;</li> <li>– the mass media;</li> <li>– charity and social funds;</li> <li>– educational organizations;</li> <li>– scientific research organizations;</li> <li>– private individuals</li> </ul>
<b>Drivers</b>	<ul style="list-style-type: none"> <li>–social activism;</li> <li>– charismatic and selfless leadership;</li> <li>– favorable legal framework;</li> <li>– cooperation with social partners;</li> <li>– active demand</li> </ul>	<ul style="list-style-type: none"> <li>– stimulating policy conducted by the government;</li> <li>– financial resources;</li> <li>– human resources;</li> <li>– attention of the media;</li> <li>– active demand</li> </ul>	<ul style="list-style-type: none"> <li>– support provided by federal and regional authorities and non-governmental organizations;</li> <li>– active involvement in professional and public associations;</li> <li>– active demand;</li> <li>– financial support;</li> <li>– charismatic leadership;</li> <li>– information and communication technology;</li> <li>– strategic planning of activities</li> </ul>
<b>Barriers</b>	<ul style="list-style-type: none"> <li>– financial barriers and the need for new funding models;</li> <li>– social awareness and insufficient coverage of activities in the media</li> </ul>	<ul style="list-style-type: none"> <li>– costs and risks;</li> <li>– resistance on the part of interest groups;</li> <li>– cultural factor (ideology and organizational culture)</li> </ul>	<ul style="list-style-type: none"> <li>– administrative, legal and bureaucratic barriers;</li> <li>– lack of funding;</li> <li>– lack of state support;</li> <li>– lack of competence of the staff; lack of qualified personnel;</li> <li>– insufficient coverage of activities in the media;</li> <li>– mistrust and stereotypes in society;</li> <li>– competition with the real sector</li> </ul>
<b>Mechanisms of social innovation processes</b>	<p>The economic crisis helped mobilize civil society to address social problems. At the same time, the traditions of the welfare economy and commitment of the authorities to innovative approaches for addressing social problems have a positive impact on the development of social innovation</p>	<p>External mechanism: social responsibility of local authorities, universities and some enterprises; Internal mechanism: difficulties in finding employment also force people to handle the issue by themselves (for example, young people decide to start their own businesses)</p>	<p>The most common are initiatives launched by the state (top-down), but there are examples of successful practices of social innovation related to projects by individual citizens</p>

End of the Table

<p><b>Role of policy</b></p>	<p>– Public policy is of great importance, as the development of social innovation is part of many national and regional normative legal documents on innovation policy</p>	<p>– Policy, especially at the national level, plays an important role. At the highest level, the central government encourages innovative entrepreneurship, and this encourages the authorities of provinces and municipalities to implement this idea. Due to political support, there are no financial difficulties and barriers on the part of the mass media</p>	<p>– Provision of support by the authorities is essential, but in many cases it is reduced to the political component; financial instruments are used less frequently. However, there is a possibility of obtaining grants, awards, and subsidies</p>
<p>Source: own compilation based on comparative analysis</p>			

64 Russian regions, and more than 2,400 hours of consultations and training sessions have been delivered. “Mama Works” is interested in expanding its geography, so that moms in any region can participate in the project. It has become an occasion for the development of a social franchise.

Comparative exercise: After this look at the current situation in the area of social innovation through the context of the three successful practices in Spain, China and Russia presented above, the following table (Table 1. *Comparative features of benchmark social innovation initiatives in Spain, China, and Russia*) compiles the main features of social needs and problems addressed, the main actors involved, the drivers and barriers boosting or hindering those innovations, the mechanisms of social innovation processes, and the central role played by policy and policy makers in some contexts.

The range of social **needs and problems addressed** by social innovation initiatives is quite similar in the countries under consideration. They include a wide range of topics such as the promotion of employment (especially among vulnerable population groups), professional development, creation of new jobs, enhancement of entrepreneurial activity, promotion of self-employment initiatives and flexible forms of employment, development of local communities, enhancement of civic

engagement, improvement of the quality of life, etc. A particularity detected in Russia is that there are a number of initiatives to enhance the prestige of certain occupations which are considered humble.

**Social innovation actors** in Spain, China and Russia include a large number of stakeholders from different sectors including companies and banks, non-profit organizations, educational and research institutions, business incubators, government organizations, and co-working communities. The generation of small collaborative eco-systems around a particular problem in a given context is a feature observed in all three cases studied.

As practice shows, public policy is one of the **driving forces** in the development of social innovation. For example, in Spain, innovation development is focused primarily on technology but in recent years, due to alignment with the “Europe 2020” strategy and the focus on social challenges, social issues have been included as one of the main areas of development. Thus, the “Strategy for science, technology and innovation for 2013–2020”<sup>24</sup> has a specific section dedicated to the relevance of social changes and innovations. The strategy aims to strengthen the capacity of actors to promote social progress and competitiveness and takes

<sup>24</sup> Available at: [http://www.idi.mineco.gob.es/stfls/MICINN/Investigacion/FICHEROS/Estrategia\\_espanola\\_ciencia\\_tecnologia\\_Innovacion.pdf](http://www.idi.mineco.gob.es/stfls/MICINN/Investigacion/FICHEROS/Estrategia_espanola_ciencia_tecnologia_Innovacion.pdf) (pp. 30-31)



into account a) the most pressing economic situations; and b) the need for structural reforms, to promote the creation of new jobs and the development of socio-economic and entrepreneurial foundations. In addition, several regions in Spain have specific plans for expanding social innovation initiatives (e.g. Catalonia, Madrid, Andalusia, the Basque Country) [34, pp. 48-49].

Crises, especially in the economy, have had a devastating effect on employment, inclusion and the fight against poverty in many contexts. However, the situations caused by those crisis, have served precisely as a catalyst for social innovation. This fact can be commonly appreciated in many countries and settings. It has also been the case in the three initiatives analyzed, where civil society and individuals have been impelled to tackle certain social issues when the government was not able to cope with them. When dealing face-to-face with a particular problem, people often begin to search for a solution to help other people in similar situations. Thus, active demand from social sectors to solve social problems and/or to cover socio-economic needs also contributes to the development of social innovation.

Another factor conducive to the development of social innovation is the establishment of partnerships, collaborative relationships, and networks, adopting different and evolving forms of stakeholder interactions. This is the case in the Peñascal Coop. in the Basque Country (Spain), where a strong collaborative networking ecosystem has been developed to sustain the many interventions carried out by this promoters of job placement companies. In China and Russia the strong influence of the government on the development of social innovation means that there are difficulties in the interaction between public and private actors [35, pp. 99-100]. Thus, promoting activities aimed at facilitating cooperation between the various parties would help further boost social innovation.

Finally, two more features play significant roles in the development and promotion of social innovation: the figure of a charismatic project leader, and the emergence of competitors, which usually helps stimulate and further develop projects, as initiatives need new ideas to adapt or readapt to become more competitive or fight for sustainability.

As regards **barriers**, lack of funding has been found to be a significant limitation to the development of social innovation. Even in Spain and China, where social innovation is included in various strategic plans, legal documents, and policies, financial support from the government is in many cases insufficient. The fact that society has decided that interventions in the social sphere should be carried out by the government rather than by third parties, social enterprises or social initiatives does not help to direct resources towards civil society, entrepreneurs or stakeholders. Furthermore, in many cases authorities do not have a clear understanding of the nature, results, and impacts of social innovation; this lack of awareness prevents them from allocating enough funding for investing in social innovation solutions.

In Russia there is a possibility of obtaining government subsidies and grants for various social innovation projects, but in practice it is not always feasible. In Spain and some other Southern European countries, new ways of funding such as social exchanges, microcredits, crowd funding, social investing, and development bonds have been explored to develop social innovative solutions, though they are still insufficient to meet demand [34, p. 53]. Some of these funding schemes are currently also being developed in Russia and China.

In addition, Russia faces the obstacles of an underdeveloped regulatory framework for social innovation and social entrepreneurship and the need for better training and improvement of the skills of employees for the development of social innovation activities.

State policy supports China's social innovation development strategy by promoting the establishment of environments conducive to creative activities. The government has extended access to the registration of non-for-profit and social enterprises, thus providing more opportunities to implement social innovation (through the provision of different types of information and an opportunity to obtain education and training) [35, p. 99].

In China and Russia fewer successful practices are initiated by individuals: the government is predominant in the social innovation sphere, with most social innovation projects being initiated by the state ("top-down"). In Spain, at least in those regions with a longer tradition of social innovations, such initiatives are mainly put forward by enthusiasts and leaders who work in collaboration with public and private stakeholders.

Finally, it is important to emphasize how little attention social innovation receives in the mass media and from the public. This may be one of the reasons for the limited funding dedicated to social innovations and services. Therefore, another way to further develop social innovative solutions is to promote coverage of the results and the impacts of the most successful social innovation projects in the mass media.

### **Conclusion**

This comparative analysis of benchmark social innovations in Spain, China, and Russia concludes by highlighting conditions conducive to the flourishing of social innovations.

Social and technological innovations affect one another and there is a lack of awareness of innovative socio-economic solutions. As a result, different aspects of social innovation are still considered only in light of technological innovations and are not sufficiently recognized as an independent phenomenon. In this regard it is necessary to develop and refine the concept of social innovation so that the authorities, citizens, and stakeholders in general can better understand the potential benefits and impacts of its implementation.

Better provision of government or public support for social entrepreneurship as one of the main facilitators of social innovation could become a significant component of social and regional development. This is especially relevant for Russia, where social entrepreneurship support models are at an incipient stage.

There is a need to focus on people's needs and enhance their motivation for civic engagement in addressing social issues. At the same time, in both Russia and China more flexible state regulation for social innovation would be conducive to the development of social innovative solutions. With the establishment of social innovation centers and centers for social entrepreneurship, it would be possible to accumulate resources for the development of social innovation more efficiently.

In alignment with the European Pillar of Social Rights [36], the challenge for the coming years in Spain is to promote sustainable Hybrid Value Systems. These systems should be articulated around stabled partnerships between a social organization and a private company or public entity that can generate significant social impact and, at the same time, financial returns for the parties involved.

The key direction for Russia is to form an ecosystem of social innovation; this includes improving interactions between all stakeholders, mobilizing and effectively using resources for the development of social innovation, working out legal and regulatory support, promoting civic engagement, financial and non-financial support for social initiatives, etc. [37, p. 100].

In China action by the government to further promote social innovation should focus on a) investing more resources in society to stimulate the development of social innovation; b) disseminating and raising awareness of the potential of social innovation, encouraging public engagement; and c) developing and improving legislation in the sphere of innovation to protect and regulate relations between innovative sectors; for example, a new tax policy to stimulate corporate innovation and legislation to protect intellectual property.

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## Social Demand of Russians for Innovation (According to a Sample Survey)\*



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**Abstract.** This article was supported by the Russian Foundation for the Humanities under the grant “Innovations in modern Russia: development trends and impact on the standard of living of the population” (project 16-02-00561). The population’s choice of values in the use of digital technologies depends on a whole range of factors, including economic, political, social, cultural, and psychological ones. Is the attitude of the respondents to the innovation-driven changes in their lives the same? If it is so, then what factors determine the choice of a particular behavioral pattern in terms of using innovative products and services? This article provides the data of a survey designed to analyze the social characteristics of respondents depending on their attitude to innovative products. The results of a sample survey carried out by the authors in the spring of 2017 in Moscow and the Moscow Oblast were used as an information

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basis. The surveyed sample comprised 1,115 individuals aged 15 to 86 years, including 55.5% of women and 44.5% of men, which generally corresponds to the age and gender structure of the population in the regions surveyed. The survey was designed to eliminate to some extent the lack of quantitative data supporting the hypotheses about the impact of innovation on the way and quality of life of the Russian population, identify the areas of using innovations, which are the most promising from the point of view of the population, and also identify a group of respondents who are most susceptible to new information technologies. The survey results will help understand the innovative transformations in Russia, assess the demands of the population for, and its satisfaction with, innovative products and services, and determine the prospects for their dissemination. An application of the classification trees method allowed us to identify the main factors that influence innovation activity of Russians: the attitude toward innovation, the experience of using online educational services, and people's age. Perspectives of the research consist in the definition of integrative indicators of innovation activity of the population on the basis of qualitative characteristics and the application of statistical modeling methods.

**Key words:** innovation, society development, social demand, population survey, classification tree, innovative behavior.

### Introduction

The rapid growth of modern technology and the resulting development of digital economy open up new opportunities for individuals, nations, corporations and the business environment as a whole; they also contribute to economic growth, improve the quality of life of large groups of the population, and accelerate information flows, which dramatically affects the way of life, etc. Nevertheless, there emerge new challenges and threats to the development of society. The usual living environment of people is changing, the labor market is transforming and social relations are changing. Information becomes not just a means of production, but also influences people's worldview and becomes a powerful tool of political influence. The ongoing changes affect not only the foundations of society; they also have an impact on each individual. Innovation, on the one hand, increases people's capabilities and raises their standard of living; on the other hand, inequality is aggravating, which results in asymmetric access to modern information technology for different strata of the population.

Differentiation by the number and quality of innovative services available to people grows into an imbalance in the opportunities for the realization of professional and personal potential.

Despite the presence of a large number of publications devoted to the role of innovation in modern society, there are not enough works devoted to the quantitative assessment of the extent of dissemination of innovation technology in society and its impact on the quality and way of life. The ongoing changes in society have not been sufficiently studied and require timely analysis using adequate tools, and the development of new statistical tools, as well.

Our study aims to eliminate the lack of quantitative data that allow us to confirm the hypotheses about the impact of innovation on the way and quality of life of Russians, to identify the factors that determine the need for innovation, and to determine the most promising areas in which innovation can be used, from the point of view of the population.

The results obtained in the course of the study will help understand innovation-based transformation in Russia and assess the needs and the degree of satisfaction of Russians with regard to innovative goods and services.

The results of the study will help determine the prospects for innovation development in Russia in connection with the development of the needs of society and the demand from its population for innovative products and services.

### **The impact of innovation technology on the standard of living as reflected in modern research**

Innovation is the subject of a wide range of studies, but in most cases they deal only with the economic efficiency of dissemination of innovations and their role in economic development of countries. It should be noted that innovation radically changes the image of everyday life; this phenomenon is the subject of discourse in many cultural studies.

Giovanly Cajaiba-Santana [1, pp. 42-51] considers social innovation as “social change that it generates”. The paper argues that the first distinctive feature of this type of innovation is novelty and the second one is targeted social result. Dawson and Daniel study social innovation in the context of improving collective well-being [2]. The concept of quality of life is an integral part of social innovation. The social impact of social innovation refers to meeting the needs at the micro-level, enhancing human capacities and improving the standard of living of individuals together with sustainable development of society as a whole.

The impact of innovation and various kinds of technology on the way of life and standard of living is possible only with the adoption of new technologies and innovations by consumers. There are many theories of public dissemination

and adoption of innovation by people. Modeling and forecasting the spread of innovation has become popular since the 1960s, when the first works on this topic were published.

A number of works are devoted to the relationship between science, technology and innovation, identifying its role as an engine of economic development and social welfare. Quite a few works are devoted to the study of the impact of ICT on global development and development in individual countries [3; 4, pp. 117-129; 5, pp. 27-35; 6, pp. 1271-1282]. R.D. Atkinson and D.D. Castro in their monograph [7, pp. 1-14] give arguments about how IT-technology affects the development of the world population. The paper also describes the basic principles that public policy should follow in order to stimulate the “digital” standard of living. The analytical reviews and articles consider some aspects of the development of new forms of employment under the influence of information and communication technology and ICT competence as a driver of socio-economic development in Russia (for example, [8]). A separate area of research is related to identifying the specifics of innovative behavior of Russian enterprises [9].

Abby Joseph Cohen in the article “Innovation and economic growth” [10] uses statistics to prove the impact of innovation on the standard of living and the economy of the U.S. It is also confirmed that scientific and technological achievements stimulate the emergence of new products and inventions. From the point of view of the author, the main tasks for improving the standard of living are as follows: increase in expenditures on the development of innovation technology, increase in the number of people with higher education, and the development of industrial parks.

Among Russian researchers who study the quality of life we can name S.A. Ayvazyan, N.M. Rimashevskaya V. Kossova, T. Yakovets and others. S.A. Ayvazyan [11] proposes an integral indicator, which is a modified first component of the various categories of this indicator that are in turn formed by convolution of statistically-recorded indicators using principal components method. This technique helps make inter-regional comparisons of the standard of living and quality of life, explore the possibilities of regional growth and assess the change in the indicator over time. V. Kossov [12] developed a methodology for assessing the quality of life in the regions of the Russian Federation over time. Thus, according to this methodology, the resulting indicators for negative and positive processes in the region are formed, and their dynamics (growth rates) allow us to judge about the dynamics of the quality of life. The works of N.M. Rimashevskaya [see, for example, 13, 14], T.Yu. Yakovets [15], and others made a significant contribution to the study of the problems of quality of life and social orientation of the economy and a significant impact thereon.

In [16], its authors describe twelve facts of innovation development, which, in their opinion, affect different spheres of life in the U.S. For example, innovation increases life expectancy, makes technology more accessible, and allows people to spend more time with their family and on hobbies.

A special place in the research belongs to the problem of the impact of innovation on demographic processes, in particular on mortality, morbidity and life expectancy [17; 18, pp. 2388-98; 19, pp. 1-34; 20, pp. 871-904]. The relationship between innovation and social development, the indicators which were measured on the basis of the Global Innovation

Index (GII) and Human Development Index (HDI) for 108 countries, was explained with the help of a logistic curve in the work of M. Arkhipova and V. Sirotin [21]. So far, there are not enough empirical studies of the relationship of these areas for Russia. However, it was found that the assessments of the standard of living in the country, both objective (based on HDI) and subjective, largely depend on the main indicators of scientific and innovative activity [22, pp. 45-53].

Since 2009, the Institute for Statistical Studies and Economics of Knowledge of the National Research University – Higher School of Economics has been conducting surveys related to innovation climate and innovation behavior<sup>1</sup>. The monitoring of people's innovation behavior touches upon some issues of how Russian society perceives innovation, and the issues of dissemination of innovative practices in households. The research suggests that the development of tools to stimulate user innovation promotes people's involvement in innovation processes, significantly raises the quality of products and services and expands new and traditional markets [23, pp. 16-32]. On the one hand, people's consumer behavior remains quite stable, despite the increase in the prevalence of various technologies in everyday life [24, pp. 32-37]. However, along with this, there is one peculiar feature in the behavior of Russians: some users that create an innovation and use it in their households do not seek to commercialize their innovations, which is why their ideas remain virtually untouched [25, pp. 392-402].

The ongoing social monitoring studies, when analyzing the quality of life and respect for the rights, touch upon the necessity of

<sup>1</sup> <https://issek.hse.ru/> (accessed: 17.08.2017).



taking into account the accessibility of modern information technology [26, pp. 38-52]. This aspect is paid attention particularly in the monitoring of the situation of children in countries around the world and in respecting the rights set forth in the Convention on the Rights of the Child [27, pp. 507-520].

We should also note the report “Mismeasuring Our Lives: Why GDP Doesn’t Add Up” by J. Stiglitz and others [28], which makes recommendations on measuring some economic indicators. The work continues the discourse that it is incorrect to measure the standard of living and quality of life on the basis of general economic indicators. In particular, it is recommended that the material well-being of people be measured by income and consumption indicators rather than by GDP and other production indicators. It also gives preference to the approach to statistical analysis from the viewpoint of population and households rather than producers of goods and services. The report recommends measuring the quality of life on the basis of objective conditions and abilities of people, and it expresses dissatisfaction with the current system of indicators that are used for assessing the security of society, the density of social ties and the political sphere of life of the country. In addition, the extent of social inequality should be taken into account as fully as possible.

A review of the research allows us to make a conclusion that innovation and various kinds of new technology will not impact the way and quality of life if new technologies and innovations are not adopted by consumers themselves. A more objective assessment can be made if the socio-economic and socio-psychological characteristics are taken into account in the course of the analysis.

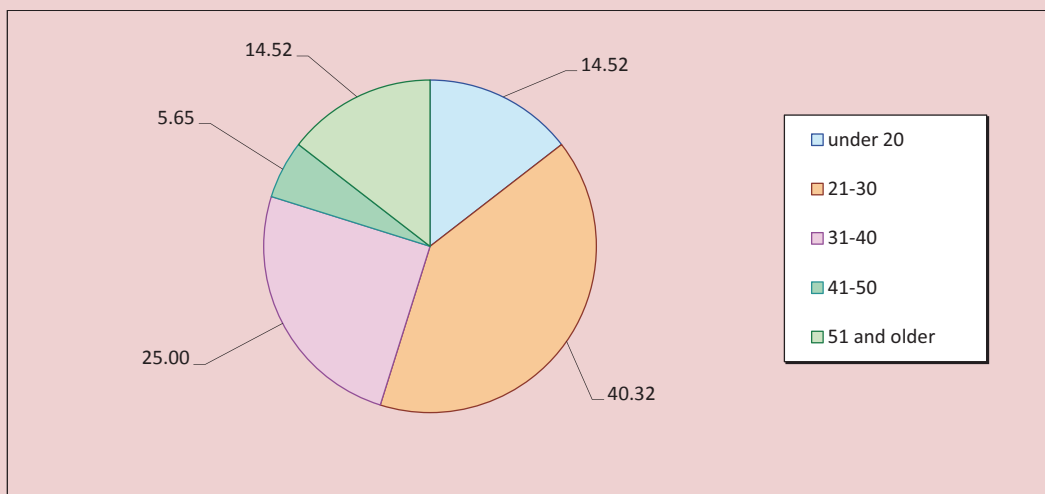
### **Formation of the sample and its descriptive analysis**

In May–June 2017, a sample survey was conducted among households of Moscow and the Moscow Oblast within the framework of the grant entitled “Innovation activity in modern Russia: development trends and impact on the standard of living” (Project 16-02-00561) and supported by the Russian Foundation for Basic Research. The aim of the study was to analyze the prevalence of the use of innovative goods and services in the daily life of households and the impact of these processes on the quality of life. The sample consisted of 1,115 persons 15–86 years of age, among them women comprised 55.5% and men – 44.5%, which generally corresponded to the sex and age composition of those regions. The limiting sampling error by sex was 2.7%. The structure of the respondents is represented by residents of different settlements. The share of respondents permanently residing in the Moscow region amounted to 51.9%, 17.8% of respondents permanently live in a large city (over one million inhabitants), 22.7% are residents of a medium-sized city (from one hundred to one million inhabitants), 5.5% live in a small town, and 1.0% live in a village. The limiting sampling error by settlement type does not exceed 3.5%.

Distribution of respondents by age (*Fig. 1*) indicates the prevalence of youth aged 21–39. It is followed by respondents aged 31–40. Respondents aged 41–59 were the smallest group represented in the sample.

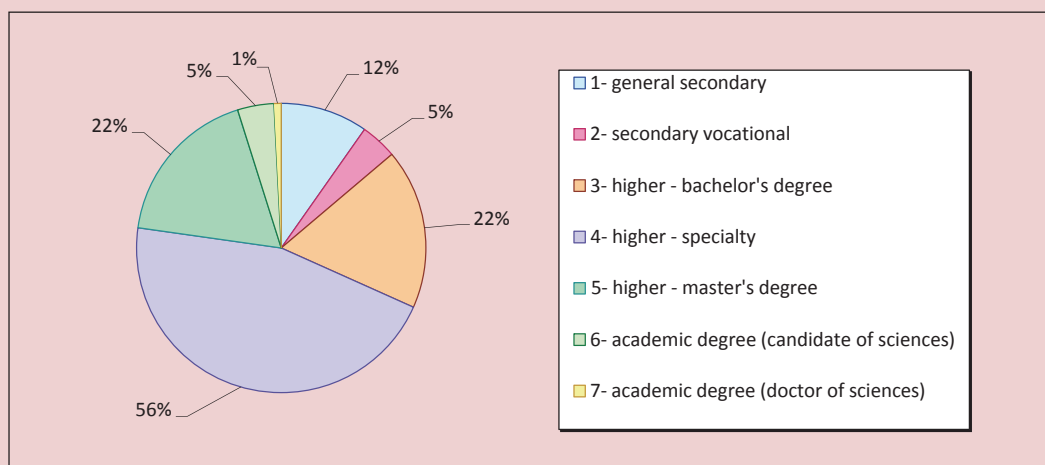
Various socio-demographic groups are represented among the respondents. Most of the respondents have higher education (specialty), a master’s or bachelor’s degree (*Fig. 2*).

Figure 1. Distribution of respondents by age, %



Source: our own compilation based on the survey data.

Figure 2. Distribution of respondents by level of education, %



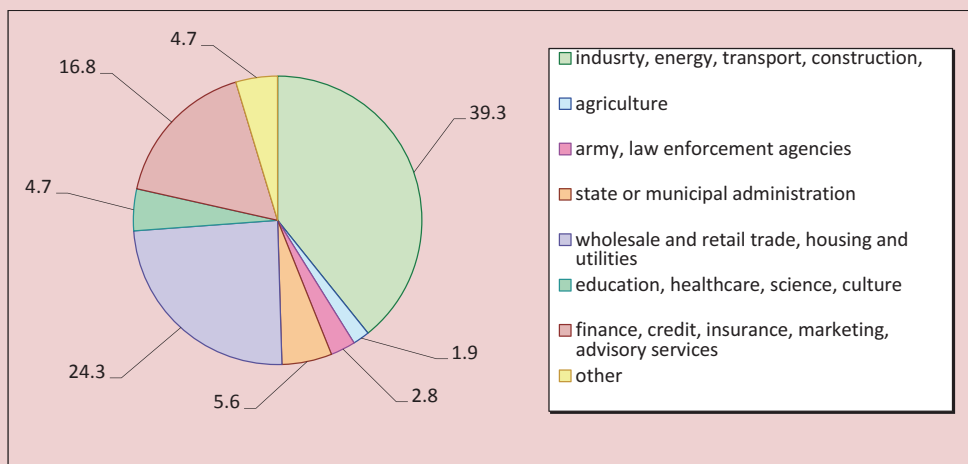
Source: our own compilation based on the survey data.

Having studied the distribution of respondents by areas of employment, we see that most of them work in industry, energy, transport and construction, about 25% of respondents are engaged in trade and in the housing and utilities sector, i.e. in the areas in which new information technologies and services are actively introduced. The

smallest proportion of respondents work in agriculture, the army, and law enforcement agencies (*Fig. 3*).

Among the respondents, 52.9% earn their living and 40.9% are dependent on the family and relatives (to a large extent, these are minors and students), the rest are pensioners and recipients of social benefits.

Figure 3. Distribution of respondents by areas of employment, %



Source: our own compilation based on the survey data.

The fact that among the respondents there are mainly people with higher education affects their financial situation (Tab. 1). Thus, most respondents rated the financial position of their family as “good” or “average” (78.9%).

Among the characteristics that reflect the lifestyle of modern Russians, it is worth noting the fact that Russians are quite mobile. Only 38% of respondents never changed their place of residence, and 5.2% move to a new place of residence every 2–3 years.

Among the respondents, 68.8% are positive about innovations and try to use them in everyday life. Only 5.5% described their attitude to innovation as negative, saying that “I try

to use the old proven products and services” (the rest described their attitude to innovation with the words “with caution”). Almost half (49.7%) of respondents monitor the emergence and development of new products or services.

The results of the survey indicate that the majority of respondents have experience in the use of innovative products and services. Although the prevalence of various innovations in their daily life is significantly different. Most often Russians noted the experience of using different gadgets (more than 3/4 of respondents). Quite often the respondents use various “smart” devices and energy-saving

Table 1. Distribution of answers to the question: “How would you assess the current financial (economic) situation of your family?”, percentage of respondents

Answer	Proportion of respondents, %
Very good	10.7
Good	30.5
Average	48.4
Poor	7.5
Very poor	1.0
It's difficult to answer	1.9

Source: our own compilation based on the survey data.

Table 2. Experience in the use of innovative products, percentage of respondents

Innovative products	Proportion of respondents who used the products
Gadgets	78.6
Smart appliances (refrigerator, vacuum cleaner, TV-set...)	55.5
Energy-saving technology	48.7
Medical devices and goods	46.4
Electronic displays at bus stops	43.8
Sporting goods and products	32.8
Solar panels	11.0
Smart house	8.8
Electromobiles	8.1
Wind generators	4.2
More	0.6
Source: our own compilation based on the survey data.	

technologies in everyday life. Experience in the use of various types of medical devices and products, electronic displays, sporting goods is quite extensive, too (*Tab. 2*).

The absolute leadership among innovative services belongs to the Internet, primarily as a way to find the necessary information (76.9%). Social media rank second in popularity and importance (69.2%); they are followed by various mobile applications, including public services website, e-ticketing, online educational services, online tour booking, and distance employment. All these innovations are connected with the global Internet network. The situation is somewhat different concerning vending machines and medical

services. It is interesting to note that 17.5% of Russians used the possibilities of distance employment (*Tab. 3*).

At the same time, 53.8% answered positively to the question: “Has any innovative product had a significant impact on your life or lifestyle?”. Answering the question in free form, Russians pointed out primarily the Internet, home computer, various gadgets and mobile communication.

The answers to the question “What spheres of life in society, in your opinion, need innovations most of all?” show that society is most interested in the dissemination of innovations in education and healthcare (*Tab. 4*). Russians also consider it necessary to

Table 3. Experience in the use of innovative services, percentage of respondents

Innovative service	Percentage of respondents who used the services
Internet – to find the necessary information	76.9
Social media	69.2
Mobile applications	61.0
Public services website	60.1
E-ticketing	56.2
Vending machines	40.3
Online educational services	31.8
Online tour booking	29.5
Medical services	19.5
Distance employment	17.5
Other	0.6
Source: our own compilation based on the survey data.	

Table 4. Distribution of answers to the question: “What spheres of life in society, in your opinion, need innovations most of all?”, percentage of respondents

Sphere	Proportion of respondents, %
Education	49.0
Manufacture of medical devices	41.9
Pharmaceutical manufacturing	40.6
Transport	39.0
Medicine	35.1
Ecology	34.7
Manufacture of aircraft, including spacecraft	30.5
Provision of public and social services	27.6
Manufacture of electrical machinery and equipment	26.0
Tourism	26.0
Chemical production	24.0
Production of electronic components, equipment for radio, cinema, television and communication	21.8
Manufacture of machinery and equipment	21.4
Manufacture of motor vehicles, trailers and semi-trailers	19.2
Manufacture of food products, including beverages and tobacco	17.9
Manufacture of office equipment and computers	16.2
Construction	16.2
Production of railway rolling stock; production of motorcycles and bicycles	15.6
Textile and clothing production	13.6
Production of coke and petroleum products	12.7
Leather, leather goods and footwear production	8.8
Metallurgical production and production of finished metal products	7.8
Woodworking and production of products of wood and cork, excluding furniture	7.5
Other	14.3
Source: our own compilation based on the survey data.	

develop innovations in transport, environment, tourism, public services, manufacturing of electrical equipment, and tourism.

The answers to the questions in free form allowed us to make a certain rating of the most significant innovations of the last decades. They include 3D printer, GPS-navigator, pay-pass, Wi-Fi, Wikipedia, nuclear power, drones, gadgets, pocket computers, Ipad, electric vehicles, remote employment, immunotherapy in oncology, online stores, social media, medical devices for complex operations, online services, e-books, and electronic payments. The choice of items for this list was influenced by the experience of using certain technologies in everyday life, their prevalence and the desire to solve existing problems through the use of modern technologies.

Respondents also answered a question about what innovations or innovative services they would like to see in the near future. Among them: a magnet with only one magnetic pole; a miniature heart that would not be rejected by the body; 3D printing of organs; automation of public services; a car that could be filled with water; proximity bank cards; unmanned vehicles; silent transport; more active use of secondary raw materials; the ability to remotely receive treatment via the Internet; cultivation and transplantation of organs; a new high-speed mode of transport; remedy for incurable diseases; time machine; instant delivery of goods; mobile applications for improving pronunciation in the study of foreign languages; nano-cleaners; robot-helpers at home; alternative fuels in addition to

existing ones; teleporter; a universal remedy; environmentally friendly means of public transport.

It is obvious that the vast majority of innovations on this list that can be used in the life of an ordinary person, and improve the quality of life.

#### Identifying the factors that influence innovative activity of respondents

When segmenting the market of innovative products and services, it is of great interest to identify groups of respondents who are most open to innovative practices. It can be done with the help of classification trees.

When creating decision trees, we used the variable “What is your attitude toward innovation?” as the target one (69.1% of respondents are positive about innovations and strive to use them in everyday life).

Initially, we selected several variables as predictors that, according to our views, have an impact on the attitude of respondents to innovation and will allow us to form separate socio-demographic groups of respondents. The variables are as follows: sex, age, level of education, field of activity, experience in the use of various innovative products and services (presented in Tab. 2, 3), attention to innovation (“Do you pay attention to the emergence and development of new products or services?”; “What field of activity, in your opinion, lacks innovation?” – presented in Tab. 4). However, the final models included only the

following independent variables: age, the use of educational online services, and attention to innovation. Thus, the hypothesis of the influence of a number of factors on the attitude toward innovation has not been confirmed.

Table 5 presents a description of the variables used to create a classification tree

After the analysis, we chose the models obtained with the help of the CHAID method. Among all the possible variants of constructing decision trees we chose two that describe the available data most accurately. The best predictor for the target variable “What is your attitude toward innovation?” included variables such as “the use of online education services” and “the attitude toward the emergence of new products or services”.

Both of the trees we created consist of three levels and contain three terminal nodes. The root node includes 307 observations, of which 212 observations correspond to respondents who are positive about innovation, 78 observations – to those who treat them “with caution”, and 17 – to those whose attitude is “negative”.

We should note that the non-numerical nature of the information obtained as a result of the sociological survey imposed certain restrictions on the tools we used. However, the analysis of the results led to the conclusion that the selected models could be used to answer the questions. So, by using cross-validation to assess the application of the classification tree

Table 5. Predictors selected to create a classification tree

Variable	Characteristics
$X_1$	Sex
$X_2$	Age, years
$X_3$	Education level
$X_4$ - $X_{24}$	Experience in the use of various innovative products and services
$X_{25}$	Do you pay attention to the emergence and development of new products or services?
$X_{26}$ - $X_{49}$	“What field of activity, in your opinion, lacks innovation?”
$X_{50}$	Area of professional activity

to a larger aggregate, we have found that the models are stable and are fairly common to all data sets: risk values for the model without checking and with checking were virtually the same. The prediction matrix, which contains the percentage of correctly predicted values, has led to the conclusion that the model constructed (classification tree) is stable, and that the accuracy is acceptable, which allows our classification trees to be used for other data sets.

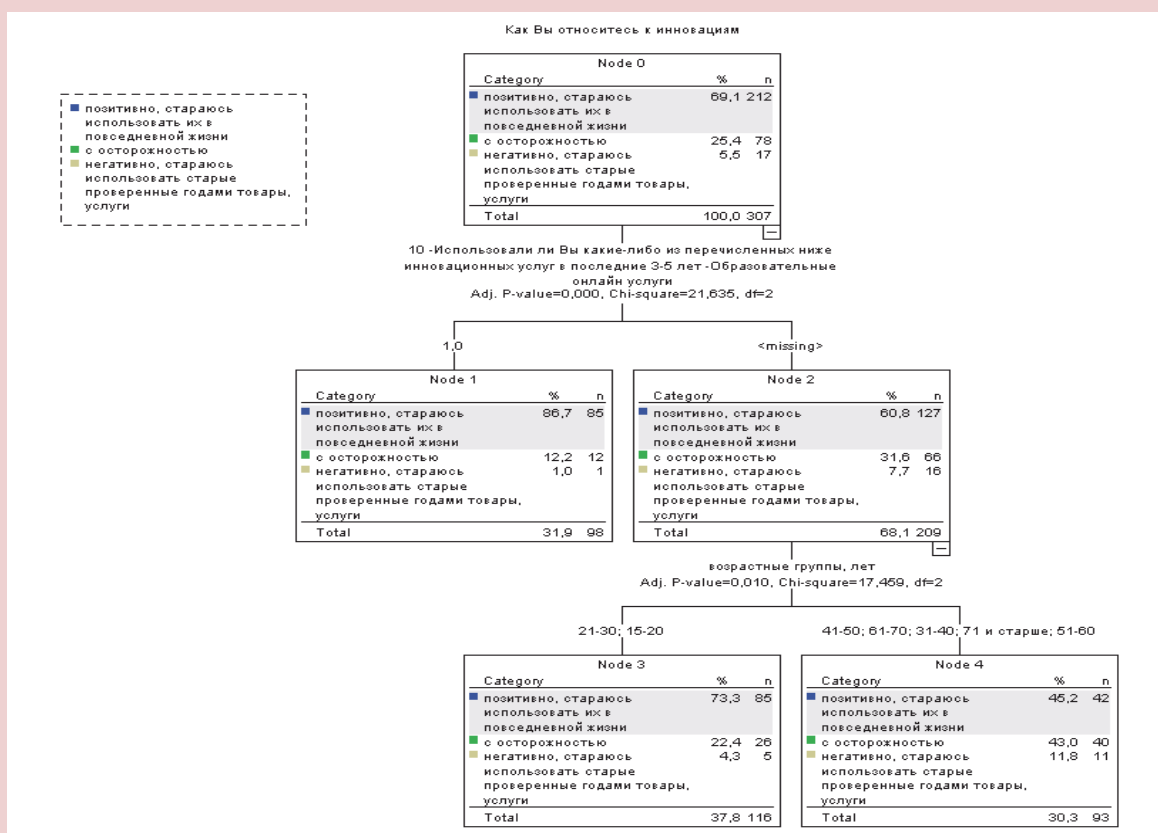
Figure 4 presents the first of the trees that we created, which is the best among the models built.

Risk assessment is 0.167 (with a 5% significance level, the model error ranges from

15 to 17%). The acceptable quality of the model is evidenced by a fairly high percentage of respondents classified correctly. Thus, according to our model, 83.3% of respondents were assigned to one of the selected groups correctly.

The first group included respondents with experience in the use of educational online services, among them the share of positive attitude toward innovation is 86.7%. Among those who have not used online education in the recent past, we highlight two groups depending on age. Among those under 30 years of age, 73.3% of respondents were positive about innovation, and among those aged over 30, this figure is 45.2%.

Figure 4. Classification tree designed to identify attitudes toward innovation taking into account the experience of using educational online services



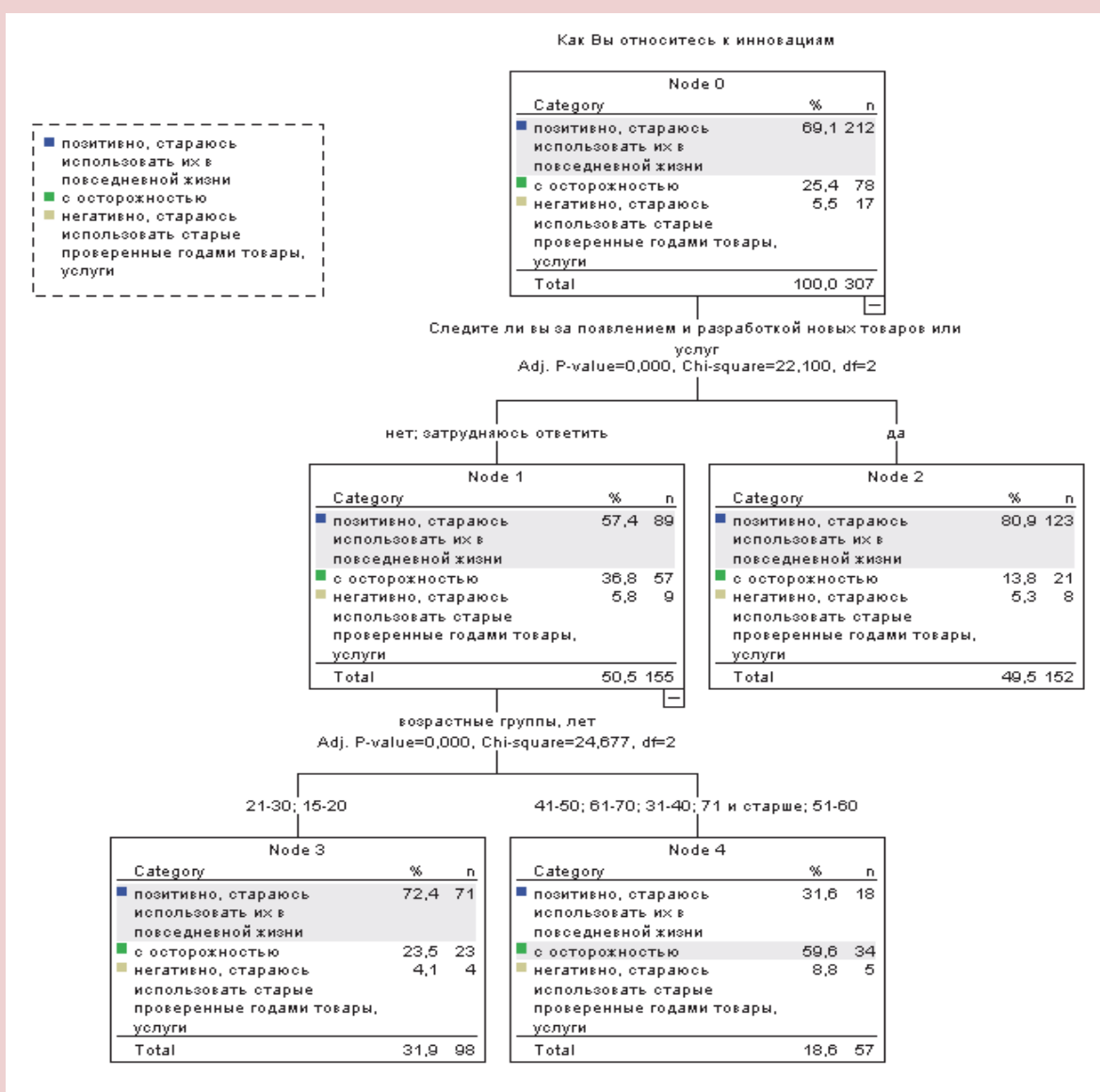
Source: our own compilation based on the survey data.

Risk assessment for the second classification tree is higher – 0.257, i.e. 74.3% of observations were classified correctly (Fig. 5). If we do not take into account the experience of using online education services, the main predictor for identifying respondents' attitude toward innovation is their interest in the use of innovation and their awareness of new types of innovative products and services. That is, those

respondents who actively monitor the spread of innovations, have a positive attitude toward them (among them the share of those whose attitude toward innovations is positive and who seek to use them in everyday life is 80.9%).

Among those who are not interested in innovation (do not pay attention to the emergence of new goods or services) the attitude to innovation depends on the age:

Figure 5. Classification tree designed to identify attitudes to innovation based on attention to innovation



Source: our own compilation based on the survey data.



among younger respondents (under 30 years of age) the share of positive attitudes toward innovation is 72.4%; among persons older than 30 years – 31.6%. Among adults who are not interested in innovation there are many more of those who treat innovation with caution (59.6%).

The results suggest that among the variety of social and economic characteristics it is difficult to distinguish those that clearly affect the attitude of Russians toward innovation.

It can be said that a generally positive attitude toward innovations and the willingness to use them in everyday life is determined by a person's age, availability of experience in the use of modern technologies in educational process and attention to innovations, which depends on many social, psychological and cultural factors. Attempts to build classification trees, taking into account such parameters as the sphere of activity, level of education, place of residence, standard of living, and human mobility as predictors of attitude toward innovations (often considered among the set of factors forming the attitude toward innovations) were unsuccessful. In modern Russian conditions, there is a situation when the attitude toward innovation is determined largely by psychological features of respondents, and their willingness to accept innovation. Age as an important predictor begins to play its role if a person is not too receptive to innovation: among the respondents who are quite indifferent to innovation, the young age begins to play a role.

We cannot but note the role of education in shaping attitudes toward innovation. The distribution of educational online services at various levels of education, from pre-school to lifelong learning, and the presence of experience of their use creates a positive attitude toward innovation in general, and assures people of their usefulness in everyday life.

## Conclusion

In general, the results of the study have shown that modern Russians are very receptive to innovation, which is accompanied by a sufficiently high level of mobility. Two third of respondents are positive about innovations and try to use them in everyday life, about the same number of respondents have repeatedly changed their place of residence during their lives.

The vast majority of respondents already have significant experience of using innovations in their daily life, they show interest toward emerging innovations, which allows them to determine the desired (according to the respondents) prospects for the development of innovative technologies that can affect their way and quality of life.

The study has shown that young respondents are interested in obtaining the work related to the use of modern ICT technologies and development of innovative technologies, even if it is not related to the improvement of their financial situation. This emphasizes the role that innovation plays in shaping not only the standard of living, but also the way of life of Russians.

Russians clearly understand the extent to which various innovative goods and services are already represented in their lives; here we mean various gadgets and “smart appliances” in everyday life, the role of the Internet in providing remote employment and education, various types of services, and electric cars. At the same time, respondents identify a wide range of innovative products and services, the appearance of which (or their dissemination) they would like to see and use in practice in the near future. In most cases, these innovations are associated with the spread of Internet technologies and medicine, as well as the development of means of transport, and

environmental protection. To a large extent, Russians hope that innovations can help solve existing everyday problems, including those related to health, lack of time, and communication.

In order to highlight the factors that have a decisive impact on respondents' use of innovation and new technologies we used methods based on the construction of classification trees. As a result, we have shown that 86.7% of respondents whose attitude toward innovations is positive are those with positive experience in using online educational services. The next important factor is respondents' interest in the use of innovations and their awareness of the emergence of new types of innovative goods and services.

Among those who are not interested in innovation the attitude toward innovation depends to a certain extent on a person's age: in this case, among the younger respondents (under 30 years of age) the share of those whose

attitude toward innovation is positive is 72.4%, while among those older than 30 years this share is 31.6%.

Due to the difficulty of identifying the factors that identify unambiguously the attitude toward innovations and toward their dissemination we can say it is necessary to find ways in which modeling can use qualitative variables reflecting socio-psychological and cultural characteristics of respondents; it is also necessary to develop new integrated indicators and use statistical modeling techniques and dimensionality reduction in this regard.

The implementation of the state strategy aimed to increase the demand for innovative technologies among various socio-demographic groups should take into account the role of the education sector and the specifics of the attitude of the older people toward innovative goods and services. This will require the development of special techniques, training programs, and social advertising.

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## Research and Innovation Activity in the Region as a Driver of Its Sustainable Economic Development\*



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**Abstract.** In the unstable economic environment there is an ongoing search for ways to strengthen economic stability in the regions. The development of research and innovation activities can be considered a long-term fundamental factor in solving this problem. The aim of the study is to identify the following trends in the production and distribution of innovation in the macro-region: creation and development of a polycentric structure of research and innovation activities in the regions and possible forms of its strengthening from the standpoint of economic stability in the regions. As the method of research we use structural and functional analysis of the research and innovation space of the macro-region, its current status and development trend. In the course of our research we substantiate the tendency toward the formation of a polycentric structure of scientific and innovation activity. We provide the data characterizing it in the macro-region of the North-West of Russia: location of scientific organizations in the region, their employees, internal costs allocated to research and development, amount of higher education institutions and branches of higher education institutions established in the regions, which train highly qualified personnel for various sectors, including region's own scientific base, and serve as a source of local innovation. The fact that research complexes are being established in the regions promotes cooperation between local authorities and business structures on the use of local resources and implementation of scientific achievements. We put forward and describe a program method as an organizational form of cooperation to bring major research findings to practical application. The method integrates the work

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of scientific organizations, industrial enterprises, and regional authorities, and the implementation of conditions for commercialization of scientific results. Attention is paid to the development of the network form of organization of interaction between science and business. The results of our work include proposals for strengthening of the coordinating and stimulating function of authorities of subjects of the Russian Federation in enhancing the performance of research and innovation systems created in the regions with a focus on the use of local resources potential of the territory; for the development and implementation of a specialized scientific and production program for implementation of major scientific results; for the development of regional information interaction between enterprises of the region in the development and implementation of innovation. The results of the study can be used by regional governments in the development and adoption of legislation on regulation of innovation: strategies, programs, attracting business structures. Further research may be related to the development of pilot projects on programming innovations and scientific substantiation of measures to expand the information interaction between enterprises and organizations in the region.

**Key words:** region, research and innovation activity, center-periphery model, polycentric structure, own scientific base, implementation of research findings, scientific and production program, network organization of works.

### Introduction

In theory and in practice, there is a search for new ways to achieve economic sustainability of administrative-territorial entities amid repeated external disturbances in international cooperation, credit relations, world market conditions, currency changes, as well as internal problems due to imbalances in the demand and supply structure, and negative climate impacts.

The concept similar to “economic sustainability” is “economic stability”. The essence of stable economy is its state of equilibrium. The trends towards the equilibrium state of economic components is the core of researching many economic problems. The example may be some fundamental trends towards equilibrium: goods demand and supply [1, 2], goods production and consumption [3], savings and investment [4].

The system of economic theory presents comprehensive analysis of economic sustainability by stages of the crisis cycle with possible control levers to ensure balanced economic development. The macroeconomic balance analysis should be hierarchical in nature.

Macroeconomic balance is analyzed based on the study of macro-sector balance; mesoeconomic balance – on the study of mesosectors in the regional and sectoral breakdown; microeconomic balance – on the study of enterprises and households [5].

The research subject in the present study is the aspect of system economic sustainability defined as the ability to function in the state close to balanced in terms of internal and external disturbances, and take on a new balanced state after the cessation of disturbances.

There are different approaches to the definition and characterization of the region’s economic sustainability, focused on the preservation or restoration of people’s living conditions [6]. An essential feature of the region’s economic system can be its focus on improving the population’s quality of life. Therefore, the region’s economic sustainability can be defined as its balance with increased capacity to meet the increasing needs of its citizens. The economic literature emphasizes

two characteristics: stable economic growth and transformation of its results into socially significant effect for the population [7]. The region's economic sustainability may mean stable economic growth with the resulting increased quality of life of the population. Sustainable growth of the region's economy is possible if it is developing, i.e. qualitatively changing. Therefore, the term "growth" here includes the concept of "development".

The factors determining the development of the region's economic sustainability (resources, use of modern technology, etc.) include fundamental, long-term scientific innovation, development and diffusion of innovation as the main source of increased competitiveness of products and services, market retention and growth, revenue growth, revenue contributions to the budget. Ensuring regional economic sustainability through scientific and innovative activities can be a sign of stability of the scientific and innovative development itself. The greater the participation share, the more sustainable is the research and innovation activity. The article is devoted to some aspects of its development in the region amid the formation of scientific and innovative complexes. The purpose for the research is to reveal the trends in formation in scientific and innovative complexes in the northwestern Russian regions – the polycentric structure of production and distribution of innovation – of possible ways to overcome the barriers hindering the transfer of scientific results to the regions' economy.

There are two main approaches to the theory of production and diffusion of innovation in the spatial dimension: the centre-periphery model, originally developed as a theoretical foundation for international trade in industrialized and backward countries, then transferred to the regional level, and

the models of "growth poles" and polarized production nuclei, application and diffusion of innovation. The essence of the "center-periphery" model [8] suggests that the center, concentrating resources: scientific, engineering and production capacity, creates innovation, which is then distributed to the periphery according to T. Hgerstrand theory of innovation diffusion: first to the territories closest to the center, i.e. to the semi-periphery, and then further – to the periphery, gradually filling all the space available. According to the "center-periphery" model, the center, having a developed scientific and innovation potential, produces one innovation after another, the periphery constantly lagging behind the centre in scientific and innovation development due to slow innovation transfer and development, giving their resources to the centre [10].

The model of "growth poles" proposed by F. Perroux is understood as dynamically developing sectors or individual enterprises (machine-building, chemical industry, etc.) compactly placed on the territory or country that have an impact on the surrounding area due to the concentration of innovation around them. The rapidly growing industry or enterprise becomes a growth pole generating chain reaction of emergence and growth of industrial enterprises, causing the overall industrial development of the country [11].

Adjacent to the "growth poles" model, the model of polarized nuclei as the evolution of the "center-periphery" model represents the allocation of nuclear areas in the territory or country, where advanced economic sectors with high potential for innovation are concentrated. They have a certain zone of influence, forming a polarized region around them. As a result of their growth, the monocentric territorial structure is transformed into a polycentric one [12].

**The polycentric structure of research and innovation activity in the space of a macroregion**

In the Russian Northwestern macroregion there is a process when production and distribution of innovation evolve from the “center-periphery” model (Saint Petersburg in relation to the regions of the Russian North-West) to the model of polycentric scientific and innovation development, creation of regional scientific complexes of regional economic stability. The polycentric model of a macroregion will consist of the center – Saint Petersburg – and regional cores of scientific and innovation activity – Russia’s constituent entities. The hypothesis of the polycentric model formation is confirmed by the following grounds.

1. The development of a network of scientific institutions in the federal district’s regions. *Table 1* presents data on the development of scientific organizations in the regions.

Data from Table 1 indicate the growth of the scientific potential in most regions – the trend towards the development of the research base established in the regions. Saint Petersburg, despite the declined number of research and development institutions and staff engaged in research and development, remains the largest scientific center concentrating more than 60% of scientific institutions and more than 80% of staff employed in science and the cost of research and development in the macroregion. However, it is not the only source of new knowledge. Regions create their own scientific potential, which transforms the scientific space towards polycentric structure, expanding the opportunities of the region’s economic stability.

2. An extensive network of innovation infrastructure facilities has been established in the regions in order to create favorable conditions for introducing research results in practice (*Tab. 2*).

The development of the innovation infrastructure in the regions is currently not so

Table 1. Development performance of scientific institutions in the North-West of Russia

Region (constituent entity)	Institutions conducting research and development, units			Staff engaged in research and development, people			Internal cost of research and development in fixed prices (2010), mln RUB		
	2010	2015	Growth decline rate, %	2010	2015	Growth decline rate, %	2010	2015	Growth decline rate, %
Republic of Karelia	16	22	137.5	934	1202	128.7	568.1	838.5	147.6
Komi Republic	23	28	121.7	1806	1981	109.7	1577.7	1655.2	104.9
Arkhangelsk Oblast	33	36	109.1	1148	1107	0.9	724.5	936.9	129.3
Vologda Oblast	17	18	105.9	482	541	112.2	286.8	291.6	101.7
Kaliningrad Oblast	11	16	145.4	1859	2128	114.5	1184	721.2	0.6
Leningrad Oblast	14	13	0.9	6477	7229	111.6	4400.2	5497.9	125.0
Murmansk Oblast	25	31	124.0	2097	2342	111.7	2006.6	1514.1	0.7
Novgorod Oblast	12	17	141.7	892	1638	183.6	708.6	998.6	141.0
Pskov Oblast	13	13	0.0	318	818	257.2	57.1	239.0	418.6
Saint Petersburg	338	299	0.9	7983	79076	0.9	59222.8	74129.4	125.2
Northwestern Federal District	502	493	0.9	95826	98062	102.3	70737.3	87199.1	123.3
Russia	3492	4195	120.1	736540	738857	100.3	593377.2	639628.4	122.2

Sources: *Russian regions. Socio-economic indicators. 2016: statistics book*. Moscow: Rosstat. 2016. Pp. 996, 998, 1008, 1290; author’s calculations based on the statistics book.

Table 2. Innovation infrastructure in the regions of the Northwestern Federal District

Regions	Innovation infrastructure facilities
Republic of Karelia	Business incubator, Petrozavodsk State University IT-park, Ukko Innovation Center, Karelia Center for Technology and Innovation, Center for Scientific and Technical Information.
Komi Republic	Business incubator, technology park, innovation support center, scientific and technical information center.
Arkhangelsk Oblast	Business incubator, innovation and technology park, innovation center, center for scientific and technical information.
Murmansk Oblast	Business incubator, technology park, technology transfer center, scientific and technical information center.
Vologda Oblast	Business incubator, innovation and technology center, center for scientific and technical information, scientific coordination center.
Kaliningrad Oblast	GS technopolis, innovation park, science and technology center, innovation and technology center, technology transfer center, center for scientific and technical information.
Leningrad Oblast	Business incubator, technology park, technology transfer center, innovation and technology center.
Novgorod Oblast	Business park, technology park, innovation and technology center, research and coordination center, center for scientific and technical information.
Pskov Oblast	Center for scientific and technical information.
Saint Petersburg	Technological and promotional special economic zone, business incubators, technology park, innovation and technology center, technology transfer center, center for scientific and technical information.

Source: compiled by the author based on website data: regional innovation infrastructure (2016).

Table 3. The location of institutions of higher education and their branches in the Northwestern Federal District

Region	City	Population according to the 2010 Census, people. City size.	Universities	Region	City	Population according to the 2010 Census, people. City size.	Universities
1	2	3	4	5	6	7	8
Republic of Karelia	Petrozavodsk	263 540 Large	Petrozavodsk State University, Karelian State Pedagogical Academy, Petrozavodsk State Glazunov Conservatoire. 11 branches of Moscow and Saint Petersburg institutions of higher education	Leningrad Oblast	Vsevolozhsk	59 689 Medium-sized	Russian State University for the Humanities branch
Komi Republic	Syktyvkar	235 006 Big	Syktyvkar State University, Komi State Pedagogical Institute, Komi Republican Academy of Public Administration, 9 branches of institutions of higher education from Saint Petersburg, Nizhny Novgorod, Ukhta		Gatchina	92 566 Medium-sized	State Institute of Economics, Finance, Law, and Technology. 2 branches: Saint-Petersburg State University of Industrial Technologies and Design, Saint Petersburg Institute of Foreign Economic Relations, Economics and Law
	Ukhta	99 642 Medium-sized	Ukhta State Technological University of Management, Information and Business, 4 branches of Moscow and Saint Petersburg institutions of higher education		Sosnovy Bor	65 901 Medium-sized	4 branches: Peter the Great Saint Petersburg Polytechnic University, Saint Petersburg State University of Aerospace Instrumentation, Saint Petersburg Institute of mechanic Engineering, North-West Institute of Management, branch of RANEPA
	Vorkuta	70 551 Medium-sized	Vorkuta Institute of Business and Law. 5 branches of Moscow, Syktyvkar, Saint Petersburg and Ukhta institutions of higher education		Kingisepp	48 667 Small	2 branches: A.S. Pushkin Leningrad State University, Saint Petersburg Institute of Foreign Economic Relations, Economics and Law
Pechora	43 459 Small	Branch of Moscow State Academy of Water Transport	Ivan-gorod	9 797 Small	Branch of Saint Petersburg State University of Aerospace Instrumentation		



End of Table 3

Region	City	Population according to the 2010 Census, people. City size.	Universities	Region	City	Population according to the 2010 Census, people. City size.	Universities
1	2	3	4	5	6	7	8
Arkhangelsk Oblast	Arkhangelsk	356 051 Large	Northern (Arctic) Federal University, Northern State Medical University, Northern Institute of Business, Institute of Management, 8 branches of Moscow and Saint Petersburg institutions of higher education	Murmansk Oblast	Murmansk	307 664 Large	Murmansk State Technical University, Murmansk State University for Humanities, Murmansk Academy of Economics and Management, Baltic Institute of Environment, political Sciences and Law. 13 branches of Moscow and Saint Petersburg institutions of higher education
	Severodvinsk	193 519 Big	4 branches of Saint Petersburg and Arkhangelsk institutions of higher education		Apatity	56 690 Medium-sized	3 branches: Petrozavodsk State University, Murmansk State Technical University, Saint Petersburg State University of Information, Technology, Mechanics and Optics
	Kotlas	60 562 Medium-sized	2 branches: Arkhangelsk State Technical University, Admiral Makarov Saint Petersburg State University of Maritime and Inland Shipping	Novgorod Oblast	Veliky Novgorod	218 724 Big	Novgorod State University, 9 branches of Moscow and Saint Petersburg institutions of higher education
	Mirny	30 135 Small	4 branches: Tomsk Polytechnic University, North-Eastern Federal University, Arkhangelsk State Technical University, Novosibirsk State University of Architecture and Civil Engineering		Staraya Russa	31 809 Small	Branch of Novgorod State University
Vologda Oblast	Vologda	301 642 Large	Vologda State Technical University, Vologda Pedagogical Institute, Vologda State Academy of Dairy Farming, Vologda Institute of Business, Vologda Institute of Law and Economics, 6 branches of Moscow and Saint Petersburg institutions of higher education	Borovichi	53 699 Medium-sized	Branch of Novgorod State University	
	Cherepovets	312 311 Large	Cherepovets State university, 10 branches of Moscow, Saint Petersburg and Vologda institutions of higher education	Pskov Oblast	Pskov	203 281 Big	Pskov State University, Pskov State Polytechnic University, Pskov Pedagogical University, 7 branches of Moscow and Saint Petersburg institutions of higher education
Kaliningrad Oblast	Kaliningrad	431 491 Large	Kaliningrad State University, Baltic State Academy of Fishing Fleet, Baltic Federal University, Baltic Institute of Law and Economics, Ин-т Европ. бизнес-школа, Kaliningrad Institute of Management, Kaliningrad Institute of Law, 19 branches of Moscow and Saint Petersburg institutions of higher education		Velikiye Luki	98 778 Medium-sized	State Academy of Agriculture, 2 branches: North-West Institute of Management, branch of RANEPА, Saint Petersburg State Transport University

Source: compiled by the author based on [13] and Internet resources.  
 Note. Large city – population from 250 to 500 thousand people; Big city– from 100 to 250 thousand people, Medium-sized city – from 50 to 100 thousand people, Small city– less than 50 thousand people.

Table 4. Main areas of research and innovation activity in the regions of the Russian North-West (“science and scientific support”)

Region	Design	Forestry	Agriculture	Fisheries	Economic research	Information technology	Medicine	Amber resources	Food manufacturing	Problems of the North	Gas extraction	Geology	Biology	Marine science	Geophysics	Shipbuilding	Space exploration	Instrumentation technology	Power engineering	Electronics	Television	Automation	Hydrology	Hydrometeorology	Software
Pskov Oblast	+		+																						
Novgorod Oblast	+			+								+									+		+	+	+
Leningrad Oblast	+		+	+			+						+		+			+	+	+					
Kaliningrad Oblast	+					+		+						+											
Vologda Oblast	+		+	+	+							+	+	+	+			+	+						+
Murmansk Oblast	+			+	+	+				+		+	+	+	+			+	+						
Arkhangelsk Oblast	+	+	+	+	+		+			+	+			+		+	+								
Komi Republic	+		+		+				+	+	+	+	+		+							+			
Republic of Karelia	+	+		+	+	+						+	+												+

Source: compiled by the author according to data from websites: Science and scientific support – region; science – region; scientific research – region.

much related to its expansion, rather than to the need to improve the quality of its components, including the special economic zone of technical innovation type, technology parks, and business incubators.

3. In large, big and medium-sized cities of the macroregion there are operating institutions of higher education, and in a number of small cities – their branches (*Tab. 3*).

As follows from Table 3, science in the regions has a powerful educational support from local universities represented by young experts. Their migration to Saint Petersburg is limited by social barriers – low (for them) wages and the accommodation problem.

The formed educational potential demonstrates the regions’ ability to train highly qualified personnel, including for their own scientific support. In addition to staff support, the location of universities in the regions’ territories becomes the source of local innovation. The geographical proximity of firms and universities is considered as a key element of accessibility of companies to university research and the emergence of spatial channels of knowledge generation and dissemination [14, p. 117].

The research activity in the regions is represented by research aimed at obtaining new knowledge about the world around us. They can

be fundamental, search, and applied. The peculiarity of the polycentric structure of the research activity is that along with fundamental research, applied research aimed at solving socio-economic problems of the territory are also implemented in the regions: the use of local resources, the development of productive forces and social sphere. If innovation from the center adapts to local conditions, the creation of the regions’ own research base makes it possible to initiate and carry out R&D based on the region’s needs. Based on own potential industrial, social, administrative and other facilities are designed, research on using local resources in forestry, agriculture, lake and river fisheries, mining (geology, etc.), sea resources (biology), etc. is conducted (*Tab. 4*).

The design and research base established in the regions, characterizing the spatial aspect of R&D, is increasingly becoming a significant factor in the economic and social development of the territories.

However, the problem of increasing the overall level of innovation in the regions remains. *Table 5* presents indicators of innovative performance by region.

As can be seen from Table 5, the performance indicator of innovation activity – activity to bring the scientific result to practical use – is unacceptably low, meaning the course

Table 5. Share of innovative products, %

Region	2010	2015	Region	2010	2015
Republic of Karelia	1.3	0.2	Murmansk Oblast	0.5	1.7
Komi Republic	3.2	3.3	Novgorod Oblast	6.9	3.9
Arkhangelsk Oblast	0.4	2.7	Pskov Oblast	2.7	1.1
Vologda Oblast	1.6	21.6	Saint Petersburg	8.0	7.3
Kaliningrad Oblast	0.1	0.4	Northwestern Federal District	4.1	6.3
Leningrad Oblast	2.4	2.0	Russia	4.8	8.4

Source: Russian Regions. Socio-economic indicators. 2016: statistics book. Moscow: Rosstat, 2016. P. 1048.  
 Note. The “surge” of indicators for the Vologda Oblast in 2015 may be associated with the commissioning of a major innovation project.

<sup>1</sup> Indicators of innovation activity. 2015: statistics book. Moscow: Vyshaya shkola ekonomiki, 2015. Pp. 308-309.

of transition to an innovative economy. Even in Saint Petersburg, the center, it is twice as low as in industrialized countries (14–15%)<sup>1</sup>. The research potential generated in the regions is not sufficiently involved in innovation activities. The main reason for the low level of innovation activity is underdeveloped cooperation between companies and scientific institutions, as well as underdeveloped scientific and industrial relations in the Russian economy [15, p.10]. Organizational technological associations of research and innovation activity is characterized by the concept of “research and innovation activity”, meaning the connection, the continuation of one activity in another one focused on achieving a real result – innovation.

#### **The opportunities for regions’ innovation development**

The formation of scientific complexes in the regions makes the objective of strengthening innovation and overcoming the possible obstacles relevant. The barriers for scientific and industrial cooperation are analyzed in the economic literature on specific examples of relations between scientific institutions and business structures. The obstacles to effective interaction between research institutions and business repeated in the studies of different authors can be identified as typical:

- insufficient focus of research institutions on companies’ needs, its inability to offer properly designed scientific results ready for practical application;
- weak companies’ susceptibility to innovation;
- competition modes do not directly stimulate the transfer of scientific and technological developments, lack of financial resources of industrial enterprises;
- high economic risks in technology implementation;

- low level of management efficiency in scientific institutions, insufficient awareness of manufacturing enterprises of promising developments: the availability of results that can be commercialized;

- lack of motivation among innovation process participants, underdeveloped institutions of joint knowledge generation and dissemination, weak instruments to support cooperation between businesses, research institutions and higher education, lack of state’s awareness of “soft” innovative tools, in addition to direct financial ones, which the state uses to compensate for insufficient signals of market environment.

In current economic, technological and infrastructural conditions, the reduced commercialization scale cannot radically change the technological state of the economy. Many commercialization processes are characterized by small output and investment volumes and a 2- or 3-year payback period. A technological breakthrough is possible if what has already been developed by the fundamental science is realized, at least as new theoretical knowledge with the prospect of solving the most important technological issues.

In Russia, the potential of fundamental scientific achievements is not exhausted by commercialization as a form of transfer of scientific results to practical activities. Along with the existing commercialization practice, the impulse of technological breakthrough can be created based on a much larger layer of fundamental scientific reserve than the relatively thin layer of scientific results currently used.

The implementation of technological breakthrough raises the question of developing the theory of innovation process, which would be more focused on the radical change in technology, acquire strategic aspiration with

access to fundamentally new innovations, that is, we can talk about the concept of strategic innovation. It can be based on the fundamental scientific results achieved so far, which can radically change the technological framework in the future and have large-scale consequences for the enterprise, industry and region. The essence or key feature of strategic innovation is the underlying fundamental scientific developments. Bringing them to innovation forms an innovative process that includes all the necessary steps and works, the continuation of both basic research if necessary, and applied research, engineering development, and industrial production.

Based on the above features of strategic innovation, the following definition can be given. Strategic innovation is the result of focused fundamental research, applied research, engineering development, embodied in a material object or service implemented in practice. The most novel is strategic innovation aimed at creating breakthrough, “closing” technology, when there may be no need for individual production. In general case, we can talk about the results of fundamental research in the field of critical technology and development of high-tech products by world standards in the future.

The term “strategic innovation” is not new. It is used as a means to achieve strategic goals of a corporation, in the concept of company’s strategic innovation potential to ensure competitive advantage [16]. Strategic innovation is seen as disruptive in the creation of a new market [17], in the technological race of countries [18]. There is a similar term of “radical innovation”, which is close in the meaning to the company’s strategic focus [19] in relations with competitors [20]. The common feature of these terms with the term

“strategic innovation” is the aspiration to the future, the solution of promising issues. The difference: the term used in the article is “tied” to the fundamental research and reflects the innovation of fundamental research.

An institutional form of strategic innovation can be the development of a fundamental or applied research of a specialized scientific and production program and achieving significant (for the enterprise, a group of enterprises, a region, a country) result. If the institution has research results which can become the core of a large-scale project with prospects on domestic and foreign markets, coordinated and accepted by the business assessment of the possibly demand, they can become the object for the development of a research and production program. The list of scientific results for the program implementation can be submitted to public administration (at the federal or regional level), which can help implement the program.

The program-target method of addressing complex scientific and production objectives is due to the need to organize interdisciplinary and inter-firm interaction of many enterprises, raising funds from different sources. In the context of a target program, an interdependent non-linear innovation process can be implemented, characterized by a more stable, trust-based correlation with the ability to transfer implicit knowledge, contained in experts, workforce, skills, abilities or organizational practices, which can be obtained through joint activity<sup>2</sup>. The program may include conditions encouraging the participation of business entities, when the state assumes the cost and risks of initial stages of the

<sup>2</sup> Pilyasov A.N. (Ed.). *Synergy of space: regional innovation systems, clusters, knowledge flows*. Smolensk: Oikumena, 2012. P. 449.

innovation process, which have a high degree of uncertainty. Private investment insured by state participation can be considered as reserve, with the possibility of gaining significant profit due to the emergence of new markets and the presence of intellectual rents in the price of new products. When developing it, the network process of work organization and partnership of the participants can be implemented, aimed at the overall result – the innovation of market demand. The program development should include two conditions: the identification by the scientific institution of potential market for new products together with the business structure, and mobilization of tools for state stimulation of innovations focused on the development of scientific and industrial cooperation, as well as the resources of development institutions and a special investment contract. So far, businesses are reluctant to enter innovation. Here, market relations do not full “work”; joint actions with the authorities are required. This opportunity is provided by the program method of executing the whole complex of works with the coordinating function of the state governing bodies. The program may implement the principle of balance between innovation demand and supply achieved through the participation of both scientific institutions and enterprises – producers of innovation focused on identifying markets for new products.

The program aimed at the implementation of a specific scientific result can be one of the tools for region’s innovative development because it combines factors such as:

- integration of research and industrial enterprises, partnership of science, business and state;
- creating conditions for commercialization of scientific results by the program-based method;

- introducing a system of incentives for innovation process participants: subsidies for establishing high-tech industries, tax incentives, accelerated depreciation, etc., attracting subsidized loans of development institutions, which compensate for insufficient impact of market incentives.

*Table 6* gives examples of projects as possible objects of development of specialized scientific and production programs.

Along with the initiative of scientific institutions to implement major scientific results in ensuring regions’ sustainable economic development, the main role in this process may belong to local businesses as the main investors and integrators of innovation and investment. However, their contribution to innovative development is low: it is limited to a small number of innovation-active enterprises.

At the same time, the regions possess the opportunities to interest businesses in innovation and sustainable economic development. First, experience shows that business can be focused on using local resources in cooperation with scientific institutions. It is important that all participants be focused on the overall result – commercialization of innovation based on scientific results and inclusion of local resources in the economic turnover. In the meantime, these opportunities have not been fully exploited. Thus, the Kaliningrad Oblast even at the peak of its development (2000–s, the creation of a special economic zone) could not fully use its potential [21]. In the Komi Republic, the established scientific base is not fully used to meet the needs for the development of priority areas of the regional economy [22]. Secondly, success can be achieved if the local government realizes itself as an equal partner for science and business in solving innovation problems,

Table 6. Examples of projects for possible development of research and production programs

Region	Project	Implementation term	Required funds, mln RUB	Project implementation participants
Republic of Karelia	Industrial technology of complex enrichment of mineral components of rocks	2030	100	Institute of Geology Karelian Research Centre Russian Academy of Sciences, Karelia mining companies, OAO Kostomukshskii mining complex
Saint Petersburg	Creation of a complex of new materials and technology to ensure production of a series of high-power fast neutron reactors	2020	1200	Prometei central research institution of construction materials, OAO Afrikantov experimental design office, OAO Hidropress experimental design office, Nuclear Reactor Research Institute, State Scientific Center at Institute for Physics and Power Engineering, National Research Center “Kurchatov Institute”
	New technology for manufacturing nanostructured thermoelectric materials	2025	240	Ioffe Physical-Technical Institute of the Russian Academy of Sciences, State Scientific Center Hidromet, Federal State Institution technological Institute for Super-Hard and Novel Carbon Materials, Kryotherm, National Research Technological University MISIS
	Creation of new types of high-power generators and plasma chemistry and production of new materials	2020	4500	Institute of Electrophysics and power engineering of the Russian Academy of Sciences, OAO Silovye mashiny, OAO Iskra scientific production association, ZAO Soyuzteplotroi.
	Creation of industrial equipment for processing substances containing organic compounds in order to generate synthetic gas for producing power energy and liquid fuels	2025	7500	Institute of Electrophysics and power engineering of the Russian Academy of Sciences, OAO Iskra scientific production association, I.I. Polzunov Scientific and Development Association on Research and Design of Power Equipment”, OAO Silovye mashiny, OAO Metallicheskiy zavod
Source: Priorities of scientific and technological development of the North-West of Russia. Saint Petersburg: YPRES RAN, 2016. Pp. 277, 270, 212, 210.				

if it constantly cooperates with science and business, contributes to the formation of a network structure of innovation activities in the region – joint activities of scientific institutions, universities, engineering centers, and innovation companies, creating stimulating conditions for using region’s resources and ensuring its economic development. Third, one of components ensuring the participation of local authorities in innovation activities would be the determination of needs for participation of the scientific and business community in local resources exploitation and promotion of sustainable economic development. Being supported by local authorities, they would

motivate businesses to participate in these processes. The program-based method and network organization of innovation activities can be activated in solving the problems of sustainable economic development of territories. Using the capacity of innovative development, “regions and municipal units may qualify for increased share in the innovative revitalization of the economy” [23, p. 287].

Along with traditional one-line links of technological innovation chains, it has become possible to use information resources related to innovation activities of other organizations. Under the new conditions, “the innovation process has become wider – as a

Table 7. Share of organizations assessing individual sources of information as fundamental in the total number of organizations engaged in technological innovation, %

Sources of information					
Suppliers of equipment, materials, components, and software	Competitors in the sector	Consulting and information companies	Institutions of higher education	Scientific and technical literature	Professional associations
13.5	9.6	2.6	3.2	15.2	5.5
Source: <i>Indicators of innovation activity. 2015: statistics book</i> . Moscow: Vysshaya shkola ekonomiki, 2015. Pp. 315–316.					

process based on interactions”<sup>3</sup>. It is possible companies are aware of the need for cooperation and networking, trust based on the principle of volunteerism. “A necessary prerequisite is company’s ability to find sui-table partners and use external knowledge”<sup>4</sup>. *Table 7* presents data on using separate sources of information in Russian companies’ activities.

These data reflect the structure of information resources and their use in innovation.

In addition to informal networks, organizational forms of innovation with internal network potential are used: strategies, innovation development programs, clusters, technology platforms.

It is believed that “management network, including the relations between companies, can help overcome market shortcomings and inflexibility of the vertical hierarchy”<sup>5</sup>. The network form can, for example, be formed when implementing “The complex research technical program of the Northwestern Federal District of the Russian Federation for 2010–2030”, whose projects unite actions and relations of many research and production enterprises.

<sup>3</sup> Pilyasov A.N. (Ed.). *Synergy of space: regional innovation systems, clusters, knowledge flows*. Smolensk: Oikumena, 2012. P. 90.

<sup>4</sup> Pilyasov A.N. (Ed.). *Synergy of space: regional innovation systems, clusters, knowledge flows*. Smolensk: Oikumena, 2012. P. 348.

<sup>5</sup> Pilyasov A.N. (Ed.). *Synergy of space: regional innovation systems, clusters, knowledge flows*. Smolensk: Oikumena, 2012. P. 95.

The share of institutions participating in joint projects in 2014 comprised 30.8% in the district<sup>6</sup>.

Favorable conditions for network innovation are created for enterprises included in the cluster and the technological platform. Eight territorial clusters are classified as priority in Saint Petersburg [24]. In terms of the structure of production relations, clusters are divided into horizontal: similar companies by production of heterogeneous products of the same industry, for example, automotive and pharmaceutical clusters, and vertical: complementary companies, for example, power engineering cluster. Complementarity is a prerequisite for information channels and successful innovation. The mechanism of knowledge expansion here includes interaction, exchange, coordination, and cooperation. In horizontal clusters, companies can gain new knowledge by observing, comparison, selection, and competition. The technological platform is by definition a communication tool aimed at intensifying efforts to create advanced technology; it unites related enterprises from many Russian regions. The technological platform forms a network of information interaction between enterprises.

“Soft” components are becoming increasingly important in the organization and development of innovation. In regions, the

<sup>6</sup> *Indicators of innovation activity. 2015: statistics book*. Moscow: Vysshaya shkola ekonomiki, 2015. P. 263.



proximity of enterprises can play a special role in providing useful information. The stimulating effect can be provided by:

- information on the spectrum of scientific knowledge of regional R&D organizations;
- information on possible cooperation partners;
- information on technological developments;
- initiation of networks and mediation in their formation<sup>7</sup>.

The information aspect in the innovation process makes it possible to identify and use additional resources in creating innovations.

### Conclusion

1. The scientific and innovation space of the macroregion – location on the territory of objects of research and innovation complex, unlimited by administrative and territorial entities, with intra- and inter-regional interactions mediated by economic relations operating in the social environment and focused on ensuring socio-economic development – is gradually transformed into a polycentric structure. The regions create their own research and educational base – the capacity for sustainable economic development: a set of scientific institutions, universities, innovation infrastructure.

2. The research reveals a new aspect in innovation production and dissemination of innovations in the spatial aspect – the formation in the regions of their own scientific base, which is a significant factor in the development of regional productive forces, mobilization of local resources, including the design of new production facilities, and revitalization of production processes.

<sup>7</sup> Pilyasov A.N. (Ed.). *Synergy of space: regional innovation systems, clusters, knowledge flows*. Smolensk: Oikumena, 2012. P. 356.

The study confirms the hypothesis of the transformation of scientific and innovation space: the transition from a monocentric to a polycentric structure, which provides for the development of the research management format, focused not only on the center, but also on the solution of federal and local scientific problems in the regions.

3. The concept of “strategic innovation” is introduced as a result of using target fundamental research.

4. The article substantiates the necessity of strengthening the role of regional authorities in coordinating and stimulating innovation processes in the region with the focus on initiating innovations in using local resources, capacities, competencies, creating acceptable conditions for business structures, raising funds, due to the trend of the polycentric structure formation in the research and innovation space.

5. It is proposed to implement in major scientific results (for an enterprise, a group of enterprises, a region, a country) the development and implementation of a specialized target research and production program with joint cooperation of scientific institutions (scientific achievement), an engineering company (bringing the scientific result to a form suitable for practical use), business structures (search for markets; production), government structures (organization, coordination of activities, gaining financial support for the project from development institutions, a special investment contract).

6. Attention is drawn to the development of regions’ non-financial methods of expanding innovation, including its network organization managed by regional governments, when communication and information network enterprises gain experience and new

knowledge to improve and create new products and technology. The network organization of innovation provides an opportunity to use information from other institutions. Spatial proximity in regions and technological proximity in clusters and technology platforms increases the opportunity to obtain useful innovation-related information. Information interaction of enterprises can become an additional resource in the development and implementation of innovation.

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## Problems Related to Regional Budgeting amid Fiscal Consolidation



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**Abstract.** The development of the major financial plan of the Vologda Oblast for 2018–2020 was carried out amid stagnating GRP growth rates, a sharp decline in investment activity, further decrease in population’s real money incomes. In this regard, conceptual approaches to budgeting, which should be determined in view of its orientation on providing conditions for future sustainable development, is becoming more relevant. However, according to the study, the concept of a new financial cycle is based on fiscal consolidation, which is reflected in extremely low average annual growth rates of own revenues and budget expenditure which do not compensate for inflation. Such approaches to regional budgeting are predetermined by federal guidelines, which absolutize the principle of achieving surplus at the cost of reducing the funding of the territory’s future development. Year after year, the opportunities of using budget as a tool for triggering the investment policy are being missed. It is not by accident that in 2018–2020, the growth rate of investment will be near-zero, which does not indicate the income generation potential. The article presents the results of analysis of the regional budget of the Vologda Oblast for 2018–2020, the main purpose of which is to assess the compliance of budget parameters with the objectives of the region’s development. The research novelty of the work is determined by a comprehensive study which made it possible to assess the impact of budget consolidation set by the Ministry of Finance on the regional budget policy in conjunction with macroeconomic forecast and develop specific proposals to mobilize the few remaining domestic reserves to increase fiscal capacity. The main conclusion is that the new budget continues to simulate stability without actually overcoming the stagnation of budget revenues or

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increasing funding for significant spheres of the society. The materials of the article can be used by public authorities in the development of the budget policy, experts in finance, and researchers.

**Key words:** budget planning, regional budget, fiscal consolidation, budget surplus, own revenues, expenditure, debt load, inter-budget policy.

Regional budgets are an important tool of the state's economic policy. During market reforms carried out in Russia since 1991, a significant part of regulatory functions for socio-economic processes has been incorporated from federal into sub-federal government bodies, thereby increasing the role of regional budgets. From 2000 to 2016, their level increased thirteen times – from 0.7 trillion to 9.4 trillion rubles. The share of regional budgets accounts for about 40% of the country's budget resources. These budgets fund 70% of housing, utilities and healthcare, 60% of education and agriculture, and 50% of road maintenance costs.

Drafting the regional budget is the first stage of the budget process; its quality determines the stability of its implementation. The importance of proper preparation of draft budgets is demonstrated by the principle of budget reliability enshrined in the budget legislation, which provides for the reliability of indicators of territory's socio-economic development and realistic calculation of budget revenues and expenditure<sup>1</sup>.

It is important to recognize that, despite the existing fundamental works in the research of the budget system, the issues of budgeting, especially at the regional level, in the domestic economic literature are only partly covered. The authors mainly consider the problems related to the functioning of the federal budget and inter-budgetary relations between the federation and its constituent entities.

<sup>1</sup> Article 37 of the Budget Code of the Russian Federation.

At the same time, the issue of the primacy of budgeting revenues or expenditure is quite debatable. Thus, for example, the founder of financial law, a French scientist P.M. Gaudemet, noted that “the dependence of public expenditure on opportunities determined by available resources is, in fact, the principle of sheer prudence” [1].

The Russian classical economist I.T. Tarasov expressed another opinion: “The state economy is dominated by needs which must necessarily be satisfied, therefore it is more correct to first identify these needs and then specify the means to satisfy them” [2].

When assessing the draft federal budget for 2018–2020, scholars at the Institute of Economics of the Russian Academy of Sciences conclude that a significant difference between growing budget revenues and expenditure in favor of the former is the main concept of the state budget policy – using both income growth and saving to reduce budget deficit rather than ensure development [3].

The researchers of the Vologda Research Center of the Russian academy of Sciences (VolRC RAS) have the same opinion. In our opinion, one of the system errors of the budget policy currently pursued by the Russian government is the prevalence of budget revenues over expenditure, which determines the limitation of public expenditures to the amount of income generated regardless of the economic level. This approach does not ensure proper use of expenditure as a tool to address development objectives and influences them [4].

The issues of regional budgeting, particularly the budget of the Vologda Oblast, are the research subject of scholars at VolRC RAS. Since 2009, annual expert examinations of draft regional budgets are held, which sets the framework for a series of research publications. Works prepared by the staff of the Center note the following flaws in the budgeting process:

- ✓ absence of a system of indicative planning reducing the quality of budget administration management (in 2014–2016, annual average amount of undeveloped funds in the regional budget amounted to about 2 billion rubles);

- ✓ untimely distribution and transfer of grant aids to the regions from the federal budget, entailing a significant underdeclaration of revenues at the stage of regional budgeting and complicating the solution of the main objective of the budget policy – ensuring macroeconomic stability (in 2014–2016, the regional budget revenues forecast error in the Vologda Oblast was on average more than 4 billion rubles, or 10%);

- ✓ absence of mechanisms for influencing the relations with major corporate taxpayers, whose tax administration is located within remote interregional offices, leaving financial results of large companies beyond the reach of regional authorities, which is reflected in full involvement in budget revenues planning (for example, the Government of the Vologda Oblast does not consider the budget revenue-generating enterprise Severstal as a major catalyst for financial resources of the region's economy and does not include its returns in the socio-economic development forecast, and the draft budget is based on Severstal revenues not supported by any economic justification).

Thus, one of the urgent objectives of the budget policy is the development of a budgeting mechanism for the Russian Federation that would provide regional authorities with

legislative initiatives and greater budgeting transparency. Nevertheless, the basic elements of income and expenditure of Russia's constituent entities are determined by federal legislation, leaving regions in a narrow space for maneuvers [5].

This article continues the series of VolRC RAS publications devoted to regional budgeting of the Vologda Oblast. In this paper, we do not claim to develop the theoretical and methodological framework for regional budgeting. The main purpose for the study is to consider the scientific and practical aspects and analyze budget parameters, as well as assess its role in the socio-economic development of the region in 2018–2020.

The theoretical framework of the research consists of works of domestic and foreign economists in public finance. The research uses legislative acts of the Russian Federation, Presidential decrees, legislative and subordinate normative acts of the Vologda Oblast and the constituent entities of the North-Western Federal District of the Russian Federation (NWFD), as well as periodical publications.

The information and statistical framework of the research includes reporting data of Rosstat, the Ministry of Finance of the Russian Federation, the Ministry of Economic Development of the Russian Federation, the Federal Tax Service, the Federal Treasury, the Department of Strategic Planning and the Department of Finance of the Vologda Oblast.

According to the standards of the budget legislation, the socio-economic development forecast of the region for 2018–2020 prepared on the basis of scenario conditions and forecast of socio-economic development of the Russian Federation, served as a framework for regional budget planning in the Vologda Oblast. The regional budget was designed according to the basic version of forecast parameters (*Tab. 1*).

Table 1. Main indicators of socio-economic development forecast in the Vologda Oblast in 2018–2020, in comparable prices, % to the previous year

Indicators	Fact		Forecast			Average for 2018–2020	Average for 2018–2020 in Russia
	2016	2017	2018	2019	2020		
GRP	100.1	100.1	102.1	100.9	100.7	101.2	(GDP) 102.2
Industrial production	99.8	101.0	101.8	101.2	100.9	101.3	102.5
Fixed investment	128.4	108.3	100.2	100.0	100.1	100.1	105.3
Retail turnover	95.6	104.5	101.4	100.7	100.5	100.9	102.7
Real wages	99.8	103.0	101.6	100.4	100.1	100.7	102.3
Real monetary income of the population	100.9	98.3	101.2	100.2	100.2	100.5	101.5

Sources: Rosstat data; Socio-economic development forecast of the Russian Federation for 2018 and for the planning period of 2019 and 2020. Available at: <http://economy.gov.ru/prognoz/>; On the socio-economic development forecast of the Vologda Oblast for a medium-term period 2018–2020: Vologda Oblast Government Decree no. 961, dated 30.10.2017; author's calculations.

The Government of the Vologda Oblast states that this option is based on progressive rates of economic growth and preservation of favorable investment climate, which is clearly overestimated.

First, the annual GRP growth rate constituting 1.2% give grounds to recognize the stagnating economic growth.

Second, the baseline forecast scenario does not contain investment development impulses: virtually zero average annual investment growth rates reflect the unsatisfactory state of the business environment and the ability of authorities and the corporate sector to fund investments.

Thirdly, tense retail turnover performance, real monetary incomes of the population and real wages do not give reason to expect a rapid recovery of domestic consumer demand and increase its contribution to the rise of the regional economy.

The fact that all macroeconomic indicators included in the socio-economic development forecast in the Vologda Oblast are several times lower than the national average is noteworthy.

Sluggish economic growth amid investment deficit inevitably affected the performance of regional budget revenues (*Tab. 2*).

In the planned period, the total budget revenues will demonstrate a downward trend,

while in real terms they will be reduced by 7.5 billion rubles, or 11% to the level of 2017.

The forecast of non-repayable financial aid in the form of transfers from the federal budget demonstrates the overall unfavorable trends in Russia<sup>2</sup>: its amount in both nominal and real terms will have decreased by a third. This situation only in the case of one territory means nothing more than shifting of financing federal budget deficit to the regional level.

With limited support from the federal center, regional budget will need to significantly increase its own budget revenues. It is planned that absolute tax and non-tax (hereinafter – own) budget revenues will increase by 3%, but inflationary depreciation will be 7%, which does not give reason to expect a significant replenishment of its own resources.

In the planned period, the average annual growth of own revenues will lag behind GRP growth rates. Moreover, a reduction in own budget sources against GRP is expected from 9.7% in 2017 to 8.7% in 2020 (*Fig. 1*). Such performance demonstrates low efficiency of the economic and budgetary policy and lack of growth points in the future.

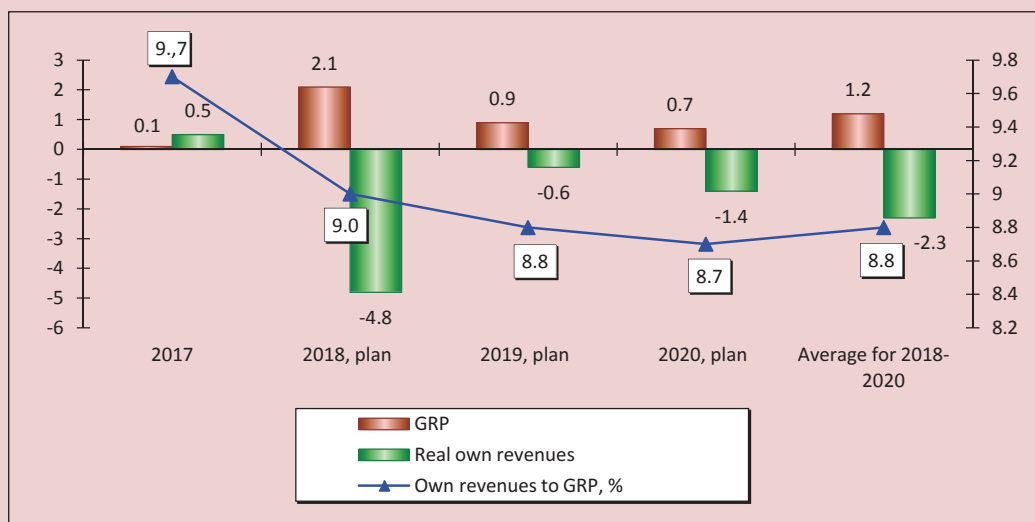
<sup>2</sup> During 2018–2020, the reduction in inter-budget transfers to Russia's constituent entities will amount 4% to 2017. At the same time, at the time of approval of the Law on the federal budget, more than 70% of transfers were not distributed between regions, which indicates the uncertainty of the inter-budget policy of the federal center.

Table 2. Regional budget revenues in the Vologda Oblast in 2017–2020

Revenues	2017, actual	2018, plan		2019, plan		2020, plan		2020 to 2017, %
		Mln RUB	To 2017, %	Mln RUB	To 2018, %	Mln RUB	To 2019, %	
Total	60134	57946	96.4	57442	99.1	58849	102.4	97.9
In real terms*	66268	62582	94.4	59740	95.5	58849	98.5	88.7
Tax and non-tax	50598	49168	97.2	50750	103.2	52050	102.6	102.9
In real terms*	55759	53101	95.2	52780	99.4	52050	98.6	93.3
Inter-budget transfers	9536	8778	92.1	6692	76.2	6798	101.6	71.3
In real terms*	10509	9480	90.2	6960	73.4	6798	97.7	64.7

\* In this article, all real budget indices are calculated in the prices of 2020.  
Sources: hereinafter, the actual data on budget performance are given from the reporting of the Federal Treasury, planned data – from the Law of the Vologda Oblast no. 4261-OZ “On the regional budget for 2018 and the planning period of 2019 and 2020”, dated 15.12.2017.

Figure 1. GRP and regional budget own revenue growth rates in the Vologda Oblast in 2017–2020, %



The structure of tax revenues of the regional budget will undergo some changes related to the transformation of profile taxes: income tax will move from the first to the third position, and the role of property taxes will increase. In total, property payments and personal income tax (PIT) will generate about 60% of tax revenues (*Tab. 3*). Thus, the structure of the taxable base of the regional budget is becoming more flexible, which is important because compared with income tax, property taxes and personal income tax have a higher cycle resistance.

Particular attention should be paid to the planning of income tax revenues. Again, we have to make a claim due to lack of justification for why the income forecast does not include the indices of two major taxpayers of the Vologda Oblast – PAO Severstal and AO Apatit<sup>3</sup>, and income tax revenues are projected

<sup>3</sup> Since regional budgeting for 2014, there are no revenues from metallurgical and chemical production projected; this was reflected in expert opinions and publications of VoIRC RAS. In 2016 alone, the revenues from metallurgical and chemical industries amounted to 131 billion rubles, which is seven times more than that recorded in the forecast (18.7 billion rubles). According to Vologdastat, metallurgists and chemists provided 83% of total revenues in the economy of the Vologda Oblast.



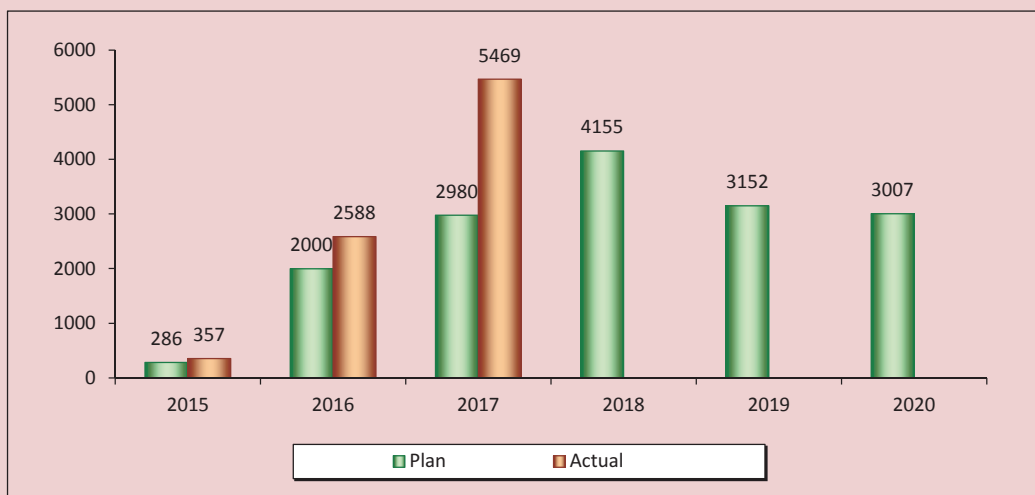
Table 3. Structure of tax revenues of the regional budget of the Vologda Oblast in 2017–2020

Tax revenues	2017, fact		2018, plan		2019, plan		2020, plan	
	Mln RUB	%	Mln RUB	%	Mln RUB	%	Mln RUB	%
Total	48731	100.0	47546	100.0	49107	100.0	50410	100.0
- PIT	13722	28.2	13523	28.4	14140	28.8	14762	29.3
- property taxes	11447	23.5	12432	26.1	13554	27.6	14153	28.1
- income tax	15453	31.7	13063	27.5	13005	26.5	13445	26.7
- excise duties	6335	13.0	6700	14.1	6496	13.2	6071	12.0
- other taxes	1774	3.6	1729	3.9	1912	3.9	1979	3.9

Table 4. Income tax revenues to the regional budget of the Vologda Oblast in 2017–2020, mln rubles

Indicators	2017, fact	2018, plan	2019, plan	2020, plan	2020 to 2017, %
Income before income tax	16041	16782	17846	19067.5	118.9
Income tax payments	15452.5	13063	13005	13444.5	87.0
Including from PAO Severstal and AO Apatit	7299	5939.5	5420	5383	73.7
Share in total income tax payments, %	47.2	45.5	41.7	40.0	-7.2 p.p.

Figure 2. Income tax revenues to the regional budget of the Vologda Oblast from PAO Severstal in 2015–2020, mln rubles



Source: Federal Tax Service (FTS) reporting data. Available at: [https://www.nalog.ru/rn35/related\\_activities/statistics](https://www.nalog.ru/rn35/related_activities/statistics)

taking into account these companies. In 2020, with the growth of the taxable base by 19%, income tax collection will be reduced by 13% to the level of 2017. Judging by forecast figures, the reduction in tax payments will be due to a decrease in contributions of revenue-generating enterprises by 26% (Tab. 4).

A reduction in the share of payments from key suppliers of the income tax from 47 to 40% could be a positive aspect. But this cannot yet

significantly change budget dependence on two major taxpayers and requires significant changes in the structure of industry.

In addition, in our opinion, expectations of income tax mobilization, in particular from PAO Severstal, may be underestimated as indicated by the performance of planned and actual indices: in 2015–2017 actual tax payments were 1.2–1.8 higher than planned (Fig. 2).

According to the forecast of the Ministry of Economic Development of the Russian Federation, in 2018–2020, ferrous metallurgy will maintain stable positions: average annual production growth rates will be 101.3% against 97.8% on average for 2015–2017. The World Steel Association predicts a 1.6% growth in global consumption. The expectations of PAO Severstal in terms of increasing demand for metal in Russia at the level of 3% are no less optimistic.

Personal income tax collections are planned to increase by 7.6% to the level of 2017, which is lower than the expected growth of average wages in the region's economy. At the same time, personal income tax revenues in real terms will be falling, which is caused by an outstripping increase in inflation compared to real wages (*Tab. 5*).

Unlike taxes and income taxes, another major source of income of the regional budget – corporate property tax – will dynamically increase not only in current but also in comparable prices, providing the main increase in their own revenues. However, a slight increase

in residual value of fixed assets indicates that its growth in the budget is due not so much to factors in economic growth (capital investment, modernization of fixed assets, etc.), but rather to changes in the fiscal administration of property tax in respect of natural monopolies (*Tab. 6*).

In the next three years, the fiscal capacity of Vologda citizens will be lower than the national average by an average of 20 thousand rubles, or by one quarter, that is why the region will continue to receive equalizing subsidies<sup>4</sup>. Moreover, in three years the amount of per capita fiscal capacity will increase by less than 1%, and allocation of region's grants will reduce by 53% (*Tab. 7*).

Completing the analysis of budget revenues we note that amid slower performance of the regional economy we should carefully plan own budget revenues. However, the fact that following the example of 2015–2017 the excess of actual revenues over planned revenues will be withdrawn from economic circulation and used to achieve budget surplus is of a great concern.

Table 5. Taxable base and personal income tax revenues to the regional budget the Vologda Oblast in 2017–2020

Indicators	2017, fact	2018, plan	2019, plan	2020, plan	2020 to 2017, %
Average monthly nominal wage, RUB	31636	32935	34380	35808	113.2
Nominal PIT payments, mln RUB	13722	13523	14140	14762	107.6
Real wages, % to the previous year	103.0	101.6	100.4	100.1	102.1
Real PIT payments	15122	14605	14705	14762	97.6
Consumer Price Index, %	102.2	104.0	104.0	104.0	112.5

Table 6. Corporate property tax payments to the regional budget of the Vologda Oblast in 2017–2020, mln RUB

Indicators	2017, fact	2018, plan	2019, plan	2020, plan	2020 to 2017, %
Total	10083	11055	12105	12666	125.6
- in current prices					
- in comparable prices	11111	11939	12589	12666	114.0
Net fixed assets, bln RUB	582	588	593	595	102.2
Rates for pipelines, %	1.6	1.9	2.2	2.2	+0.6 p.p.
Rates for railway lines, %	1.0	1.3	1.3	1.6	+0.6 p.p.

<sup>4</sup> In 2000–2010, the Vologda Oblast had the status of a donor region and did not receive subsidies from the federal budget for equalization of budgetary security.

Table 7. Population's fiscal capacity, rubles per person

Indicators	2017, fact	2018, plan	2019, plan	2020, plan	2020 to 2017, %
Vologda Oblast	61095	59577	59886	61671	100.9
Russia	73264	76439	79603	83936	114.6
Gap between Oblast's and country's fiscal capacity					
thousand rubles	-12169	-16862	-19717	-22265	183.0
%	-16.6	-22.1	-24.8	-26.5	+9.9 p.p.
Grants to equalize fiscal capacity, mln rubles	2884	2734	1345	1370	47.5

One of the main objectives of the budget policy is to limit the increase in expenditure. However, it follows from the information content of the budget law that the objective is not to limit but to consolidate the budget. This clearly shows a decrease in expenditure as a share of GRP to 9.2% in 2020 compared to 10.1% in 2017. Over a three-year period, the increase in nominal expenditure will comprise 4.8%, which does not compensate for inflation; and real expenditure will decrease by 5% (Tab. 8).

Fiscal austerity is evidenced by the performance of main types of expenditure (Tab. 9). In real terms, all types of expenditure will be

reduced, with the exception of operating expenses involved in public debt service and management. Increased public spending on healthcare will be mainly due to wage increase according to President's May 2012 decrees, rather than sectoral modernization.

The strongest sequestration will affect important spheres of population's life support such as housing, sports, and agriculture. The situation with financing housing and communal services is especially alarming because in the context of population income stagnation regional authorities shift the content of this industry to the citizens.

Table 8. Regional budget expenditure of the Vologda Oblast in 2017–2020

Expenditure	2017, fact	2018, plan	2019, plan*	2020, plan*	2020 to 2017, %
Nominal	52679	57111	55325	55208	104.8
To GRP, %	10.1	10.4	9.6	9.2	-0.9 p.p.
Real	58052	61680	57538	55208	95.1
Consumer Price Index, %	102.2	104.0	104.0	104.0	112.5

\* For comparability purposes expenditure for 2019–2020 are given excluding conventionally approved expenditure, which is included in the budget without allocation by funding streams.

Table 9. The performance of main types of regional budget expenditure of the Vologda Oblast in 2017–2020, mln RUB

Expenditure	2017		2020	2020 to 2017, %	
	Nominal	Real		Nominal	Real
Public debt service	692	763	993	+43.5	+30.1
Healthcare	3771	4156	4985	+32.2	+19.9
National issues	2440	2689	2744	+12.5	+2.0
Education	11776	12977	12759	+8.3	-1.7
Road management	5700	6281	5990	+5.1	-4.6
Social policy	18422	20301	19143	+3.9	-5.7
Culture	667	735	680	+1.9	-7.5
Agriculture	1900	2094	1692	-10.9	-19.2
Physical education and sport	196	216	167	-14.8	-22.7
Housing and public utilities	2155	2375	566	-73.7	-76.2

The attitude of the budget to addressing the issues of creating conditions for regional economic growth and improving the quality of life in the Vologda Oblast is largely determined by the distribution of allocations for state programs (SP).

The structure of state programs in the long term will maintain the social focus of the budget: more than 75% of program funding (Tab. 10) will be used for the implementation of social obligations, which actually meets the goal to accumulate human capital set in the Strategy for socio-economic development of the Vologda Oblast for the period up to 2030<sup>5</sup>.

However, the implementation of the policy of population safety is impossible without creating conditions for the development of human capital, which predetermines sustainable economic growth. However, the share

of public expenditure to support economic sectors will decrease from 19% in 2017 to 17.5% in 2020. For example, the already insufficient financial support for Economic Development state program has reduced two times. The expenditure on the Small and medium business support and development state program is cut more than twice, which contradicts the priorities of economic policy stated in the Strategy. It should be added that only in 2018 a quarter (2.5 billion rubles) of 9.5 billion rubles of the total amount of allocations for the implementation of economic recovery programs is intended for financial support of activities of state institutions and administrative functions in the sectors of the national economy.

With the general 9% increase in program funding the cost of implementing the programs in public administration will increase by almost

Table 10. Regional budget expenditure of the Vologda Oblast on the implementation of state programs in 2017–2020, mln RUB

Program name	2017, fact	2018, plan	2019, plan	2020, plan	2020 to 2017, %
Program expenditure, total	49189.5	54917	53422	53481	108,7
<i>Human potential development and improving population's quality of life</i>					
Social support for the citizens	11548	11867	11600	11650	100.9
Development of education	11056	11849	11933	11933.5	107.9
Development of healthcare system	8782	10463.5	10292.5	10572	120.4
Provision of affordable housing	2452	1855	1745	2098	85.6
Total	36977	41568.5	40902.5	40406.5	109.3
Share in program expenditure, %	75.2	75.7	76.6	75.6	+0.4 p.p.
<i>Improving sustainability and modernization of priority economic sectors</i>					
Transport system development	5652	5737	5477	5737	101.5
Development of agro-industrial sector and consumer market	2161	2153	2215	2365	109.4
Economic development	362.5	272	176	176	48.6
Small and medium business support and development	156	75	56.5	68.5	43.9
Total	9326.5	9472	8944.5	9367.5	100.4
Share in program expenditure, %	19.0	17.2	16.7	17.5	-1.5 p.p.
<i>Improving the system of public administration</i>					
Improving public administration	208	281	237	237	113.9
Regional finance management	2676.5	3595	3337	3470	129.6
Total	2884.5	3876	3574	3707	128.5
Share in program expenditure, %	5.8	7.1	6.7	6.9	+1.1 p.p.

Source: compiled by the author according to data from the Department of Finance of the Vologda region.

<sup>5</sup> Decree of the Government of the Vologda Oblast no. 920 "On the Strategy for socio-economic development of the Vologda Oblast up to 2030", dated 17.10.2016.

30%. Funds for Management of regional finance of the Vologda Oblast state program will amount to the annual average of 3.5 billion rubles, and funds for three combined programs in economy (development of the agro-industrial complex, economic development and support for small and medium business) – 2.5 billion rubles.

Increasing the share of investment budget expenditure is one of the main objectives in the new cycle of budget policy. However, with limited financial resources, the level of social expenditure will have to be maintained, so capital investment will retain the status of an equilibrating source: its share in regional budget expenditure will decrease from 7.2 to 4.5% in three years (*Fig. 3*), which will be one of the factors in the overall slowdown in investment activity in the region and will not help solve the above mentioned problem.

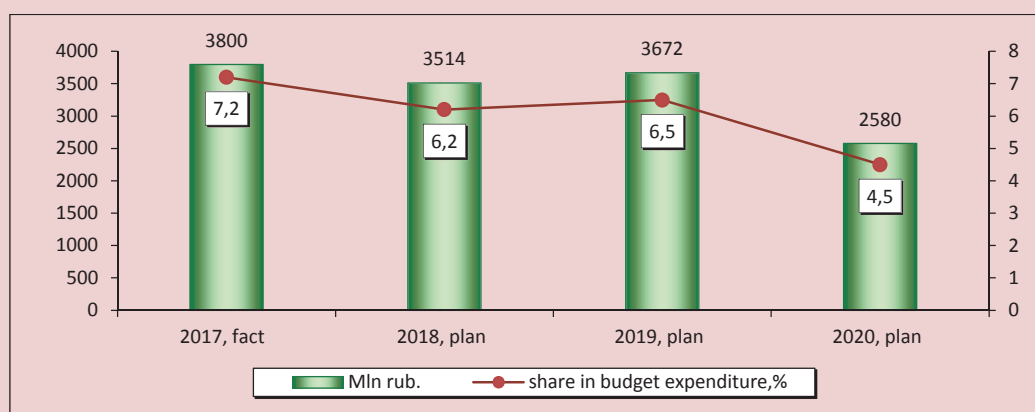
According to some scholars, it is public investment in the context of declining business activity that can assume the anticyclical role, maintaining the level of employment and aggregate demand [6; 7].

The result of budget consolidation will be surplus regional budget administration. Surplus budgeting and budget administration is one of the main conditions in budget loan agreements<sup>6</sup> concluded by the government of the Vologda Oblast with the Ministry of Finance in 2014–2017.

According to the terms of agreements, the largest share of budget surplus in 2016–2017 was allocated to the region's public debt repayment rather than to additional funding for economic and social spheres. Unfortunately, this approach dictated by the central financial institution is prolonged in the next three years, as evidenced by the performance of expected budget surplus and debenture bond repayment (*Fig. 4*).

The substitution of commercial debt with federal budget loans and the use of budget surplus for debt retirement significantly reduced the region's debt load – from 100% in 2014 to 47% in 2017. However, it is not expected to noticeably reduce in the upcoming financial cycle, on the contrary, in the first two years, the debt load is expected to increase slightly (*Fig. 5*).

Figure 3. Regional budget expenditure on capital construction in the Vologda Oblast in 2017–2020



<sup>6</sup> During 2014–2017, the Vologda Oblast was granted 26.7 billion ruble loans from the federal budget (interest rate – 0.1%) to replace bank loans (weighted average interest rate – 9.1%).

Figure 4. Regional budget surplus and public debt repayment in the Vologda Oblast in 2016–2020, mln RUB

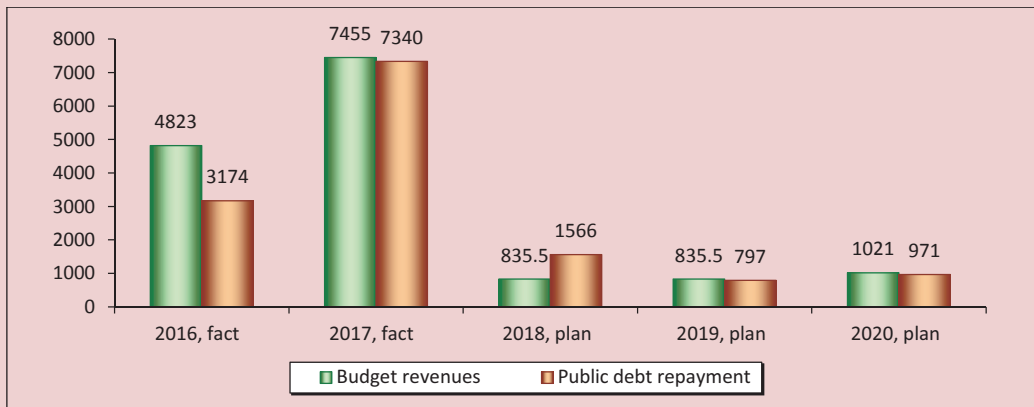
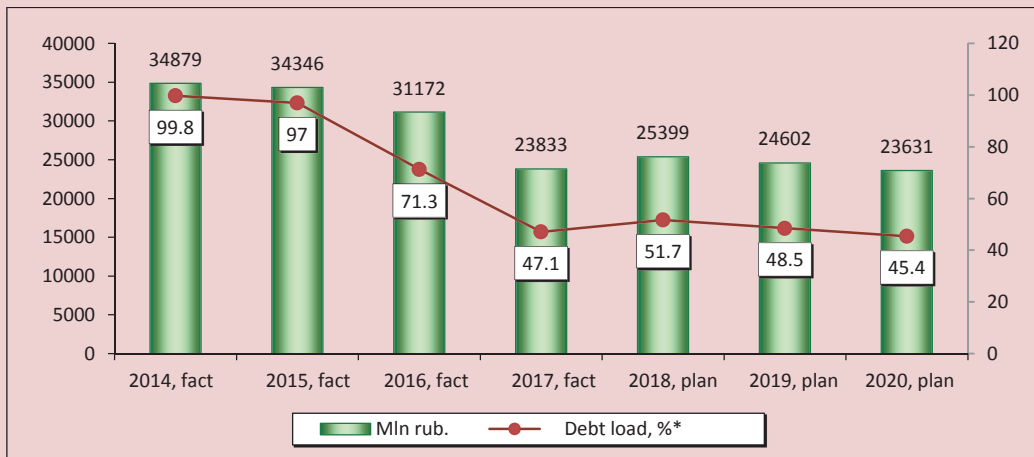


Figure 5. Public debt of the Vologda Oblast in 2014–2020

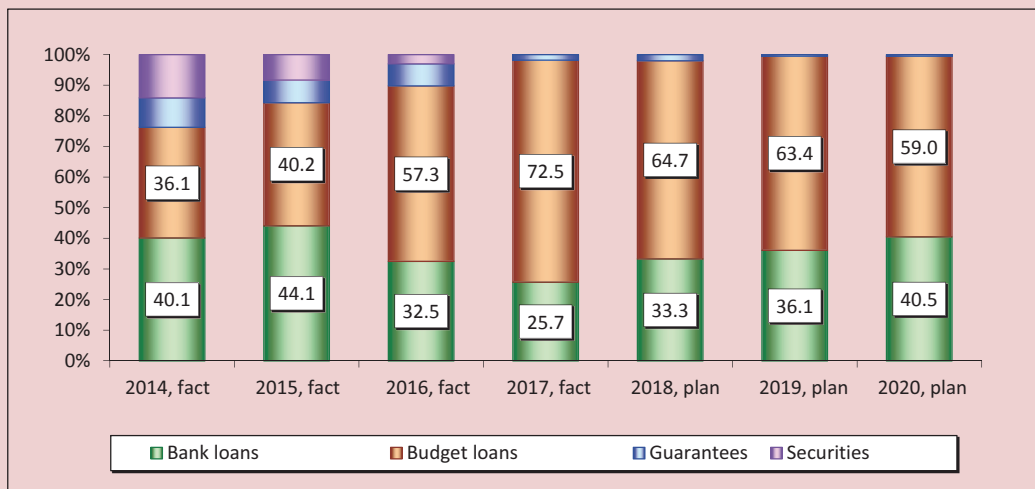


\* Debt load is calculated as the ratio of public debt to own budget revenues.

The reason for the actual public debt stagnation, both in absolute and comparable terms, will be a gradual increase in loans from commercial banks: in 2020, their share in the debt structure will be comparable to that of 2014 (Fig. 6). In the absence of loans from the federal budget which are not provided for at the stage of regional budget planning and approval, there may be risks of resuming the role of market loans as the main tool of the region’s debt policy.

It is necessary to recognize that after 2012, due to the need to execute the decrees of the President of the Russian Federation, the debt crisis of the majority of Russian regions entered an acute stage, creating immediate threats to financing priority expenditure needs. From 2012 to 2017, public debt doubled, as well as the number of regions whose budget debt exceeded half of their own revenues. In 2013–2015, expensive commercial loans began to prevail in the structure of public debt of Russia’s

Figure 6. The structure of public debt of the Vologda Oblast in 2014-2020, %



constituent entities, and only in 2016 this trend was reversed by replacing market loans with loans from the federal budget. At the end of 2017, the share of bank loans did not manage to comprise 30% against 40% as the average for 2013–2015 (Tab. 11). Nevertheless, sub-federal debt remains significant: more than 30% of the regions' own resources have to be used for debt repayment.

Another innovation in the debt policy at the regional level, the need for which has long been discussed by the experts and the scientific community [8; 9; 10], is associated with the

restructuring of budget loans<sup>7</sup> received in 2015–2017. It is expected that within 7–12 years the restructuring will affect all Russian regions and will in the first two years save about 438 billion rubles. According to the Department of Finance of the Vologda Oblast, in 2018–2020 it is expected to release more than 4 billion rubles and allocate additional funds to address significant issues of social and economic development.

Summing up the analysis results, we conclude that the regional budget of the Vologda Oblast for 2018–2020 is focused on

Table 11. Main indicators of public debt of the Russian Federation in 2011–2017

Indicator	2011	2012	2013	2014	2015	2016	2017	2017 to 2011, %
Public debt, bln RUB	1154.0	1334.3	1719.2	2061.2	2285.7	2352.9	2315.1	200.6
Debt load, %	24.7	25.7	32.6	34.9	36.2	33.8	30.5	+5.8 p.p.
Number of regions with debt load over 50%	23	33	46	55	57	55	48	208.7
Budget loans, %*	36.3	31.9	27.4	31.4	35.4	42.1	43.6	+7.3 p.p.
Bank loans, %*	24.5	31.1	39.2	41.7	40.8	34.4	28.9	+4.4 p.p.

\* Share in the structure of public debt.  
Source: author's calculations according to data from the Ministry of Finance and the Federal Treasury.

<sup>7</sup> This decision was initiated by V. Putin at a meeting of the Presidium of the State Council of the Russian Federation, 22.09.2017.

consolidation of budget surplus achieved in 2016–2017, which in general will contribute to economic stability. However, it is important to understand that the surplus is based on insufficient economic stimulus, which is planned to be supported by an average of 20% of budget resources<sup>8</sup>. The consequence of limiting the opportunities for stimulating measures will be a slowdown in the region's economic growth to 0.7% in 2020 against 2.1% in 2018.

The implications of fiscal consolidation will be losses resulting in a decrease in both economic growth and personal income. The declared increase in labor costs will not improve people's financial situation: the growth rates of real money income over three years will drop from 1.2 to 0.2%, and by 2021, the number of Vologda citizens with incomes below living wage will be about 150 thousand people, or 12.6% of the total region's population with the national average of 11.2%.

The focus of the fiscal policy on budget surplus forces a cautious approach to expenditure planning. At the same time, significant fluctuations in the expenditure growth rates also draw attention. Thus, in 2018 they are set at the level of 108.4%, while in 2019 and 2020 – at the level of 99.1 and 102.2% respectively. Thus the average annual expenditure growth in 2019–2020 will comprise 100.6%, which does not compensate for inflation, which means that it will not sufficiently use budget as a development tool.

In our view, budget expenditure should be increased taking into account inflation by at least 4% per year, even at the expense of increasing budget deficit. Consequently, the

projected expenditure in 2019 would be: 59 billion rubles; in 2020 – 62 billion rubles. This would allocate 7 billion rubles for socio-economic needs. Budget deficit would be at an economically safe level of 3–6% regarding own revenues<sup>9</sup>.

Nevertheless, the budget policy pursued by financial and economic bloc of the Russian government regards budget deficit extremely negatively, hence the conservative approach to budgeting of all levels based on the principle of balance, which, according to academician V.V. Ivantsev, “should not be absolutized... If the state increases pensions and wages for public sector employees, there is an additional demand in the economy, and this is another signal for businesses to invest in production...” [11].

American economists K.R. McConnell and S.L. Brue noted that “a balanced budget is incompatible with the active fiscal policy as an anti-cyclical stabilization tool. To achieve a balanced budget, the government must either raise tax rates or cut expenditure. Each of these measures is even more overwhelming, rather than stimulating for aggregate demand. The annual approval of a balanced budget is the procyclical, rather than counter-cyclical policy.” [12]

The practical experience of developed countries confirms the scholars' conclusions regarding the role of budget deficit in the system of state regulation of demand. The deficit helped to overcome the negative consequences of the 2008–2009 crisis. Public expenditure of most world countries are currently based on deficit financing: in 2016, only 30 of the 220 countries had balanced budgets<sup>10</sup>.

<sup>8</sup> When calculating this indicator for 2018, planned expenditure for “national economy” (excluding expenditure on management functions in the economy) and budget investment in construction of state and municipal property were taken into account.

<sup>9</sup> According to Article 92.1 of the Budget Code of the Russian Federation, budget deficit of a constituent entity of the Russian Federation shall not exceed 15% of the approved total annual revenues excluding non-repayable receipts.

<sup>10</sup> Official website of the US Central Intelligence Agency. Available at: <https://www.cia.gov/>



Contrary to the international practice, Russia's budget policy for the next three years does not imply any major changes; its main concept is financial consolidation maintaining low rates of economic growth.

In our opinion, despite uncertain objectives of spatial regulation, there is a residual mobilization potential of internal reserves of regional budgets including the budget of the Vologda Oblast.

*First*, the issue of raising tax collection remains on the agenda. According to the Department of Finance, regional budget liabilities at the beginning of 2018 amounted to 1,323 million rubles, having decreased by only 5% compared to the same period of 2017. Debt repayment would help replenish own revenues of the regional treasury by 3%.

*Second*, accumulation of receivables from major budget owners is gaining apace: during 9 months in 2017, it has grown almost five times and reached 1.2 billion rubles – amount sufficient to re-finance expenses in the case of existing debts recovery.

*Third*, shadow economy continues to impoverish the budget. According to the Department of Strategic Planning, by 01.04.2017, the number of people paid off-the-books in the Vologda Oblast comprised 99.8 thousand people, or 15% of the working-age population. Rough estimates indicate that PIT budget loss due to “off-the-book” salaries comprise about 5 billion rubles a year.

Thus, fighting illegal wages, elimination of budget debts is still relevant in the short term.

*Fourth*, we must not forget the quality of budget expenditure management. According to the Department of Finance, in 2013–2017, the average annual amount of violations in the course of monitoring activities for regional budget execution amounted to 1.7 billion

rubles. Our calculations show that in the context of the ongoing budget consolidation, the annual amount of 1.5 billion rubles of allocated funds is not being drawn. All these facts indicate low responsibility of budget holders regarding effective use of budget funds.

*Fifth*, it should be repeated that the most important reserve for strengthening fiscal capacity of regional budgets should be the abolition of corporate property tax benefits provided by federal legislation without adequate compensation for shortfall in income sources. In 2016, 50% of corporate property tax payers among Russia's constituent entities used tax preferences (in the Northwestern Federal District – 55.5%, in the Vologda Oblast – 35.6%), 82.4% of them were receiving benefits under federal law. In the Vologda, Arkhangelsk, and Novgorod oblasts and in Komi Republic almost the entire volume of tax advantages was established by the federation. As a result of operating preferential tax regimes, the amount of corporate property taxes for regional budgets was one third less (*Tab. 12*). In the Vologda Oblast, the loss was twice less, because due to efforts of regional authorities it was possible to achieve the abolition of a number of benefits for natural monopolies.

It is obvious that it is necessary to take inventory of the existing tax benefits. Unfortunately, there is no public information on the amount of benefits, the number of benefit holders in the context of economic entities, there is no methodological support to assess the effectiveness of benefits in terms of impact on industry performance.

*Sixth*, the results of long-term VoIRC RAS studies of activities of major taxpayers [13; 14; 15] prove that budgets of regions with mono-structural tax systems are greatly damaged by an extremely opaque mechanism of revenue

Table 12. Corporate property tax preferences provided according to the federal legislation in constituent entities of the Northwestern Federal District in 2016

Constituent entity	Number of tax payers	Including those using benefits	Including federal	To the total number of benefit holders, %	Amount of benefits, mIn RUB	To assessed taxes, %
Komi Republic	3790	1705	1665	97.7	1848	12.8
Leningrad Oblast	7827	4772	2396	50.2	2197	14.2
Vologda Oblast	6740	2397	2286	95.4	1397	14.3
Pskov Oblast	2819	1327	1180	88.9	346	24.8
Arkhangelsk Oblast	3793	1814	1789	98.6	1542	26.2
Novgorod Oblast	2949	1203	1147	95.3	830	27.2
Murmansk Oblast	2851	2031	912	44.9	1162	28.4
Republic of Karelia	2726	1750	977	55.8	844	43.2
Saint Petersburg	32215	19889	16597	83.4	15822	50.6
Kaliningrad Oblast	3935	1772	1608	90.7	2273	64.1
Northwestern FD	69645	38660	30557	79.0	28261	31.1
Russia	605932	303374	255573	84.2	225318	28.7

Source: author's calculations based on data from the Federal Tax Service.

Table 13. PAO Severstal income tax payments to the regional budget of the Vologda Oblast in 2015–2017, billion rubles

Indicators	2015	2016	2017	Average for 2015–2017
Income before income tax	44.3	106.5	146.0	98.9
Estimated income tax*	8.0	19.2	24.8	17.3
Actually paid income tax	0.4	2.6	5.5	2.8
Differential	-7.6	-16.6	-19.3	-14.5
PAO Severstal owner dividends	39.1	53.5	54.6**	49.1
To the paid income tax, times	97.7	20.6	9.9	17.5

\* In 2015–2016 – a 18% rate, in 2017 – 17%.

\*\* For 9 months in 2017

Sources: data from the Federal tax Service; financial statements of PAO Severstal; author's calculations.

administration of large corporations. The use of various methods of tax minimization is described in detail in a number of VolRC RAS publications. TO continue the discussion we present the recently published data of financial statements for 2017 of the key supplier of income tax to the budget of the Vologda Oblast – PAO Severstal (*Tab. 13*).

As can be seen, having a 146 billion ruble income before income tax at the end of 2017 the corporation was expected to have paid 25 billion rubles to the regional budget. In fact, the budget received 5.5 billion rubles, which is 4.5 times less. It should be noted that this is the most significant discrepancy between tax base

and income tax for the past three years. The causes of such imbalances are to be reviewed in the course of studying the process of generating financial results and the tax base. However, the practical experience of previous studies suggests that the key factors lie in the legal framework allowing for maximum consideration of taxpayers' costs and excluding a number of income sources, and deriving the optimized income from economic turnover in the form of huge dividends. J. Galbraith, a classical economic theorist, rightly believed that “it is possible to reduce the high level of oligarchs' income through abolition of tax benefits and elimination of “loopholes” in tax legislation” [16].

Identifying certain flaws of the new budget of the Vologda Oblast we proceed from the understanding that the opportunities of self-government of regional authorities are currently limited by the centralized model of the budget system, which has already led to the degradation of the tax base of most territories. Instead of forming an economically motivated system of power differentiation between the levels of governance, the federal center undertakes underdeveloped and sometimes paradoxical decisions on income redistribution<sup>11</sup>, leading to loss of self-sufficiency of regional budgets. According to estimates of the Department of Finance of the Vologda Oblast, in 2018–2020 as a result of changes in federal legislation, annual tax losses of the regional budget will exceed 4 billion rubles.

The need to develop an alternative inter-budget policy is more and more multidimensional. Experts and representatives of the scientific community have repeatedly made specific proposals in this area, in particular:

✓ inventory of revenue and expenditure powers of constituent entities of the Russian Federation: in 2000, there was no case of federation's delegation of powers to regions with complete financial security [17];

✓ the transfer of income tax payments, rather than its decrease in the share in regional budgets [18], especially since the share of this payment does not exceed 3% in federal budget revenues;

✓ introduction of a progressive PIT scale, which operates in all BRICS countries except Russia, not to mention the developed countries. According to RAS academician B.S. Kashin, the main reason preventing the introduction of this measure in our country is excessive oligarchs' greed and their strict control over government authorities [19].

In short, budget administration in the system of government regulation needs significant adjustment and regional re-focus. Continuing the policy of fiscal consolidation will inevitably lead to a protracted debt crisis and destabilization of territories' economy [20].

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<sup>11</sup> For example, in November 30, 2016, Federal Law no. 401-FZ was adopted, amending the Tax Code of the Russian Federation, according to which the income tax rate to the budget of a constituent entity of the Russian Federation was reduced from 18 to 17%. The main motive for this innovation was the increase in grants for equalization of regions' budget security. This leads to the natural question: why should we take the share of tax from the regions and then compensate for it with subsidies? The inefficiency of such a mechanism of inter-budget regulation can be evidenced by the example of the Vologda Oblast: during 2018–2020, income tax losses comprise 2 billion rubles (13%) and the reduction in equalizing subsidies instead of their increase – 1.5 billion rubles (53%).

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# BRANCH-WISE ECONOMY

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## Objectives and Methods of Analyzing Energy Efficiency in the Economy



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**Abstract.** Energy saving and improving energy efficiency of production are among economic development priorities in Russia and its regions. Energy efficiency issues are given a lot of attention in scientific research on the interrelation of economic and power engineering development. In order to select the methodological tools for regional studies, we have reviewed scientific publications that analyze and evaluate energy efficiency in the economy. As a result of the review, we highlight the relevant research objectives: 1) to clarify the trends and factors leading to changes in energy efficiency of the objects under consideration; 2) to compare the energy efficiency of similar objects, to determine the causes of differences and possible growth potential; 3) to identify the spatiotemporal properties of energy variables and causal relationships between energy consumption and economic growth. In accordance with these research objectives we summarize the approaches and methods of statistical analysis, evaluation, and econometric modeling used to address them. The practical results of the studies carried out for different countries in different time periods are ambiguous. For the most part, the analytical tools used require a detailed statistical database of energy and economic indicators and special software. Not all of the tasks highlighted in this review are equally relevant in regional studies. In the light of the implementation of energy-saving policy in Russia, we consider the following issues to be of top priority: analyzing energy and economic trends in regional development and the factors that have the greatest impact on their formation, using the methods of decomposition, regression and boundary analysis. Interregional comparison with the use of the cluster and boundary analysis is used to clarify the pattern of spatial differentiation of energy efficiency and trends in its temporary transformation. The problems of complex econometric modeling of the regional economy with the detailed description of the dependence of energy variables deserve the greatest attention

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since they can help create a unified system of monitoring, analyzing and forecasting the key indicators of development in each region of Russia.

**Key words:** energy efficiency of economy, energy intensity, energy consumption, analysis, econometric modeling.

**Introduction.** Energy efficiency (or energy intensity) analysis receives considerable attention in the studies of economic and energy development trends. This is due to the relevance of interrelated energy and environmental problems of economic growth, understanding the importance of optimizing energy consumption and the need to choose effective measures to manage this process. Improving energy efficiency and energy conservation are among the priorities of development for the economy of Russia and its regions. Proper management requires knowledge of the general laws and interrelations of energy and economy, taking into account their regional, structural and sectoral characteristics, as well as monitoring and analysis of the changes and the consequences of implementation of current energy policy.

In order to select appropriate tools for regional studies, we carried out a review of scientific publications that analyze and evaluate energy efficiency of various objects of macro- and meso-economy. The presence of a large

number of foreign scientific publications on econometric methods for assessing energy efficiency of the economy and a relatively small number of similar studies in relation to the Russian economy made it necessary to summarize and systematize the directions and methods, and to carry out a critical analysis of the possibility of their application in the studies of the Russian regional economy.

**Results of the survey.** Current objectives and methods of econometric studies of the level and dynamics of energy efficiency are concentrated in three main areas (*Table*).

One of the main areas of research includes the analysis of trends and the assessment of the influence of factors that determine the dynamics of energy efficiency of the economy. It is known that the dynamics of energy efficiency of total production is determined by the quality of economic growth – its pace, structural changes and technological progress. In international practice, index methods of decomposition analysis are widely used to assess the impact of factors that reduce

Objectives and methods of analyzing energy efficiency of economy

Research objectives	Research methods	Publications
Analysis of energy intensity (energy efficiency) dynamics, assessment of the impact of factors	Correlation and regression analysis	[1–7]
	Decomposition analysis: - index methods (IDA – index decompositions analysis), - structural input-output models (SDA – structural decomposition analysis)	[7–13]
Comparative evaluation: inter-country and inter-regional comparisons; evaluation and analysis of relative energy efficiency	Cluster analysis methods boundary methods: Stochastic Frontier Analysis (SFA) (boundary production potential model) Data Envelopment Analysis (DEA)	[3; 14–20]
Analysis of causal relationship between energy consumption and production of the gross product; evaluation of the properties and dependencies of energy variables	Methods of time series and panel data cointegration analysis: stationarity, cointegration and Granger causality testing, cointegration dependence modeling	[21–31]
	Econometric simulation of the production function including energy factor $P = f(K, L, E)$	[31; 32]

energy intensity of gross product. As a rule, there are three main factors affecting energy consumption: total volume of activity, sectoral structure and the values of specific energy intensity by type of activity (goods and services) [10]. It is obvious that the result of assessing the contribution of the factors depends on the thoroughness of decomposition of the economy and energy consumption. The difficulty of using index methods of decomposition analysis consists in the availability of a detailed statistical database of the initial data (which is described in [33]). Even more detailed information on the production, intermediate and final consumption of energy resources is necessary for the construction of input-output models of fuel and energy balance. The lack of necessary regional statistics limits the use of index methods in energy efficiency studies of the regional economy of Russia: either in relation to the analysis of electricity consumption only ([9]), or in case of independent development of fuel and energy input-output models of regions ([8]). Thus, the use of decomposition analysis methods for assessing the dynamics and energy efficiency factors in the Russian regions is possible, but it is time-consuming at the primary stages of data collection, especially it concerns reliable information on the structure and dynamics of the use of fuel and energy resources (FER) in relation to the changes in economic indicators in the allocated areas of industrial and household energy consumption.

Correlation and regression analysis widely used in the studies of energy-economic dynamics can be also used in the monitoring of regional trends in energy efficiency when there is an available statistical base. “Econometric characteristics of the model ensure that the model designed is adequate and meaningful, and help make at least a rough estimate of the contribution of each of these model factors in the final result – the variation of the dependent

variable” [34, p. 15]. Regression analysis of energy consumption dynamics is the most practical approach in empirical studies of energy efficiency in Russian regions. Properties of the total regional energy consumption such as relative stability and a significant share of the basic energy needs (conditionally constant), low coefficients of year to year variations and elasticity to the growth rate of gross output, allow us to approximate the dependence of the dynamics of energy consumption on the main macroeconomic variables (in the period of 5–15 years) with the help of linear or close to linear models. If the set of explanatory variables takes into account the specifics of the structure of energy consumption and economic development of the region in the period under review, then the meaningful interpretation of regression models allows us to explain the trends and main drivers of energy efficiency dynamics in the regional economy [35].

Another large-scale research direction is the problem of comparing the energy efficiency of similar objects with the analysis of the causes of differences and assessing the potential for improvement. In the world practice of comparative analysis of economic efficiency the boundaries of production capabilities are assessed with the help of Data Envelopment Approach (DEA) and Stochastic Frontier Analysis (SFA). Depending on the formulation of the problem, these methods help compare the relative efficiency of several similar objects or evaluate changes in the functioning of one selected object at different times. Both methods of boundary analysis are used in benchmarking to compare the energy efficiency of objects of different levels (countries, industries, firms, technologies) [36]. In terms of research capabilities and substantive analysis of the results, a parametric SFA approach may be preferred [37]. The difficulty of

its application lies in the substantiated choice of the best specification of the production function for a particular task. Underdeveloped pre- and post-analysis does not allow us to formalize properly the necessity and correctness of the use of SFA-models in each case, so the research on diagnostic tools of models and criteria of their quality continues [38].

At the same time, the DEA methodology in the practice of comparative evaluation of energy efficiency is becoming more and more popular. This is clearly demonstrated by detailed reviews [39; 40], which generalize the thematic areas, consider the main applications, variants of the models, and highlight advantages and disadvantages. DEA models do not require specifying the type of production function, allow for multi-factor input and output, and optimization in the costs or performance. The method allows comparing different-scale objects, determining the potential and directions of efficiency improvement, taking into account its multicriterion nature, which is important for a comprehensive analysis of energy and environmental aspects of economic development [17] or production facilities. The disadvantages of the nonparametric method include the sensitivity of the results to erroneous data, the problematic statistical testing of hypotheses and the significance of variables [36]. One of the factors in the popularity of DEA as a research method is the availability of affordable software that allows reducing the complexity of solving real practical problems to a minimum [41]. The existence of two competing boundary analysis methods (DEA and SFA) makes it possible to use them together to solve a single problem in order to verify the consistency of the results obtained.

In regional studies, boundary analysis methods can be used to estimate relative changes in the energy efficiency of a particular region in the period under consideration. When comparing the efficiency of the economy of different regions, it is advisable to cluster them into homogeneous groups, taking into account the specifics of regional energy consumption and production specialization [3; 15]. Then, using boundary methods for the selected “homogeneous” groups of regions it is possible to evaluate relative production efficiency, achievable potential and its growth factors. However, the results of this comparative analysis will be very abstract conclusions due to the conditional comparability of the objects of the study – atypicality and uniqueness of economy of each region of Russia.

Another important thematic area in the research of energy efficiency is the objective of identifying spatial and temporal patterns in the properties of energy variables and their interrelations with economic parameters.

The objectives of the studies of non-stationarity and cointegration of the time series of energy and non-energy variables are the conclusions about the possible (permanent or temporary) impact of active energy saving policies (measures limiting the use of hydrocarbon fuels, nuclear energy, promoting the use of renewable energy sources) on economic growth, assessment of the consequences of any crisis conditions (restrictions on energy supply, price shocks), as well as forecasting the future dynamics of energy and economic development [42]. This set of studies examines the specifics of energy resources consumption and production dynamics for groups and



individual countries, in different time periods, on aggregated and disaggregated data (by types of fuel and energy resources, sectors). The results of different statistical methods are compared, methodological features are revealed, as well as the reliability of tests in relation to time series, with and without structural shifts, and the sensitivity of the results to the accounting of additional variables [30; 42]. As a rule, the results of testing demonstrate that economic growth and energy consumption are integrated time series of the first order, between which there is a long-term co-integration relationship [31].

The reviews of the literature on the relationship between energy consumption and economic growth [21; 28; 42; 43] summarize the main features of empirical research: they test the role of energy in stimulating economic growth for different countries and time periods, using different methods and models; they also test four hypotheses causal relationship (conservation, growth, feedback, neutral hypotheses), which are important for the correct choice of the direction of energy policy; the results largely confirm the existence of a statistically significant relationship, but the conclusions about the direction of this relationship vary; there is no consensus on the existence and direction of causality between energy consumption and economic growth. Mixed results of numerous studies lead to an important conclusion that the causal relationship between energy consumption and other variables changes over time and depends on the localization and level of economic development [21; 28; 42]. In other words, the absence of coordinated research results is due to permanent evolution of the economic system itself, structural

heterogeneity of energy and economy both in geographical and sectoral terms [44].

Indeed, there is no reason to expect unambiguous conclusions about energy economic regularities in very different conditions of different countries and in different time periods. The existence of direct correlation between economic growth and consumption of energy, a necessary resource of activity, in the long-term period does not require confirmation. In the world economy, the positive correlation between the growth of production and consumption of energy resources is maintained, although the elasticity of energy demand in terms of output is changing [44] depending on the stage of development, specialization and regionalization of the economy. The opposite effect – energy consumption  $\rightarrow$  economic growth – is also objective in virtue of the temporal and inter-industry linkages, although it is not unambiguous, it is manifested mostly indirectly, with time lags, it depends on the stage of development and specifics of the national economy (country as an exporter/importer of energy resources; economic structure, growth and interconnection of energy intensive and energy-saving production in the considered period of time). In the conditions of advanced development of the sphere of energy efficient production and services and active introduction of new technologies, the transition to energy-independent economic growth becomes real. Manifestations of decoupling (decoupling or neutrality hypotheses) of economic growth and energy consumption are also confirmed in empirical studies of the latest trends in the development of the world economy [21; 28].

When studying energy-economic relationships we should also highlight the urgent task of analyzing the dynamics of energy

prices, in particular, their impact on economic growth, energy consumption and inter-fuel competitiveness. The conclusions of this research block, as a rule, at the level of national economies, point out the impact of energy prices on economic growth, low price elasticity of energy consumption, low level of interchangeability of the main types of fossil fuels and significant price interconnections [24; 27; 44].

A common approach in the study of the relationship between economy and energy is the construction of production functions. When modeling long-term macroeconomic dependencies, it has become a norm to represent the production function of the gross product as a function of capital, labor, and energy consumption [42]. As part of the so-called CLEMS approach [Capital, Labor, Energy, Materials, Services], databases are formed and trends in the world economy are analyzed [37]. Often, in the studies of the impact of the energy factor, the specification of the production function model is supplemented with arguments specifying the features of economic development of countries (international trade, foreign investment, political instability, R&D costs). Modeling the interrelation of production factors is used to identify economic and environmental implications of energy efficiency growth. In particular, attention is paid to the possible “ricochet effect” from the implementation of large-scale energy-saving measures, as a result of which the conditions can be formed that stimulate the growth of energy consumption [45]. In regional studies, the simulation of production functions can be used to assess qualitative features and parameters of economic growth and medium-term forecast of macroeconomic dynamics.

**Concluding observations.** Summarizing the review of publications, we should emphasize their mainly methodological orientation. This feature of the studies of the relationship between energy consumption and economy was noted by L.M. Grigor’ev and A.A. Kurdin: “... The discussion largely turned into a debate on econometric methods, and this apparent bias is preserved until now, including in the specialized scientific journals on energy economics. At the same time, conceptual changes concerning the formation of new points of view directly on the subject of research, in particular in connection with the fundamental changes of the object itself – the world energy system – are not so often featured in the cited articles on the subject of mutual influence of economic growth and dynamics of energy consumption” [44, p. 393]. It may be added that the findings of the analysis of economic processes are often axiomatic. These include, in particular, the statements that energy is as important a factor in economic growth as labor and capital; the development of the economy in the long term leads to an increase in energy consumption; the nonlinearity of the relationship between energy consumption and gross production is associated with the influence of structural changes (exogenous shocks, technological progress, economic cycles); and various crises in the energy markets have a negative impact on the economy. Besides, it is often concluded that technologically advanced countries can implement energy-saving policies without fear of impeding long-term sustainable economic growth; that costs are reduced with increasing energy efficiency – this increases productivity and stimulates economic development, and the growth in energy prices activates energy conservation.

In general, the substantial conclusions of the research are not always adequate to the complexity and labor intensity of the applied methodological tools. In addition, we should bear in mind that the conclusions obtained by formal statistical analysis procedures are not necessarily reliable; errors can be caused by incorrect model specification or by flaws in the empirical database.

The authors of the review of publications on methods of analysis of energy-economic relationships [42] are concerned about the redundancy of applied research that does not add anything new to what is already known: "Our key message is the need to avoid "redundancy" of research in these areas, since most applied research no longer add anything new to what is already known" [42, p. 351]. Along with this suggestion, we agree with the statement that the results of research in this area received "even with the most refined econometric tools... require to be updated continuously" [44, p. 405] due to ongoing structural shifts in the economy, new trends in the field of energy efficiency, energy supply and prices, and energy policy factors.

**Conclusions.** In conclusion, we summarize the relevance of the considered research objectives and methods of analysis in regional energy efficiency studies of the Russian economy. It was noted that the use of most of the methodological approaches for the analysis and modeling of the economy of the Russian regions is difficult due to the insufficient database of statistical observations of energy consumption both in time and in structural detail. Therefore, it is important to create a full and reliable information database on fuel and energy consumption in the regions - the necessary basis for the analysis of energy intensity

indicators, assessment of potential and drivers of energy efficiency growth. Not all of the above are equally relevant in regional studies. In the light of the implementation of the energy-saving policy of Russia, the analysis of energy-economic trends of regional development and the factors that have the greatest impact on their formation with the use of the methods of decomposition, regression and boundary analysis should be attributed to the priority issues. Interregional comparison by cluster and boundary analysis methods is useful for the purposes of clarifying the picture of spatial differentiation of energy efficiency, factors and trends of its temporary transformation. The greatest attention should be paid to the problem of complex econometric modeling of the regional economy with the detailed dependence of energy variables to create in each region of Russia a single system of monitoring, analysis and forecasting of key indicators of development.

The presented article is of a review nature. Attention is drawn to the extensive amount of publications of foreign studies in the field of scientific analysis of energy-economic relations and the relatively low activity of Russian researchers with the undoubted relevance of this topic for the domestic economy. This circumstance served as a justification for the review. The analysis of thematic publications allowed to generalize and systematize actual tasks and the main methods of the conducted econometric researches of energy efficiency of economy. The scientific novelty of the review, according to the author, is the specification of the problem field and the possibility of choice of methodological tools applied to energy efficiency studies of the regional economy of Russia.

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# MODELING AND FORECAST OF SOCIO-ECONOMIC PROCESSES

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## Modeling Complex Financial Sustainability of a Corporation in the Age of Global Economic Crises



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**Abstract.** Currently, the socio-economic content of the concept of sustainable development in relation to enterprises and corporations is actually replaced by a system of managing financial risks of investment, the effect of which aims to prevent a financial crisis. Major financial strategies ceased to be functional; they acquired a role comparable to the corporate economic strategy, and began to control the establishment of criteria of risks and the feasibility of enterprise's existence. The goal of the present research is to provide methodological support to the process of returning the priority of the financial concept of sustainable development from the sphere of financial growth (permanent capital growth) to the sphere of financial and economic development, by offering a new analytical tool of strategic level that does not contradict the interests of large businesses in its application. Taking into account the great contribution of transnational corporations to the initiation of global crises implemented with the help of stock market tools, the

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version of the financial-analytical method (visual modeling), which we present in the paper, reduces the dependence of corporate governance on the financial market assessment and directs risk management process in the field of real capital management of associations of enterprises. Stability of development based on the model is achieved by the programmability of the process of changing the special types in the development of complex financial stability, which is a key difference from the existing developments. Gradual qualitative development of a corporation with controlled destabilization rather than the general criterion of capital growth is the target for the formation of strategic and programmable sequences of the onset of complex profiles of financial stability. The sphere of corporate financial management of service enterprises can be considered as the scope of application of the results obtained. At further adaptation of the modeling results it is possible to use the modeling in the management of large corporate associations of practically any branch. The scale of application of the model is connected with the prospects of development of research in this direction.

**Key words:** financial crisis, economic growth, economic development, financial stability, financial modeling, financial condition.

The framework of the theory of economic growth and development was created by Joseph Schumpeter in the early 20th century [1]. Contributions to the theory of growth and development were also made by Simon Kuznets, Fernand Braudel, Theodore Schultz, Gary Becker, Michael Porter, Nikolai Kondratiev and other scholars [2]. Joseph Schumpeter was the first to introduce the differences between economic growth and development, defined the essence of innovation as the main driver of economic growth. He also defined economic growth as quantitative changes, namely, an increase in production and consumption of the same goods and services over time. Schumpeter formulated economic development as positive qualitative changes, innovation in production, products and services, in management and other spheres of life and economic activities [1]. Mixing the concepts of economic growth and development is the most common mistake made by managers at any level when developing the measures to resist the economic crisis, that is, there is an actual substitution of development with

conventional growth (increase in volumes), which can be achieved by temporary measures insignificant for the development.

Analyst Alan Reynolds defines crises as follows: "...they are logical, inevitable consequences of interaction of a certain combination of factors. The result of this interaction is neither good nor bad. Negative connotation to the word "crisis" is given by those people who fail to estimate (overestimate, underestimate) the consequences of this combination of factors, or those who are forced "to pay the duties" of an unsuccessful (unrealistic) plan". Reynolds emphasizes: "The surprise of a crisis is explained by lack of information and knowledge of the processes taking place in a particular area" [3].

According to O.Yu. Maslov, "crisis is an unintended consequence of a long-term interaction of partially controlled or not controlled factors and phenomena that lead to a situation where sustained management by the existing factors for the implementation of goals and objectives set by decision makers becomes impossible" [4].



Experts and analysts identify the following causes of the global crisis:

1. Exhaustion of the dominant world paradigm or the crisis of capitalism (civilizational aspect).
2. A typical crisis of overproduction (real economy aspect).
3. Decaying global monopolies (evolutionary aspect).
4. Global imbalances (globalization aspect).
5. Exhaustion of the global monetary and financial system based loan interest (civilizational aspect).
6. A cyclical crisis: transition from business cycles to bubble cycles.
7. Global economy entering the recession phase of Kondratiev wave (cycle aspect).
8. Phenomenal expansion of the financial sector (financial aspect), etc. [4].

The identified causes of the global crisis can in fact be considered as a threshold of one event – the phase of “superfinance” in the global economy at the stage of more frequent crises. “Superfinance” in this context is the situation where financial resources cease to serve the economy and the asset value is almost no longer rigidly linked to the value of fictitious capital. The importance of developing the financial sector has become a top priority; finance began to determine the asset value through the system of financial markets (supply and demand for financial tools, rather than for the product). The peculiarity of the society entering the phase of clean finance (let’s call it “super-financing”) as a main separate doctrine of economic life is the emergence of highly innovative financial techniques which cease to be operated by external factors. Moreover, the laws of their life generate the external environment themselves – which in fact means that they achieve their system and strategic role (mutual penetration

and influence of external and internal environment). This should be indicated by a merger of enterprise’s balance sheet assets and liabilities in the methodological and substantive aspect, where each asset is tied to a financial technique of a relevant specialization and leads to the most convenient involvement of any type of assets in the sphere of financial turnover, taking into account the synergy effect of combining all resources of the enterprise and the environment. The complexity of the goodwill category has led to it obtaining the properties of a guarantor of competitiveness while distancing the total asset value from the company’s market value. At the current historical stage of development of finance, this hypothesis is based on the system laws of development of the object “finance-system”, which, having stood out in the subsystem of the economy, have formed their separate and highly organized system of top priority; and the dynamic nature of this process does not weaken, leading to the emergence of new effects (cryptocurrencies, their derivatives, etc.). The problem of sustainability management as a response to the crisis lies in two aspects. The first aspect: an economic crisis is an integral part of the development of an economic entity at any level in the long-term (strategic) prospect. The second aspect: direct consideration of many crisis factors is not actually possible for real crisis management due to their unpredictable effect when combined. The issue is controversial – crises are inevitable but managing them is practically impossible. If we turn to system analysis, the current situation is a system phenomenon of chaos as a contradiction to order. According to the provisions of studying systems – chaos is also systematized, yet science simply has no tools to describe any process, which is why it is considered chaotic.

It can be concluded that a multidimensional system method of financial management of development is required. It should be present in the toolkit of an average financial manager in the form of a simple analysis tool, yet it should be sufficient to ensure that the main processes of financial and economic formation are taken into account, and transform, as it spreads, the entire sphere of risk factor assessment of strategically sustainable development of a modern enterprise.

**Developing the main provisions to overcome the last dead-end “destroyer crisis” of the global economy.**

Summarizing the above, we can proceed to formulating conceptual provisions to justify the methodological system of destroying the overall generator of the global financial and economic crisis. First of all, it is necessary to define the concept “generator”, which will serve as an object of application of the formed sets of actions and techniques.

The generator of the global financial and economic crisis is a global system phenomenon, which represents a set of methodological distortions of the political and economic correlation between real and financial capital (imputed residual secondary nature of the latter). When it is activated, a complete (in the final crisis) or partial (in temporary crises) loss of confidence in any investment value is observed. The development of “generator’s” action is implemented as a result of ignoring the principle of impossibility to completely predict the probable future and permanent risks (as an adverse outcome) of any financial and economic decision. This fact should be reflected in the adjusted return as the ratio of financial result and mathematical expectation of loss of profit during crises and even basic property (assets). As a result, risks of investment in real capital should be added to financial risks arising from the isolation of the sector and creation

of a system of financial institutions whose risk protection mechanisms cease to work in system global economic crisis (this means their limited nature, greater vulnerability, which should be reflected in the emerging attractiveness of investment in real capital). Large corporations can be considered the units of financial crisis development, between which there is a chain collapse in value. A system transition to a lower level (of medium-sized enterprises) will prevent the regional or sectoral crisis from developing into a global one. A prerequisite is the fusion of financial, bank and real capital, which is not implemented at the meso level.

In order to understand the situation of achieving the dominant role of financial management among other economic and management spheres of a corporation, a scheme of management objects connection at separate levels of the general management strategy has been build with objects at hierarchical levels of the financial strategy (*Fig. 1*). The category “Main financial strategy” is of the greatest interest according to the chosen research subject. It is in the sphere of its interaction between corporate strategy (II) that the main distortions of priority take place and fundamental contradictions arise. The financial mission and philosophy are generalized and do not form clear target programs, or coordinate the priority between the financial and general economic sphere. According to the definition, the main financial strategy (MFS) is a strategy-based systemically streamlined program to manage the process of transformation of enterprise’s strategic financial sustainability carried out in line with the objectives of the general economic strategy which supports sustainable growth and limitations of the financial policy and strategies for achieving their mutual long-term relevance in the developing environment.

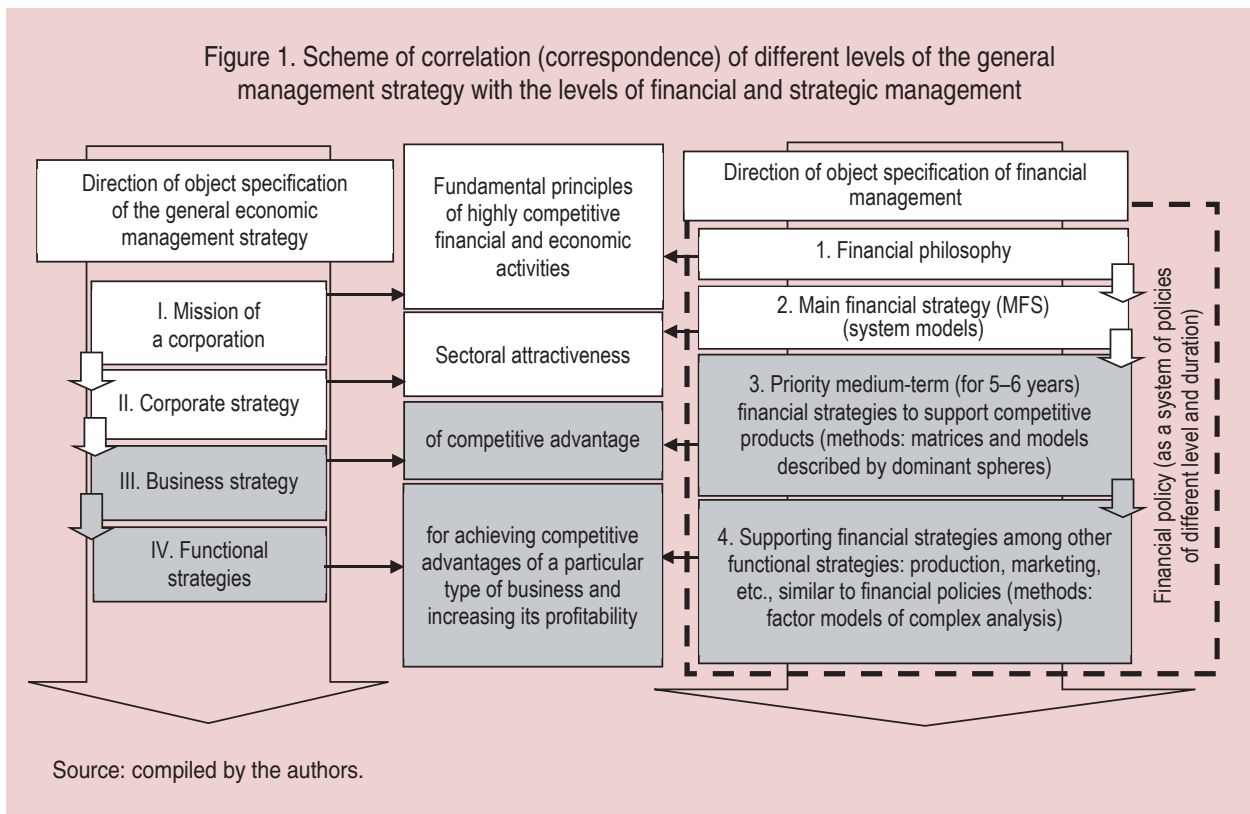


Table 1. Evolution of strategic management [6, p. 34]

Period	1950	1950-s – early 1970-s	Late 1970-s – mid 1980-s	Late 1980-s and 1990-s	2000-s
Prevalent aspect	Budget planning and control	Corporate planning	Positioning	Competitive advantage	Strategic and organizational innovation
Main issues	Financial control	Growth planning, especially diversification and portfolio planning	Choosing industries and markets. Positioning of the market leader	The strategy's focus on sources of competitive advantage. New business development	Alignment of company's size with its flexibility and ability to respond
Main concepts and methods	Preparation of financial budget. Investment planning. Evaluation of projects	Long-term and medium-term forecasting. Corporate planning methods. Synergy	Analysis of the industry. Segmentation. Experience curves. PIMS-analysis. SBUs (strategic business units). Portfolio planning	Resources and capacities. Share value. Knowledge management. Information technology	Cooperative strategies. Competition for standards. Complexity and self-organization. Corporate social responsibility
Organizational results	The system for compiling operational budget and capital estimates become a key coordination and monitoring mechanisms.	Creation of corporate planning departments and long-term process planning. Merger and acquisition	Multidivisional and multinational structures. Greater sectoral and market efficiency	Restructuring and reengineering. Change of direction. Outsourcing. E-business	Networks and alliances. New models of leadership. Non-formal structures. Less dependence on direction and trends

Strategic management is moving into the field of innovation management where the obtained advantage works against all competitors (which was a problem in 1980–1990). It is taking a leading position on the market (the problem in 1970–1980) and subordinates the effectiveness of corporate planning and control over costs (management problems in 1950–1970). [5, p. 147].

The evolution stages of strategic management are presented in *Table 1*. The new functions of the MFS are mainly manifested in its new role as the main, rather than as a parity initiator of corporate general economic development goals. Any innovation requires investment, which immediately shifts the main management priority towards finance.

Innovation is quite a convenient tool for gaining competitive advantage. The disadvantage is the need for more frequent strategic de-

stabilizing of the entire enterprise when it re-starts to a new round curve of the organizational life cycle (OLC) [5, p. 37].

The methods of strategic management have also been developed aiming to provide sufficient supply for new trends in management and analysis. Their complexity has almost been completed with multivariate models of discriminant function analysis by E. Altman Z-score [7, p. 241]. Or the emphasis put on developing the logic of stability analysis procedure. To evaluate objective processes in strategic management methodology one can use the classification of scientific schools of strategic management by Henry Mintzberg (*Fig. 2*).

The configuration school (lower block), being the most relevant, has not yet entered any of the groups and, most likely, presages the formation of a new class of schools of strategic management. The configuration school

Figure 2. Classification of scientific schools of strategic management by Henry Mintzberg

Prescriptive schools					
<b>1. The design (project development, modeling) school:</b> Ph. Selznick, A. Chandler and C. Andrews, 1950–60s. <b>Strategy as a way to achieve balance of the internal situation organization and the external environment.</b>		<b>2. The planning school:</b> I. Ansoff, J. Steiner and P. L'Orange. <b>The concept of strategic planning of company's development</b>		<b>3. The positioning school:</b> M. Porter, Boston Consulting Group (BCG). <b>"Growth-market share" matrix; M. Porter model of competitive analysis</b>	
Schools studying specific aspects of the real process of strategy formation					
<b>4. The entrepreneurial school:</b> O. Collins and D. Moore, B. Bird, H. Mintzberg, P. Drucker, D. McClelland, J. Schumpeter. <b>The main concept – visionary process, i.e. the visualization of the strategy</b>	<b>5. The cognitive school:</b> A. Duhem, H. Simon, K. Schwenk, P. Corner et al. (since 1980-s). <b>Study of the strategy formation process</b>	<b>6. The learning school:</b> J. Quinn, G. Sue, R. Paschal, J. March et al. <b>Research object – strategy design technique, rather than its formulation</b>	<b>7. The power school:</b> A. Macmillan, H. Mintzberg, G. Pfeffer, and G. Salansik at al. <b>Strategy formation as a negotiation process</b>	<b>8. The cultural school:</b> A. Pettigrew, J. Johnson, S. Feldman, J. Lorsch, T. Peters, R. Waterman, B. Vernerfeld (since 1980–90-s). <b>Strategy formation as a collective process; "7-C" management model</b>	<b>9. The environmental school:</b> D. Miller, H. Mintzberg, M. Hannan, J. Freeman (since 1990-s). <b>Strategy as a responsive process, possible role of an organization</b>
<b>10. The configuration school:</b> D. Miller, P. Handavall, M. Bier (since 1990-s). <b>Strategy formation as a process of a step-by-step target transformation of a corporation or enterprise</b>					

Source: compiled by authors.

describes a step-by-step implementation of the strategy as a transformation or adaptation of an enterprise to new conditions [8, p. 27]. It analyzes the interposition of various states of an organization in certain conditions, which helps define its “structures”, “models”, and “ideal types”. The school also considers the temporal sequence of change in different states in order to determine the “stage”, “period” or the whole life cycle of an organization [9]. The development of the strategy seems to be a peculiar process of imbalance in the existing schemes (sustainable elements) so that the organization can move into a new state. The configuration school considers this process as a dramatic transformation such as, for example, revitalization (regeneration), “a turn around”. The main disadvantages of the configuration school approach first of all lie in considering quantum leaps in the development of an organization. Under real life conditions, most organizations follow the model of incremental change (incrementalism). Second, generalizations of the configuration approach are somewhat arbitrary [10]. The disadvantages are more compensated by using system models (which, for example, include the author’s “Frigate”-model which will be described below), with can help skip several stages having a certain idea of the state of the system of financial stability (total risks) at a particular stage of enterprise development (for example, by stage of the life cycle of an organization). Profile management (configuration of a sequence of combinations of internal and external states) is an approach of system modeling, which has become a necessity due to the constant demand for innovative reboot (leap) of target strategic type. Strategic transformations of the market leader (potential or current) change the external environment of the entire competitive

environment for sanatorium enterprises, usually within the region. This situation goes beyond the traditional understanding of the isolation of the enterprise external and internal environment and prepares the emergence of methods describing the “universum system” (a uniform category of interaction between the environment and the system).

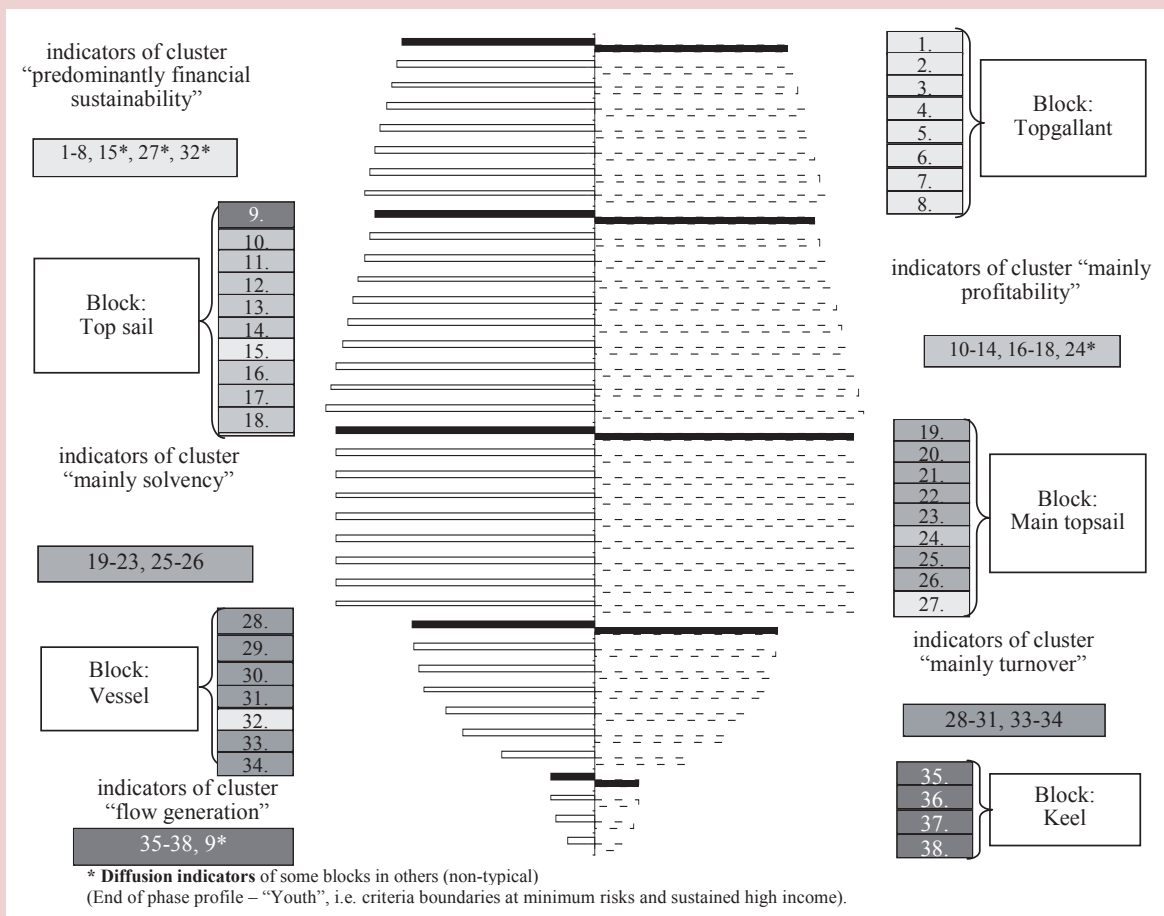
Modelling financial stability on the threshold of “superfinance” era as the primary variant of the method for permanent delay of its occurrence for an indefinite period.

It is necessary to specify that it is impossible to indefinitely delay the objective process of global scale including in the field of finance – there will inevitably be an overflow of quantitative changes and a qualitative leap will take place. However, system analysis uses concepts such as crisis and bifurcation point, which exclude uncertainty in further development of the system and at the same time substantiate the existence of duality of its outcomes. The purpose for modeling presented below is to obtain a second alternative to crisis resolution by gradually correcting the situation and developing the global economy in direction opposite to “superfinance” at the level of main player-elements of the crisis economy, namely, corporate associations. Complex modeling of corporate stability indicated in the title of the paper implies the use of the model in two interrelated variants of application. The first option at the level of enterprise financial management (microeconomics), the second option involves the construction of a system of strategic management of stability of corporate associations of enterprises of the industry, a separate state, a region or resort destination (taking into account the peculiarity of the chosen framework of empirical research) [11], that is, highly complex systems that require administrative framework regulating modeling

regulatory support. Before the fundamental change (cancellation) in traditional forms of financial statements, the “Frigate”-model is based on the generally accepted forms of reporting (balance sheet and statement of financial results as a source of information on costs and financial results in the context of core activities). The model helps identify the approaching of the bifurcation moment (in the definitions of the configuration school – the so-called “quantum leap”) in the overall sequence of the life cycle of an organization and prepare for the necessary transformation. Or choose the path of passively following the cycle stages and

set the time of the most effective disinvestment (enterprise rehabilitation or dissolution). The practical part of the research is carried out based on enterprises located in Bolshaya Yalta municipal district. At the beginning of period under study (2004), 144 enterprises of sanatorium-resort complex were registered. Most of the enterprises in the sample were part of *Ukrprofzdravnitsa* corporate association [12]. As a result of experiments with various types of visual modeling, a comprehensive visual model (“Frigate”-model) for assessing the financial sustainability of the enterprise was developed. It has the form presented in *Figure 3*.

Figure 3. Structure of internal profile of visual model-system (“Frigate”-model) of financial assessment for strategic purposes



Source: compiled by authors.

The model is based on relative indicators with the criteria boundaries normalized by a visual profile, which ensures relative comparability of enterprises [15]. The performance of model indicators is correlated with changes in international macroeconomic indicators (2004–2013). Groups of indicators represent areas, for example, the “Topgallant” block (indices of financial stability, B zone), they offer three block widths: narrow, between 0.2–0.4 base unit; “normal”: 0.4–1.0, etc. Taking into account this format and based on statistical data of sanatorium enterprises, typical visual profiles of the “Frigate”-model internal environment are constructed. They are presented in *Figure 4 (a)* and *Figure 4 (b)*.

The first part is related to individual enterprises, the second – to a corporation as a whole – “The tree of strategic diversification of corporate capital” (hereinafter TSDC). The response rate of individual indicators to global and individual crises form the framework for their gradation within a visual model. An additional criterion is the degree of stability in time, which is recognized by individual scientists [13]. At the top of the profile indicators most responsive indicators are places; any crisis begins from the “top”, however, the depth of passage through individual levels and the time of returning to the normal state indicates the degree of internal crisis.

The description of visual model profiles corresponding to each new type of financial sustainability of the internal environment is made in *Table 2*.

To establish the correlation between the company’s external and internal environment each indicator in five groups was converted in percentage relative to their sum in 2005–2013. The results are graphically presented in *Figure 5*. Macro-economic analysis data are used for analysis [14].

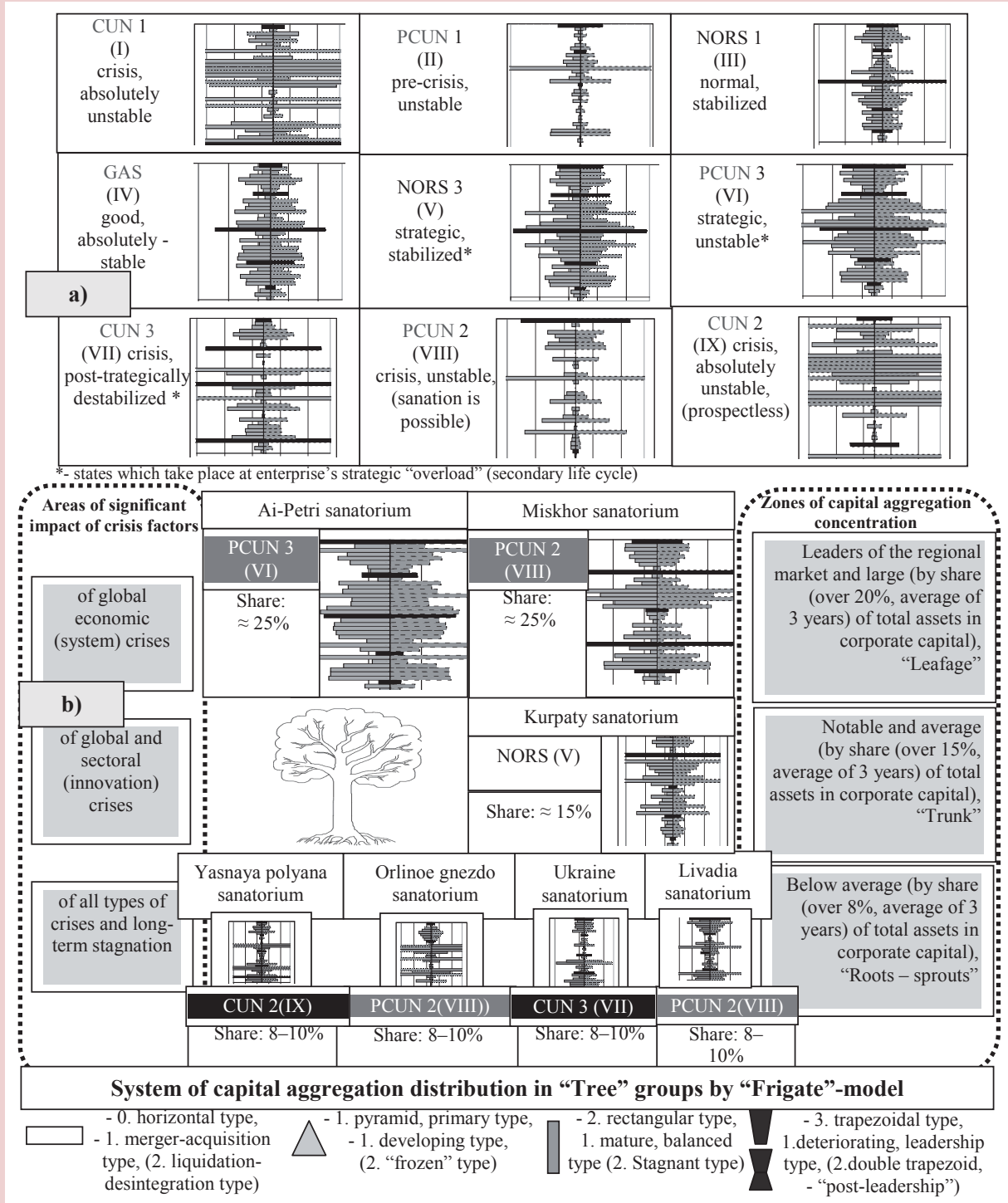
Against the background of the overall performance of group of companies, success or failure in strategic development of a particular enterprise can identify its specific individual profile formed under the influence of both general crisis (in the external environment) and its internal crisis trends.

The second part of the model is determined by matrix positioning to conditions of the external environment (the form is a simple matrix for the distribution of types of environment and conditions of an enterprises, *see in detail in* [15]). When forming a system of complex profile types, the second part (taking into account the external environment) is modeled as a set of types according to the nature of the impact on the financial state of an enterprise: aggravating, neutral, improving [16; 17, p. 39]. Positioning to the type of the external environment helps localize the causes of crisis (external, internal) and forecast the

Table 2. Characteristics of types of visual profiles for assessing internal financial environment of “Frigate”-model of sanatorium enterprises

No	Type	Conditional characteristic of the state of “Frigate”-model and brief code breaking of its description based on scaling values of blocks with fixing their typical manifestations at enlarged stages of the life cycle
1.	CUN (I), crisis, absolutely unstable	The state of the “vessel”: “the hull is almost built, sails tremble on the upper yards” (“Birth” “Death in infancy”). “B3—“ – “wide” block – “breakdowns” take place (beyond a scale value of 1.2), due to underdeveloped capital the amount of working capital can be negative; “M3” – “negative wide” block, certain types of profitability are unstable (negative “breakdowns”); “G1-” – “narrow” block – with almost no breakdowns, non-uniform; “C2+” – the block is basically close to the normal state but at the same time is unstable, a lot of “breakdowns” are possible; “K1-” – “narrow” block – the increase in the flow is restrained or absent (with breakdowns), etc.

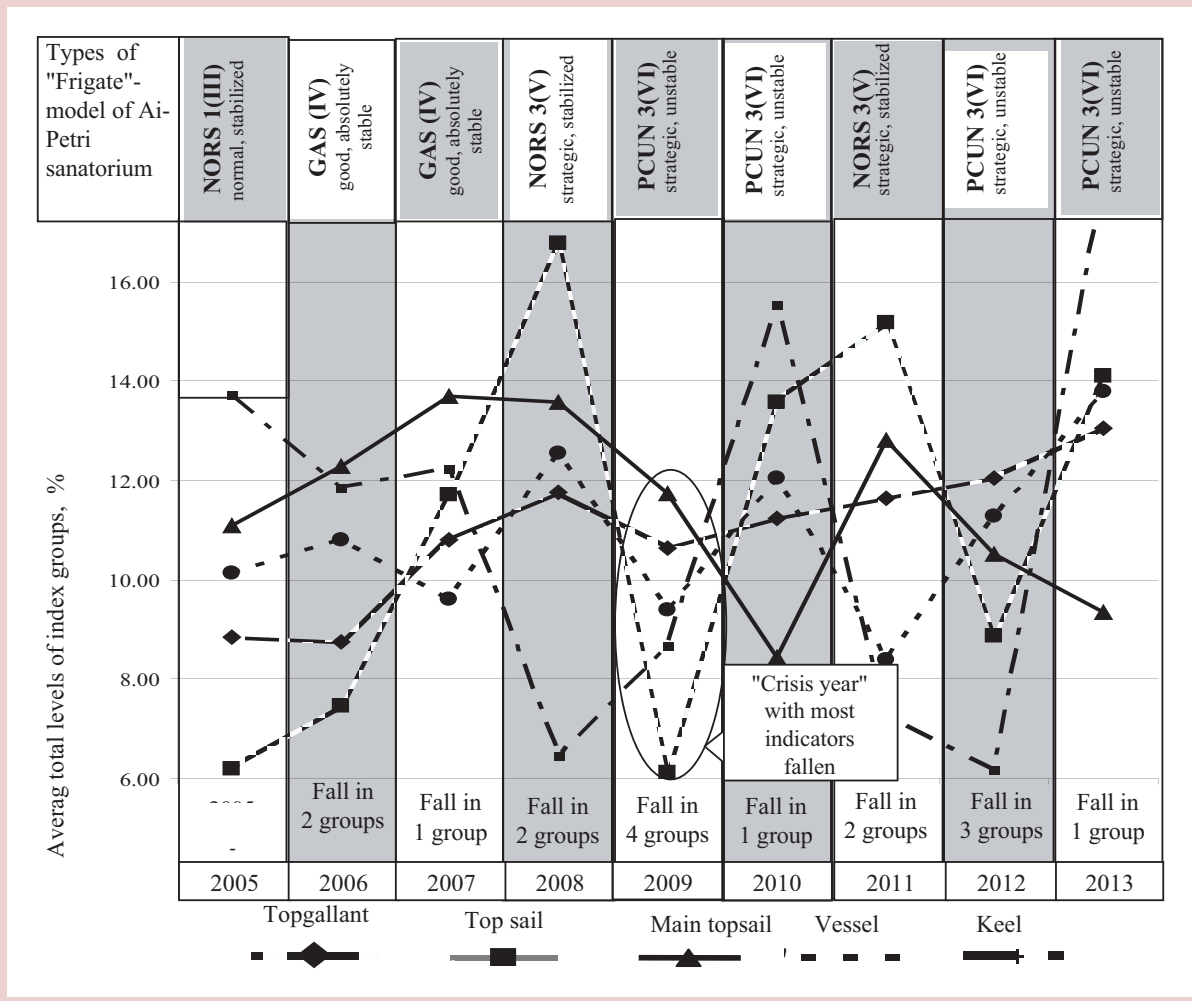
Figure 4 (a). "Frigate"-model internal profiles by type of strategic financial state of sanatorium enterprises in Bolshaya Yalta municipal district;  
 (b). "Tree of strategic diversification of corporate capital" (zoning of corporate capital investment, (case study of Yaltakurort)



Source: compiled by the authors.



Figure 5. Average values of five individual blocks of the internal environment of enterprise of the "Frigate"-model for the enterprises of Yaltakurort corporation in 2005–2013, in % to the sum of years [15]



development of company’s sustainability in the form of a sequence of changing model types taking into account the trends of economic development at the macro level.

The result of applying visual modeling when finding ways to return the main financial strategy of parity role in substantiating the necessity of strategic transformations of a corporation

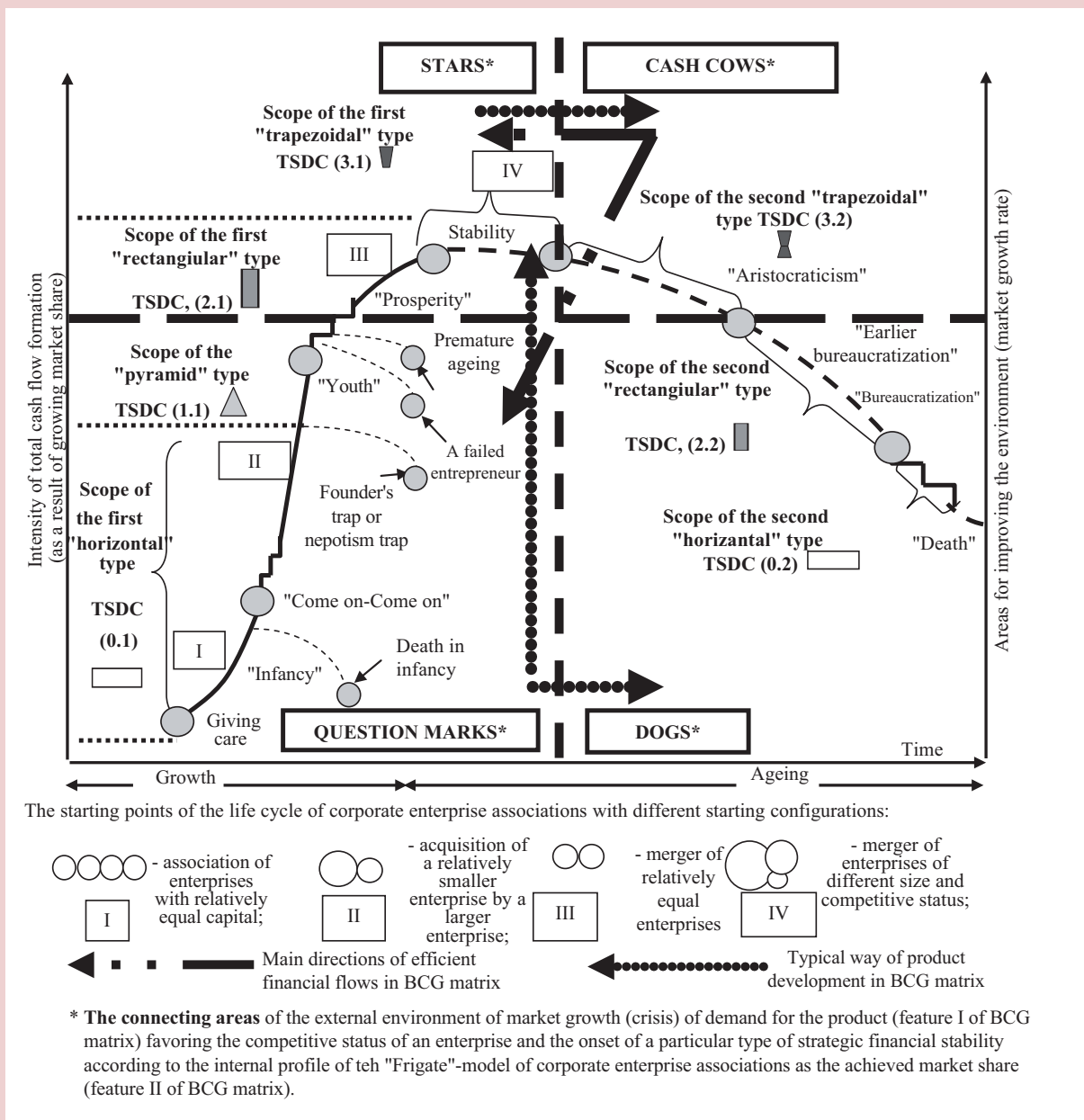
Diversification as the main system tool for resisting negative combinations of internal and external environment can be built according to

three possible main financial corporate strategies: aggressive (expanded growth), balanced (with a focus on even distribution of capital and representation of a full range of types of complex stability, providing the ability to support low-risk competitive status or its return); of the strategy of anti-crisis mobilization (gradual withdrawal of separate enterprises from the zone of catastrophic risk, holding back crisis development among the others). The presented system of strategy types and the tree of strategic capital diversification

makes it possible to substantiate the concept of the whole life cycle of a corporate association of enterprises (LCCAE) as diversification of risk of capital aggregation in enterprises of a particular financial state, market position

and strategic objectives (scheme is presented in Figure 6). The initial conditions for the newly formed enterprise associations are very different, which affects the induction type of TSDC.

Figure 6. Conceptual scheme of corporate life cycle of business associations in designations of TSDC when applying the classification of types of strategic business units (BCG matrix)



Source: compiled by the authors.

The new sustainability management system rules are as follows:

1. Required support for mobility of the middle group of enterprises for TSDC (“Trunk”), the association of enterprises must ensure continued capital aggregation in the middle group of potential business leaders (at the level of 25% or higher), which helps diversify the corporate profile and quickly replace former leading companies which have passed their life cycle with new leaders of the middle group, types, 2.1; 3.1;

2. Support for active and flexible (adaptive) process of capital flows between participants of corporate associations to ensure that strategic diversification as a managed activity for nomination of leading enterprises among the number of enterprises participating in associations (protection from competition, increasing resistance to adverse conditions, etc.).

### Discussion

The proposed visual model of a new type as a financial and analytical tool helps apply financial and managerial impact to the object “enterprise development sustainability” both at the corporate and macroeconomic level.

In the first case, we understand the possibility of programming the model profile as both an individual enterprise and groups (levels) of enterprises in a corporate association.

It is also possible to calculate the change of model profiles across the corporation:

- in general by consolidated equity and financial results;
- by means of averaging the types of sustainability models of individual enterprises.

On the basis of remoteness (approximation) of intra-corporate consolidated and averaged types it is possible to establish the degree of integration efficiency of a corporation. With

greater isolation (financial, organizational, market) of enterprises within the corporation these types will be significantly different. That is, both the success and the crisis of an individual enterprise is an individual result.

In the second case, we are talking about the macroeconomic application of the model as a tool for coordinating a certain number of enterprises united under a certain feature, for example, a specific territory-limited economic level such as resort destination, economic sector, territory of the state, and even global economy.

The main advantage of the model is that it returns the main financial strategy to the sphere of financial support of the most effective real capital application with justified target risk by linking the sequence of enterprise’s financial capacity development at the stages of the life cycle of an organization and its strategic market position (in the definitions of *BCG matrix*). At the same time, the main financial strategy establishes the parity (rather than main) role in initiating the economic transformation of a corporation. In this case, the influence of the principle of total capital increment, return on total capital and the impact of the stock market is limited [18; 19]. Even areas that are directly related to them are of equal importance in the “Frigate”-model among all other areas of comprehensive financial sustainability, in contrast to the most popular approaches to constructing a system of strategic controlling (in which the profitability model of DuPont system indicators center).

The model quite clearly shows that in anticipation of the implementation of a large-scale strategic project, the entire system of complex financial sustainability is in a state of destabilization and with financing such external changes (through additional issue of

shares, long-term loans), the risks will only be aggravated, since production facilities, at best, remain at the same level. It is also necessary to take into account the fact that the imperfection of the system of stock market regulation in countries with developing economies makes it possible to use this system to gain monopoly and windfall revenues [20]. In this case, the advantage of Crimea sanatorium enterprises (research framework) is that they almost do not use stock issue of enterprise lending (historically) and implement strategic projects at their own expense (which has ensured the purity of model responses).

### Conclusion

At first glance, the presented variant of substantiating system transformations of a corporate association of enterprises on the basis of the “Frigate”-model does not look strong enough compared to the motives of global corporations in setting the goals of their activities. However, its role is to present a variant of gradual restructuring of the system of ideological values of corporate management, which significantly deviated from a correct understanding of a corporate mission, consisting in the system of goals in addition to earning money. To do this, in most cases, the growth of the company (growth of capital) is enough, if we put such an approach at the forefront, all life cycle management will be aimed at increasing financial capacity by extensive and intensive methods. Returning to the provisions of Joseph Schumpeter, – the company’s growth should not become its main development goal, otherwise all changes will be made dependent on the GROWTH goals (capital letters – as a philosophy). The easiest way to achieve GROWTH is by applying financial methods. This property of finance has served as a framework for finance gaining

exceptional importance throughout global economy. GROWTH must be the servant of DEVELOPMENT, and not vice versa. Dialectically, any development occurs abruptly, on the basis of accumulation of extensive results of GROWTH (which is methodically supported by the configuration school as the most relevant school of strategic management). Avoiding “slow” preparation for the implementation of strategic projects is possible by raising funds from beyond financial markets. That is, lending and emissions, which themselves include specific risk factors acting as a price of benefits over time. Otherwise the development will be assessed in terms of stock market indices which in turn are based on the real growth of capital and demand for its tools, whose cost and effectiveness are dependent on the tools of the same stock market (for example, the average capital cost is calculated in the breakdown of groups of capital taking into account the cost of its attraction). However, the society has long ago understood that the only way to achieve global development is to strive for sustainable development, having developed the whole concept in related areas in detail.

When choosing the type of financial management for global corporations, priority should be given to gaining financial power and reducing the risks of social or environmental problems, whose history has shown to be of little importance, rather than addressing these problems themselves. The “Frigate”-model with global (meaning a sufficient level of transnational corporations) application does not limit competition, although it changes the environment, shifting the innovation focus towards competition for ensuring asset turnover and cash flow efficiency (the last two levels in the model structure – their transformations are associated with truly strategic transformations).

Their values cannot be “dispersed” by stock market tools (in which income is correlated with current assets), which creates a pledge and an incentive to establish a stable framework of development in the future with significant complications for the effects from stock market tools. Having the DEVELOPMENT framework at their disposal, the company can situationally gain GROWTH in a fairly short period of time, which in the opposite direction (gaining capital for development) can take a much longer period of time, despite accelerated scientific progress. Understanding this process is largely due to the “Frigate”-model and the features of its integrated application in assessing sustainability. The model clearly separates intermediate and bifurcation stages of enterprise development, using a simple mechanism of ranking complex financial stability, and operates, respectively, financial indicators. This, in turn, justifies a system of criteria for separating GROWTH from DEVELOPMENT. The peculiarity of sanatorium and resort enterprises is their dependence (proximity) of the goods life cycle and the organization (which helps apply the BCG matrix to the OLS curve), and the increase in the size and almost accordingly market share reduces dependence on crises.

Investment in strategic innovation as the main driver of economic growth should acquire the role of financing the tool achieve DEVELOPMENT; individual innovation, even successfully implemented, does not always lead to strategic results (transition to a new qualitative level) and true strategic, high-risk mobilization of all enterprise resources. Such transitions clearly identify the model.

The most important feature of the new model is also exclusion of the situation where market leaders plan to prepare all enterprises of a corporate association at the same time, which

is impossible without an extreme increase in the risk of underfunding, especially amid low integration efficiency of sanatorium enterprises in the association. However, in real life the risk is compensated by tools of financial service markets (lending, emission, etc.) by removing risk from the corporate system to the global financial system where it can not be fully distributed and repaid by bankruptcy of other market players, which leads to accumulation of force of risk factors. They are returned to the corporation in the form of global and system crises, being transformed from crises able to be diversified (based on model) into crises of the external environment that the company can only take up and survive (or not).

Achieving the research goal is determined by obtaining a new financial analytical tool (model) to identify the type of financial sustainability as a system sequence of complex profile changes (when assessing the internal and external environment) of individual enterprises and their corporate associations. At the level of corporate financial management the model coordinates the process of capital aggregation according to the objectives of type of strategic development (preparation of the financial framework for the chosen main financial strategy), taking into account the required and achieved type of financial state of each enterprise and the corporation as a whole (the remoteness of which is the financial risk of strategic activity). Practically this means that capital value is possible to be structured by system of TSDC and the process is possible to subordinate to the objective of supporting the strategic competitiveness of the main product (service) on the market, that is not provided by any of the known methods. As a result of applying the proposed approach, the basic conditions of sustainable development

are achieved – saving resources and reducing the overall risk of operating a single economic system by reducing the risk of activities of each of its participants, forming a single low-risk external activity environment. Amid difficulties in attracting resources of the stock market (due to its weak development and sanctions imposed on Crimea), regional enterprises financing the introduction of innovative products and services can to a greater extent rely on their own capacities, which in turn creates a specific version of self-sufficient and successful existence of an enterprise amid global economic crises.

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## Integration Processes in the Meat Products Sub-Complex of the Agro-Industrial Complex of Russia: Results, Specifics and Ways of Development\*



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**Abstract.** The Russian agro-industrial complex is characterized by a variety of integration processes, complexity of their forms, contradictory nature of integration results, strengthening of the impact of the integration on the rates of economic growth and development of export potential of the country. In this regard, it is becoming highly relevant to study agro-industrial integration in various sectors of the agro-industrial complex, to define the socio-economic role of integration units, and to substantiate scientifically the prospects for further development of integration processes. The aim of the present work is to carry out a comprehensive study of the processes of agro-industrial integration in the meat products sub-complex of the agro-industrial complex of Russia, to identify their characteristics and areas of further development. The research is carried out in the framework of the system approach to the study of socio-economic phenomena and we use abstract-logical, historical, economic-statistical, and expert methods. The article analyzes the main indicators of development of the industry and concludes that the meat products sub-complex is one of the most dynamically developing sectors of the domestic agro-industrial complex, in which there is a trend of increasing production, import substitution, and exports of meat and meat products. We conclude that integration processes are dominated by vertical regressive integration, and the

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prevailing organizational form is agro-industrial holding; besides, we point out that Russian capital plays a major role in the production of meat and meat products. We reveal that among the branches of meat product sub-complex, poultry farming has the highest level of production concentration, it is followed by pig farming; as for beef cattle breeding, the concentration level is low there. In recent years, large agricultural holdings within the sub-complex deepened their vertical integration, continued expansion into the regions, and extended their production interests to other agricultural sectors. We conclude that the activity of integrated formations of the meat products sub-complex of the Russian agro-industrial complex fully demonstrates the implementation of advantages of large-scale production and agro-industrial integration, but it also has certain negative socio-economic consequences. In conclusion, we put forward the ways of further development of integration processes, on which the efforts of the state, business, industry associations and the scientific community should be focused.

**Key words:** agro-industrial complex, meat products sub-complex, integration processes, integrated unit, agricultural holding.

### Introduction

Currently, agricultural economists pay much attention to the formation and development of integrated structures in the agro-industrial complex. This is due to the fact that the domestic agro-industrial complex includes a variety of integration processes, their forms are becoming more complex and their consequences ambiguous; economic growth rates, competitiveness of agro-food products and the development of export potential of the industry experience an increasing influence of integration.

Theoretical, methodological and practical aspects of agro-industrial integration in modern Russian agriculture were discussed in the works of such scientists, as O.Yu. Antsiferova, G.A. Baklazhenko, D.V. Bogachev, N.A. Borkhunov, A.S. Bychutkin, V.V. Kudryavtsev, I.A. Il'in, O.A. Makarevich, A.S. Mindrin, A.L. Poltarykhin, N.I. Pyzhikova, O.A. Rodionova, P.M. Sovetov, A.V. Tkach, V.Ya. Uzun, I.F. Khitskov, O.P. Chekmarev, N.I. Shagaida, I.V. Emanuel', etc. However, in the majority of cases, the research in this subject area concerns agriculture in general or deals with particular issues related to the creation of integrated structures and management, while there are

virtually no works that analyze integration processes in various sub-complexes and industries within the agro-industrial complex and identify their features and outcomes. We consider it relevant and theoretically and practically significant to conducting such studies, which form the information base for the use of the potential of integrated structures, areas of further integration processes, and adoption of effective state and corporate management decisions.

Integration processes in the meat products sub-complex of the Russian agro-industrial complex constitute the subject of research in the present paper. The goal was to carry out a comprehensive study of agro-industrial integration processes in the sub-complex, identify their characteristics and areas of effective development.

We defined the following objectives for our research:

- 1) to study main development indicators in the industry in recent years;
- 2) to identify the types and forms of integration used most widely in the meat products sub-complex of the agro-industrial complex;

3) to identify advantages and disadvantages of agro-industrial integration in the sub-complex;

4) to substantiate areas of further development of agro-industrial integration processes in the meat products sub-complex.

Scientific novelty of the research consists in the fact that it develops methodological approaches to the study of agro-industrial integration; expands and specifies scientific notions concerning integration processes in the agro-industrial complex in the context of industry-related specifics of the meat products sub-complex; discloses the genesis, features and socio-economic results of implementation of agro-industrial integration within the sector; substantiates the ways in which integration processes and integrated structures in the sub-complex can be developed further.

The term “economic integration” appeared in the 1930s in the works of German and Swedish economists; in Latin, “integration” means “unification into a single whole”. Scientists consider integration from the viewpoint of different approaches: dialectical, system, political economy, and institutional; but in any case, integration means the development of an organization through its unification with other enterprises. The result is an integrated formation (structure), the relations between the participants of which go beyond market transactions.

Integration serves as a tool for connecting individual economic entities, leading to such a situation when on the basis of various relationships a qualitatively new production system is formed. At the same time, one of the main drivers of integration is the desire to obtain a synergetic effect from the unification [1, 2].

Having reviewed scientific works on the topic of the study, we can identify the following types of integration highlighted by the majority of authors (*Tab. 1*).

Integration in the form of unification of enterprises can be implemented in various organizational forms, which include holding companies, consortia, corporations, syndicates, financial and industrial groups, groups of companies, alliances, etc. Researchers note the continuous evolution and increasing diversity of the forms into which companies are unified, the blurring of the boundaries between them, and the increasing complexity of relations between members of integrated structures [3-5].

At the same time, one of the most urgent and long-standing problems that needs to be solved is the fact that Russian law lacks direct legislative norms regulating the creation and functioning of integrated formations. The only current document, which is directly related to integrated structures, is the “Temporary regulations on holding companies that are created during the transformation of state-

Table 1. Integration types

Type	Description
Vertical regressive	Integration with suppliers in order to stabilize or protect a strategically important source of raw materials, and other resources, facilities and equipment.
Vertical progressive	Integration with consumers and buyers to ensure control over output channels.
Sectoral (horizontal)	Acquisition or control of competitors in order to strengthen one’s position in the market.
Diagonal	Association with the enterprise which is at other level of a vertical production cycle and produces parallel types of production.
Conglomerate	Association of enterprises in the technological chain with the simultaneous enlargement of one of the levels of the vertical and/or an association of companies representing different product markets.

owned enterprises into joint stock companies”<sup>1</sup>. The Civil Code of the Russian Federation does not mention any of the above forms of integration, and the provisions of articles on subsidiaries and dependent companies contained in the federal laws “On joint-stock companies” and “On limited liability companies” are obviously insufficient to regulate complex relationships between integrated enterprises.

### Research methods

We used general scientific and special methods to achieve our research goals.

The study was based on the gnoseological principles of dialectics as a scientific approach that considers the objects in a holistic universal relationship and interdependence; the principles include a concrete and comprehensive review of phenomena, historicism, objectivity, and consistency. The meat products sub-complex within the agro-industrial complex is considered as a system: on the one hand, it consists of interrelated elements organized in a certain way; on the other hand, it acts as a single whole in relation to the external market environment.

In carrying out the research within the framework of the system approach to the study of socio-economic phenomena, we used abstract-logical, historical, economic-statistical, and expert methods. We chose the research methods and tools based on the principle of necessity and sufficiency to achieve the objectives of the study, to ensure the required depth and detail of the study of the main aspects of the tasks, and reliability of the results obtained.

<sup>1</sup> On the measures to implement industrial policy during the privatization of state-owned enterprises: Decree of the President of the Russian Federation No. 1392 dated November 16, 1992.

In the course of the research we used statistical and analytical information of the Federal State Statistics Service, the Ministry of Agriculture of the Russian Federation, data from the websites of organizations within the Russian meat products sub-complex and companies that provide advisory support.

It should be noted that currently there is no separate state statistical monitoring of the functioning of integrated structures. Neither is there a uniform system for collecting and processing of statistical data on mergers and acquisitions. The range of organizations in the agricultural sector that are required to submit consolidated reports is limited<sup>2</sup>. It is difficult to carry out full-scale quantitative scientific studies in this subject area because the data available are fragmented and dispersed in various information sources about the activities of integrated formations within the agro-industrial complex.

### Research findings and their analysis

Meat products sub-complex is one of the most dynamically developing sectors in the domestic agro-industrial complex. The development of the sector has become more stable than many other economic sectors in Russia. In recent years, we see a significant increase in the rate of recovery of pork production, and the pre-reform volume of poultry production has been achieved. The volume of cattle meat production continues to decline: today it is the only type of industrial meat, the production of which does not grow and the imports exceed 40%. However, there has been a positive trend in cattle breeding at agricultural organizations and peasant (farm) enterprises (*Tab. 2*).

<sup>2</sup> On consolidated financial statements: Federal Law No. 208-FZ dated July 27, 2010.

Table 2. Production of major livestock products, exports and imports of meat and meat products in Russia in 2010–2016, thousand tons

Product	2010	2011	2012	2013	2014	2015	2016
1. Cattle and poultry for slaughter in slaughter weight:							
in farms of all categories	7166.8	7519.5	8090.3	8544.2	9070.3	9565.2	9899.2
in agricultural organizations	4342.3	4760.1	5414.7	6007.9	6568.8	7129.5	7515.2
in households	2614.9	2532.1	2444.1	2300.2	2238.5	2156.8	2093.6
in peasant (farm) enterprises	209.6	227.2	231.5	236.1	263.1	278.8	290.4
2. Cattle for slaughter in slaughter weight:							
in farms of all categories	1727.3	1625.5	1641.5	1633.3	1654.1	1649.4	1619.0
in agricultural organizations	565.3	514.1	533.4	529.9	529.8	525.9	535.8
in households	1080.8	1024.8	1016.1	1001.3	1004.8	993.7	948.0
in peasant (farm) enterprises	81.2	86.5	92.0	102.0	119.5	129.8	135.1
3. Pigs for slaughter in slaughter weight:							
in farms of all categories	2330.8	2427.6	2559.5	2816.2	2973.9	3098.7	3368.2
in agricultural organizations	1228.0	1354.8	1593.7	1988.6	2230.2	2424.1	2716.8
in households	1033.9	1003.2	903.6	775.5	697.7	631.5	605.2
in peasant (farm) enterprises	69.0	69.7	62.1	52.1	46.0	43.1	46.2
4. Poultry for slaughter in slaughter weight:							
in farms of all categories	2846.8	3204.2	3624.8	3830.9	4161.4	4535.5	4620.8
in agricultural organizations	2515.7	2858.0	3254.7	3459.3	3776.5	4148.9	4232.0
in households	312.6	319.1	337.2	335.7	339.0	334.3	338.0
in peasant (farm) enterprises	18.5	27.1	32.9	35.9	45.9	52.3	50.9
5. Imports of meat and meat products	2855	2707	2710	2480	1952	1360	1246
6. Export of meat and meat products	97	76	128	117	135	143	236
Source: Production of main livestock products by categories of farms. Resources and the use of meat and meat products. Available at: <a href="http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/#">http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/#</a>							

In the structure of production, the leaders are agricultural organizations, whose share in the total volume is constantly growing, reaching 75.9% in 2016. The share of agricultural organizations in the main branches of animal husbandry varies significantly. If in the “early-ripe” production of poultry and pig in 2016, it reached 91.6% and 80.6%, respectively, then in cattle breeding, which begins to attract large corporate investors only in the last two years, the share of agricultural organizations is only 33.1%. The decrease in the share of private farms in raising pigs for slaughter is due to the spread of African swine fever (ASF) and also due to the fact that private subsidiary plots are being ousted from the market by

large agricultural holdings that increase their production (*Tab. 3*).

The production of major import substituting products in the meat products sub-complex is presented in *Table 4*.

In 2016, the share of domestic meat and meat products in the total volume of resources amounted to 89.7%, which is by 2.5 percentage points higher than in 2015 and by 4.7 p.p. higher than the threshold value stipulated by the Food Security Doctrine of the Russian Federation (85%).

The increase in production in the sector was provided by increasing the resource base and increasing the efficiency of its use. During the analyzed period, pig population increased from

Table 3. Structure of production of basic livestock products in 2010–2016, %

Наименование	2010	2011	2012	2013	2014	2015	2016
1. Cattle and poultry for slaughter in slaughter weight:							
in agricultural organizations	60.6	63.3	66.9	70.3	72.4	74.6	75.9
in households	36.5	33.7	30.2	26.9	24.7	22.5	21.2
in peasant (farm) enterprises	2.9	3.0	2.9	2.8	2.9	2.9	2.9
2. Cattle for slaughter in slaughter weight:							
in agricultural organizations	32.7	31.6	32.5	32.4	32.0	31.9	33.1
in households	62.6	63.1	61.9	61.3	60.8	60.2	58.6
in peasant (farm) enterprises	4.7	5.3	5.6	6.3	7.2	7.9	8.3
3. Pigs for slaughter in slaughter weight:							
in agricultural organizations	52.7	55.8	62.3	70.6	75.0	78.2	80.6
in households	44.3	41.3	35.3	27.5	23.5	20.4	18.0
in peasant (farm) enterprises	3.0	2.9	2.4	1.9	1.5	1.4	1.4
4. Poultry for slaughter in slaughter weight:							
in agricultural organizations	88.4	89.2	89.8	90.3	90.8	91.5	91.6
in households	11.0	10.0	9.3	8.8	8.1	7.4	7.3
in peasant (farm) enterprises	0.6	0.8	0.9	0.9	1.1	1.1	1.1

Source: Production of main livestock products by categories of farms. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/enterprise/economy/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/#)

Table 4. Production of main types of import substituting products in the meat products sub-sector in 2010–2016, thousand tons

Product	2010	2011	2012	2013	2014	2015	2016
Slaughterwarm, fresh, chilled cattle meat	220	190	178	199	183	203	213
Slightly frozen, frozen, deep frozen and defrosted cattle meat	43.0	38.6	36.0	41.6	41.1	51.7	50.3
Slaughterwarm, fresh, chilled pork	755	815	942	1232	1438	1655	1875
Slightly frozen, frozen, deep frozen and defrosted pork	57.6	61.6	58.5	67.5	87.7	108	118
Poultry meat and by-products	2774	3028	3405	3610	3979	4340	4457
Slaughterwarm, fresh, chilled poultry and its by-products	1669	1777	2097	2230	2458	2715	2857
Slightly frozen, frozen, deep frozen and defrosted poultry and its by-products	1061	1240	1293	1368	1507	1604	1575
Sausages	2439	2486	2533	2502	2476	2445	2411

Source: Production of main types of import-substituting foodstuffs. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/importexchange/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/importexchange/#)

17,217.9 thousand head to 22,027.7 thousand head, poultry stock increased from 449.3 million head to 553 million head (as of the end of the year). However, cattle population decreased from 19,967.9 thousand head to 18,752.5 thousand head<sup>3</sup>.

In 2010–2016, 217 new complexes and farms were commissioned and 81 facilities were upgraded in pig farming; 90 new poultry farms were built and 143 were upgraded in poultry

<sup>3</sup> Population of farm animals by types of farms. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/enterprise/economy/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/#) (accessed 09.11.2017)

farming<sup>4</sup>. Mixed fodder production in Russia increased from 16.9 million tons in 2010 to 25.8 million tons in 2016, and about 75% of mixed fodder production is provided by agricultural holdings [6].

<sup>4</sup> On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2015: Resolution of the Government of the Russian Federation dated May 10, 2016 No. 864-r; On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2016: Resolution of the Government of the Russian Federation dated May 3, 2017 No. 850-r.

The current task of the industry is to develop pedigree work, since domestic producers use mainly foreign breeding material that is often not adapted to the natural and climatic conditions of Russia. There is a significant dependence on the imports of premixes, amino acids, probiotics, vaccines, food acids, dyes, etc., so it is necessary to build and modernize domestic plants for their production.

The Ministry of Agriculture of the Russian Federation notes an important role the integrated units play in the growth of production within the sector because they implement large investment projects, create the necessary infrastructure, and upgrade the entire technological chain<sup>5</sup>.

In many developed countries, such as the United States and a number of Western European countries, vertical integration in the meat industry is a common practice and it tends to expand. Agro-industrial integration is on the rise in developing countries, as well. However, foreign integrated structures have mainly a contractual and “incomplete” integration, under which cattle breeding is an independent business process implemented on the farms [7-10].

The activities of large integrated units in the domestic meat products sub-complex were developed most vigorously in the 2010s, although the first attempts to implement integrated growth strategies by enterprises of the sector were made in the 1990s, when in the course of economic reforms they had to deal with competition in the markets of meat and meat products and faced the need to survive under new economic conditions.

<sup>5</sup> On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2016: Resolution of the Government of the Russian Federation dated May 3, 2017 No. 850-r.

At the initial stage, during the transition period of the Russian economy, vertical integration processes became the most widespread in the meat products sub-complex. This strategic choice was stimulated by the following factors: breakdown of inter-sectoral production linkages formed in the command and administrative economy; lack of a raw material base of the required quality and guaranteed sales of products in the meat processing sector; lack of market information; underdeveloped agricultural markets; lack of financial resources. The desire to overcome the challenges that the new environment presented to the economy in transition has led to the restoration of previous or the formation of new associations, but this time on the basis of private property and the market-driven organizational and economic mechanism.

During the 1998 financial crisis Russia experienced a sharp devaluation of the ruble, which increased the competitiveness of domestic food and raised investment attractiveness of agriculture, especially livestock, so integration processes in the meat products sub-complex received a significant development impetus during this period. To a certain extent, the development of large enterprises was facilitated by the federal target program for the stabilization and development of agro-industrial production in the Russian Federation for 1996–2000. In the late 1990s – early 2000s, in a number of subjects of the Russian Federation, regional authorities started to provide support to agricultural holdings, and new investors were involved in agro-industrial integration.

Having analyzed the integration mechanisms, we see that the regressive option, which was implemented by processing enterprises, prevailed in the framework of vertical integration. The main factor that determined

this way of development was the shortage of quality raw materials that was observed after privatization and reduction of production at livestock enterprises, and that then increased after the 1998 financial crisis. Cessation of imports and the insufficient volume and quality of meat produced by domestic livestock producers led processing enterprises to decide to form their own raw material base through integration with suppliers, which in most cases were unprofitable farms. Later on, regressive vertical integration spread to fodder production.

Vertical progressive integration was less common. The weak financial position of agricultural producers did not allow them to act as a full-fledged integrator. But there were examples of progressive integration of processing enterprises with regard to marketing and trade, as well as fodder producers with respect to livestock enterprises.

Opportunities for further development of integrated structures, for the increase in the diversity of integration types, and for significant growth in production volumes emerged in the 2000s due to the adoption of Federal Law “On agriculture development” in 2007, implementation of the priority national project “Development of the agro-industrial complex” in 2006–2007 that was continued in the state program for development of agriculture and regulation of the markets of agricultural products, raw materials and food for 2008–2012, and in target programs for development of the agricultural sector, adopted in many constituent entities of the Russian Federation. Protectionist measures, in particular the quotas for the import of raw meat introduced in 2003 to protect the domestic market, also contributed to the growth of production.

During this period, integrated units started to implement an active investment phase, and the companies operating in other agricultural

sectors showed interest in diversifying activities in livestock breeding (for example, Rusagro agricultural holding that specializes in sugar and fat-and-oil production launched the construction of a pig-breeding complex). The process of consolidation began in the poultry market.

In 2008–2010, due to the financial and economic crisis, many integrated structures experienced serious financial difficulties and postponed the implementation of several planned investment projects. A number of agricultural holdings went bankrupt. However, state support in the form of subsidies for poultry and livestock grown and sold for one kilogram of live weight made it possible to maintain the dynamics of development of many enterprises in the industry.

In the 2010s, the meat products sub-complex in Russia is influenced by different economic factors. The pool of factors that create new challenges for enterprises in the industry included the growth of imports after the country’s accession to the WTO; problems with the receipt of federal subsidies to pay interest rates on investment loans in 2013–2014; the financial and economic crisis of 2014–2015, which was manifested in the devaluation of the ruble, increasing rates on investment loans, reducing solvency and redistribution of consumer preferences; sharp fluctuations in meat prices; complicated epizootic situation concerning ASF; amendments to Federal Law “On trade” in 2016, etc.

On the other hand, there emerged a unique opportunity for a breakthrough development of the domestic meat products sub-complex when the Decree of the President of the Russian Federation “On the application of certain special economic measures to ensure security of the Russian Federation” was adopted in August 2014 and banned the import of meat from the

EU, the U.S., Australia, Canada and Norway. Pork producers got such a chance earlier, at the beginning of the year, after the ban on the imports of pork products from the U.S. and EU countries for veterinary reasons. The growing state support provided by state programs for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2008–2012 and 2013–2020 was used by many integrated structures of meat products sub-complex for the purposes of implementation of new investment projects and expansion of their activity.

During this period, the integrated units of the sub-complex were deepening vertical integration by engaging production links in the process throughout the technological chain. The largest agricultural holdings continued to expand into the regions and extended their land area. Unlike the initial stage, the process of acquisitions involved financially stable enterprises. There was a diversification of activities, expansion of production interests on other agricultural sectors, including other areas of the agro-industrial complex; i.e., conglomerate integration was implemented (for example, the group of companies “Agro-Belogorye” launched the construction of a plant for producing agricultural equipment). As a result of gradual development and combination of different forms of integration, the nature of relations between the participants of integration associations has become more complicated.

In conditions of tough intra-industry and inter-industry competition, emergence of retailers on the market of products of processing industries, decline and stagnation of demand for meat and meat products, agricultural holdings in the meat industry entered new market segments of turkey and duck meat, beef, etc., developed sales and trade divisions, strengthened the policy of branding and

intensified cooperation with other logistics intermediaries and distribution networks. The leading strategy for the development of large integrated structures was the system of production and sale of products “from the field to the counter”.

As a result, large-scale producers have been able to strengthen their positions, while small companies in the face of declining real incomes and rising production costs have either occupied narrow niches or lost financial stability. The fact that a large number of meat producers went bankrupt in the crisis of 2014–2015 has led to the intensification of the processes of mergers and acquisitions of assets with low liquidity. More than 60% of the enterprises on the verge of bankruptcy have been acquired by large agro-industrial holdings. Market consolidation became the main trend in 2016 [11].

Having studied the organizational forms of integration of enterprises within the sub-complex, we conclude that agro-industrial holding is the most common form. As we already mentioned, there are no legal provisions on holding activities in Russia, and the “Temporary regulation on the holding companies established as a result of the transformation of state-owned enterprises into joint-stock companies” defines a holding company as an enterprise whose assets include controlling stakes of other enterprises<sup>6</sup>. In practice, the holding is a group of companies consisting of a parent company and subsidiary companies managed by the parent company through a controlling or blocking stake (share in the authorized capital). Legal support of holdings’ activities, protection of interests of their participants, shareholders, and creditors

<sup>6</sup> On the measures to implement industrial policy during the privatization of state-owned enterprises: Decree of the President of the Russian Federation No. 1392 dated November 16, 1992.



lags far behind the requirements of the present.

The largest agro-industrial groups of the sector are the enterprises that are well-known in many regions of Russia: Agro-Belogorye, Agrokom, Agrokompleks, Agroeko, BEZRK-Belgrankorm, Velikolukskiy agro-industrial holding, Damate, Eurodon, Miratorg, Ostantkino, Prioskolie, Prodo, Rusagro, Siberian agrarian group, Cherkizovo, etc. Distribution of agro-holdings of the meat product sub-complex by subjects of the Russian Federation is quite uneven due to the influence of a range of factors (climatic conditions, economic and geographical position, density and social and cultural features of the population, administrative competence of heads of enterprises and regional authorities, etc.). The volume of production is the largest in the Belgorod (with a significant margin), Kursk, Chelyabinsk, and Bryansk oblasts and in Stavropol Krai<sup>7</sup>.

It should be noted that leading positions in the meat products sub-complex are occupied by domestic producers, while many other sectors of the agro-industrial complex are dominated by foreign capital. Thus, in general, the share of foreign capital in the agro-food market and in milk processing reaches 60%, in the juice market – 70%, in the market of frozen and canned vegetables and fruits – 80 and 90%, respectively [12].

The concentration of production in the meat products sub-complex is at an average

level (*Tab. 5*). In the domestic agro-food market, sugar and vegetable oil production companies are characterized by the highest consolidation, while, for example, egg, milk and flour production companies are fragmented.

More than half of poultry meat production is concentrated in ten major companies. The largest producer of poultry meat is Prioskolie; as of 2016, its share in the national production volume is 11%. Cherkizovo ranks second with a share of 10%, and Resurs ranks third, with 6%.

The share of the top 10 producers in pork production did not exceed 50%. Since 2010, Miratorg is the leader in pork production: in 2016, its share was 11%. Rusagro ranks second, and Cherkizovo – third (more than 5% of the market in each of the companies).

The concentration on the market of meat products is significantly lower: five major producers account for about 22%. The leader in the Russian market of meat processing is Cherkizovo: its share is 7% [6, 13, 14].

In the future, there is a possibility of increasing the concentration of production in large integrated units of industrial type with the strengthening of the role of agricultural holdings at the national level in all three of the above industries [11].

The lowest concentration of production is observed in beef cattle breeding. Quite a few small enterprises engage in beef production, and most part of them use dairy cattle that is outside lactation period. The top five producers

Table 5. Concentration of production in the meat products sub-complex, %

Indicators	Five major producers			Ten major producers		
	2012	2014	2016	2012	2014	2016
Total share of major producers of poultry meat	42	36	45	55	52	52
Total share of major producers of pork meat	28	34	30	39	47	44

Source: analysis of the work of agricultural holdings in Russia. Available at: [http://www.agricons.ru/components/com\\_jshopping/files/demo\\_products/](http://www.agricons.ru/components/com_jshopping/files/demo_products/)

<sup>7</sup> Production of cattle and poultry for slaughter in slaughter weight. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/enterprise/economy/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/economy/#) (accessed 09.11.2017).

account for about 3% of total production. In the future, it is possible to increase the degree of concentration of beef production; but due to the technological features, its level will remain the lowest among the sectors within the meat products sub-complex [15].

The economies in transition have a similar level of production concentration. For instance, in Ukraine, 14 largest producers of meat processing industry provided 35% of sales volume; the share of 30 largest producers was 46%. In developed countries, the level of production concentration is also high. For example, four major producers in the U.S. owned 35% of meat and meat products production, and eight major producers controlled 50% of the market [16, 17].

Differences in the levels of concentration and development of the vertical integration in sectors within Russia's meat products sub-complex are identical to those observed in the world practice: their greatest degree is found in poultry farming, the one close to it – in pork production and the low degree – in beef cattle breeding [18, 19].

Success in the implementation of integrated growth strategies of major companies in the meat products sub-complex of Russia is evidenced by the fact that out of the 18 agro-industrial producers included in the Forbes 2016 rating of 200 biggest Russian non-state companies six companies specialize in the production of meat products, and four companies have some of their production facilities in the meat industry. All of them are integrated formations [20].

The activities of major national producers make a significant contribution to Russia's agro-industrial production and participate in addressing food security issues. At the same time, we should note the importance of integrated regional formations for socio-

economic development of Russia's constituent entities and federal districts.

In 2015–2016, amid the decline in imports of meat and meat products and the decline in consumer demand due to the fall in people's real incomes, domestic markets for pork and chicken meat became saturated, which intensified the competition there. The growth of production began to outstrip consumption, and producers started to talk about the sector achieving a "bottom of profitability". Currently, import substitution in the meat industry is almost complete, and the forecasts for consumption growth in the domestic market are very cautious (in pig and poultry sectors there already exists the risk of domestic overproduction), while amid declining growth in world trade in general, the volume of international trade in food continues to increase [21].

Thus, the possibilities of further stable operation and growth of the industry are connected with entering new foreign markets. Indonesia, Singapore, Saudi Arabia, China, Iran, Japan and Brazil have promising markets for pork and beef supplies. It is possible to export poultry meat and by-products to China, the Middle East and North Africa.

According to the priority state project "Export of agricultural products", the volume of Russian exports of meat and meat by-products in 2017 should be 0.2 billion US dollars. It should increase to 0.32 billion US dollars in 2018, and reach 1.75 billion US dollars by 2025<sup>8</sup>. At the same time, the government counts mainly on major agricultural holdings to provide the necessary volume of export supplies.

<sup>8</sup> Passport of the priority project "Export of products of the agro-industrial complex". Available at: <http://static.government.ru/media/files/cMQSd7VmfbXrGXLv6ncG3ZNq8QtzOvAH.pdf> (accessed 09.11.2017)

The main task in the development of meat and meat products exports is to obtain permits from the regulatory authorities of importer countries for Russian producers' access to relevant markets. Some progress has already been made in this direction. As a result of the work carried out by Rosselkhoznadzor (Federal Service for Veterinary and Phytosanitary Surveillance), the right to export various types of meat and meat products to Egypt, Iran, Jordan and Iraq was obtained in 2016<sup>9</sup>. Cherkizovo Group has received a permit for the export of poultry meat to the UAE. By 2019 the Group plans to raise the share of exports in the total sales of chicken meat up to 15–20%, primarily at the expense of supplies to Egypt, Iran, Iraq and China. As for Miratorg, it delivered meat products to Iran, Hong Kong and the UAE in 2016. The company is planning to increase the share of exports from 5 to 25% in three years mainly with the help of deliveries to the Chinese market.

Turkey meat is one of the promising types of products in terms of export development. The main markets for it are African and Asian countries – Sierra Leone, Gabon, Hong Kong, and Vietnam. Damate Group is planning to develop exports of turkey meat to Serbia, other European countries, the UAE, and Saudi Arabia and to increase the share of its exports in the total production to 25%. Evrodon – the largest Russian producer of duck and turkey meat – signed a contract for the supply of duck meat products to China [21].

Further development of a globally competitive meat products sub-complex is connected with the introduction of innovative methods of

production and packaging of products, including biotechnologies, for the production of high-quality, safe and environmentally friendly food products, the demand for which is growing both abroad and domestically. If in the second half of the 20th century the main contribution to the growth of agricultural productivity was associated with the introduction of highly specialized technologies, special equipment, etc., then today breakthroughs in the agricultural sector are associated with the implementation of platform technology packages<sup>10</sup>. It is the large integrated formations that can now act as drivers of technological development in the meat products sub-complex.

#### Discussion of the results

Modern Russia implements a model of meat production sub-complex development on the basis of vertically integrated industrial complexes with a full production cycle from mixed fodder plants to deep meat processing. Vertical integration is typical of poultry and pig breeding and processing enterprises, because these sectors have a high level of concentration and mechanization, which helps achieve efficiency through the scale of production in a large business.

The development of integration processes in the sector has skipped the stage of the contractual form of relations used in the world practice and immediately began with the most “rigid” option of integration based on the transfer of ownership and centralization of management in the hands of an integrating company.

Many countries, for example, in Europe, seldom use vertical integration through the

<sup>9</sup> On the approval of the national report on the progress and results of implementation of the state program for development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013–2020 in 2016: Resolution of the Government of the Russian Federation dated May 3, 2017 No. 850-r.

<sup>10</sup> About the approval of the Forecast of scientific and technological development of the agro-industrial complex of the Russian Federation for the period till 2030: Order of the Ministry of Agriculture dated January 12, 2017 No. 3.

share in ownership; instead they implement a different path based on independently operating mixed fodder plants, meat processing plants and animal husbandry farms; this path provides meat processing with the necessary raw materials. The integration of farming into large-scale business takes place through the conclusion of long-term contracts for the supply of products [7, 22]. In Russia, small businesses are not incorporated into vertical production chains, but occupy narrow niches in the food market.

Performance results of agro-holdings of the Russian meat products sub-complex fully show how large production implements its advantages such as financial opportunities for acquisition of modern technologies and equipment; increase of productivity of agricultural production; obtaining more favorable conditions for loans; ability to influence the competitive situation due to a considerable share of the market; possibility of deliveries to large distribution networks; higher activity in the implementation of an innovative way of production development; opportunities to attract highly qualified specialists; availability of funds to improve working and living conditions, professional and cultural development of employees, etc.

In addition, the vertical integration of production makes it possible to provide the raw material base of meat processing in the required amount and of guaranteed quality; to reduce transaction costs through the transfer of transactions of market structures in the domestic division of the company; to minimize logistics costs through cluster development of the full production cycle in a certain area; to optimize the tax burden by eliminating taxes on intermediate products and moving the production to areas with more favorable tax conditions; to reduce business risks through their distribution to different

market segments and control over the entire supply chain; to expand the range, respond to changing consumer demands, improve product competitiveness and reduce costs by ensuring full control of the quality of raw materials and their complex processing; to improve information security activities; to solve environmental problems through the use of waste-free technologies.

When these advantages are combined, they produce a synergetic effect mentioned earlier – an integrated formation obtains new system properties that ensure the growth of the overall effect to a value greater than the sum of the effects of its participants acting separately. The advantages of large-scale production and its greater resistance to adverse or unexpected changes in the external environment of business functioning were particularly evident in the crisis years for the country's economy.

But at the same time, integration processes in the Russian meat products sub-complex had negative economic and social consequences. These include the monopolization of the market and decline in competition, narrowed opportunities for development and the ousting of small and medium business from the industry, emergence of barriers impeding the entrance to the market. Besides, small producers and owners of personal subsidiary farms do not have access to the fertile lands that passed at the disposal of integrated structures that in some cases formed the latifundia. Among the negative consequences we can point out political and economic lobbying, when receiving state support as well; the emergence of contradictions in the economic interests of the members of integrated formations; growth of unproductive costs for the management of extensive organizational structures of agricultural holdings; sharp polarization of the rural population on employment opportunities

and income levels, violation of the foundations of the traditional rural way of life, deterioration of the environmental situation in the areas where large livestock complexes are situated, which causes protest moods among the local population and increases social tension, etc.

In order to prevent and reduce negative impacts of these phenomena, it is necessary to regulate the development of integration processes at all levels of government. Currently, the state has increased its attention to beef cattle breeding, the most problematic and specific branch of the meat products sub-complex. It is necessary to apply a balanced approach to the development of integrated structures in this branch. Due to the extended production cycle, the expediency of vertically integrated units in it raises questions. On the other hand, if here is no effect of the scale of production, then the beef cattle breeding industry will find it difficult to pay off investment costs and reduce unit costs that are the highest in the meat industry. Vertical integration is not common in beef cattle breeding in other countries, but in our producers face the same problem of lack of agricultural outsourcing, which arose in the 1990s in pig breeding and led to the establishment of integrated structures in the industry. Perhaps it would be expedient to establish regional cooperative centers of beef cattle, integrate small and medium business, and specialize in the cultivation and processing of standardized production of red beef [23].

In our opinion, it is necessary to recognize that the sub-complex should combine large agro-industrial formations, medium-sized agricultural organizations, farms and personal subsidiary plots, since such a combination will help implement the advantages of each of the forms of management, promote economic growth in the industry and sustainable development in rural areas.

The results of the study provide grounds to determine the ways for effective development of integration processes and integrated structures in the meat products sub-complex; thus, we suggest that the government, business, industry associations and the scientific community should focus their efforts on the following:

- help integrated structures enter the world agricultural market;
- implement full-scale anti-epizootic measures to combat animal diseases, primarily ASF that represents a major threat to the development of pig production;
- create a legal framework for property and distribution relations between the participants of integrated structures and adopt a federal law on holdings;
- develop scientific and methodological support in the field of organizational and economic mechanism of integrated units, taking into account the interests of all participants;
- organize state statistical monitoring of the functioning of integrated structures in order to form a system of statistical indicators that comprehensively characterize their activities;
- concentrate investment activity of the integrated formations on modernization of production and sale, development of selection and genetic and fodder base;
- carry out vertical integration of producers with research institutions, which will result in the creation of research and production associations in order to form an innovative direction of development of the industry;
- create and expand contractual forms of integration, inter-organizational interactions and institutional formations;
- develop the diversification of activity of integrated formations (toward deep processing,

coverage of new regions, meat cattle breeding projects), increase production volumes for developing segments of the market (turkey, duck, rabbit meat, etc.), improve the safety and quality of products;

- provide modern scientific and methodological support to corporate strategic management, management of business processes and quality, and marketing;

- provide governmental regulation of the activity of integrated structures by improving the land legislation, for the purpose of leveling the negative impact on the competitive environment, ecological and socio-economic situation in rural settlements;

- regionalize governmental policy aimed to support the integrated structures taking into account specific features of constituent entities of the Russian Federation and the current development level of vertically integrated productions in the corresponding territories;

- increase the attention to corporate social responsibility of integrated agro-industrial

formations and to how they address social problems;

- develop public-private partnership mechanisms when creating integrated structures in the “growth points”; develop the mechanisms for implementation of large investment projects by integrated formations.

The results of the study that systematizes and elaborated the content and genesis of agricultural integration taking into account Russian and industry-related specifics expand the scientific understanding about integration processes in the meat products sub-complex, contribute to overcoming the fragmentation of scientific knowledge in this subject area, contribute to the formation of an information base for further theoretical and applied research and can be used to design programs for development of the meat products sub-complex and rural areas, mechanisms of state support of meat production, and preparation of proposals to improve the regulatory framework of integrated structures.

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# SOCIAL DEVELOPMENT

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## On the Issue of Economic Cost of Disability\*



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**Abstract.** The goal of our paper is to determine the extent of economic damage caused by the extent and rate of disability in Russia. The study is based on the analysis of the works of domestic and foreign authors, official documents of international organizations, and state statistics data. We propose a conceptual scheme revealing the system links between disabled population and other socio-economic problems. We prove that one of the crucial factors in reducing economic losses from disability is appropriate social policy that would stimulate the implementation of labor potential of disabled people. We give recommendations concerning the choice of priority indicators to be used in the implementation of programs to promote employment of disabled people and their professional rehabilitation. We consider the consequences of disability associated with declining public health and the economic losses it causes. We divide economic losses into two groups: the first one includes the expenditures on social support that is provided to the

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disabled and their families, the second one includes the expenditures associated with unemployment of the disabled. The losses in the form of underproduction of GDP by unemployed disabled people amounted to 11.3 trillion rubles in 2015. It is shown that part of the losses can be compensated by improving the system for promoting the employment of disabled people. We confirm the expediency of differentiation of social policy concerning disabled people depending on their age and state of health. Among the disabled, 39 percent are over 60 years of age. The number of disabled people of working age is greater among men. The age structure of the group of employed persons with disabilities and persons with disabilities who are not part of the labor force is shifted toward senior groups, while the distribution among the unemployed is more uniform. This feature indicates that the factor that hampers the employment of persons with disabilities is not their age, but their health and willingness to work in the conditions offered by employers. This conclusion is confirmed by the fact that the highest employment rate is registered among people with disability group 3 (25% among men and 19% among women) and also by a low prevalence of flexible forms of employment contract (in 2016, 88% of employed people with disabilities worked full time). The findings presented in our paper may be of interest to specialists conducting research on the impact of disability on economic development of territories, as well as to specialists in the field of social management. In the future, we are planning to study in more detail the impact of disability on economic development at the regional level.

**Key words:** population quality, disabled people, economic consequences of disability, social management.

### Relevance of the research

The growth in disability rate among the population is a complex issue that affects all spheres of society: spiritual, social, economic and political. Poverty and inequality, inadequate working conditions, poor medical care, and injuries are among the sources of disability. In developed countries, long-term (chronic) diseases cause the majority of cases of primary disability. This is due to the epidemiological transition and demographic ageing. Poverty and inequality in access to health care are the drivers of disability in poor and developing countries, where the social protection system is still in its infancy. It is in the context of poor development of the welfare state that the problems related to disability and organization of social support for people with disabilities become particularly acute.

The appeal to the social component of disability construction is legally recorded for the first time in the text of the UN Convention on the Rights of Persons with Disabilities,

adopted by the General Assembly resolution on December 13, 2006<sup>1</sup>. At present, civil society and the government focus their efforts on overcoming social exclusion of persons with disabilities. It should be noted that conceptual changes in disability theory happened alongside historical events. After the social model of disability was formed as an independent theoretical construct, it served as an impetus to the development of research on the issues that would help solve the problems related to social protection of disabled people, providing them with accessible environment and equal opportunities [1]. Having analyzed the topics of 1,048 papers on disability from the Russian Scientific Electronic Library (e-library.ru) in 2008–2017, we see that in the framework of demography and economic disciplines disability was considered mainly in the context

<sup>1</sup> UN Convention on the Rights of Persons with Disabilities. Available at: [http://www.un.org/ru/documents/decl\\_conv/conventions/disability](http://www.un.org/ru/documents/decl_conv/conventions/disability)

of people's health deterioration. Studies of inclusive education, accessible environment, rehabilitation technology, employment of disabled people, and protection of their rights have also become popular trends. The present paper summarizes and analyzes the accumulated theoretical material, defines approaches to the study of disability, determines its place among the problems considered in the framework of population economics.

The connection between disability, as one of the parameters of the quality of the population, and the indicators of national economic development is illustrated in the applied section of the work that determines the extent of economic damage caused by growing disability rates among Russian population. In order to achieve the goal of the study, we solve the following research tasks:

- 1) we review basic concepts concerning population quality;
- 2) we determine the place of disability among the concepts that characterize population quality;
- 3) we consider the place of disability among social issues;
- 4) we analyze trends in disability indicators;
- 5) we assess the economic cost of disability in Russia;
- 6) we formulate recommendations to reduce economic losses from population disability.

The information base of the research includes state statistics data, and the works of Russian and foreign authors. The final part of the article presents a discussion of its findings and the prospects of their practical use.

## Results

*1. An overview of major concepts that deal with population quality, preservation of its potential, and development.*

The works of the first economists already contained an appeal to the population as an

object of scientific research. Scientists were interested in population size, age and gender structure, birth and death rate. Demography was developing alongside the system of state statistical accounting. The main regularities in population dynamics and structure were identified back in the 19th century. In the future, there was a deepening of understanding of the causes and factors that determine population features in specific territories. The first conceptual generalizations of the relationship between the economic development of countries and the specifics of their population belong to such outstanding scientists as A. Smith, D. Ricardo, T. Malthus, and K. Marx. Many of the ideas they put forward are still relevant.

In addition to studying the impact of economic factors on the population reproduction, scientists were interested in the impact of demographic factors on economic development. The idea that the development of human qualities is a driver of economic prosperity was expressed by T. Schultz [2] and G. Becker [3] – the founders of the theory of human capital. Subsequently, the understanding of the role of the human factor in economic development was expanded. The abilities of individuals that cannot be directly applied in production at the moment, but can be activated in the future, began to be considered within the framework of the concept of human potential [4]. In the works of A. Sen, the connection between economic prosperity and the formation of civil society was understood in a new way. The concept of human development he proposed has gained wide recognition among sociologists and economists [5].

In Russia, regular studies of interrelations between economic development and demographic processes are conducted at RAS Institute of Socio-Economic Studies of

Population. The scope of work covers the issues related to the quality of social management, human potential of territories, population quality, analysis of social inequality, quality of life and standard of living. The findings of the studies confirm the presence of a strong connection between economic and social processes, at the regional level, as well [6]. For instance, A.Yu. Shevyakov and A.Ya. Kiruta prove that reducing excessive inequality in Russia will not only stop depopulation, but also provide significantly higher rates of economic growth [7]. Similar studies are carried out at VolRC RAS [8; 9; 10].

2. *Determining the place of disability among the concepts that characterize population quality.*

Population economics provides an opportunity to study those characteristics of society, which form the basis of human potential. One of these basic components is human health [11]. All the cases of its deterioration have a negative impact on labor productivity, resulting in financial losses for employers and the economy as a whole. The health of individuals serves as a driver of economic development of society and provides its reproduction.

Growing disability rates among the population represent the most severe manifestation of ill health. The notions of the complex nature of disability formed the basis of the Convention on the Rights of Persons with Disabilities. The document states that in addition to the health factor, it is environmental and attitude barriers that lead to the formation of disability. This interpretation, in contrast to alternative approaches, allows us to consider the increase of social participation of disabled people through the elimination of such barriers as one of the ways to reduce the losses of society caused by growing disability rates. In particular, social inclusion of persons with disabilities can partially compensate for the decline in population quality caused by disability. Such an understanding of the nature and consequences of disability is more in line with an integrated approach to its study, which understands disability as a problem of activity in conditions of limited freedom of choice. This interpretation makes it possible to discuss the individuality of socio-economic effects of disability, which need to be taken into consideration, for example, when developing rehabilitation programs (*Tab. 1*).

Table 1. Approaches to research on disability and some examples of definitions of this term

Approach	Definition and sources
Medical	The term “disabled person” means any person unable to ensure by himself or herself, wholly or partly, the necessities of a normal individual and/or social life, as a result of deficiency, either congenital or not, in his or her physical or mental capabilities (UN Declaration on the Rights of Disabled Persons, 1975).
Legal	Disability is a certain “degree of restriction of life activity due to health issues with persistent disorder of body functions, causing the need for social protection” (On social protection of disabled persons in the Russian Federation: Federal Law No. 181-FZ of November 24, 1995 (as amended on February 2, 2012); On the procedure and conditions for recognizing a person as a disabled person: RF Government Resolution No. 95 of February 20, 2006).
Sociological	Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others (United Nations Convention on the Rights of Persons with Disabilities).
Politological	Disability is a state of human capacity limitations, which is caused not so much by physiological indicators as by socio-political conditions that are formed at the level of the state and directly depend on governmental policy on the one hand and on the activity of the individual to meet their needs in the structures of civil society on the other hand [12].
Comprehensive	Disability is a problem of human activity in the conditions of limited freedom of choice, which includes several aspects: legal, social, psychological, socio-ideological, economic, anatomical and functional [13].

Source: our own compilation.

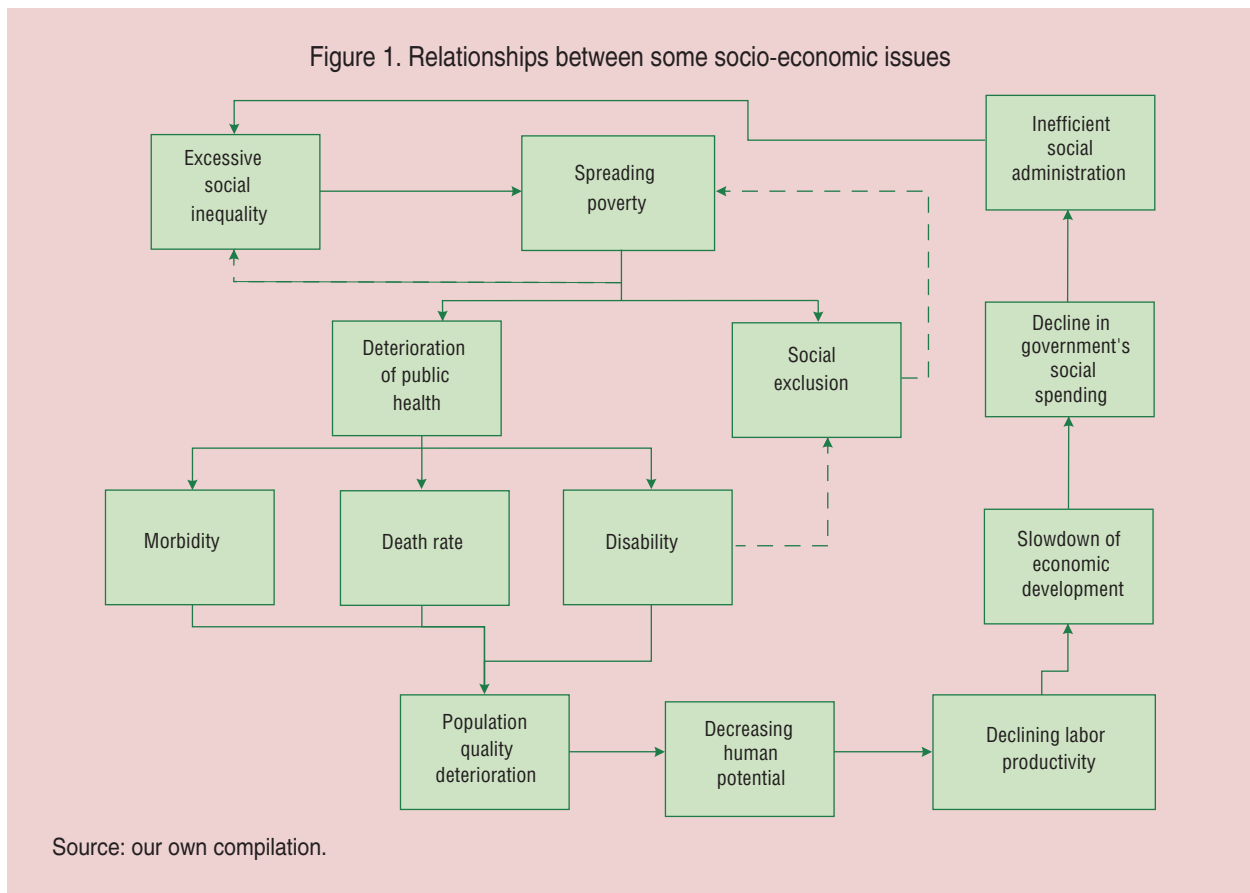
We agree with domestic scientists who note the key role of sociological research in the formation of a deeper understanding of disability. According to E.V. Voevodina and D.S. Raidugin [14], since the UN Convention On the Rights of Persons with Disabilities (2008) entered into force, in Russia in the period up to 2013, more than 500 theses were defended on the topics related to disability, and 200 theses were prepared in the field of social sciences. Studying the social aspects of disability from different aspects has greatly enhanced the understanding of its nature and implications for society. Thus, considering the concept of social exclusion allows us to take a fresh look at the understanding of the quality of life. At the same time, studying the human potential of disabled people and the impact of disability on economic development requires the application of economic approach. In particular, funding the policy in the sphere of social protection of disabled people in the light of the concept of human capital appears not as governmental costs, but as investments [15]. To investigate their effect seems to be of paramount importance for the practice of social administration. It is most appropriate to consider this issue scientifically in the framework of population economics.

Modern international agreements and development plans adhere to an integrated approach to overcoming negative consequences of disability. For example, the WHO draft global disability action plan 2014–2021 points out that disability and poverty “reinforce and perpetuate one another”, facilitating the spread of disability in poor countries [16]. The document also focuses on the fact that “WHO recognizes disability as a global public health issue, a human rights issue and a development priority” and that “disability may lead to a lower standard of living and poverty through

lack of access to education and employment, and through increased expenditure related to disability”.

All of the above suggests the need to combine different approaches when studying disability. Moreover, in such a case the concept of population quality becomes related to the concept of social exclusion through the concept of quality of life. A wide range of issues related to disability can be described as follows: spreading poverty causes a decrease in public health, including the spread of disability; this entails a decrease in human potential, labor productivity and economic development. In response to the slowdown in economic development, government cuts its social spending, which leads to poor social management, since the allocated resources are insufficient to implement system-wide solutions. As a result, social inequality is increasing, and poverty is spreading further. Disability in a society that is unprepared for integration leads to social exclusion of disabled people. As a result, poverty is spreading among the representatives of this category of citizens, and their position becomes even more vulnerable. At the level of the entire society, the spread of disability means an increase in the proportion of the population in need of special support from the state and, consequently, an increase in the number of those in need of social benefits. If social policies aimed to maintaining public health and create equal opportunities for all citizens are not financed sufficiently, then the provision of state guarantees for the payment of benefits does not help mitigate negative economic consequences of disability (*Fig. 1*).

On the one hand, disability reflects negative changes in public health; on the other hand, its extent and the amount of economic damage it causes indicate the degree of socio-economic well-being of the territory and characterize the quality of social management.



3. Analysis of trends in the indicators that reflect the rate of disability.

According to the data for 2017, the number of disabled people living in Russia amounted to 12.259 million, of which 3.651 million are disabled people of working age. During the period from 2011 to 2017, the total number of disabled people in the country increased by 1.6 million or in 1.15 times. The level of population disability, which reached 8.4% in 2017, increased by 1% compared to 2001. In 2016, the number of persons who were registered as disabled for the first time was 666 thousand, or 56.8 cases per 10,000 population. The dynamics of the indicator in 2001–2016 was uneven: its growth was observed in 2003–2005, and its decline – in 2001–2003 and in 2005–2016. (Fig. 2).

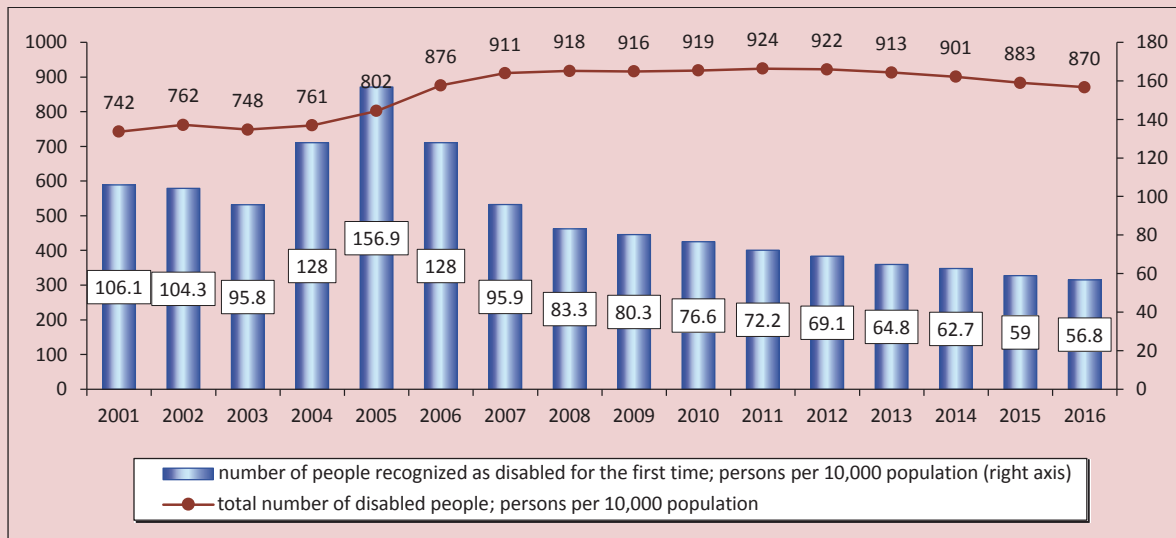
The most rapid growth of disability rate is registered in the North Caucasian Federal

District: the proportion of disabled people increased from 6% in 2004 to 10% in 2017. As for other federal districts, the disability rate is less volatile there. In 2017, its highest values were registered in the Central (9%) and Northwestern (10%) federal districts and the lowest values – in the Far Eastern (6%) and Ural (6%) federal districts.

In 2017, among the regions of the Northwestern Federal District, the highest disability rate was recorded in the Republic of Karelia (11%), the Novgorod (11%) and Leningrad oblasts with the federal city of Saint Petersburg (11%; Tab. 2).

Cardiovascular diseases and neoplasms are major causes of disability in Russia. Besides, in 2000–2016, there was a gradual increase in the number of cases of disability associated with neoplasms, and a decrease in the number of

Figure 2. Total number of disabled persons and the number of persons who were registered as disabled for the first time in 2001–2016 (per 10,000 population)



Sources: Total number of disabled persons. Central statistical database. Available at: <http://www.gks.ru/dbscripts/cbsd/DBlnet.cgi?pl=9000005>; Population. Rosstat. Available at: [http://www.gks.ru/free\\_doc/new\\_site/population/demo/demo11.xls](http://www.gks.ru/free_doc/new_site/population/demo/demo11.xls); Number of persons recognized as disabled for the first time. Rosstat. Available at: [http://www.gks.ru/free\\_doc/new\\_site/population/zdrav/zdr4-1.xls](http://www.gks.ru/free_doc/new_site/population/zdrav/zdr4-1.xls)

Table 2. Disability rate, broken down by federal districts of the Russian Federation (percentage of resident population)

Territory	2004	2006	2008	2010	2012	2014	2016	2017
<b>Russian Federation</b>	<b>8</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>8</b>
<b>Central Federal District</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>9</b>	<b>9</b>
<b>Northwestern Federal District</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>12</b>	<b>11</b>	<b>11</b>	<b>10</b>	<b>10</b>
<i>Republic of Karelia</i>	10	12	13	12	12	12	12	11
<i>Republic of Komi</i>	6	7	8	8	9	9	8	8
<i>Arkhangelsk Oblast</i>	7	9	9	9	9	9	9	8
<i>Vologda Oblast</i>	10	11	11	11	11	11	10	9
<i>Kaliningrad Oblast</i>	7	8	9	9	9	9	9	8
<i>Saint-Petersburg and the Leningrad Oblast</i>	12	13	14	14	14	13	12	11
<i>Murmansk Oblast</i>	3	5	5	5	5	5	4	4
<i>Novgorod Oblast</i>	11	13	13	13	12	12	12	11
<i>Pskov Oblast</i>	10	11	10	10	9	9	9	8
<b>Southern Federal District</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>
<b>North-Caucasian Federal District</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>
<b>Volga Federal District</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>8</b>
<b>Ural Federal District</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>6</b>
<b>Siberian Federal District</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>
<b>Far Eastern Federal District</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>6</b>
<b>Crimean Federal District</b>							<b>7</b>	<b>8</b>

Sources: our own calculations based on official statistics; Total number of disabled persons. Rosstat. Available at: <http://www.gks.ru/dbscripts/cbsd/DBlnet.cgi?pl=9000005>; Number of resident population as of January 1 of year. Rosstat. Available at: <http://www.gks.ru/dbscripts/cbsd/DBlnet.cgi?pl=2403012>

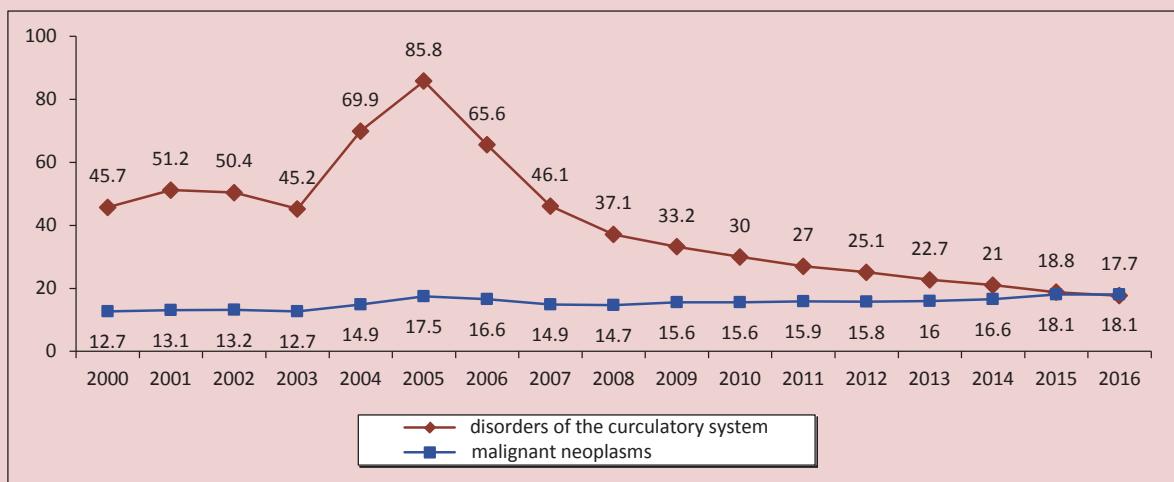
such cases associated with cardiovascular diseases. As a result, by 2016, it was neoplasms that became the main factor causing the increase in disability rate among adults (Fig. 3).

An increase in disability rate among children in Russia is due to other reasons: major factors include mental and behavioral disorders, congenital anomalies, deformations, and chromosomal abnormalities. Besides, the prevalence of the first two causes in absolute terms increased in 2006–2016. However, it should be noted that in general for the same period, the proportion of children whose disability was due to the above reasons

remained virtually unchanged and did not exceed 0.06% of the total child population (Tab. 3). Therefore, we can say that the situation concerning the growing disability rate among children remains stable.

Among the disabled, the proportion of people over 60 years of age is about 39%. The number of people in this age group is higher among those who are not part of the labor force – 43% and much lower among disabled workers – 18% and unemployed persons with disabilities – 6% (Fig. 4). These features reflect the relationship between economic activity of an individual and their age.

Figure 3. Number of persons 18 years of age and older, who were registered as disabled for the first time (per 10,000 population)



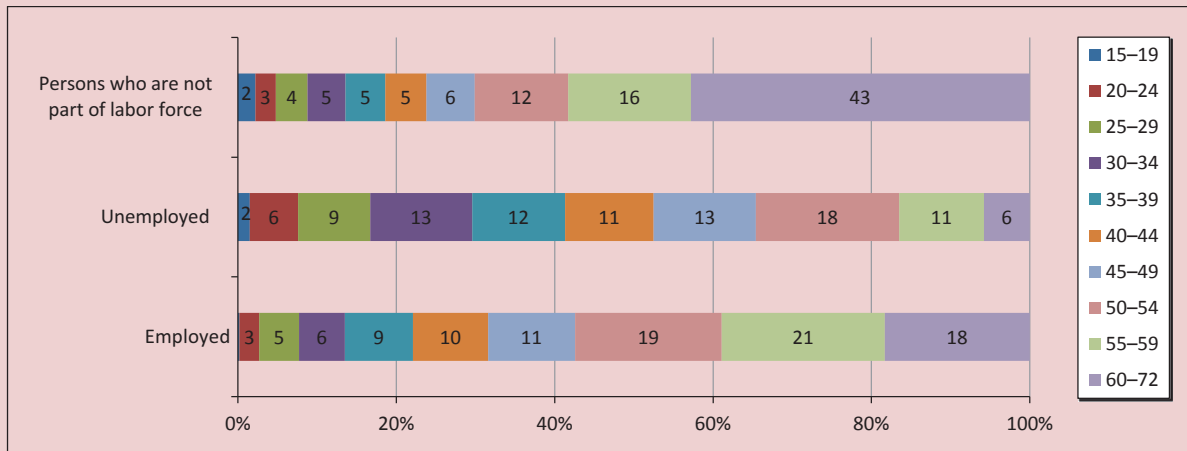
Source: Health Care. Rosstat. Available at: [http://www.gks.ru/free\\_doc/new\\_site/population/zdrav/zdr4-2.xls](http://www.gks.ru/free_doc/new_site/population/zdrav/zdr4-2.xls)

Table 3. Distribution of children under the age of 18 who were registered as disabled for the first time, broken down by types of disorders (person/percentage of the total number of children aged 0–17)

Disorders	2006	2008	2010	2012	2014	2016
Mental and behavioral disorders	16231/ 0.06	12800/ 0.05	14409/ 0.05	14249/ 0.05	16575/ 0.06	17825/ 0.06
Diseases of the nervous system	13465/ 0.05	11853/ 0.04	13143/ 0.05	13925/ 0.05	14566/ 0.05	14465/ 0.05
Congenital anomalies, deformations, and chromosomal abnormalities	17012/ 0.06	15271/ 0.06	16974/ 0.06	15725/ 0.06	14969/ 0.05	13108/ 0.05

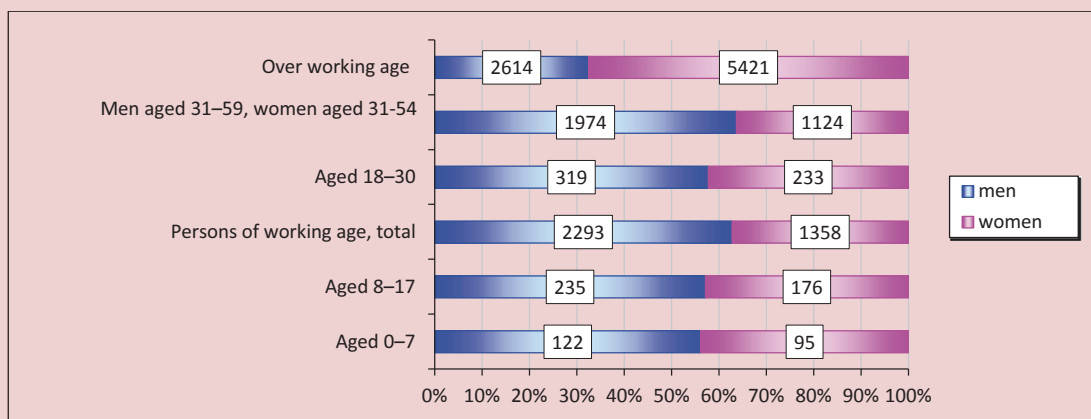
Source: Distribution of children under the age of 18 who are recognized as disabled for the first time, according to the forms of diseases. Rosstat. Available at: [http://www.gks.ru/free\\_doc/new\\_site/population/zdrav/zdr4-3.xls](http://www.gks.ru/free_doc/new_site/population/zdrav/zdr4-3.xls)

Figure 4. Distribution of persons with disabilities aged 15–72, broken down by age groups in 2016 (percentage of the number of the groups allocated)



Source: Situation of persons with disabilities. Rosstat. Available at: [http://www.gks.ru/free\\_doc/new\\_site/population/invalid/tab4-8.htm](http://www.gks.ru/free_doc/new_site/population/invalid/tab4-8.htm)

Figure 5. Sex and age distribution of disabled people (thousand people)



Source: Situation of persons with disabilities. Rosstat. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/population/disabilities/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/disabilities/#)

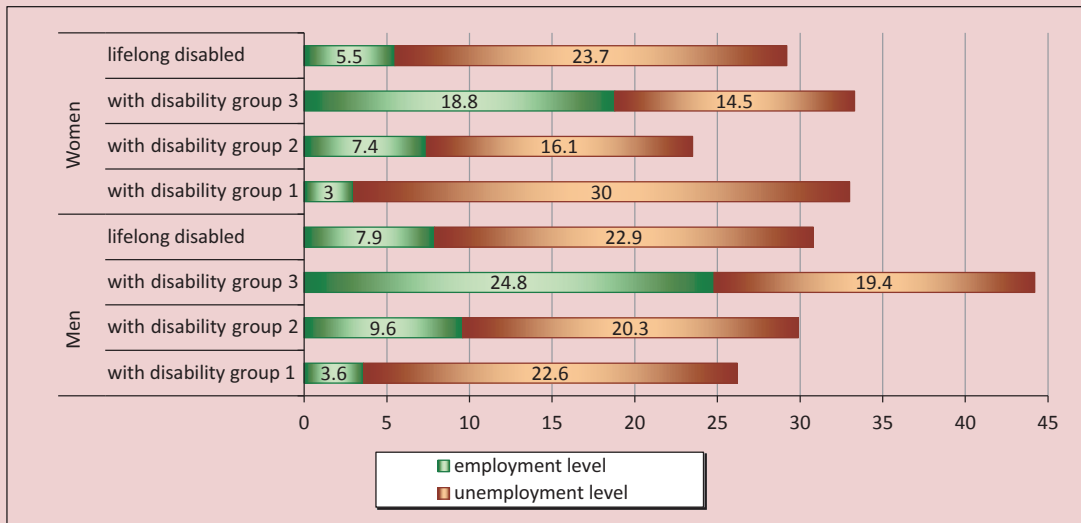
In the gender perspective, the number of disabled persons is higher among boys and men of working age. Men account for 63% of disabled persons of working age and 58% of disabled persons aged 18–30 (Fig. 5). In the older age groups, the situation is opposite: 67% of the disabled are women.

The gender-related specifics lead to the fact that among persons with disabilities the economic activity of men is higher than that of

women. In 2016, the difference was 4.3% in favor of men. For example, employment rate is 25% among men with disability group 3, and 19% among women with the same disability group (Fig. 6). Since there are no gender-specific statistics on the causes of disability, it is difficult to identify the causes of the identified gender-specific characteristics reliably. However, we can assume that the higher level of disability among men in childhood and working



Figure 6. Employment and unemployment rate among disabled persons in 2016 (percentage of the population in each of the selected categories by sex and disability group)



Source: Situation of persons with disabilities. Rosstat. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/population/disabilities/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/disabilities/#)

age can be associated with the fact that men are more prone to risky behavior, more sensitive to stress, and they are more exposed to extreme adverse effects in the workplace.

Since different health disorders lead to different life limitations, it is customary to distinguish three groups of disability, among which disability group 1 is the “gravest” and disability group 3 – the “mildest”. Children with disabilities are taken into account separately. The structure of disability has changed over the period of 2011–2017: the share of persons with disability group 3 has increased from 29 to 36%, and the share of persons with disability group 2 has decreased from 55 to 48% and group 1 – from 12 to 11% (Fig. 7). The share of disabled children has increased by 1% (by 95 thousand people) during this period.

The degree of readiness of the labor market to accept workers with disabilities can be assessed by analyzing the prevalence of different forms of employment. During 2014–2016,

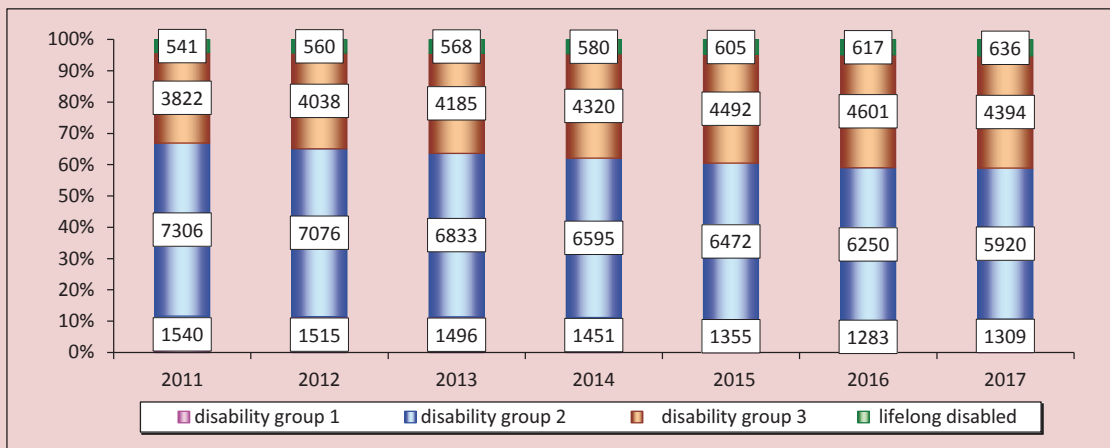
full-time employment of disabled persons on a permanent basis (87% of the total number of employed persons with disabilities) was dominant. Such forms of employment as flexible schedule (4–5%), part-time working day (7%) or week (7%), working under the civil contract (1.3%; Fig. 8) are used much less frequently.

The above distribution indicates a lack of diversity in the jobs that can be offered to workers with disabilities. In order to promote the employment of unemployed disabled persons it is necessary to provide incentives for employers to create jobs that will suit the individual characteristics of workers with disabilities to a greater degree.

**Discussion**

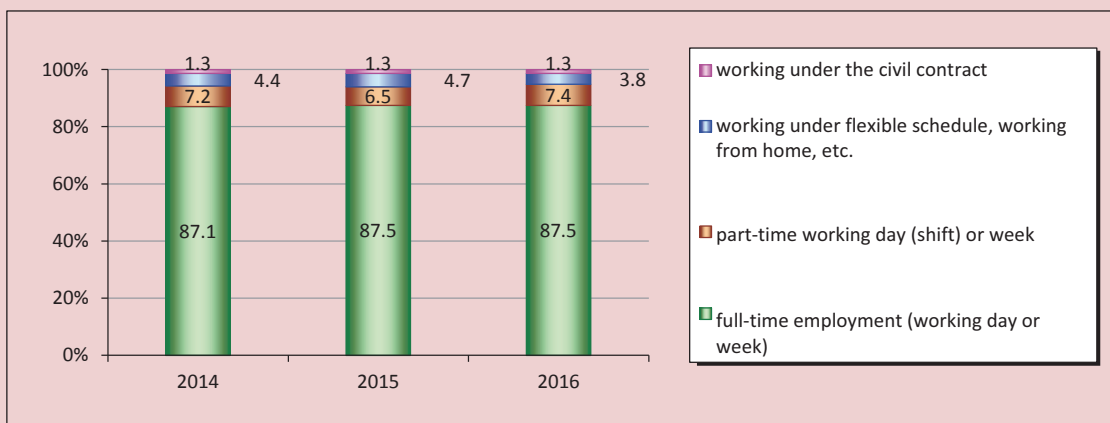
The increase in the number of disabled people and the low demand for their labor in society trigger negative demographic and socio-economic consequences. These challenges require policy strategies to address them.

Figure 7. Distribution of disabled persons by disability groups (thousand people)



Source: Situation of persons with disabilities. Rosstat. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/population/disabilities/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/disabilities/#)

Figure 8. Distribution of employed persons with disabilities by type of employment contract (percentage of employed persons with disabilities)



Source: Situation of persons with disabilities. Rosstat. Available at: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/population/disabilities/#](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/disabilities/#)

There are two types of current disability-related policies: paternalistic and innovative. And researchers point out fundamental differences between them [17]. The work of E.A. Tarasenko (2004) demonstrates the expediency of differentiated application of these concepts on the basis of allocation of groups with different needs among disabled people [18]. At the same time, regardless of what concept is chosen, it is

necessary to use the tools that can evaluate the effectiveness of the measures taken. One such tool can be the calculation of economic losses and missed opportunities due to disability. Of course, this approach does not provide a comprehensive analysis of the economic impact of a social policy. For example, the return on investment in education for persons with disabilities deserves special attention.

However, we consider it important to assess the structure of economic damage caused by the growing disability rate in order to formulate the priorities of social management more precisely.

Speaking about the *economic cost of disability*, we should note that it includes direct and indirect losses. The WHO report on disability states that the direct losses include the additional costs that people with disabilities and their families have to bear to maintain an acceptable standard of living, and disability benefits in cash and in kind, paid by governments. Indirect damage caused by disability includes economic and non-economic losses: low labor productivity due to low investment in the education of children with disabilities; loss of a job or reduction of working hours; loss of taxes, social isolation and stress [19]. WHO experts point out that due to significant differences in the methods of registering disabled persons, in the volume of social benefits, and due to other differences in calculations, it is very difficult to carry out cross-country comparisons of disability-related damage. In addition, some of the losses are difficult to estimate due to the lack of relevant data. This is why separate indicators of direct and indirect losses, such as the cost of paying benefit to persons with disabilities as a percentage of GDP, are used most frequently. At the end of the 20th century, this indicator reached 3.4% in Norway and the UK and only 0.5% in Japan [20].

Despite the fact that we consider disability in the framework of the social concept, we find it more appropriate to focus on the economic losses caused by growing disability rate when we address the problems of social management. The calculations carried out on the basis of governmental statistics allow us, though approximately, but succinctly enough, to describe the effectiveness of social management

in the sphere of ensuring equal rights for persons with disabilities.

We can allocate two key impacts of growing disability rate on economic development. The first impact consists in an increase in the government's social spending; the second one – in reducing labor potential of the population. The economic expression of the impact of the first type is the amount of expenditure on social security, treatment and rehabilitation of disabled people, and on the wages of personnel performing the mentioned functions. These are essentially the direct economic losses due to disability. With regard to the second impact, we point out that the higher the level of development achieved by the country's economy, the more expensive is each additional case of loss of labor capacity due to disability. The economic expression of losses of this kind is the amount of lost economic benefits due to disability. Its components are as follows: GDP that has not been produced by persons with disabilities, the amount of forgone income tax, and the income foregone by persons with disabilities themselves.

The economic losses can be assessed more accurately if we group the persons with disabilities into those who are not part of the workforce, those who continue their labor activity, and those who are searching for a job. Thus, the value of GDP, which was not produced by economically inactive disabled people (they did not try to find a job), and which we estimate at 11.2 trillion rubles in 2015, expresses the losses of society from the growing disability rate (*Tab. 4*). In turn, the under-production of GDP, the lost income of unemployed persons with disabilities and the lost income tax demonstrate the economic consequences of the problems that persons with disabilities have to deal with in the labor market.

Table 4. Economic benefits lost due to the growing disability rate of Russian population

Year	GDP underproduced by unemployed disabled people, million rubles*	Lost income of unemployed disabled people, million rubles	Lost income tax, million rubles	GDP underproduced by economically inactive disabled people, million rubles **
2013	120265.4	28520.9	3707.7	10156609.7
2014	111807.9	26344.2	3424.7	10926485.3
2015	113044.2	26484.1	3442.9	11192923.8

\* For the calculation we used the number of disabled people applying for assistance in finding a suitable job, but not employed, since the data on the number of unemployed persons of working age in 2013–2015 are not available.  
\*\* For the calculation we used the number of non-working disabled persons over 18 years, since there is no data on the number of non-working disabled persons of working age in 2013–2015.  
Source: our own calculations based on Rosstat data.

The calculations show that the volume of GDP underproduced by unemployed disabled people is only the “top of the iceberg”, since it is no more than 1.2% of the losses caused by the economic inactivity of disabled people.

### Conclusion

Speaking about the *necessity to overcome negative economic effects of population disability* we should not expect that the level of employment of disabled people will be the same as that of people without disabilities. However, it is advisable to work out measures to promote the employment of those citizens who have labor recommendations from medical and social examination agencies. This area of work involves, first of all, the direct interaction of specialists of employment centers with disabled persons themselves. The purpose of such communication is to find out whether a person has a desire to work and realize themselves in professional activities. The Ministry of Labor and Social Development promotes the employment of persons with disabilities works in this direction, as well. It is assumed that the work with each client will be more targeted, which will increase its effectiveness. The Ministry has set an ambitious goal – to raise the employment rate of disabled people of working

age twice by 2020<sup>2</sup>. Of course, such a goal will require considerable effort. At the same time, the main task of social management remains the same: to ensure decent quality of life for the people [21]. Achieving this goal should be based on an interest in employment on the part of persons with disabilities themselves: they should be confident that professional activity will improve their life rather than make it more difficult.

In general, consideration of the economic damage caused by disability suggests it is necessary to undertake management measures to reduce it; for example, labor rehabilitation of disabled people, programs for prevention of the diseases which most often lead to disability, and the development of hi-tech medical care. When developing and implementing the measures under the first policy direction, it is necessary to conduct an in-depth study of accumulated world experience, in particular various models for promoting employment of disabled people [22; 23].

Thus, the key task in solving the problem of reducing losses from the growing disability rate is to ensure the effectiveness of social management. The parameters, the changes of which must be monitored, may be the proportion of employed persons with disabilities

<sup>2</sup> Deputy Minister Grigory Lekarev: “By 2020, the share of employed persons with disabilities in the total number of disabled people of working age will double”. Available at: <http://www.rosmintrud.ru/social/invalid-defence/335> (posted 11.08.2016).

who applied for employment assistance, the level of economic activity of persons with disabilities who have labor recommendations, the proportion of disabled people who found permanent employment, the ratio of average salary of disabled people to the subsistence level of working population, the duration of the working day, the compliance of working conditions with the standards recommended by socio-medical assessment agencies, the number of violations of the rights of persons with disabilities in the labor sphere.

Our study allows us to conclude that the growing disability rate brings significant economic damage to the Russian society. We calculated the volume of GDP that was

not produced by unemployed persons with disabilities and by the economically inactive persons with disabilities. Based on these calculations, it was found that the contribution of the latter indicator to the overall indirect economic losses from population disability is 98.7%. The parameters for the employment of disabled persons, observed at present, indicate flaws in the methods of promoting their employment. It is advisable to develop such methods to optimize the government's social spending. The recommendations presented in the final part of the present paper can be used to substantiate social programs in the field of prevention of disability and promotion of social integration of disabled people.

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## The Infrastructure Support for the Development of the Youth Sector in the Regional Labor Market



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**Abstract.** The youth is a necessary component in the labor market able not only to occupy one of its sectors, but also successfully adapt and further expand its share. The article presents the analysis of the youth segment of the labor market functioning and development in the regional breakdown (case study of the Tyumen Oblast), which has revealed its inherent trends: first, the demographic consequences of

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the decline in the number of young people; second, the asymmetry in the received information; third, institutional imbalances characterized by uneven supply and demand; and fourth, hidden unemployment. These problems are significant barriers limiting the development of the youth sector of the labor market. The hypothesis is the assumption that the development of the youth sector of the labor market and successful inclusion of the youth in the system of social and labor relations can be facilitated by the developed system of infrastructure support that can create favorable conditions for professional fulfilment of young people. It is structurally illustrated by the authors when identifying the features of the youth sector in the labor market. The results of the sociological research serve as the framework for forming an image of the existing problems and opportunities for the development of the youth sector in the regional labor market in terms of guaranteed employment for young experts. The research novelty lies in the improved system of interaction between the subjects of institutional structure on labor market regulation and development of its youth sector. The practical significance of the results is based on the modernization of the mechanism of interaction of subjects of this structure, providing an opportunity for all social institutions involved in this process to create conditions for effective youth employment. At the same time, the recommendations developed by the authors aim to ensure productive employment and form a flexible labor market able to can meet the ever-changing conditions of its functioning.

**Key words:** social group; youth; labor market; labor market sector; labor market infrastructure.

**Introduction.** Globalization of the world's economy requires a new understanding of conceptual provisions on the labor market, the role of the state in its regulation. The features of formation, modern condition and development prospects for the domestic employment market are becoming more acute in public life [9; 10; 11; 12]. Currently, the most urgent socio-economic issue continues is the state of the youth sector of the labor market and the issue of guaranteed employment for young professionals. The country's entry into the system of market relations has tightened the conditions for young professionals for entering the labor market. On the one hand, the youth sector of the labor market is an element of the economic system, whose efficiency affects the development of the regional economy. On the other hand, it reflects the impact of a certain territory on the population's well-being and the nature of social processes under way. In this regard, we consider it important to monitor how the youth sector of the labor market is associated with the economic and social situation in the region.

One third of the Russian youth aged 15–29 (39.8%) are currently seeking employment [13]. According to the Superjob portal (2016), the number of unemployed young people under 25 increased by 11%, among applicants under 30 – by 7%. Only half of graduates are employable. Turnover among young people is breaking all records – 45% [14, p. 176]. From a social standpoint, unemployment among young people becomes the source of increasing crime rate, drug and alcohol abuse, which combined with other factors or separately can lead to social tensions in the society. It is worth noting that a 1% increase in unemployment increases crime rate by 8% [14, p. 177].

It should be recalled that young people are the main carriers of the country's intellectual and labor potential and occupy a special place in the structure of social relations [1; 2]. On the one hand, they serve as a foundation for labor resources reproduction, which has objective prerequisites (creative thinking, socio-economic mobility, professional motivation, efficiency, psychological flexibility, willingness to continue professional training), on the other



hand, is the most vulnerable population group due to lack of work experience and required professional skills and competencies. Without claiming to widely cover the diversity of economic and sociological interpretations of the scientific category “youth” (Ikonnikova S.N, Kon I.S., Lisovskii V.T., Shabanova S.V., etc.), we consider it a socio-demographic group of the society, united by common age characteristics, peculiarities of the social status and a certain level of economic development of a particular territory.

Successful entry into the labor market determines active participation of young people in the socio-economic life of the Tyumen Oblast. At the same time, they are able to occupy their own sector in the labor market with the prospect of expanding its share by increasing the number of young professionals (*Tab. 1*).

“Main areas of activity of the Government of the Russian Federation for the period up to 2018” clearly state the objective of improving the quality of professional education according to modern requirements of economy and society [3]. At the present stage, the main objective of the educational system is to train highly skilled specialists with technological culture and intensive working capacity. Acquiring strong background of professional knowledge and having formed a certain human capital during the training process, the youth is ready not only to apply, but also to transform them, realizing and developing the social and

professional prospect [1; 4; 5]. The meaning of P. Bourdieu’s statement becomes clear: “Investing in human capital is a necessary condition for the development of the socio-economic system of the state” [6].

However, the current demographic forecast for young people is not comforting – there is a decrease in their number from 35.4 (2016) to 25.6 million people (2025), or 27.3%<sup>1</sup>. This is clearly observed in analysis of planned production of specialists in the Tyumen Oblast. Thus, in 2018, the production of specialists is expected to grow by 20%, but since 2019, this figure will gradually decrease in the region. The downward trend in the number of young people will aggravate the contradictions on the labor market, lead to the growth of the economic and social burden on the working youth, decrease the number of highly qualified personnel, which threatens to seriously compress the human resource supply and questions the possibility of further economic growth of the territory [2; 7; 8].

The youth sector of the labor market is currently experiencing difficulties in formation and is in a deformed state. This is due to the general shortage of personnel in certain professions, as well as graduates’ insufficient practical experience. The quality and structure of training for the graduates of institutions for vocational education does not fully meet the requirements of the modern economy. There is still a disparity between the number of students learning a trade taught in institutions

Table 1. Production forecast for young specialists in the Tyumen Oblast in 2016–2020

Production of specialists	2016	2017	2018	2019	2020
Under programs of secondary vocational education, people	6730	7687	8287	7914	7619
Under programs of higher education, people	7116	7697	8301	8155	8276
<b>Total:</b>	<b>13846</b>	<b>15384</b>	<b>16588</b>	<b>16069</b>	<b>15895</b>

Source: compiled from analytical materials of educational institutions of the Tyumen Oblast.

<sup>1</sup> *Demographic forecast of the Russian State Statistics Service up to 2030*. Available at: <http://www.gks.ru>

of primary, secondary and higher education, and the demands of the regional economy for the training amount and profile, since the system of state orders for professions and specialties on the basis of agreed forecast of economic needs and the region's social sphere is not sufficiently involved. There is a gradual redistribution of young people towards gaining higher education, which manifests itself in a large number of specialists in training programs such as "Economics and Management", "Law", "Finance and Credit", and short supply for specialists in "Medical care", "Education and Pedagogical Sciences", "Oil and Gas Engineering", "Construction", and "Agriculture". The emphasis on training specialists in oil and gas and transport sector is logical, which is justified by the sectoral and investment features of the region. At the same time, there is an increased demand for training specialists under programs of secondary vocational education. The authorities plan to compensate for personnel shortage by attracting foreign workforce.

The situation on the labor market in the Tyumen Oblast remains stable, characterized by upward trends in main indicators. At the beginning of 2018, the number of vacancies comprised 22,412, which is 15.4% more than at the same date last year. 31,111 young citizens aged 14–29 applied to employment services for assistance, 27,309 people among them were employed. In order to employ the remaining young people employment services in the Tyumen Oblast arranged work on professional training and supplementary professional education for the unemployed.

The issue of inability of educational establishments in the Tyumen Oblast to meet the employers' demand for personnel remains topical. When forming the balance of demand and supply of labor force in the youth sector of the labor market, statistical data of monitoring

the regional market for the preparation of organizations' forecast needs for workers and training of specialists by educational institutions of the Tyumen Oblast. The survey method was subject to 4.6 thousand organizations located in the territory. Unfortunately, the obtained results do not fully reveal the region's substantial prospective need for young specialists, as its calculation is quite complicated when long-term forecasting of organizations conducting economic activities in the territory of the Tyumen Oblast. In the coming years, there may be a real increase in demand compared to the forecast (*Tab. 2*).

As can be seen, data in Table 2 conclude that the amount of economically active population among young people is steadily decreasing. During the first year after graduation, 70% of graduates find employment. The greatest share in demand for personnel is noted in construction, healthcare, education, and manufacturing. Unfortunately, the stated employers' need cannot be fully satisfied at the expense of graduates of educational institutions due to demographic indicators. The problem of stabilizing the regional labor market has been repeatedly discussed at the meetings of the region government of the Tyumen Oblast. The region has a highly qualified human potential and a favorable investment climate for the implementation of various innovation projects in the industrial sector, which contributes to increased labor mobility, promotes the development of existing and establishment of new production, contributes to the creation of new modernized jobs. This has helped reduce the unemployment rate in the Tyumen Oblast by 1.2% compared to the previous year, which amounted to 4.8%. At the same time, the intensity factor in the youth sector of the labor market decreased by 0.1% and amounted to 0.2 people per vacancy. However, the scale of quasi unemployment of the population in general

Table 2. Balance of demand and supply of labor on the labor market of the Tyumen Oblast up to 2021, people

Year	Future demand for personnel, people	Number of graduates, units	Balance of labor force demand and supply («-» – demand «+» – surplus)
2017	20742	10769	- 10011
2018	19064	11612	- 7452
2019	17418	11248	- 6170
2020	16147	11127	- 5021
2021	14986	11113	- 3874

Source: compiled from data of the Department for Education and Science of the Tyumen Oblast, 2017.

and young people in particular has not been studied so far; there are no statistical data on employment of graduates. This gives reason to consider the situation in the youth sector of the market difficult and unstable. A detailed study of the state of the regional labor market helps state that without studying youth employment and the mechanism of interaction between the authorities, the educational system and other social structures in ensuring the guaranteed employment for young specialists, the author's study of the youth sector of the labor market would be incomplete.

**Conceptual clarification of the concept of “youth sector of the labor market”.** The analysis of scientific sources conducted by the authors has helped state that in the modern scientific environment there is no unified opinion regarding the definition of “youth sector of the labor market”. We believe that the labor market segmentation should be seen as a process of natural structuring which takes into account socio-economic conditions, demographic indicators and population's professional characteristics and qualifications, while forming separate sub-markets limiting the movement of employees within their boundaries.

At the same time, the identification of the youth labor market as a certain sector is relevant. This is necessary for both employers and young employees. Labor market segmentation with classifying young people into a separate group helps objectively assess the trends on the labor market, the quantitative and

qualitative characteristics of the emerging labor force, develop an acceptable mechanism to meet company's needs for labor force. Market segmentation for young workers helps assess demand and supply, forecast its development and identify the most promising economic sectors “which may become an outlet for labor; as well as see what qualities a competitive employee will have” [1].

The issues of determining the role and place of the youth in the system of social and labor relations and infrastructure support of the youth segment of the regional labor market remain under discussion. Transformation processes and country's regionalization cause a clear identification of features of this market. As a rule, the problem of youth employment is related to the level of county's industrial development, changes in the socio-economic sector, the deteriorating demographic situation, and the declining quality of life, which leads to the conclusion about young people's difficulties regarding labor socialization taking place amid ambiguous structural changes. A special place in the youth sector of the labor market requires its analysis, forecasting and effective regulation.

Russian labor economists consider the segmentation of the labor market as an objectively determined process of its structuring and naturally arising labor division formed under the influence of political, economic, social and other factors in the development of the society and taking into account the peculiarities of each category of workers.

According to Adamchuk V.V., Romashova O.V., and Sorokin M.E., the segmentation of the labor market is “the division of workers and jobs into sustainable sectors, zones that limit the mobility of the labor force by their boundaries. It is represented by clearly defined segments where certain categories of workers competing with each other are concentrated” [1]. Krivutsa P. V., considering the youth labor market, correlates it with the whole market of economically active population able to work and defines it as “an organic part of the labor market, which is a complex of socio-economic relations of the state, employers and young people involved in labor” [15]. It should be noted that an important feature of the youth sector of the labor market is that it qualitatively updates the potential of the general labor market.

Tsygankova I.V. carries out the segmentation of the youth labor market by separate signs: demographic (age, gender, education, profession), geographical (regions’ branch specialization, population density), psychographic (economic and political institutions, lifestyle, belonging to a social group) [16]. She expresses the opinion that taking into account the specific features of this sector of the labor market it is necessary to implement effective policy to minimize youth unemployment. We believe that this is exactly what determines the specific features of the youth sector of the labor market as a commodity link that provides adequate forms of young people’s inclusion in the reproduction process.

We believe that the youth labor market should be considered as a qualitatively integral and specific sector of the general labor market, distinguished on the basis of functioning of the youth as a socio-demographic group of the society. To detail the idea of the youth sector of the labor market it is necessary to find out what age groups can represent young people as labor

market players. There are three age groups of young people:

1. The younger age group (aged 15–19) is represented by students of educational institutions, institutions of initial and secondary vocational education, and university students. The representatives of this group accept market “game rules” as objective and search for ways to adapt to them. It is no accident that the authors have revealed that the high unemployment rate this age group is due to:

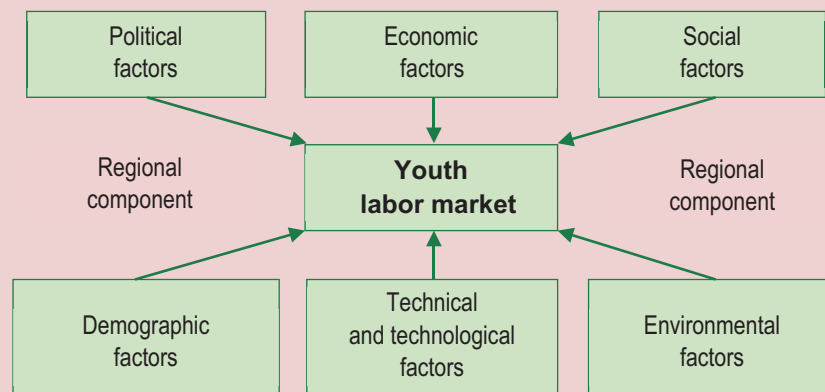
- lack of education and work experience;
- reduced working hours (Article 91 of the Labor Code of the Russian Federation no. 197-FZ, dated 30.12.2001, amended 29.07.2017) and work week for employees under 18 (Article 92 of the Labor Code of the Russian Federation no. 197-FZ, dated 30.12.2001, amended 29.07.2017)
- insufficient labor demand for this category of young people;
- the fact that during this period young people are in the process of receiving vocational education.

2. Young people aged 20–24 are people completing vocational education programs and entering the labor market for the first time; they face the problem of employment as long as they do not have enough work experience. The majority of this group of young people is characterized by contradictions between inflated claims to material conditions and the real possibilities of their satisfaction.

3. Young people aged 25–29 are already quite independent: they have a job, qualifications, a certain employment status; life and professional experience [17].

The authors emphasize that the representatives of each group of young people are engaged in productive work or are ready for it to some extent. This means that the youth labor market can act as an independent and specific sector of the general labor market. This is precisely its essential feature.

Figure 1. Influence of factors and conditions on the formation of the labor market



Source: compiled from results of author's study of literary sources

The Russian labor market consists of a set of regional labor markets differing among themselves; each of them is formed and continues to function under the influence of a set of various factors (Fig. 1). We believe that this leads to serious regional differentiation in terms of social and economic infrastructure development.

The consequences of financial issues caused by the current geopolitical situation could not but affect the country's internal development. Despite their negative impact leading to stagnating economy, increased inflation and, as a result, to price increase, declined living standards of the majority of the population and unemployment, the infrastructure support of the youth labor market makes it possible to maintain an upward trend towards gradual increase in labor resources for various economic sectors.

**Infrastructure support for the youth labor market.** In economic literature there is no clear definition of "labor market infrastructure", there is no efficient mechanism of infrastructure support for the development of the youth sector objectively adjusted depending on the impact of the above factors. The main objective of the labor

market infrastructure is to ensure effective functioning of the employment sphere, providing all possible support to its subjects [18; 19]. The word "infrastructure" comes from two Latin words "infra" (*below, under*) and "structura" (*structure, location*). In relation to the labor market, the concept of "infrastructure" was first used by an American scientist P. Rosenstein-Rodan (1953) who considered it as "a set of general conditions ensuring favorable development of private entrepreneurship in main economic sector and meet the needs of the entire population" [20]. A similar definition of infrastructure is given by an economist G.Ya. Kiperman, who presents it as "a set of institutions ensuring adequate functioning of the market for goods, capital market and other markets" [21]. He believes that the infrastructure is designed to shape, regulate, and control the entire range of activities of market participants and contribute to their effective functioning.

The concept of "labor market infrastructure" is supplemented by its characteristic as promotion of employment and ensuring effective interaction of labor supply and demand [22]. Varfolomeeva O.A. interprets the concept as "a mechanism for regulating

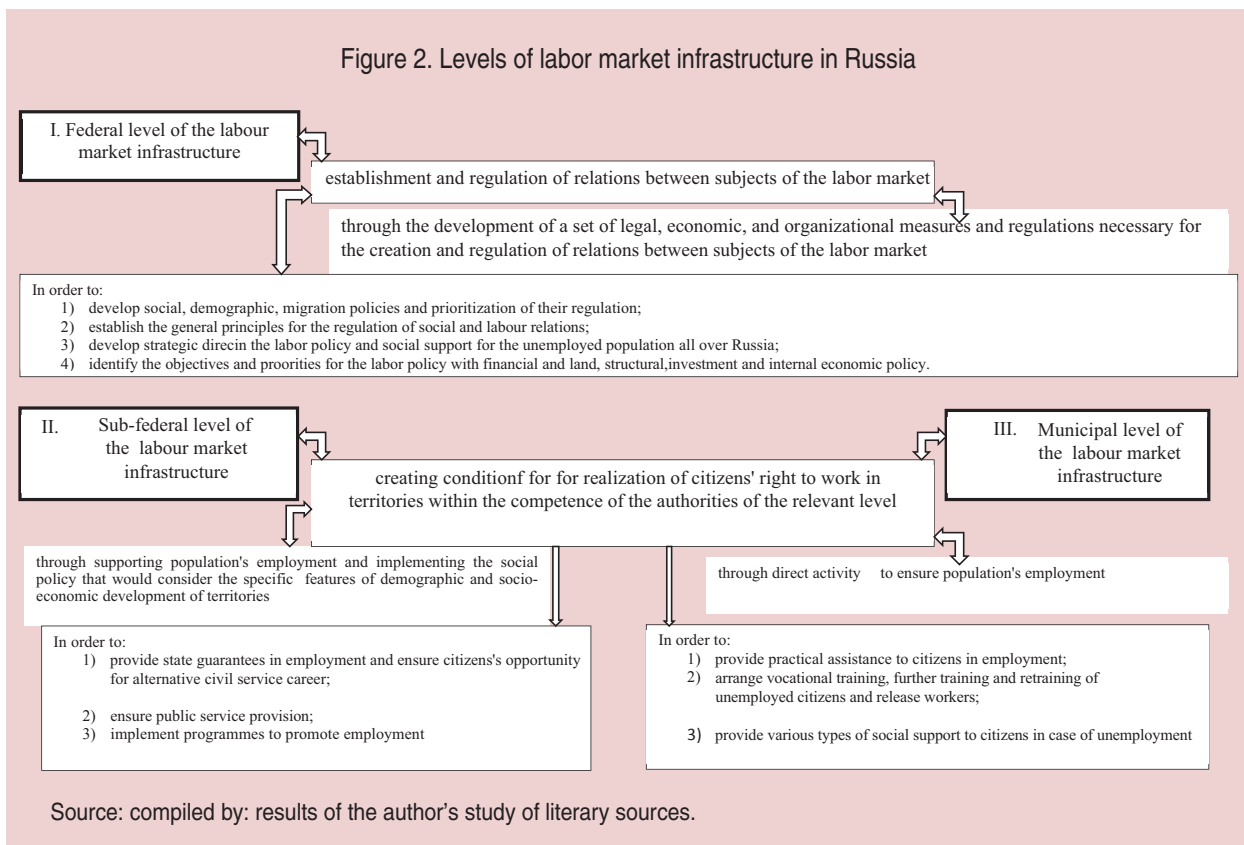
the demand and supply balance designed to provide economically favorable conditions for interaction between the subjects of the labor market infrastructure” [3]. All the above-mentioned has served as a framework for the author’s definition of the labor market infrastructure, which we define as a complex of sectors of the national economy and state government bodies which are in close interaction and create conditions for effective functioning of both the economy in general and market entities.

It is obvious that in modern conditions the problem of youth employment, the identification of labor market imbalances and its correspondence to the technological, innovative, structural, and socio-economic development of both country’s and its regions’ economy is significant and require immediate solution. In this process the role of the labor market infrastructure is usually adjusted. On

the one hand, it must meet the set requirements and, on the other hand, it must meet them and, in some cases, it must have an impact on the labor market throughout the country and its regions.

In Russia, the labor market infrastructure takes into account the peculiarities of the federal government and includes several levels: federal, sub-federal and municipal (Fig. 2).

The labor market infrastructure includes institutions of vocational training and retraining, employment services and recruitment agencies. On the one hand, they provide conditions for individual’s labor realization on the market, on the other hand – they are a source of labor demand of a certain quality and quantity. We believe that this statement does not fully take into account all the areas of the state employment policy, implemented at the state level with the existing system of institutions designed to analyze and regulate



the state of the labor market at all government levels, contributing to the increase in human potential. The perfection of the labor market infrastructure with realizable objectives at each level determines the efficiency of the labor market as a whole. Changes in the jobs structure reflect, as mentioned above, the effects of a variety of factors.

However, taking into the current situation they can be supplemented by the following factors: the spread of new technology and the transition to production of new products, the development of modern forms of management and marketing strategies, increased competition at the national and international level, corporate restructuring, which is a distinctive feature of the regions related to the development of employment.

**Research methodology.** The purpose for the research is to analyze the state of the youth on the labor market and assess the measures of state support in the development of youth employment prospects.

The selection of methods is made based on an interdisciplinary approach and specifically for the purpose of studying the youth sector of the labor market. The combination of the following methods helps study the problem of the youth behavior on the labor market more comprehensively and objectively:

- Statistical information obtained from the Federal State Statistics Service database in the

field of labor and employment in Russia, the State Statistics Service of the Tyumen Oblast, Khanty-Mansi Autonomous Okrug (KhMAO) and Yamalo-Nenets Autonomous Okrug (YaNAO).

- Method of secondary data (results of the Russian Public Opinion Research Center (VTsIOM) study).

**Discussion.** As noted above, the peculiarities of the youth labor market functioning are largely determined by its regional development factors, which requires its analysis, forecasting and effective regulation. The authors chose the Tyumen Oblast – an economically prosperous region in the sphere of employment uniformly represented by type of economic activity – as a research object. The level of employment in the Tyumen Oblast excluding autonomous okrugs is 63.7%, in YaNAO – 74.5% and in KhMAO – 72.4%. They are rightly recognized as leaders in terms of employment, including among young people. The majority of the unemployed are young people with no education and low professional skills. As was mentioned earlier, age is a determining factor in the labor market. Today, the share of economically active youth in the region is about 30%.

Based in the specified constituent entities in the Tyumen Oblast (*Tab. 3*) we consider in detail the process of the youth labor market formation and the process of infrastructure support in terms of youth employment.

Table 3. Demographic indicators of the youth in the Tyumen Oblast, people

Russia's constituent entity	2017			2018		
	Population, thousand people	Youth population, thousand people	Share of youth, %	Population, thousand people	Youth population, thousand people	Share of youth, %
Tyumen Oblast (excluding autonomous okrugs)	1477900	308050	21.1	1498800	336200	24.3
KhMAO	1 646 078	477362	29.1	1 654 942	565990	34.2
YaNAO	536000	133363	24.9	536 049	115 248	21.5

Source: compiled from: Rosstat demographic forecast up to 2030. Available at: <http://www.gks.ru>

The economic focus of the region is formed under the influence of the fuel and energy complex development in Khanty-Mansiysk Autonomous Okrug – Yugra (hereinafter – KhMAO) and Yamalo-Nenets Autonomous Okrug (hereinafter – YaNAO). The industrial sector is represented by a wide range of industries providing jobs (Fig. 3).

Amid the declining number of those willing to study in institutions of initial and secondary vocational education there is an increasing enterprises’ need for workers with various qualifications. This circumstance leads to imbalances in the provision of the labor market with skilled workers. The professional imbalance between labor demand and supply is the most pronounced in the South of the Tyumen Oblast (Tab. 4).

According to the State Statistics Service of the Tyumen Oblast in 2016, a significant part of workers is in demand in construction (39.5%),

real estate (11.6%), trade and public catering (9.2%) (Fig. 4). Unfortunately, about half of graduates from Tyumen educational institutions work outside their specialty.

When seeking employment, young people mostly use mass media (33%), informal channels: personal liaisons (38%), direct contact with employers (21%). It is worrying that employment services are the least effective channel in terms of job search (8.0%) (Fig. 5).

Today, the share of young people who consider education as a value, rather than a means of achieving other goals has increased from 11 to 33%, while the indicators of youth employment and economic activity have declined slightly (from 65 to 50% and from 77 to 58%, respectively). Respondents state that they like their job (87%), while 2/3 of respondents are dissatisfied with their financial status: 61% rated it as average, 15% – bad, 16% consider their financial situation as good.

Figure 3. Forecast of staffing needs in the sector in the Tyumen Oblast, 2017



Source: compiled from data of the State Statistics Service of the Tyumen Oblast. Available at: <http://tumstat.gks.ru/>



Table 4. Information on the situation in the labor market in municipal districts of the Tyumen Oblast, 2017, people

Municipal district	Economically active population (people)	Those who applied to employment services (people)	Unemployed (people)	Need for employees (people)	Employed with the help of employment services, (people)	Level of recorded unemployment (%)
Abatsky District	9 058	274	61	73	205	0.67
Armizonsky District	5 002	141	35	193	107	0.70
Aromashevsky District	5 586	185	30	77	163	0.54
Berdyuzhsky District	5 631	174	33	86	135	0.59
Vagaysky District	9 673	148	51	116	121	0.53
Vikulovsky District	7309	281	20	116	253	0.27
Golyshmanovsky District	10 905	263	34	129	195	0.31
Zavodoukovsky	21 181	620	377	368	209	1.78
Ishim	36 077	724	227	572	347	0.63
Ishimsky District	15 216	288	97	174	133	0.64
Isetsky District	11 250	381	35	478	255	0.31
Kazansky District	11 419	600	214	291	360	1.87
Nizhnetavdinsky District	13 923	146	56	139	80	0.40
Omutinsky District	8 389	177	46	159	88	0.55
Sladkovsky District	4 964	125	29	95	90	0.58
Sorokinsky District	5 035	300	52	59	204	1.03
Tobolsk	54 826	1 206	390	6 696	651	0.71
Tobolsky District	9 729	325	69	174	209	0.71
Tyumen	445 960	4 832	2 855	9 486	3 161	0.64
Tyumensky District	62 033	995	520	1402	481	0.84
Uvatsky District	13 245	241	95	263	173	0.72
Uporovsky District	9 576	264	36	247	212	0.38
Yurginsky District	6 372	156	50	111	116	0.78
Yarkovsky District	10 349	275	81	175	199	0.78
Yalutorovsk	17 680	402	163	200	196	0.92
Yalutorovsky District	9 946	100	52	56	37	0.52

Source: compiled from *Information of the Government of the Tyumen Oblast on the state of the labor market in municipal units of the Tyumen Oblast – 2017*. Available at: <http://docs.cntd.ru/document/441507160>

As can be seen, the majority of citizens today “are satisfied with the simple fact that they are employed”<sup>2</sup>.

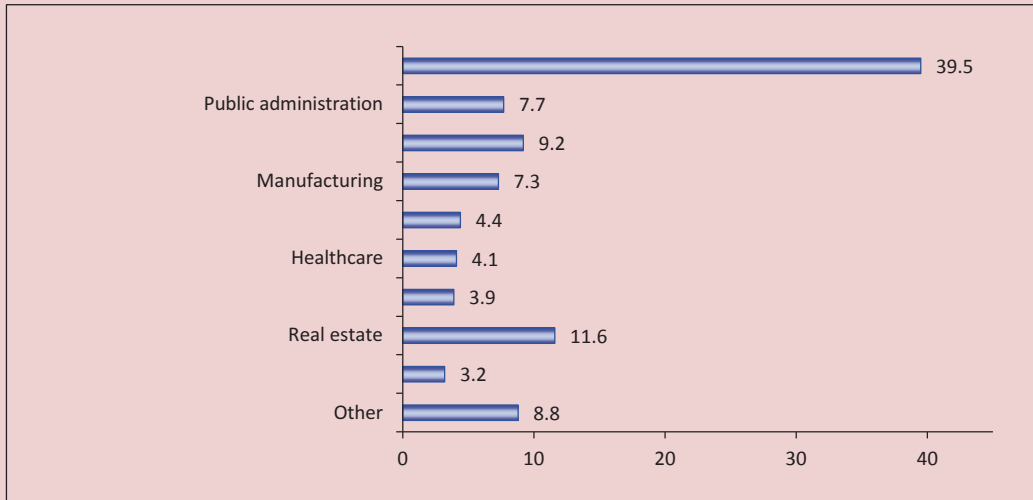
At the same time, the studying youth is not willing to continue education, which makes it impossible for them to gain high professional skills and build a successful career. By number and quality of trained professionals for various

economic sectors, the territory under review is one of the top ten regions of the country. The Oblast has a center for career guidance equipped with modern electronic simulators which help master the skills of electric and gas welding, excavating, driving, plumbing, the basics of 3D modeling. Last year it was visited by more than five thousand young people.

During economic recessions, the share of Tyumen enterprises providing training to their employees decreased, but the indicators of employee

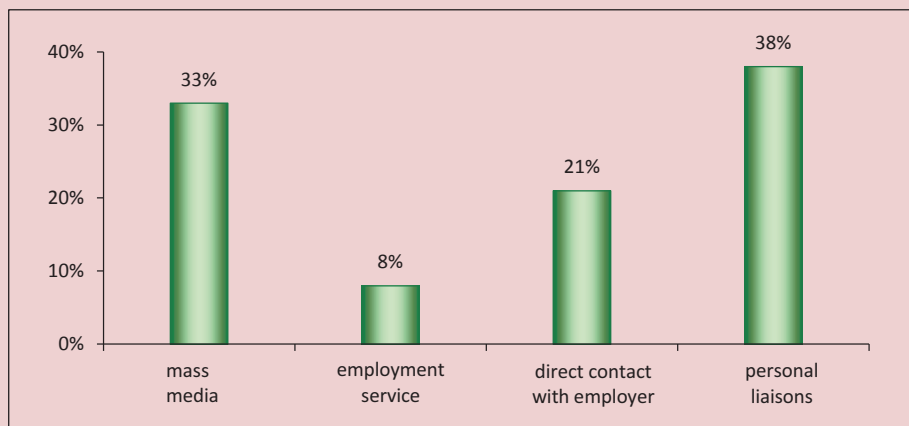
<sup>2</sup> According to the VTsIOM research. Moscow, 2017. Available at: <https://www.rbc.ru/economics/18/12/2017/5a36ca439a79475cee64de28>

Figure 4. List of vacancies declared at employment services in the Tyumen Oblast, 2017



Source: compiled from data of the State Statistics Service of the Tyumen Oblast. Available at: <http://tumstat.gks.ru/>

Figure 5. Informal youth employment channels in the region



Source: based on the results of the author's study of statistical data.

involvement in additional training programs have not changed. More than 80% of additional vocational training programs paid by employers are aimed at deepening the activities in the main specialty, while 52% of additional training programs – at retraining for a new specialty.

The entry of young people into the labor market in amid increased competition for jobs is a complex psychological process. In view of this fact, the Government of the Tyumen Oblast is closely engaged in youth employment,

allocating funds for arranging additional jobs and training for new professions (*Fig. 6*).

Thanks to the undertaken measures the situation on the regional labor market is improving, which is confirmed by a decreasing level of officially recorded youth unemployment (0.7%). This is a consequence of active work of regional authorities on allocating funds to support the youth labor market, opening production facilities with quota allocation on jobs for young professionals.

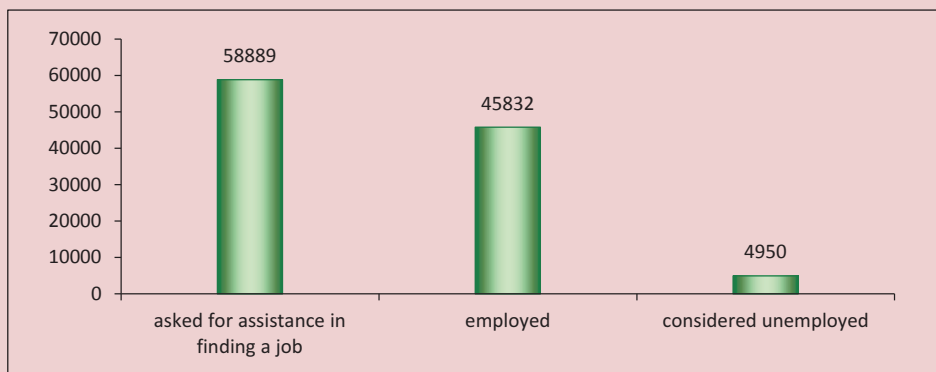
In this context, the experience of KhMAO and YaNAO, where 2/3 of the population are employed in the fuel and energy complex, is interesting. The governments of autonomous okrugs are considering a variety of areas of economic development, in particular the development of forestry and agro-industrial complex, medicine, small and medium business development.

The peculiarity of these okrugs is the age structure of the employed population. In KhMAO, the majority of men with higher education employed in the industrial sector are between 26 and 30 and women – between 26 and 28, which indicates the predominance

of young ages in the region’s economy. Table 5 presents the performance of labor needs forecast for sectoral employment in KhMAO.

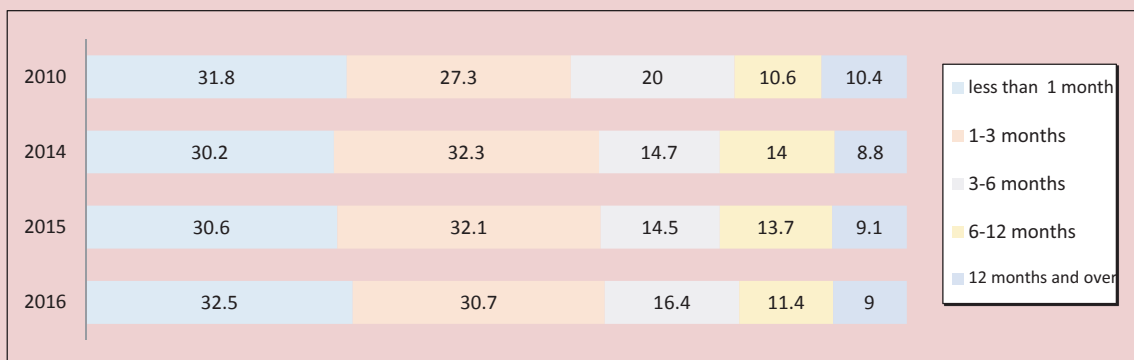
Based on data from Table 5, the authors identify the need for personnel in technical specialties, especially with higher professional education. In 2016, the target figures of admission to higher education institutions were distributed according to the medium-term forecast of the district’s labor needs. The share of students enrolled in higher education institutions comprised 37%, in institutions of secondary vocational education – 63%. The enrollment for the 2016/2017 academic year in the universities include 1,057 people financed

Figure 6. State of the labor market in the Tyumen Oblast, people



Source: compiled from data of the State Statistics Service of the Tyumen Oblast. Available at: <http://tumstat.gks.ru/>

Figure 7. Structure of the unemployed youth by period of job search, %



Source: compiled from data of the State Statistics Service of the Tyumen Oblast. Available at: <http://tumstat.gks.ru/>

by the budget of the Russian Federation and 2594 people financed by the budget of the Autonomous okrug. The projected number of students of institutions of higher education by 2019 will account for 35.7 thousand people. It is planned to introduce an applied component in the system of scientific knowledge. The relevant training areas are applied geology; ground transport machinery and technology; electrical and heat power engineering; technosphere safety; electronics, radio engineering and communications systems; materials technology, etc. By 2020, it is expected to launch 24 additional programs at different levels of professional training of young people.

5,705 people were admitted to institutions of secondary vocational education at the expense of the budget of the autonomous okrug, 600 people – at the expense of the budget of the Russian Federation (branches of Yugra State University), which confirms increased attention to training through the implementation of educational programs in secondary vocational education. In order to meet the need for skilled

personnel, there are two multifunctional applied skills centers. Six resource centers simultaneously provide network interaction with the enterprises of the Okrug. But even this, according to the authors, will not fully meet the labor needs in terms of territory's strategic development.

A similar socio-economic situation is in YaNAO. The registered unemployment rate is not high (0.91%). In order to ensure state guarantees to promote the realization of citizens' rights to productive and freely chosen employment, the state program "Promoting employment for 2014–2020" approved by the Government of the autonomous okrug in December 25th, 2013, is being successfully implemented. According to Governor D. Kobylkin, "the okrug's sector specialization has a direct impact on the structure of the labor market". The head of the Arctic region highlighted the main feature of the territory – a shortage of highly qualified specialists and workers. As of January 1st, 2017, 10,356 vacancies have been registered in the regional

Table 5. Labor needs forecast for sectoral employment by type of economic activity in KhMAO, people

Type of economic activity	2016		2017		2018		2019		2020	
	Higher education	Secondary vocational education	Higher education	Secondary vocational education	Higher education	Secondary vocational education	Higher education	Secondary vocational education	Higher education	Secondary vocational education
Mineral extraction	116	680	192	1174	303	2120	454	3289	742	4599
Manufacturing	82	157	133	242	200	410	285	621	421	865
Education	41	91	83	146	141	243	220	516	366	938
Healthcare	31	320	97	558	192	1117	323	1778	632	2500
Public administration	98	147	179	241	286	411	424	669	654	1006
Finance	17	26	26	44	37	81	56	128	79	184
Real estate	154	105	263	168	415	311	616	518	914	788
Hotels and restaurants	7	10	7	13	9	18	11	30	12	46
Housing	35	31	61	47	87	79	125	133	192	214
Construction	36	111	56	176	90	418	139	741	224	1097
Transport and communication	104	340	169	532	259	922	378	1403	554	1947
Trade	35	104	62	178	100	333	147	523	217	764
Agriculture and fishery	11	12	12	14	12	18	13	26	13	34

Source: compiled from the Federal State Statistics Service for KhMAO. Available at: <http://tumstat.gks.ru/>

Table 6. Main share of reported vacancies in YaNAO, %

Type of economic activity	2015	2016	2017
Construction	52.2	64.4	57.8
Public administration	4.2	2.9	10.5
Mineral extraction	5.0	2.7	5.3
Manufacturing	3.3	2.3	1.5
Trade	2.0	2.6	1.6
Research and technical work	0	0	2.4
Healthcare	5.8	2.9	3.5
Education	7.2	5.8	5.4
Transport	6.8	4.4	4.4
Agriculture and fisheries	0.7	1.1	0.8
Housing	3.9	4.6	2.2
Real estate	4.6	3.6	3.2
Hotel and restaurant business	1.1	0.9	0.4
Finance	0.6	0.3	1.0
Source: compiled from data of the Federal State Statistics Service in YaNAO. Available at: <a href="http://tumstat.gks.ru/">http://tumstat.gks.ru/</a>			

bank of vacancies, 63.6% of which are blue-collar jobs (*Tab. 6*). The most demanded jobs are construction workers, medical workers of different specialization, teachers, etc.

The number of unemployed young people aged 16–29 comprises 902 people, or 31.3%. In YaNAO, the problem of employment among young professionals is solved by direct district support: when young professionals are employed, enterprises are compensated from the district budget for salary costs in the amount of two times minimum wage. This helps young specialists gain a foothold in an enterprise.

In order to replenish the youth labor market with workers, regional authorities are implementing measures to re-focus young people to get blue-collar jobs. In the district there are three research-and-education complexes of vocational education and six colleges training high-skilled workers. Specialized classes from Gazprom and Rosneft have been established in educational institutions of the district. Therefore, it can be stated that research-and-education centers contribute to the formation of a single infrastructure to eliminate imbalances in the youth labor

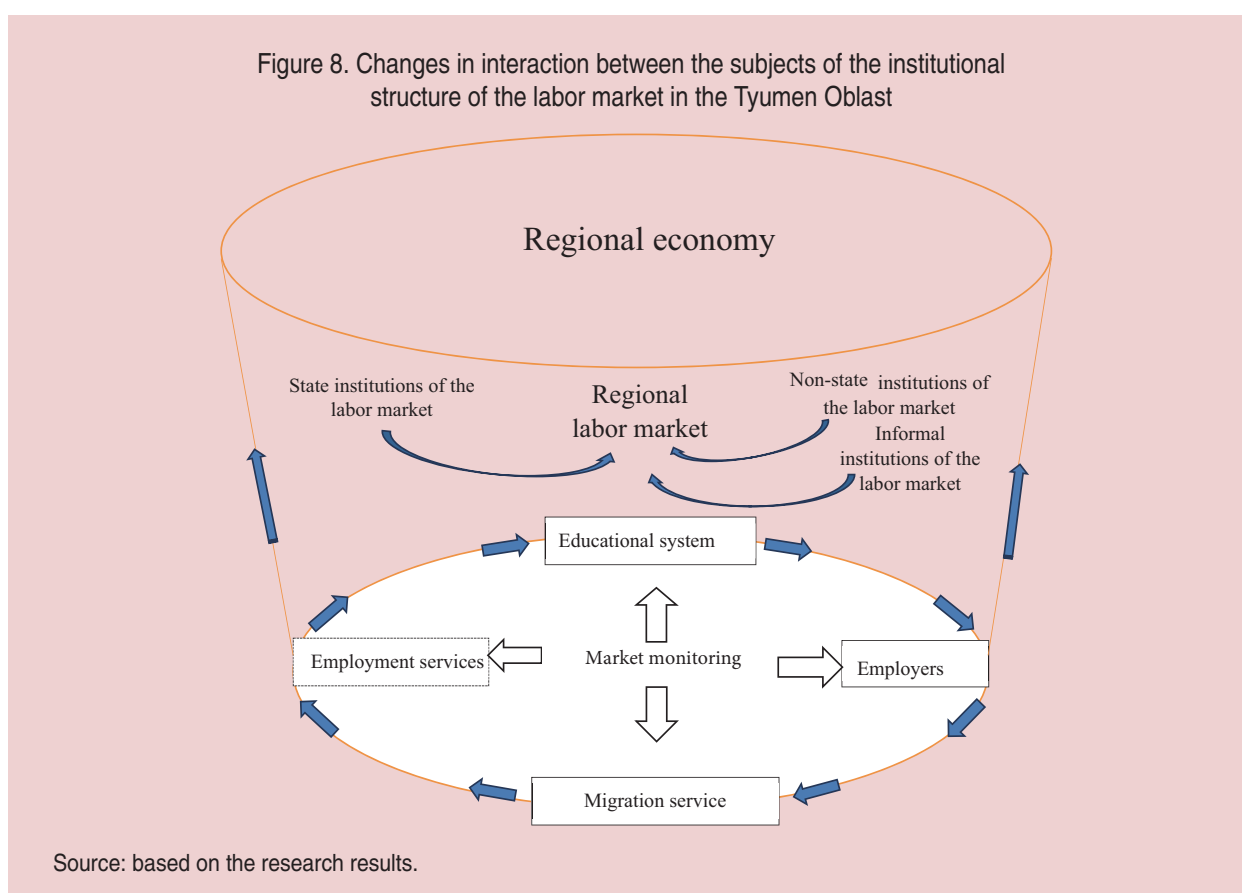
market thereby ensuring the implementation of investment projects in the territory of Yamal, in particular the project of the Ural Federal District “Industrial Ural – Polar Ural”.

**Conclusion.** The authors’ analysis has shown that the problems mainly lie in the following spheres: economic, financial, staffing, etc. This situation is generated as a result of imbalance between demand and supply on the labor market, lack of high- and medium-skilled specialists, and the enterprises’ need for skilled and unskilled labor. The development of the territory’s industrial potential imposes certain requirements on the quantitative and qualitative composition of the labor force, which, on the one hand, as practice shows, is difficult to satisfy using the existing regulation mechanisms, on the other hand, is impossible to satisfy without due attention to the youth sector from labor market institutions.

In order for the change of the essence of effective labor realization of young people to have a positive result, it is necessary to reconsider the system of labor market monitoring, which would change the system of interaction of subjects of the institutional structure of the labor market (*Fig. 8*). Quality monitoring of the labor market will become the framework for obtaining information that would contribute to effective regulation of the regional youth labor market, its subjects would be able to effectively adjust their policies regarding the quantity and quality of labor resources. Providing objective information on the structure of existing jobs will become the basis of professional motivation and formation of appropriate behavior of potential employees on the labor market.

Thus, the formation of the youth labor market in the Tyumen Oblast will contribute to productive employment, which is a derivative of an effectively functioning flexible labor market. This will make it possible to respond

Figure 8. Changes in interaction between the subjects of the institutional structure of the labor market in the Tyumen Oblast



Source: based on the research results.

quickly to changes in the current structure of employment, including youth employment, reduction in inefficient jobs, and redistribution of workers by economic industry-specific sectors, the development of innovative areas of employment.

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## Human Potential of Russia's Rural Areas: Assessment and Interpretation\*



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**Abstract.** The paper proves that the market transformations of the 1990s resulted in a crisis that affected all aspects of life of rural residents. Despite the measures taken to support the village, its problems still linger; and they include a reduction in the rural population and its outflow to the cities, and the condition of social infrastructure that is worse in comparison with that in the cities. All this reduces the opportunities for reproduction and development of human potential in Russian villages. The diversity of theoretical approaches to the definition of human potential, the lack of unified views on its structural components and methodological approaches to its analysis lead to the necessity to develop a comprehensive methodology for assessing human potential in rural areas; such a methodology should combine not only quantitative analysis based on statistical data, but also qualitative analysis that would involve the use of sociological research findings. In our paper, we present domestic studies on this problem and group them according to three scientific schools, determine their specific features and their positive and negative aspects. The article substantiates the use of the approach of T.I. Zaslavskaya to the study of human potential in rural areas; her approach distinguishes activity-related potential along with socio-demographic, socio-economic, and socio-cultural potential. In accordance with this approach, a set of indicators reflecting the state and development of human potential of rural areas is proposed. This system was tested with the help of a survey of rural population in the regions of the Northwestern Federal District. The results obtained indicate the prevalence of the average level of knowledge, a great extent of unrealized accumulated potential due to

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non-compliance, in half of the cases, of the qualification to the job requirements, as well as employment outside one's specialty. The lack of necessary conditions for realizing one's potential due to the lack of jobs and the worse state of social infrastructure in the villages compared to the cities can lead to an outflow of rural population, although sometimes the decision to move is not taken voluntarily. One third of those who are planning to move would not want to live in the city, because they appreciate the rural way of life, the opportunity to have their own house and land, and to maintain existing social ties with their neighbor villagers. However, with effective administration, there is a possibility to prevent the outflow of people from rural areas.

**Key words:** rural areas, human potential, structure of human potential, approaches to assessment.

Thinking about the future of Russia, it is necessary to use the features of the population and the quality of people's life as the main criteria for all the decisions of federal and regional authorities. We cannot but agree with the thesis put forward and repeated by many that our national idea is "preservation of the people", and the main goal is to preserve every person in the country, every citizen.

N.M. Rimashevskaya

### Introduction

Nowadays, more and more rural residents intend to leave the village for the city in search of a better life; villages are becoming desolate. According to various estimates, it is believed that after *perestroika*, up to 30 thousand villages disappeared, and the process is continuing. Urbanization is becoming a global trend. There is a growing recognition that this process is inevitable and has both negative and positive consequences; the latter include, for example, increased opportunities for professional development and self-realization of talented youth. However, despite the fact that cities are becoming "self-sufficient", they still "feed off" the countryside in the demographic aspect and retain mental community with its population [Druzhinin A.G. Specific features of urbanization and ruralization... 2012]. The village has always been considered a basis of demographic potential due to the existence

of large peasant families; it has been the main symbol of the Russian spirit, "the cradle of culture" and the best traditions of the country. While at present, some settlements have virtually no prospects, there also exist those that, even with the outflow of population, retain their development potential. In some, you can find ancient churches and manor houses, which are of interest to tourists and serve as a resource for development. A.V. Merzlov, director of the Center for Sustainable Development of Rural Areas at Moscow Timiryazev Agricultural Academy, in his expert interview (radio SOL', "Angle of view" program, December 19, 2016) noted that the village could be developed primarily with the help of internal resources, and natural and cultural potential, which still remain unused [Merzlov A. Extinction of the Russian village... 2016]. Supporting his point of view, we believe that it is necessary to take into account human potential as one of the key drivers of sustainable development of rural areas.

Achieving this strategic goal make sit necessary to reconsider the place and role of rural areas in promoting socio-economic transformation in Russia [On the federal target program "Sustainable development of rural territories for 2014–2017 and for the period till 2020"]. We agree with A.V. Vorontsov, who points out that "liberal market reforms carried out in the 1990s without taking into

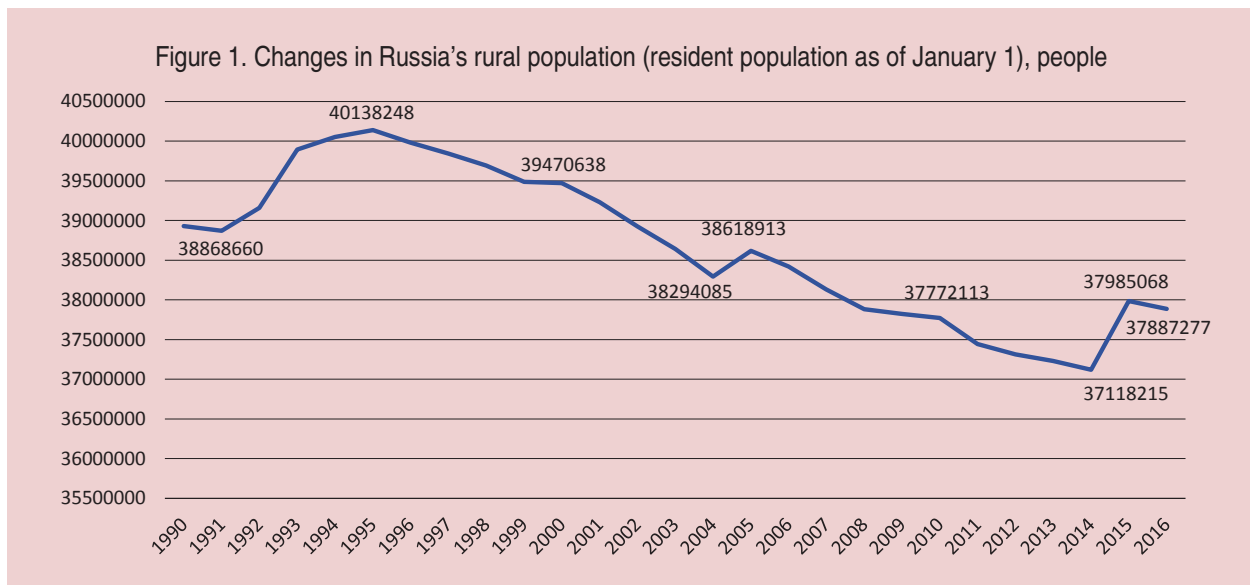
consideration historical, national and natural-climatic features led to a sharp deterioration of conditions and living standards of the population and caused deep and protracted crisis of the village which affected virtually all aspects of life of villagers” [Vorontsov A.V. The countryside sociology and a demography in statistics reflection. 2011. P. 138]. In the early 1990s, in one of the speeches of the participants of Vologda regional peasant gathering, it was noted that “the village is falling apart, and the rural population is left to sink or swim” [Russia on the eve of the 21st century. 1995]. The situation was similar in other regions. G.V. Kulik, Deputy of the State Duma of the Federal Assembly of the Russian Federation, in his report on Russia's agriculture describes in the following way the decadent moods of the population which existed then: “The village cannot survive any more, it won't be able to get back on its feet, village roots have been cut and the village is dying without hope, and the people lost faith in the possibility of revival of the Russian village” [Kulik G. V. Fifteen years with President Putin. Russia's agriculture will ensure the food independence of the country. 2016].

Over two decades have passed, and the situation is now different. Among the most important milestones of agricultural policy is the national project “Development of the agro-industrial complex”, the Food Security Doctrine of the Russian Federation, the State Program for Agriculture Development for 2013–2020. [Barsukova S.Yu. Barsukova S.Yu. Milestones of agrarian policy of Russia in the 2000s. 2013]. An important place was given to solving the problems of social reconstruction of the village and improving the level of social services for the rural population. For example, according to the above-mentioned report by G.V. Kulik, the total amount of expenditures on social development of the village in 2003–2014

amounted to 406.0 billion rubles, and most of it was allocated to residential construction, particularly to the houses for professionals, who came to the village as permanent residents, to gasification and water supply of rural settlements.

Nevertheless, despite the measures undertaken, there still remain certain problems such as the outflow of population to the cities, and the decrease in rural population. One of the possible reasons lies in the fact that the existing sustainable rural development program mainly covers settlements located near large agro-industrial facilities, while most rural areas are not covered by the program, and the rate of disappearance of villages and their depopulation is still very high [Merzlov A. Extinction of the Russian village... 2016]. The latter is clearly illustrated by statistical data: over 20 years, the rural population of Russia decreased by three million people (7.5%); after the accession of Crimea to Russia, rural population has increased, but the key situation has not changed (*Fig. 1*).

The processes taking place in rural areas can be considered as a reason for increasing the number of research projects on the socio-economic problems of rural areas. We should point out the writings of T.I. Zaslavskaya [Zaslavskaya T.N. Pages of creative biography. 1999], and Yu.V. Arutyunyan [Arutyunyan Yu.V. Experience of sociological study of the village. 1968], which are devoted to methodological issues of studying the village and in which rural areas are considered as a socio-cultural world with special values and way of life. The potential of rural development and the real economy are studied in the works carried out under the supervision of T. Shanin [Shanin T. Reflexive peasant studies and the Russian village. 2002] (the Center of Peasant Studies and Agrarian Reforms), these works analyze the detailed biographies of families from rural areas.



The growth of research interest in this topic is partly due to the diversity of theoretical approaches to the definition of human potential. However, there is a lack of consensus on the components of human potential, as well as insufficient reflection of specific features of rural areas (such aspects as the stable development of rural communities, preservation of rural lifestyles and rural culture, etc. are often do not taken into account). We consider it urgent to develop a methodological approach to the assessment of human potential, the use of which would solve the controversial issues in order to develop management approaches further.

As we have previously noted [Chekmareva E.A., Ustinova K.A., Likhacheva T.N. 2017], each of the approaches to the study of human potential has its advantages and disadvantages, so it is necessary to focus on the development of such an approach that would attempt to minimize the latter. From our point of view, the technique for assessing human potential of rural areas should be comprehensive, combining not only quantitative, statistical data-based analysis, but also qualitative one, involving the use of sociological research findings. This actualizes the practical and scientific significance of the research.

**I. Theoretical foundations**

Theoretical foundations of research into human potential were laid by foreign scientists [William J. The Will to Believe, and other Essays in Popular Philosophy and Human Immortality. 1897; Moreno J.L. Sociometry. Experimental Method and the Science of Society... 1951; Maslow A.H. Motivation and Personality. 1954]: in the 1950s–1960s, major scientific schools were formed; they studied the influence of individual components of human potential on economic growth and innovation development of territories.

The 1970s–1990s witnessed an increased interest in the socio-economic concepts of human potential that focused on the changes in the forms of human potential through social and economic transformations [Sombart W. Modern Capitalism. 1992], and on the implementation of human potential in the interrelation of social and economic aspects [Simmel G. The Philosophy of Money. 1978]. In the framework of such concepts, human potential was considered, on the one hand, from the standpoint of the qualitative characteristics of a “sociological individual” whose behavior is sanctioned by society and whose social roles must be implemented in compliance

with existing social norms [Lindenberg S. An Assessment of the New Political Economy... 1985]; on the other hand – from the position of an “economic individual” oriented toward the development and implementation of their own abilities in the workplace [Aron R. Main Currents in Sociological Thought. 1993] by investing in themselves and in their environment [e.g. Bowen W. Investment in Human Capital and Economic Growth. 1968] to maximize economic benefits. From our point of view, it is necessary to take into account both social and economic aspects that influence the formation and use of human potential in interrelationship and interdependence.

There existed other widespread approaches: for example, in the 1990s, there was a transition from the concept of minimum needs (the International Labor Organization [The ILO Social Security (Minimum Standards) Convention, 1952 (No. 102)] to the concept of human development [United Nations Development Program. 1990], the main idea of which is to create conditions for the maximum implementation of human potential.

Some works on human potential, which appeared quite early in Russian science, considered only some of its components. Thus, Academician S.G. Strumilin in the 1920s analyzed the contribution of education to the economic growth of the USSR [Strumilin S.G. Problems of labor economics: essays and sketches. 1925]. For a long time, domestic research was dominated by “human utilization paradigm (resource-based approach) that considers man as a productive resource, whereas the alternative human development paradigm puts an individual at the center of reproductive process” [Human potential of Russian regions. 2013. P. 83]. The revision of the resource-based approach associated with the generalization of the achievements of domestic and foreign science resulted in the consideration of human

potential from the standpoint of the goal and criterion of social progress [Human potential of Russian regions. 2013. P. 83].

Having analyzed Russian research in the field of human potential we allocate three major scientific schools:

1. *Scientific school of B.G. Yudin* [Yudin B.G. Human potential as a critical resource of Russia. 2007; Yudin B.G. Human potential of Russia ... 2002] (RAS Institute of Human Sciences, after reorganization – RAS Institute of Philosophy). In the framework of this school, human potential is defined as a set of characteristics of an individual and society; these characteristics can be manifested in favorable circumstances or remain hidden. The formation and development of human potential is considered in the process of socialization of an individual [Yudin B.G. The concept of human potential ... 1998] at three levels: micro-level (man), mezo-level (group), and macro-level (country) [Yudin B.G. Human potential of Russia ... 2002; Lukov V.A., Yudin B.G. To the concept of the Internet project “Human potential of Russia”. 2009].

A specific feature of this scientific school consists in the fact that it is based on a comprehensive interdisciplinary approach to the study of man, and it criticizes some of the provisions of the UNDP methodology (the use of the index method to characterize individual conditions of human development, rather than the directions of implementation of potential; insufficient attention to the protection and guarantee of human rights in society). The scientific school of B.G. Yudin overcomes these flaws, takes into account the economic, psychological, and cultural aspects of human existence [Maslow A.H. Motivation and Personality. One thousand nine hundred fifty four], the possibility of adaptation of an individual to the changing conditions, the separate parameters connected with protection

of the rights (the number of complaints from citizens on the violation of their rights [Vorontsov A.V. The countryside sociology and a demography in statistics reflection. 2011]). In accordance with this, in the structure of human potential there are educational, intellectual, cultural and spiritual components [Human potential... 1999], psychological competence, health (bodily and spiritual), readiness for family life and for upbringing of children, adaptability to social infrastructure [Yudin B.G. The concept of human potential ... 1998]. In our work, among the indicators for assessing human potential we should take into account the level of education and the level of knowledge (erudition), health status (including the number of sick days over the past year, the opportunity to work out and go in for sports), marital status, children and their number.

2. *Scientific school of N.M. Rimashevskaya* (Institute of Socio-Economic Studies of Population of the Russian Academy of Sciences, ISESP RAS), based on the methodology for assessing qualitative characteristics of the population taking into account such components [Rimashevskaya N.M., Kopnina V.G. Population quality. 1993] as health (physical, mental and social), professional and educational abilities that form intellectual potential, cultural and moral values and spirituality, and sociocultural activity. Social aspirations are also taken into account [Rimashevskaya N.M. Qualitative potential of the Russian population... 2001], which corresponds to the viewpoint of UNDP developers, who considered the potential of human social activity as one of the components of human development in 2010. The question whether material support aimed to maintain and improve human potential should be considered as part of human potential remains debatable [Human potential of Russian regions ... 2013. P. 86]. Criticism of certain provisions is

due to the problems of comparative analysis, the inability to make comparisons due to the fact that, for example, social activity and spiritual and moral values are described at the micro-level. On the one hand, this makes it possible to analyze the qualitative structure of human potential in terms of various demographic and social groups; but on the other hand, territorial features often remain untouched. Overcoming this limitation is due to the use of statistical data, which, in turn, involves problems related to the availability of regular information on the level of education (availability of data on the results of population censuses mainly for economically active and adult population), the lack of indicators to assess such components of human potential as culture and civic engagement [Human potential of Russian regions... 2013. P. 140], the availability of statistical data for the assessment of human potential mainly at the regional level. The latter problem makes it difficult to use the developed methodological approaches in relation to rural areas and brings to the fore the studies aimed to overcome these problems.

3. *Scientific school of T.I. Zaslavskaya* (Russian Presidential Academy of National Economy and Public Administration, RANEPA) that considers human potential from the position of the readiness and ability of the national community to develop actively, to make timely and adequate responses to multiple challenges of the environment, to compete successfully with other societies [Zaslavskaya T.I. Human potential in the modern transformation process. 2005]. One of the features of this scientific school is that it studies human potential in the context of transformation processes.

Summing up the experience of studies on the structure of human potential, we see that the most common of its components are intellectual, creative, communicative, value-

related and activity-related [Chekmareva E.A., Ustinova K.A., Likhacheva T.N. Theoretical and methodological approaches to human potential research of rural areas. 2017]. The last component determined by T.I. Zaslavskaya along with socio-demographic, socio-economic, and socio-cultural components, is expressed, in her opinion, in the objective opportunities of citizens to realize their social and creative potentials, to lead an active and full life [Zaslavskaya T.I. Twenty years of Russian transformation... 2010]. In turn, we consider it important to study activity-related potential from the standpoint of its influencing not only the implementation of other components of human potential, but also their formation. For example, professional development intentions and plans can have a positive impact on socio-economic and human potential in general.

The advantage of T.I. Zaslavskaya's approach lies in the component analysis of human potential in the context of transformation processes, which makes it possible to adapt this approach to rural areas. Given this fact, human potential of rural areas can be defined as a complex system that consists of socio-demographic, socio-economic, socio-cultural and activity-related potentials, the relationship and interaction of which ensures the reproducibility of the rural community, preservation of rural lifestyles, production of agricultural products and other goods and services, as well as social control over the territory [Chekmareva E.A., Ustinova K.A., Likhacheva T.N. Theoretical and methodological approaches to human potential research of rural areas. 2017. P. 104].

## II. Methods

The need to develop a comprehensive methodology for analyzing human potential of rural areas is due to the debatable problems of its research. In this article, we place the

emphasis on the sociological method since there are no well-established methodological principles in the study of this category, and there are no concrete parameters of its sociological assessment [Bychenko D.Yu. Methodological foundations of the study of human potential. 2011. P. 57].

Within the framework of our research, we developed a methodology based on a system of indicators corresponding to its structural components (socio-demographic, socio-economic, socio-cultural and activity-related; *Tab. 1*). Its approbation carried out on the data of 2017 made it possible to characterize comprehensively the state and development of human potential taking into account the factors influencing it (affecting the choice of profession and the development of professionalism; impeding employment within one's obtained specialty, visiting cultural events, physical education and sports, etc.).

The key role in the structure of human potential belongs to activity-related potential, which, on the one hand, affects all other components (*Fig. 2*) and serves as a decisive factor in their implementation; on the other hand – it “experiences” their significant impact [Zaslavskaya T.I. Twenty years of Russian transformation. 2010]. We support the position of T.I. Zaslavskaya and consider activity-related potential, first, in interrelation and interdependence with other components, second, as a separate component, which has its own specifics. In this component (see *Tab. 1*) we have included professional intentions, measures to preserve and promote health, social and political engagement of the population, etc.

We implemented the above idea of using the system of indicators in the framework of Project 16-32-01057 entitled “Human potential of rural areas in the period of socio-economic transformations” funded by the Russian Foundation for the Humanities. At the *first*

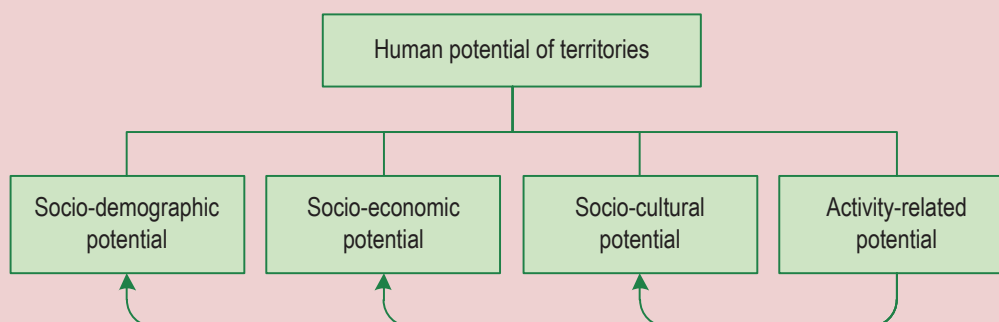
Table 1. System of indicators for integrated assessment of human potential of rural areas

Components of human potential	Content [Source: Zaslavskaya T.I. Twenty years of Russian transformation. 2010]	System of indicators (corresponds to the questions in the questionnaire)
Socio-demographic	It is determined by the structure of the population by generation, the average life expectancy of men and women, the ratio of births and deaths, marriages and divorces, the proportion of singles, as well as illegitimate, neglected children and those deprived of parental care. Important elements of this potential include the state of physical and mental health, the level and quality of education of citizens.	Sex Age Marital status Number of children State of health Sick leaves for the last year and their frequency Physical education and sports Level of education Specialty School performance Level of knowledge (erudition) Sources of knowledge
Socio-economic	It takes into account the level of qualification and professionalism of economically active citizens, public demand for their labor, the level and structure of employment, the degree of implementation of their labor, business and intellectual resources. The level of citizens' requests in respect of rights and freedoms, the degree of social protection, chances of success in life, etc., as well as their needs and effective demand for material and social benefits.	Qualities peculiar to man (responsibility, diligence, education, self-control, etc.) Qualities that are more helpful in the work Nature of work Occupation Work sphere Experience Degree of compliance of one's qualification with one's job Employment according to one's specialty/outside one's specialty Characteristics of cash income Monthly expenditure on food
Socio-cultural	Includes socially significant features of the mentality of citizens, in particular the normative and value consciousness, beliefs, respect for law, the level of morality, the structure of motivational sets and behavior patterns; values (personal or collective, etc.); the degree of readiness and ability of different groups and strata to interact to achieve common goals or, conversely, their ideological dissociation	Mental features Values (what is important in life) Religious views Moral feelings (guilt, remorse, etc.) Hobbies The use of profanity in communicating with others
Activity-related	It is expressed in the level of competencies of social actors, their energy, enterprise, and initiative. External indicators of this potential are the scale of entrepreneurial and other socio-innovative activity of the population, the development of the "third sector", venture industries, and civil structures.	Planning to move (change the place of residence) Having a side job Planning to improve one's professional skills Changing one's place of work and reasons for it Professional intentions Measures that a person is willing to take to preserve and strengthen their health Ways of spending free time Housing improvement Participation in the public life of the settlement Membership in public organizations Participation in political life
Source: the system of indicators for comprehensive assessment of human potential in rural areas that we developed taking into account the content of structural components by T.I. Zaslavskaya.		

*stage* (2016) of its implementation, the main task was to test its tools in the Vologda Oblast. The sample covered 400 rural residents of the region. The value of random sampling error was 3–4% at a confidence interval of 4–5%. At the *second stage* (2017), the rural areas of

the North-West were chosen as the object of research, since they are an important socio-territorial subsystem of the society. The sample is representative by gender and age, its total volume is 238 respondents.

Figure 2. Structure of human potential



Source: our own compilation.

At this stage, we used the results of a sociological survey carried out in 2017 by Vologda Research Center of RAS (formerly named ISEDT RAS) in rural areas of the Northwestern Federal District (the data for 2016 were not used due to the difference in the structure of the sample and the disparity of the data). The survey covered 17 small villages, 12 medium-sized villages, 12 communities and urban-type settlements such as the urban-type settlement of Proletariy, the settlements of Krestsy, Vazhskaya Zapan, Lovozero, Maloshuyka, Pavlovsk, the villages of Velikaya Niva, Zalesye, Plesovskaya, etc. The composition of respondents was as follows: 42% live in communities and urban-type settlements, 34% – in medium-sized villages, 24% – in small villages; including 13% – residents of district centers, 57% – residents of settlements located within a radius of 20 km from district centers, 20% – within a radius of 21–50 km from district centers, 10% – within a radius of 50 km from district centers.

When we were analyzing human potential of rural areas, we took into account both socio-demographic parameters (gender, age) and the territorial aspect – the type of settlement (small village, medium-sized village, community and urban-type settlement). When describing components of human potential, we considered

some indicators that revealed the content of the component to a greater extent: for example, in the case of socio-demographic potential it was the level of education and health status of the rural population; in the case of socio-economic potential – the employment within one's obtained specialty (outside one's specialty), employment by vocation (work as one's favorite activity), the degree of compliance of one's qualification with the work one performs; in the case of socio-cultural potential – the values (what is most important in life), closeness (remoteness) in relation to the residents of the settlement; in the case of activity-related potential – the intentions of the population, participation in the public life of the settlement. In addition, in view of a key problem – the outflow of population from rural areas – we placed the emphasis on identifying what aspects of rural life might attract people, and on the reasons why people would like to change their place of residence.

### III. Results

#### 1. Socio-demographic potential.

The characteristics of socio-demographic potential include the structure of population by generation, average life expectancy, physical and mental health, and the level and quality of education of citizens. In our study we examine the last two components.



The distribution of population by level of education shows that the entire rural population has secondary education, more than 40% were trained in the vocational school, about a quarter – in the technical school and only 15% – in higher education institutions (Tab. 2).

Despite the fact that there are virtually no respondents who have two or more higher educations among the rural population, in general they estimate the level of their knowledge as average in more than 60% of the cases, and as high – in 20% of the cases. Moreover, young people are more optimistic in their judgments compared, for example, with the population of retirement age (Tab. 3).

Men tend to describe their health status, one of the most important components of socio-demographic potential, as good (36% vs. 21% in women). Young people assess their health more positively than people of other age groups: a quarter of young people characterize it as excellent, in the middle-aged group the share of such assessments is several times less. The inhabitants of communities or urban-type settlements in comparison with those living in villages assess their health as excellent and good more often (Tab. 4).

Similar conclusions are made with the use of the data on the frequency and severity of diseases depending on the characteristics under

Table 2. Distribution of answers to the question: “What education do you have?”, each column makes 100%\*

Education level	Frequency, %
Secondary school	100.0
Vocational school	43.7
Technical school	23.9
Technical college	4.2
Incomplete higher education	2.5
Higher education	15.1
Two higher education degrees and more	0.8
Postgraduate education	0.8
Other	0.8
Without any education	0.0

\* The sum in the column is more than 100%, because the answer to the question involved indicating all the stages of education the respondents completed.

consideration (sex, age, type of settlement). Ailments are more common among middle-aged persons and pensioners (49% and 51% vs 30%, respectively); the same can be said about serious health condition (15% and 15% vs 2%; Tab. 5).

Building and developing socio-demographic potential depends on the willingness of the population to take measures to preserve and improve their health. Here some of the obstacles are subjective (lack of need, lack of free time) and objective (problems with the availability of sports facilities for this purpose). However, people consider subjective obstacles of crucial importance (about half of the respondents

Table 3. Assessment of the level of knowledge (erudition) and the presence of two or more higher education degrees, each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Two or more higher education degrees								
Yes	0.0	1.6	0.0	0.9	1.2	1.8	1.3	0.0
No	100.0	98.4	100.0	99.1	98.8	98.2	98.8	100.0
Level of knowledge (erudition)								
Very low	0.0	0.8	0.0	0.0	1.2	0.0	0.0	1.0
Low	9.7	9.7	2.1	10.2	13.4	8.8	10.1	10.0
Average	66.4	67.7	72.3	65.7	65.9	71.9	65.8	66.0
High	22.1	21.0	25.5	23.1	17.1	17.5	24.1	21.0
Very high	1.8	0.8	0.0	0.9	2.4	1.8	0.0	2.0

Table 4. Distribution of answers to the question: "How would you assess the overall state of your health", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Excellent	7.1	8.8	27.1	3.7	2.4	1.8	5.0	13.0
Good	36.3	20.8	56.3	30.6	8.5	15.8	33.8	31.0
Satisfactory	52.2	54.4	16.7	59.3	67.1	66.7	52.5	47.0
Poor	4.4	13.6	0.0	6.5	18.3	14.0	7.5	8.0
Very poor	0.0	2.4	0.0	0.0	3.7	1.8	1.3	1.0

Table 5. Distribution of answers to the question: "Which of these statements suits you best?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
I'm often and severely ill	0.0	4.9	0.0	0.9	6.2	7.0	1.3	1.0
I fall ill often, but my illnesses aren't severe	4.5	12.2	4.3	3.8	17.3	7.0	7.7	10.2
From time to time I have a serious condition	13.5	11.4	2.1	15.1	14.8	19.3	9.0	11.2
I feel unwell sometimes	48.6	43.9	29.8	50.9	49.4	47.4	57.7	35.7
I seldom fall ill or feel unwell	33.3	27.6	63.8	29.2	12.3	19.3	24.4	41.8

chose answers related to subjective aspects). This means that changing people's motivation to preserve and improve their health and the availability of appropriate attitudes would probably improve the situation. Judging from the results of the sociological survey, only a quarter of the population has no obstacles to the implementation of intentions in this direction.

## 2. Socio-economic potential

Taking into account the fact that this potential is associated with raising the professional level of the population and with the implementation of intellectual and business qualities, we consider it important to consider the parameters that indicate its inefficient use due to the mismatch between the educational system and the labor market (employment outside one's specialty, the degree of compliance of a person's qualification with the requirements of a job, etc.).

The study also shows that, like in all able-bodied population, only in half of the cases the qualification of rural residents meets the requirements of jobs and about one third of the villagers have a higher qualification than it is required for their job (*Tab. 6*). It should be noted that only in a small number of cases the qualification of respondents is below the requirements of their job, which may be due, on the one hand, to the lack of high-tech industries in rural areas, where employers would impose high requirements on the educational and qualification potential of employees, on the other hand, it can be due to overestimated self-assessments of the population.

The mismatch between the requirements of jobs and the specialty obtained in the course of education impedes the possibility of using the accumulated potential efficiently. In practice, compliance is ensured only in half of the cases, this occurs even less frequently among rural

Table 6. Distribution of answers to the question: "To what extent does your qualification correspond to the work you perform?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
My qualification is higher than the requirements to my work	30.8	25.0	33.3	28.8	14.3	37.0	21.7	29.8
My qualification meets the requirements to my work	50.8	57.1	48.1	55.0	57.1	48.1	56.5	53.2
My qualification is lower than the requirements to my work	1.5	0.0	3.7	0.0	0.0	3.7	0.0	0.0
I don't know, it's hard to tell	16.9	17.9	14.8	16.3	28.6	11.1	21.7	17.0

Table 7. Distribution of answers to the question: "Do you work within your specialty?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Yes	49.2	50.0	44.4	51.3	50.0	33.3	52.2	55.3
No	49.2	50.0	51.9	48.8	50.0	66.7	47.8	42.6
Other	1.5	0.0	3.7	0.0	0.0	0.0	0.0	2.1

residents, which can be caused by the lack of jobs corresponding to the training they received (Tab. 7).

One of the problems is that only half of the villagers can work in the place of residence, while almost one third have to find a job in the city; this fact can lead to the outflow of the population from the village (Tab. 8). It should be emphasized that the absence of appropriate work in the place of residence in about half of the cases leads to employment outside one's specialty; other reasons that determine such a situation are the desire to

find a job "to one's liking" (18%), change activities and try something new (12%), etc. Despite the difficulties that arise with regard to employment, the majority of rural population like their work (Tab. 9).

Summing up the overview of socio-economic potential, we should note that its effective development and utilization is provided only in half of the cases. We have proved it with the help of the data on employment according to one's specialty, and on the compliance of people's qualification with requirements of their jobs.

Table 8. Distribution of answers to the question: "Do you work in the same settlement in which you live?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Yes	56.9	58.9	63.0	52.5	78.6	51.9	76.1	42.6
No, I work in another settlement	13.8	16.1	7.4	18.8	7.1	18.5	8.7	19.1
No, I work in the city	29.2	25.0	29.6	28.8	14.3	29.6	15.2	38.3

Table 9. Distribution of answers to the question: "Do you enjoy the work that you do?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Yes	26.2	25.0	22.2	23.8	42.9	29.6	21.7	25.5
Sooner yes	30.8	42.9	37.0	38.8	21.4	33.3	34.8	40.4
Sooner no	26.2	17.9	22.2	23.8	14.3	33.3	28.3	10.6
Definitely no	3.1	3.6	3.7	3.8	0.0	0.0	4.3	4.3
It's difficult to say	13.8	10.7	14.8	10.0	21.4	3.7	10.9	19.1

### 3. Socio-cultural potential

Socio-cultural potential is considered from the positions of morality and virtue, views and beliefs, and respect for law, as well as the features of normative and value-based consciousness; and a decisive role in this case belongs to values. In their list, the first place, regardless of socio-demographic characteristics of the population and their place of residence, is occupied by the family and home, the second – by the job and, as a consequence, by the means to ensure decent earnings. Besides, communication is of great importance, too (*Tab. 10*).

The importance of communication and maintaining stable relations with the inhabitants of the village is shown using the results of the answers to the question about the sense of closeness/remoteness in relation to the settlement. Social relations are given importance

in more than 40% of the cases, and among pensioners and residents of the settlements, this figure is more than 50% (*Tab. 11*). About one third of the rural population feels closeness with nature, which can contribute to the lack of desire to change their place of residence.

When considering socio-cultural potential, we can emphasize that the population of rural areas distinguishes such common aspects of value orientations as family and home, work and decent earnings, maintenance of social ties through communication; while professional development and spiritual development are not considered as very important. The low orientation of the rural population toward improving their skills and toward professional growth may be a reason for reducing opportunities to overcome the discrepancies between the educational system and the

Table 10. Distribution of answers to the question: "What is the main thing in life for you personally?", each column makes 100% (the answer "my own thing"; the sum exceeds 100% because respondents could choose up to 3 answers)

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
My work	37.2	23.2	29.2	43.5	12.2	24.6	41.3	23.0
Family and home	92.0	90.4	91.7	93.5	87.8	86.0	95.0	91.0
Study, education, advanced training	5.3	6.4	22.9	0.9	2.4	1.8	5.0	9.0
Communication with a certain circle of people	15.9	24.0	18.8	18.5	23.2	24.6	13.8	23.0
Decent earnings	32.7	19.2	31.3	33.3	12.2	22.8	35.0	20.0
Spiritual development	6.2	12.8	6.3	4.6	18.3	8.8	11.3	9.0
Other	0.9	0.8	0.0	0.9	1.2	0.0	1.3	1.0

Table 11. Distribution of answers to the question: "To what extent do you feel close to or remote from your settlement?", (answer "my own thing"; each column makes 100%)

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Residents of the settlement	42.9	46.0	44.7	39.8	50.6	33.3	37.5	56.1
Nature of the settlement	31.3	41.1	34.0	37.0	37.0	43.9	40.0	29.6
Traditions and culture of the settlement	15.2	8.1	14.9	13.0	7.4	8.8	15.0	10.2
History of the settlement	7.1	4.8	4.3	7.4	4.9	10.5	7.5	2.0
Future of the settlement	3.6	0.0	2.1	2.8	0.0	3.5	0.0	2.0

labor market, expressed in the employment outside one's specialty, mismatch between an individual's qualification and the requirements of their jobs, and in choosing a job without taking into account one's preferences (lack of love for the profession as a life-work).

#### 4. Activity-related potential

Overcoming the above problems becomes possible through the use of activity-related potential, which includes not only social activity, but also business qualities, initiative and enterprise. Here a high priority must be placed on the intent (achieving a high financial status, establishing social relationships and expanding one's social circle) as the "source" promoting people's activity. Rural residents

pay less attention to such intentions as preservation and promotion of health, intellectual development (this is especially important for women, youth and the population living in settlements), growth of the cultural level, career promotion and achievement of a high position in society.

However, despite the above-mentioned priorities, there are some differences across socio-demographic groups. For example, women intend to expand their knowledge, promote health and expand their social circle more often as compared to men, while men intend to achieve high financial standing, engage in business activities, and achieve public recognition (Tab. 12).

Table 12. Distribution of answers to the question: "Which of the following coincide with your intentions?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
<i>Improve my knowledge, become an erudite person</i>								
Yes	21.5	32.1	29.6	30.0	0.0	25.9	19.6	34.0
No	78.5	67.9	70.4	70.0	100.0	74.1	80.4	66.0
<i>Become a highly qualified specialist, respected by colleagues</i>								
Yes	33.8	23.2	29.6	32.5	7.1	29.6	21.7	34.0
No	66.2	76.8	70.4	67.5	92.9	70.4	78.3	66.0
<i>Get a promotion, make a career</i>								
Yes	16.9	17.9	37.0	13.8	0.0	11.1	17.4	21.3
No	83.1	82.1	63.0	86.3	100.0	88.9	82.6	78.7

The end of Table 12

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
<i>Do (continue doing) creative work</i>								
Yes	4.6	1.8	7.4	2.5	0.0	0.0	2.2	6.4
No	95.4	98.2	92.6	97.5	100.0	100.0	97.8	93.6
<i>Achieve a high financial position</i>								
Yes	49.2	19.6	44.4	38.8	0.0	40.7	26.1	42.6
No	50.8	80.4	55.6	61.3	100.0	59.3	73.9	57.4
<i>Engage in entrepreneurial activities, open a business, become a farmer, etc.</i>								
Yes	13.8	7.1	25.9	6.3	7.1	14.8	13.0	6.4
No	86.2	92.9	74.1	93.8	92.9	85.2	87.0	93.6
<i>Engage in socio-political activities, become a deputy, a leader of a party, movement, trade union, etc.</i>								
Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
No	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Raise my cultural level</i>								
Yes	7.7	19.6	18.5	12.5	7.1	11.1	13.0	14.9
No	92.3	80.4	81.5	87.5	92.9	88.9	87.0	85.1
<i>Rise to eminence in society</i>								
Yes	6.2	8.9	14.8	6.3	0.0	7.4	13.0	2.1
No	93.8	91.1	85.2	93.8	100.0	92.6	87.0	97.9
<i>Gain public recognition (receive awards, honors)</i>								
Yes	10.8	3.6	7.4	7.5	7.1	7.4	6.5	6.4
No	89.2	96.4	92.6	92.5	92.9	92.6	93.5	93.6
<i>Improve my health</i>								
Yes	16.9	32.1	14.8	25.0	35.7	33.3	21.7	21.3
No	83.1	67.9	85.2	75.0	64.3	66.7	78.3	78.7
<i>Make my nervous system stronger</i>								
Yes	20.0	17.9	3.7	21.3	35.7	25.9	17.4	17.0
No	80.0	82.1	96.3	78.8	64.3	74.1	82.6	83.0
<i>Expand my social circle, make many friends and acquaintances</i>								
Yes	30.8	35.7	25.9	33.8	42.9	33.3	32.6	34.0
No	69.2	64.3	74.1	66.3	57.1	66.7	67.4	66.0

Intentions are realized through the activity of the population, including their community activity. According to the results of our sociological research we reveal that about half of the population does not participate in the social life of their locality, with the exception of community cleanup days (about a third of respondents) and sociological surveys (*Tab. 13*).

We think that one of the reasons why community activity of the population is low consists in the lack of desire to live in rural areas. In this regard, of interest are the answers to the question concerning the plans of their children and grandchildren to live in rural areas

– more than 40% of both men and women gave a negative answer (*Tab. 14*). Pensioners hold a similar position in more than half of the cases, the share of such answers among young people is slightly less. At the same time, the residents of urban-type settlements are more likely to be positive than the residents of villages.

About a quarter of the population (both men and women) plan to change their place of residence; a similar situation is revealed in the context of age groups (except for middle-aged persons; *Tab. 15*).

Despite the desire to change their place of residence, more than one third of rural residents

Table 13. Distribution of answers to the question: "Do you participate in the community life of your settlement?", each column makes 100% (the sum exceeds 100% because several answers could be selected)

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
I participate in creative activities, concerts	5.3	8.0	6.3	8.3	4.9	3.5	7.5	8.0
I participate in community cleanup days	30.1	36.8	22.9	38.0	34.1	31.6	35.0	34.0
I participate in social projects, promotions, flash mobs	3.5	6.4	4.2	8.3	1.2	5.3	5.0	4.0
I participate in sociological surveys, interviews, focus groups	20.4	21.6	22.9	18.5	23.2	8.8	16.3	32.0
I write publications, notes (posts) in print and electronic editions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I do charity work	0.0	2.4	0.0	1.9	1.2	0.0	1.3	2.0
I am engaged in volunteer activity	0.9	1.6	2.1	0.0	2.4	0.0	1.3	2.0
Other	0.9	0.8	0.0	0.9	1.2	3.5	0.0	0.0
<i>I don't participate in anything</i>	<i>54.9</i>	<i>46.4</i>	<i>52.1</i>	<i>50.9</i>	<i>48.8</i>	<i>59.6</i>	<i>56.3</i>	<i>41.0</i>

Table 14. Distribution of answers to the question: "Would you like your children and grandchildren to live here?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Yes	35.4	36.0	33.3	37.0	35.4	24.6	28.8	47.0
No	42.5	48.0	39.6	41.7	53.7	64.9	45.0	35.0
It's difficult to answer	22.1	16.0	27.1	21.3	11.0	10.5	26.3	18.0

Table 15. Distribution of answers to the question: "Would you like to move, to change your place of residence?", each column makes 100%

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Yes	25.7	26.4	41.7	28.7	13.4	17.5	28.8	28.0
No	74.3	73.6	58.3	71.3	86.6	82.5	71.3	72.0

do not plan to live in the city, primarily because they value the peace and quiet, the lack of urban bustle, and the opportunity to be closer to nature and have their own house and land (Fig. 3).

In our opinion, finding a solution to priority problems, among which more than half of the

respondents named the need to increase the level of financing of social infrastructure and the number of jobs, could prevent the outflow of population from rural areas. Rural residents, regardless of socio-demographic characteristics, find it important to improve living conditions (Tab. 16).

Figure 3. Distribution of answers to the question: "What features of rural life do you find appealing?" (each column makes 100%; the amount of positions exceeds 100% because it was possible to select not more than three features)

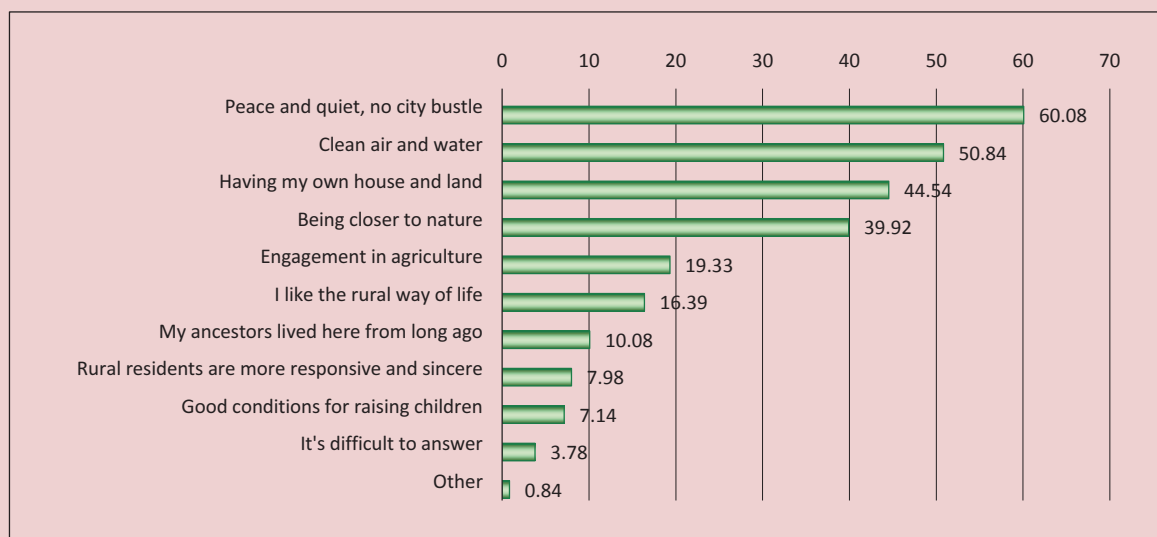


Table 16. Distribution of answers to the question: "What do you think should be done to make life in your settlement better?", (each column makes 100%; the sum exceeds 100% because multiple answers could be selected)

Answer	Sex		Age			Settlement		
	Men	Women	Youth	Middle-aged persons	Pensioners	Small village	Medium-sized village	Community or urban-type settlement
Increase financing of organizations that provide public services	61.1	56.8	50.0	66.7	53.7	42.1	57.5	69.0
Expand the range of services/activities offered	31.0	31.2	31.3	34.3	26.8	17.5	35.0	35.0
Increase the number of jobs	62.8	61.6	58.3	66.7	58.5	49.1	77.5	58.0
Strengthen state support for citizens' initiatives	31.0	28.8	27.1	35.2	24.4	24.6	33.8	29.0
Open new educational institutions	15.0	18.4	12.5	16.7	19.5	7.0	17.5	21.0
Improve living conditions	48.7	48.0	45.8	50.0	47.6	28.1	56.3	54.0
It's difficult to answer	12.4	13.6	20.8	9.3	13.4	15.8	10.0	14.0
Other	4.4	9.6	4.2	4.6	12.2	17.5	0.0	7.0

Reproduction of activity-related potential creates prerequisites for the development of human potential in general and its individual components. The growth of intellectual potential, professional and cultural level of

the population and, as a consequence, career promotion and achievement of a certain position in the society would contribute to overcoming the existing discrepancies. A low tendency to increase the professional level and



to engage in community activities can lead to problems in the realization of the potential accumulated. This is evidenced by the results of our sociological research, according to which in only half of the cases the qualification meets the requirements of jobs, and only half of the rural population works within their specialty. Among the reasons that have led to this situation, which can lead to the outflow of rural population to cities we should name the lack of jobs and the changes in professional plans and problems with social infrastructure.

In our view, it would be possible to mitigate the negative impact of population outflow, given the fact that in some cases the decision to move may not be voluntary. This is evidenced by the data of our sociological research: one third of those planning to move do not want to live in the city, because they appreciate the rural way of life, the opportunity to have their own home and land, live in the absence of fuss, and maintain existing social ties with the residents of their settlement. That is, the formation of a favorable environment for living and implementing their potential creates the possibility that the residents of rural areas who left for the city might come back. It is extremely necessary to solve the problems related to social infrastructure and jobs, because among the vital values of the rural population, along with the family and home, there is work and decent earnings, and among the intentions – the desire to achieve a high financial position.

#### **IV. Discussion**

Due to the fact that in our study we used sociological methods, it is necessary to focus on their advantages and disadvantages. On the one hand, the use of such methods creates prerequisites for analyzing qualitative characteristics of the population (lifestyle, abilities and opportunities, value orientation, adaptation to the social infrastructure of society, etc.) and the degree of implementation

of life strategies; it also allows us to work with large amounts of data, to compare different characteristics of the population in dynamics and in the context of socio-demographic groups. On the other hand, in practice, one has to deal with the problem of the quality of the data one collects, the probability of occurrence of displacement effects caused by the problems the questionnaire as the main research tool and with deviations of the fact from the plan in the formation of a sample, which can be accompanied by unrepresentativeness of the data obtained. In addition, the research in the conditions of a large sample is labor-consuming in combination with ineffective selection strategies [Zaslavskaya T.I. Twenty years of Russian transformation. 2010. Pp. 184, 186, 188-189].

In our case, the set sample in its structure corresponds to the general one. The quality of the data obtained is partly ensured by the integrated nature of the study, taking into account, in accordance with the concept of T.I. Zaslavskaya, all the structural components of human potential of rural areas and factors affecting its condition and development. In order to overcome the problem of biased data we tried to take into account different points of view when forming the answers to the survey questions, to enable the respondents to indicate their version. It was important for us to comply with the “compromise” between open and closed questions to reduce the likelihood of a large number of unanswered questions, on the one hand, as well as the risks of non-disclosure of certain features of the object of study, on the other.

One of the significant problems often encountered in practice, including ours, is to preserve a balance between the content of the questionnaire as a whole and the need to ensure the simplicity of the answers so that the respondents would have no difficulty in

answering them. In addition, we should point out the complexity of the study, it is related to the preliminary collection of statistics data (to form a set sample, too), and to organizational aspects (interviewers are reluctant to go to rural areas to carry out sociological research, and respondents are sometimes wary of such activities). As can be noted, not only the sociology of rural population research should develop, but also the statistics of rural areas. Now one usually has to deal with such problems as lack of and infrequent publication of statistical data in the context of urban and rural areas (official statistical sources contain few indicators involving mainly demographic aspects of human potential). Sometimes the studies of human potential are not comprehensive, they do not take into account the need for component-based analysis, the need to identify problems of development of this potential and factors influencing it. Obtaining such information is essential for the development of a system of measures by the governing bodies aimed at improving human potential of rural areas as a whole and its components.

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## Mechanisms for Forming IT-clusters as “Growth Poles” in Regions of Kazakhstan on the Way to “Industry 4.0”



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**Abstract.** The main prerequisite for successful innovative development is the natural course of modernization of world industries, currently characterized by the transition to “Industry 4.0”, where the main driver is information technology (including digital). With regard to the Kazakhstan economy, the emphasis is increased according to the Message of the President of Kazakhstan Nazarbayev N.A. to the people of Kazakhstan “The Third Modernization of Kazakhstan: Global Competitiveness”, dated 31.01.2017. He delivered “the first priority – accelerated technological modernization of the economy”. At the same time, an important aspect of accelerated technological modernization is the provision that it is important “to cultivate new industries that are created with the use of digital technology”. The purpose for the article is to develop scientific and practical recommendations and effective organizational and economic mechanisms to form IT-clusters in the regions of Kazakhstan on the way to “Industry 4.0”.

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Within the framework of the set goal the following main objectives are addressed: research the concept of “growth poles” and the possibility of its use in the formation of an IT-cluster; study the effect of local factors on the IT-cluster formation; present organizational and economic mechanisms to form IT-clusters amid the transition to “Industry 4.0”. The fundamental difference between the ideas of this research from the existing similar ones lies in the fact that we formulate and propose scientific provisions concerning the formation of IT-clusters in Kazakhstan, expand the existing knowledge about the development of digital technology, green information and communication technology and the introduction of breakthrough smart projects in IT. The proposed scientific research applies general research methods which help explore and organize the available data through theoretical and practical analysis. In particular, the article implies the application of the following general research methods: generalization (establishing common properties and characteristics of clusters; any features can be identified (abstract-general) or essential); system analysis (study based on review of clusters as an integral set of elements in the set of relations and connections between them); simulation. The article proposes the mechanisms to form IT-clusters as growth poles in the medium and long term, taking into account the requirements of the four-stage model of IT-cluster formation and development (a strictly defined sequence).

**Key words:** *regions, regional economy, innovative development, cluster, IT-cluster, digital technology, green IT.*

### Introduction

Nowadays, Kazakhstan is facing global economic challenges: the geopolitical role it will play in the 21st century depends on it. At the Republican meeting on issues of digitalization in September 13th, 2017, President of Kazakhstan Nazarbayev N.A. noted that “**it is necessary to build cooperation between the government and private enterprises**” and “**to create conditions for wide introduction of digital technology**” [1]. This process can be accelerated only by a better understanding of the global trends in digital technology facing Kazakhstan within the framework of Industry 4.0:

- the first trend is reaching new horizons for increasing operational efficiency;
- the second – the development of breakthrough technology through the introduction of new business models;
- the third – a complete digital transformation of manufacturing companies.

The proposed digital trends of Industry 4.0 suggest the use of new methods of innovative processes organization. It is no accident that

such world powers as the US and the EU allocate considerable funds for the implementation of Industry 4.0, especially for IT development and IT personnel training. They view Industry 4.0 as the industrial revolution mainly in terms of productivity and application of energy-saving technologies (green IT). This will lead to the formation of a new competitive environment and fundamental changes in traditional economic sectors.

At the same time, achieving a positive effect from the implementation of the Industry 4.0 model is possible only through digitalization of industrial production – production individualization and adaptation to the needs of enterprises by combining different sources of information. It should be recalled that Industry 3.0 included the automation of individual processes and machines, while Industry 4.0 is a smart factory aimed at complete digitalization of all production processes and their integration into the digital ecosystem taking into account the use of energy – saving technology.

A key success factor in digital transformation is the development of digital culture in industrial enterprises and replacement of the need for human capital (qualified IT specialists) development. Industrial enterprises need to have open access to elements of Industry 4.0 – mobile devices, cloud storage, augmented reality (smart gadgets), geolocation (positioning), advanced interface for interaction between a computer and an individual, 3D printing, Big-Data analysis and advanced algorithms, client profile personification. It is necessary to emphasize that the main problem in digitalization of industrial enterprises will be a great need for IT-environment (carriers of digital culture, which can appear only in the digital society) and the need to develop a knowledge management system in this environment, rather than the choice of new promising technology.

In this regard, it becomes clear that in order to achieve results with the implementation Industry 4.0, the formation of an IT-platform is required: that is, a kind of cluster environment domain – a modern innovation platform of the new generation. The role of such digital IT platforms can be assumed by IT clusters capable of transmitting advanced IT products and IT contents (3D printing, models of digital formations, robotics, fusion of artificial and biological intelligence through mind machine interface, genetic engineering, etc.) to the vast country’s periphery. Today, successfully functioning IT clusters create unique opportunities for market ownership in the era of data revolution and global space digitalization.

Therefore, the proposed scientific research is especially relevant now, since its *purpose is to develop scientific and practical recommendations and effective organizational and economic*

*mechanisms for the formation of IT clusters in the regions of Kazakhstan on the way to Industry 4.0.*

The purpose of the research is fully consistent with the objectives set in the Address of President of Kazakhstan Nazarbayev N.A. – Kazakhstan 2050 Strategy [2], the state program Digital Kazakhstan – 2020 [3], the Concept for the transition of the Republic of Kazakhstan to “green” economy [4] and other government policy documents, which stress the need for the development of new industries using digital technology.

The *research novelty* is provided by the fact that the scientific provisions related to the development of mechanisms for the formation of IT clusters as growth poles in the medium term (increasing business and economic susceptibility to innovation, support for innovative companies, development of science, building human resources and search for leading regions) and in the long term (development of IT business incubators, increased funding, development of horizontal links, creation of an innovation center and attraction of experienced cluster managers) prospects have been developed and substantiated. The research is expected to consider a wide range of issues in the context of knowledge-intensive technology development, introduction of breakthrough smart IT projects and the impact of local factors.

#### **The “growth poles” concept and its possible application in IT cluster formation**

In foreign and domestic scientific literature it is widely recognized that for the development of “high” technology in both developed and developing countries it is necessary to identify the drivers, i.e. “growth poles” of innovative growth and have a well-thought-out regional policy to guide them [5, 6]. At the same time, the tools and mechanisms for implementing the effective regional policy are different.

The concept of searching for possible “growth poles” was initially developed for the sectoral structure of the economy, i.e. it was based on the idea that leading industries are able to extend their potential to backward regions. In the future, this concept was developed and extended to other elements of the economic space, in the framework of studying the effects of urban agglomerations, as well as the theory of “innovation diffusion” which notes that any development is born in the center and then extends to the periphery.

Leading Western area studies specialists note that a “growth pole” is agglomeration geographically concentrated and distinguished by intense innovation processes [7]. At the same time, the centers and areas of the economic space with enterprises of leading industries or cluster structures become attraction poles for production factors as they ensure their most efficient application [5]. This leads to the concentration of active enterprises and the formation of “growth poles”. Thus, “growth poles” are created in order to intensify economic activities in backward peripheral problem areas; new investment is concentrated in the “growth poles” instead of diluting them throughout the region [8].

With the development of information economy and high-tech industries more and more research focuses on their impact on the spatial structure [9, 10]. At the same time, research in design and explanation of the correlation between the factors of high-tech production location and agglomerations is considerably important. Thus, most of the leading experts in cluster development agree that the concept of “growth poles” should include a set of four elements [11–14]:

- territory’s environment and geographical conditions;

- rapidly developing industries (most promising and least expensive for a particular territory);

- sustainably functioning enterprises (basic for region’s sectors) and availability of the developed infrastructure;

- region’s development programs (implemented in the region, suitable for further development).

Also, some scholars argued that active intervention of the state and local self-government based on a wide range of mechanisms in relation to the cluster policy had a positive impact on the spatial processes of high-tech clusters [15, 16]. Moreover, scholars noted in some publications that the role of the state in supporting the development of high-tech clusters based on “growth poles” should be long-term. The promotion of “growth poles” is impossible without state assistance, including in order to pull depressed regions requiring special attention to the mid level.

Foreign scientific literature widely recognizes that for the development of high-tech breakthrough smart projects in both developed and developing countries it is necessary to identify the drivers (“growth poles”) of innovative development and have a well-designed regional policy to guide them [17–19]. At the same time, the tools for implementing the effective regional policy are different. They must accelerate technological upgrading or should be based on new trends, modern incentives and new models of smart projects aimed at intensive interaction through quick communication to address variable and “smart” objectives.

The US experience is of particular relevance with about 16 leading IT clusters. At the same time, most experts recognize that the leading IT cluster is Silicon Valley, which accounts for about a third of all venture capital investment in

the United States [20]. The territory of Silicon Valley is characterized by dense local networks between high-tech companies engaged in design and production of microprocessors, software, mobile devices and other IT products. Today, the US regional authorities consider the development of IT clusters as one of the most important mechanisms for the development of high-tech industries.

Turning to the experience of CIS countries, it should be noted that in Russia, as well as throughout the world, there are no unified tools for identifying and developing high-tech clusters, including IT clusters. Some Russian experts note that most of cluster performance evaluation programs are fragmented and sometimes contradictory [21]. However, there are a lot of Russian scientific studies containing a complex mechanism for revealing sectoral areas which are the most promising from the point of view of high-tech cluster development potential at the regional level [22, 23, 24]. At the same time, special attention is paid to identifying high-tech and knowledge-intensive clusters with distinguishing the possible “growth poles”. In addition, the methodology and implementation of the cluster policy in Russia corresponds to the conceptual foundations of foreign IT cluster formation and development. In Russia, particular attention is drawn to the SKOLKOVO IT cluster aimed at supporting and developing a comprehensive ecosystem for the development and commercialization of IT projects.

Thus, it is advisable to start the development by searching for possible “growth poles” which can play the role of high-tech translators on the wide country’s periphery. These functions can be assumed by *IT clusters as growth poles aimed at transfer of high technology and knowledge to the wide country’s periphery*. In other words, IT

clusters as “growth poles” will not just develop independently, but will spur the development of the entire territory in which they are located. This is achieved through the ability to obtain maximum return on investment in such “growth poles”.

We propose to implement practical measures to form a successful IT cluster as a “growth pole” in several successive stages (*Figure*).

Thus, IT cluster formation is a certain system that develops in a strictly defined sequence: that is, completing its development through a number of stages:

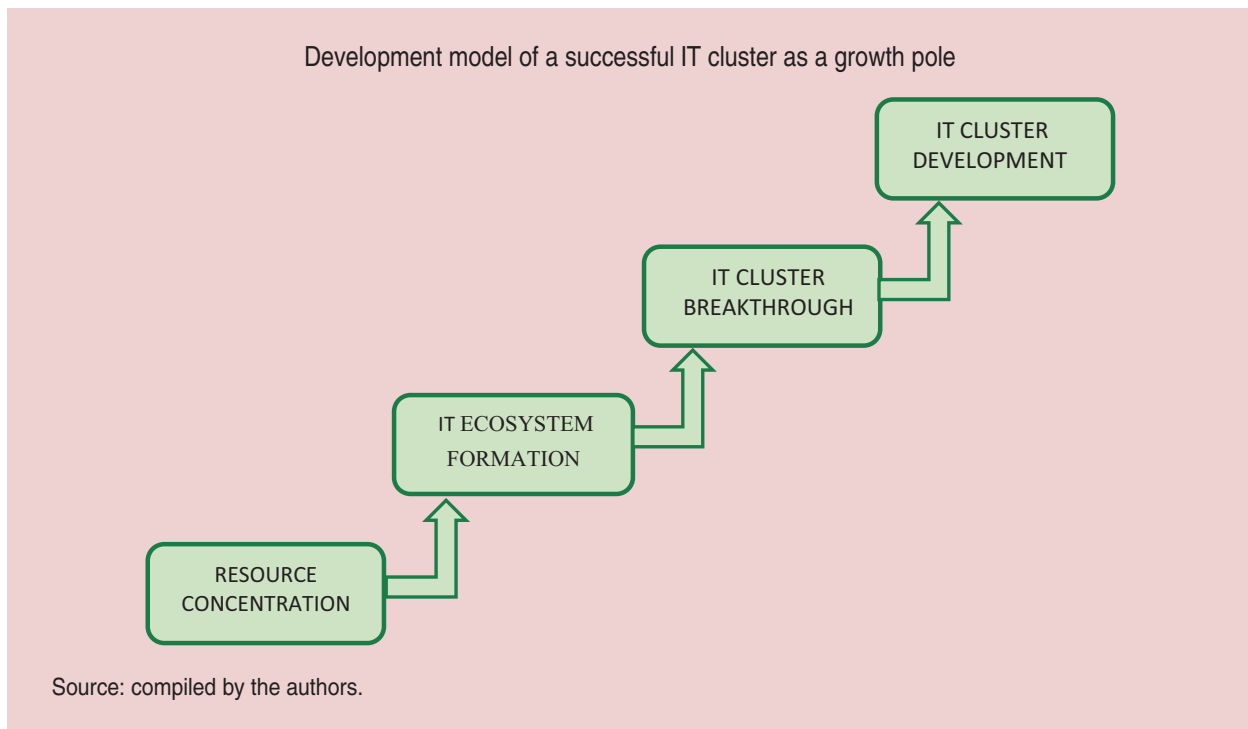
*The first stage is the concentration of resources.* At this stage, research and innovation capacities are built, entrepreneurial activity is formed, and technological platforms are developed.

*The second stage is the formation of the IT ecosystem.* At this stage, a symbiosis of technological start-ups, small and medium enterprises, fast-growing innovative business takes place; stable relations are built between high-tech companies; local authorities take up active policy to support innovative entrepreneurship and create the necessary innovation infrastructure (special economic zones, science cities, technoparks, business incubators, technology transfer centers, research organizations).

*The third stage is a breakthrough.* At this stage, there is a rapid development of fast-growing IT companies with great potential and prospects, attractive to suppliers and service organizations; significant growth of start-up IT companies; formation of market for digital and interactive technology; development of mobile networks and embedded computing.

*The fourth stage is mature development.* At the last stage, an effective infrastructure to support innovative enterprises and start-up IT





companies is established, becoming more scalable and technological; the anchor core of the IT cluster is developed; integration into existing and creation of new technological chains based on international cooperation.

#### **The effect of local factors on the IT cluster formation**

It should be noted that it is not correct to investigate the problem and propose economic mechanisms for IT cluster formation without dealing with the concept of an IT company. Thus, we can identify several variants of its definition:

1. This company – manufacturer of IT products – produces products such as hardware, computers, device tools, smartphones, digital devices and gadgets, i.e., something that is capital-intensive. Such IT companies are sensitive to changes in national regulation due to built-in financial, physical and capital resources [25].

2. This company – producer of IT content – produces a variety of digital, interactive and

multimedia contents, i.e. something that is integrated with a high degree of process automation. Such companies are sensitive to changes in the regulation of their activities, which directly or through customers can reduce their flexibility and mobility [26].

In general, both types of IT companies may be subject to clustering processes. In order to explain the clustering of IT companies, both national and regional conditions are important, including access to highly skilled workforce, capital, developed infrastructure, related industries, and new knowledge.

The peculiar feature of our study is that we distinguish *hard local factors* and *soft local factors*. Hard local factors should be understood as support from the state and local authorities, as well as various institutions for regional development. Soft local factors imply local skilled workforce, developed infrastructure, proximity to universities, etc. The reason is that we expect that hard and soft local factors may not be of much relevance to innovation

and activity of IT companies. In addition, hard and soft factors have a different impact on the clustering processes of IT companies. It can be expected that hard factors are more important than soft factors, especially for IT companies producing IT products. At the same time, soft local factors can be assessed as important for IT companies producing IT content.

Earlier in our research we noted that an IT cluster is a kind of a “startup accelerator”, i.e. a modern innovation platform for IT companies, where ideological inspirers, motivated professionals and IT specialists work together on creating and developing new products and services [27].

Modern experts argue that the choice of an IT cluster location is influenced by *the proximity to local educational institutions (universities) and research institutions*, which intensifies cooperation and development of high-tech research [28, 29]. In particular, this concerns the commercialization of new technology and ideas. IT companies often cooperate with leading universities, non-profit organizations and research centers. At the same time, manufacturers of IT products often use public fundamental and applied research in their activities, which intensifies valuable scalable IT products. In turn, IT content companies and service companies may be less dependent on breakthrough innovation and advanced technology since their competitiveness can be ensured through digital technology. For example, the creation of high-tech clusters such as Silicon valley drew attention to the geographical framework of digital technology development, which led to the adoption of various regional strategies for IT development in many cities and countries all over the world [6].

An important aspect in IT cluster construction is a local network between IT products and their demand. On the one hand, low local network density can limit research activity in the IT cluster. On the other hand, low local network density can promote the development of in-house scientific developments which reduce costs and simplify the automation processes. However, high density of local networks does not guarantee that IT companies will take advantage of the commercial potential of existing knowledge and ideas.

Therefore, not all IT companies using available local networks can take advantage of the networks they create. Thus, less potential startups associated with the commercialization of new ideas and knowledge will be established. Moreover, high-density local networks can also be unstable because they increase uncertainty and reduce the ability to accept new ideas and bring them to market.

Therefore, we can formulate *the hypothesis that high-density local networks cause a kind of de-clustering effect*, as they complicate and increase the cost of transfer of new knowledge and ideas.

The hypothesis can be particularly important when forming IT-clusters. Since most IT companies affected by high-density local networks will experience problems in generation of innovation and spread of new ideas, thereby increasing transaction costs. For example, disputes over intellectual property rights and rights to receive royalties may be more likely in high-density local networks, where standards and cultural expectations vary greatly.

At the same time, universities and research institutes in the immediate vicinity of an IT

cluster help IT companies effectively use the available scientific, human and infrastructure resources. This could result in flow of knowledge becoming faster and more transparent, and accelerate the process of knowledge and information sharing.

#### **Mechanisms of IT clusters formation on the way to Industry 4.0**

Industry 4.0 high technology such as IT production, increased operating performance, digital transformation and introduction of energy-saving technology, hold out the prospect of becoming the main drivers of innovative development within the decade. Of course, for almost any country, including Kazakhstan, IT cluster formation will be a huge challenge requiring drastic measures from the state and business amid innovation industrialization.

For most manufacturing IT companies a quick approach to the implementation of new technology seems quite risky. Nevertheless, the Industry 4.0 concept is the framework of most modern production processes, affecting the chain of popular IT products and IT content. Therefore, manufacturing IT companies carefully weigh the benefits and risks of introducing new technology.

In our opinion, neglecting the above sequence of IT cluster development will entail huge unjustified costs aimed at solving the objective of the next, not yet prepared stage. At the same time, non-compliance with strict sequence leads, at best, to lack of desired results, and, at worst, to stagnation. Almost all the successfully functioning IT clusters have encountered a certain number of common problems during the development process.

Accordingly, there are tools and mechanisms for their solution, which we have developed and presented.

We propose to consider in detail the main vectors of IT cluster formation as growth poles in the medium term (*Tab. 1*).

The spatial features of technological development of Kazakhstan regions have the following specific characteristics:

- technological multi-structure and multi-branch specialization of economic sectors;
- predominant technology from the 3<sup>rd</sup> and 4<sup>th</sup> wave of innovation in the regional economy;
- multifunctional nature of regional management processes;
- significant predominance of monopolized structures and large industrial enterprises;
- limited participation of local governments in management of territory's resource potential development.

As a result, it is possible to identify the main problems of technological development and accelerated technological modernization in Kazakhstan regions.

First, it is the slowdown in transition to new technology of the 5<sup>th</sup> and 6<sup>th</sup> wave of innovation.

Second, it is impossible to implement new forms of interaction between regional authorities and economic actors within the system "science–education–production" as a key to creating a national innovation system.

Third, it is difficult to implement the regional policy of structural reforms with the predominance of the process of "fragmented" development of the institutional environment.

Thus, a unified approach to Kazakhstan regions is impossible due to uneven economic space and inter-territorial differences (natural, geographical, socio-demographic, economic, etc.). In turn, there is a need for fundamental changes in approaches to spatial development

Table 1. Mechanisms of IT cluster formation as growth poles in the medium term

No.	Type of tool	Implementation mechanism
1.	Increasing the susceptibility of business and economy to innovation	Increasing investment attractiveness for promising high-tech economic sectors, especially new industries with the use of digital technology. Introduction of a set of measures to implement regional development programs, improvement of legislation (including tax and tariff), as well as assistance in attracting qualified personnel and additional financial resources.
2.	Development of hard local factors	Expanded support for newly established IT companies by state development institutions, including support for small businesses and specific projects within the framework of relevant state regional programs and projects designed for the development of new industries with the use of high technology.
3.	Improving the efficiency of science and education	Effective integration of Kazakhstan science into global scientific community, including the development of competence centers through supporting research institutions, bringing the leading universities and research centers to the global level. Implementation of pilot projects to develop mechanisms to support large-scale innovation programs of business structures, in particular support for cluster initiatives and formation of technology platforms; restructuring of higher education focused on R&D in IT.
4.	Human capacity-building	Activation of human capital by increasing the volume and quality of territorial human capital, improvement of its structure, its intensive development. To activate human capital it is necessary to create new jobs in high-tech and knowledge-intensive economic sectors, stimulate research and support private laboratories in the leading regions.
5.	Searching for leading IT regions	Selection of potential IT clusters as growth poles taking into account the level of innovative development, regional concentration and specialization in IT. The following groups of indicators can be used to draw up a regional map for the formation of cluster zones in IT: – <i>Krugman Specialization Index (KSI)</i> is an absolute index of assessment of industry specialization in regions; – <i>Herfindal-Hirschman Index (HHI)</i> is a relative measure of specialization in regions, which shows the influence of the agglomeration effect in the region.
Source: compiled by the authors.		

associated with the action of new factors of Industry 4.0 – the formation of “knowledge economy” and strengthening the role of high technology.

While developing the basic mechanisms for IT cluster formation as growth poles in the long-term we considered the requirements to the four-stage model of IT cluster formation and development (strict sequence), uneven territorial development, as well as basic innovation management technology (*Tab. 2*).

In general, the above-mentioned promising areas of IT cluster formation in the form in which they are presented are sufficient for full support and further use in practice. The proposed mechanisms for IT cluster formation include a variety of blocks of related IT sectors.

For most CIS countries, including Kazakhstan, IT development is a new trend to improve competitiveness both at the national and regional level. Therefore, many developed countries have begun to design and implement comprehensive regional programs to develop strategic competencies, centralize numerous virtual data centers and use the opportunities of the IT sector. By 2050, Kazakhstan should strive to enter the top thirty developed countries by GDP. However, this goal is more important for the country’s prestige, rather than for improving the competitiveness of the national economy. Undoubtedly, this goal should be reached, but to do it, it is necessary to prioritize the development of high technology on the way to Industry 4.0. It is necessary to realize that at least 80% can be achieved by adapting

Table 2. Mechanisms of formation of IT clusters as growth poles in the long term

No.	Type of tool	Implementation mechanism
1.	Support for scientific research in digital economy development based on using green IT.	In order for Industry 4.0 to achieve certain results it is necessary to form a new policy of IT development, taking into account the priorities of the Concept for the transition of the Republic of Kazakhstan to "green" economy. Such policy should be based primarily on new trends, modern incentives and models of smart projects (Green Ethernet) aimed at optimizing the production process and efficient use of energy. For example, embedded energy-efficient industrial digital platforms and high-performance industrial servers can be used to reduce energy consumption and increase uptime.
2.	Development of soft local factors	Development of the innovation infrastructure, assistance in employment through training or retraining, support for local universities and research institutions. Coordination of a number of operational procedures at the regional and national level (e.g. promotion of innovation and transfer of new technology; support for R&D projects, training and retraining of IT professionals, etc.).
3.	Networking within an IT cluster	Formation of local relations (including horizontal) between the participants of an IT cluster – independent subjects (groups of subjects) of the innovation process (business – state – science – representatives of the civil society) within the framework of open innovation systems. The main goal for the new IT clusters is catching-up development, such connections compensate for the shortcomings of the institutional environment and are necessary, first of all, to increase the level of mutual trust between the participants of the IT cluster. In mature IT clusters, network and horizontal connections help save time and reduce financial costs for establishing business cooperation and are a catalyst for the development of IT business. It is necessary to strengthen the role of development institutions in order to finance R&D, to systematically increase budget expenditures on R&D.
4.	Creating an efficient infrastructure of an innovation center	An effective infrastructure of an innovation center is not just a building, but an innovative business environment that stimulates the growth of IT companies and is shaped by specific local conditions and needs on the IT market. In mature IT clusters, as cluster cores, it becomes important to create competitive advantages of an IT cluster as a whole and its participants. In particular, through integration in a single space (science, business, government and civil society) in the framework of open innovation systems.
5.	Management and branding (PR) within an IT cluster	Creating a favorable business environment and providing services demanded by IT companies for business maintenance and development. An IT cluster should be considered as a development project, quite specific and focused on production of IT and digital technology. It is very important to follow the four-stage sequence of an IT cluster development, which is a prerequisite for its success. It is also necessary to establish cooperation with the society (in the broadest sense) and its individual elements (business and science), and this is one of the key factors in effective IT cluster development. In particular, successful experience of IT cluster development proves that the choice of an effective strategy for the development of individual brands and PR support is particularly relevant as the number of IT companies increases.

Source: compiled by the authors.

existing approaches used by successful IT clusters. At the same time, the emphasis on adaptation of existing strategic competencies and technological solutions does not contradict the development of knowledge-intensive industries. Improvement and modification of IT distribution and scaling processes, in turn, will ensure more effective use of ideas of domestic scientists.

### Conclusions

Summing up, we should highlight the theoretical and practical significance of the research. The theoretical significance lies in the fact that the ideas put forward in the research and the developed theoretical and methodological provisions can significantly enrich the theory of formation of IT clusters as growth poles focused on transfer of high

technology and knowledge to the wide country’s periphery. The practical significance is provided by the fact that the formation of IT clusters can significantly contribute to improving the competitiveness of Kazakhstan economy through using of the above mechanisms both in the medium and long term.

First, the formation of a successful IT cluster is proposed to perform based on previously identified practical activities with several successive stages: resource concentration, IT ecosystem formation, breakthrough and mature development. At the same time, the establishment of an IT cluster is possible on the basis of the existing scientific and infrastructure frameworks, which, in turn, is an important factor in GDP growth, as well as in creation of new highly skilled jobs. It is obvious that in Kazakhstan, the development of key scientific and technological competencies in IT meets the interests of the global high-tech market and increases the country’s prestige.

Second, it can be achieved through increasing demand and productivity in knowledge-intensive economic sectors in terms of IT consumption. In turn, this will have a serious impact on competitiveness through using hard

and soft local factors, forming an innovation center and creating the most transparent investment climate

Third, the formation of an IT cluster will contribute to the development of all economic sectors as a result of introduction of digital technology and green IT and using highly qualified personnel. This will have a positive effect on the development of competence centers to support research institutions, bringing leading universities and research center to the global level, as well as transferring entrepreneurial skills and culture to the participants of IT startups.

And finally, due to creating a favorable business environment not aggravated by monopolized structures and a low level of horizontal ties, the IT cluster will be considered as a development project focused on high-tech production. At the same time, it is very important to observe the four-stage sequence of an IT cluster development, which is a necessary condition for its success. It is also necessary to establish cooperation with the society (in the broadest sense) and its individual elements (business and science), and this is one of the key factors in effective development of an IT cluster.

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# SCIENTIFIC REVIEWS. OPINIONS

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## How Meanings Are Studied

### A Review of the Monograph: Adam'yants T.Z. *Social Meanings of Global Processes and Changes: Mechanisms and Catalysts.*

Moscow: RAS Institute of Sociology, 2017. 69 p.



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The reviewed monograph draws the readers' attention to the communicative and cognitive sphere of the society whose importance, in the author's opinion, is underestimated. The research was performed at Institute of Sociology of the Russian Academy of Sciences and recommended for publication by Academic Council of the Russian Academy of Sciences. The main purpose for the research is to demonstrate the relations between the meanings, the "world views" of millions of people and global processes and changes circulating in the socio-cultural space.

The communicative and cognitive sphere of the society is characterized by the formation of

social meanings or latent motivational-target constructs. It ensures the existing features of communication interactions between countries, societies, organizations, cultures, communities, and groups. As the author notes, the nature of social meanings is twofold. On the one hand, they are a virtual product of people's consciousness, the result of a complex set of their mental-figurative-emotional processes and reactions, on the other hand; thanks to social communication, they can be transmitted through signs, manifested on the material level.

Why did meanings become the object of the author's attention? We find the answer to this

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question in the author's work, who emphasizes that the current era is not only the era of information, but also the era of meaning. Meanings appear as an attribute of the human environment. If information is a means to convey the meanings, the meanings themselves fill the "worldview" of millions of people. This gives rise to their special role in society. However, it is not the meanings themselves that attracted the author's attention, but their role in the communication space. The point is that meanings are connected with the manipulation with people's consciousness, with changes in the socio-cultural space, with the practical activities of a human in material and political spheres. According to the author, it is not enough to analyze only the content of an information flow for a deep understanding of social processes. It is important to look for latent causes of consistency or, on the contrary, inconsistency between real processes and circulating meanings. It is important to find the answer to the question: Do they occur according to the "stimulus-reaction" principle, and if not, what meaning message is the most significant and what groups it is focused on, including groups differentiated by the peculiarities of understanding?

The author begins with the disclosure of scientific ideas about the category of "meaning" and about the understanding of the meaning. The reader is consistently introduced to the approaches and ideas about meanings existing in the scientific discourse. Thus, the concept of "meaning" is central to *Verstehen* sociology (M. Weber), symbolic interactionism (G. Mead, H. Blumer, H. Cooley), phenomenology (E. Husserl and A. Sch tz, T. Luckmann and P. Berger), ethnomethodology (H. Garfinkel, H. Sacks), cultural sociology (J. Alexander), semio-social psychology (T. M. Dridze) and a number of other concepts. As a result, the author

brings us to her conceptual interpretation of the meaning as a holistic, complete communicative act, declares her solidarity with the dialogical (semiosociopsychological) concept of social communication (Dridze), since it is here that the subject of understanding is characterized as objective and specific: it is necessary to understand the author's intentionality as a qualitative feature of any integral complete communicative acts.

The identification of the author's intention indicates the problem of adequate perception of meanings inherent in a communication act, which causes the author's anxiety about people's ability to adequately understand the meanings of perceived works due to their natural gift.

The development level of communication skills is an integral characteristic of the degree of respondent's understanding of intentionality (semantic dominants) of perceived works. In order to identify the level of understanding semantic dominants, the author introduces the method of intentional analysis of a communication processes. The application of the method is based on distinguishing the structure of a completed communication act. The author gives a typical motivational and target structure of a communicative act, highlighting six levels. This model has been successfully tested in the study of communicative acts of different origin and symbolic (semiotic) embodiment: mass media materials, painting, teaching materials, poetry and prose, various kinds of regulation acts, in the study of image, etc. The procedure for the application of the method, consisting of several stages is also described.

The use of the method of motivational-target analysis also helps give a proof-of-concept definition of the quality of respondent's understanding of the author's intentionality

(meaning) of perceived works, which is the basis for differentiation by level of development of communication skills, or socio-mental groups. As it turned out, the revealed level of communication skills acts as an integral characteristic of the respondent's understanding of intentionality (semantic dominants) of perceived works. This characteristic, according to the author, was significant not only for understanding the features of human interaction with traditional types and forms of communication, but also with all other socially significant areas which cannot exist without communication. This characteristic become a universal "adapter" which helps bridge the gap between communication processes of different degrees of complexity.

Having provided the insight into theoretical and methodological aspects, the author draws attention to the use of meaning-creation technology in modern infowars. The author moves away from the narrow interpretation of the concept of "infowar" as a confrontation in the sphere of information; she seeks to identify deeper semantic confrontation and semantic attacks unfolding in the sphere of information, and show their direction. For this purpose, the author analyzes typical manipulative mechanisms of meaning creation used in information wars.

So what are the highlighted mechanisms? There are several. The ones most often used are "mental traps". They are aimed at transforming the original meaning of sustainable concepts. This applies, for example, to a "family" in a non-traditional marriage. The same happens to the content of semantic constructs such as honor, conscience, justice, meaning of life, etc. Here there is a shift of one semantic contour to another. But the proposal to develop a new concept for the new sense often faces aggressive denial.

Another mechanism is "semantic missiles" intended to have a strong emotional impact on the audience. The "missile" is aimed to encourage negative traits of human nature: hatred, envy, greed, etc. For example, the people of Ukraine were and are being exposed to effects of these "missiles" with the aim, as the author notes, to form a hostile attitude towards the Russian people, to lay the deep foundations of division. A striking example of such a "missile" is "Holodomor" in Ukraine. Or, for example, the intention "everything is bad", which awakens anxiety and distrust. This especially relates to those who are not capable of adequately understand manipulative mechanisms. The extreme form of this intention is rough economic pressure, sanctions, which, however, according to data of major sociological centers about the Russians' attitude to the government, caused a reaction opposite of the one the manipulators expected.

But the most acute confrontation between true and false intentions is manifested in multi-way propaganda campaigns, which are a complex mechanism of influence. The civil motives are used: the struggle against injustice, exposure, etc. During extensive discussions either outdated information, or inaccurate data, or emotional or distorted illustrations of events which did not happen are used.

The proposed method of motivational and target analysis helps both identify the typical intentional structure of the propaganda campaign, and "daylight" implicit, hidden methods of manipulation technology. It is about the possibility of making visible egotistic aggressive intentions hindering the general humanitarian orientation of global processes and changes.

The author's idea about the support for manipulation technology in meaning creation from various humanities, including in our

country, is also of interest. Here, the author critically examines the role of postmodern and hermeneutic concepts. These concepts are designated as modern as opposed to traditional, outdated ones. Their goal is to postulate the existence of plurality of meanings. Moreover, they proclaim “the death of the author”. They argue that the meaning arises not in the process of creating work, but primarily in the process of its “consumption”. The author sees the origins of this approach in the “linguistic turn” which gave special importance to the language. The proponents of this direction are poststructuralists and deconstructionists, directing the reader to search for meanings in the fragmented tissue of the text, to analyze individual phrases, lead to the recognition of a new meaning with each new reading. As a result – reject the methods of traditional literary criticism, where the explanation of meaning was associated with the author’s personality.

The monograph clearly states the author’s position of protest against the promotion by these concepts of arbitrary interpretation of canonical texts or historic events, ascribing them new meanings, etc. This means communication, understanding and interaction become impossible. The danger noted by the researcher also lies in the fact that polydiscursivity spread through unlimited opportunities of arbitrary interpretation leads to the depreciation of mental skills of deep understanding. A disregard for universal values also takes place.

The second chapter of the monograph draws the reader’s attention to the communication models existing in science. These models describe the communication mechanisms used for the interaction between the communicator and the audience. Such models not only explain how the formation and translation of meanings goes on, but also are the meanings themselves.

And some of them turn global because they become “gold standard”.

The author analyzes the most common models of communication, their impact on real processes, on people’s “world views”. The analyzed models are: H.D. Lasswell linear model, T. Newcomb interactionist model, T.M. Dridze dialogical model, B. Pierce and V. Cronen model of coordinated management of meaning. As a result, weak and strong points of these models were identified, and the author’s position was indicated. In contrast to the idea of multiple meanings in most presented models, the author proposes semiosociopsychological concept of social communication by T. Dridze developed in the framework of the Russian academic science and postulating the constancy of meaning as a property of a holistic, complete communicative act. This concept has become the theoretical and methodological framework for further research.

The third chapter of the monograph *Social Meanings of Global Processes and Changes: Mechanisms and Catalysts* gives us the idea of the empirical framework of the work. You might think how is the study of mentality of different population groups connected to the global nature of the modern world? However, the connection here is not only direct, but also has a practical basis. The fact is that in today’s globalizing world, the ability to adequately navigate the socio-cultural environment, understand the mechanisms of manipulation technology and methods used by the communicator become more important than ever.

The understanding of effects and results of communication technology has been achieved largely due to the study. Its peculiarity is the use of another method of audience differentiation, except for traditional ones (gender, age, standard of living, hobbies, etc.), the new

criteria include communication skills or the ability to understand other people.

Depending on the degree of understanding of purposes and motives (intentionality) of the perceived text, interpretations can be classified as adequate, partially adequate and inadequate. Hence the possibility of differentiating people by understanding and interpretation skills. Each group demonstrated its own characteristics of perception and exposure to manipulation technology.

The studies have shown very interesting results in all groups. Their representatives demonstrated the understanding of which side of the conflict is reflected in the text under analysis. It was found that negative semantic messages, even those that required huge funds and efforts from their creators, when reaching a certain level of the inconsistency barrier, gave the effect opposite to the one expected. Real-world effects turned out to be the factor generating a reverse response. The author notes that in these cases not only a “cognitive dissonance”, but also an emotional-volitional consensus took place, designated by L.N. Tolstoy as “popular thought”. The examples are election results in the US, the UK Brexit, and the intention “everything is bad” constantly injected into the Russian socio-cultural space. Apparently, if we continue the author’s idea, other examples can be listed: the doping scandal in the Russian sports community which culminated in the country’s being banned from the 2018 Winter Olympics, etc.

According to the author, in some other county, perhaps, such pressure would have the intended effect. However, it is claimed that this is impossible in Russia. The reason lies in the features of the national character, which, as shows experience, are dormant and wake up at special moments. They are freedom, internal sense of justice, ability to sacrifice, desire

and ability to protect, if necessary, one’s land and country’s sovereignty. In opposition to the manipulative influence, a significant role belongs to response socio-cultural processes which were reflected in the speeches and materials of journalists, politicians, public figures, and government representatives.

According to the research data obtained with the use of semiosociopsychological methods and approaches, such understanding was demonstrated by the representatives of all socio-mental groups. The author points out that this fact is essential as it largely helps limit the spread of ideas that in the Russian society the President is supported only by the representatives of the lower classes of the population. The results of the study among students and young specialists were an a good illustration.

But how does one prepare an individual able to adequately perceive the meanings coming to him from the surrounding reality? This problem is covered in the 4th chapter of the work. The author’s historical remark draws attention to the fact that this problem has been raised more than once in the history of mankind. More than once attempts to find its solution were unsuccessful.

In modern conditions, the progress of the mankind is associated with mass development of the quality of consciousness of our contemporaries, which is facilitated by modern science technology, the development of people’s new mental abilities leading to personality development, including its moral and spiritual aspects.

However, according to the author on the basis of research data presented in the monograph, a significant share of people are not capable of deep multi-level perception of meanings, and the models of communicative interactions common in the socio-cultural

environment and formed on the basis of hermeneutic concepts, do not solve this problem. The established communication models in the educational system are focused on linear perception. This leads to the inability to adequately understand the author, interlocutor, teacher, commentator, to the inability to separate the truth from fiction or unfounded fantasies. Such people are normally “easy prey” for manipulators, whether in politics, mass culture or advertising.

As a sociologist, a scholar, the author draws the reader’s attention to the importance of results obtained by specialists for both scientific work and their public presentation to the audience. Based on the research construct such as observation, the author gives a number of examples of inadequate use of scientific research data or appeal to pseudoscientific data, which is difficult to recognize as reliable. Such observations lead the author to the idea that the reliability of applied data is extremely important in case of infowars and “double standards”. Both scientific data and estimated judgments of carriers of such information are semantic constructs. It is important that reliable, verified and objective research data, not distorted by personal tastes, preferences and expectations, circulate in the socio-cultural environment. The author believes that the scientific opinion, as well as the scientific result, should be honest

and verified at the empirical level – only in this case will semantic constructs produced by scientists and researchers serve as positive processes and changes.

In conclusion, we believe that this research is focused on a prepared reader referred to, according to the author’s classification, to the group of “adequate perceptors”. A deep and interesting research conducted by T.Z. Adam’yants reflects her desire to promote the strengthening of dialogical forms of communication. In our opinion, the research purpose set by the author has been fully achieved.

The structure of the work is distinguished by certain originality. Starting the chapter, the author presents a large text containing meaningful theoretical judgments that precede and largely determine the perception of further sections of the chapter, structured as paragraphs and sub-paragraphs.

In our opinion, it is such works that help the reader who thinks and looks for a deep understanding of communication processes perceive their essential characteristics and understand the internal mechanisms of creation and distribution of meanings filling the world around us. In turn, this knowledge really contributes to a deep understanding of intentionality of both research subject and the author’s own intentions.

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# PUBLIC OPINION MONITORING

## Public Opinion Monitoring of the State of the Russian Society

As in the previous issues, we publish the results of the monitoring of public opinion concerning the state of the Russian society conducted by VolRC RAS in the Vologda Oblast<sup>1</sup>.

The following tables show the dynamics of several parameters indicating the social feeling and socio-political sentiment of the Vologda Oblast population in February – April 2018, and also on average for the latest six polls (June 2017 – April 2018). These data are compared with the data for 2007 (the last year of Vladimir Putin's second presidential term, when the assessment of the President's work was the highest) and for 2011 (the last year of Dmitry Medvedev's presidency). The yearly dynamics of the data are presented beginning from 2014.

In February – April 2018, the level of approval of the work of the President of the Russian Federation was 68%, which corresponds to an average annual indicator for 2015–2017. The share of negative evaluations of the President's work for the past two months decreased by 3 p.p. (from 21 to 18%).

The level of support of the work of the Chairman of the Government of the Russian Federation in February – April 2018 was 48–50%, which is a bit lower than in 2014–2016 (52–58%). The proportion of negative assessments in the past two months decreased by 3 p.p. (from 31 to 28%).

*For reference: according to VTsIOM, the share of positive assessments of the President's work nationwide amounted to 82–83% in January – April 2018 (the share of negative judgments was 11%).*

*According to Levada-Center, the support of the head of state from February to April increased by 5 p.p. (from 76 to 81%), the share of negative assessments decreased by p.p. (from 22 to 19%).*

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<sup>1</sup> The polls are held six times a year in Vologda, Cherepovets, and in eight districts of the oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky District). The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1,500 people 18 years of age and older. The sample is purposeful and quoted. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the Oblast's adult population. Sampling error does not exceed 3%.

More information on the results of VolRC RAS polls is available at <http://www.vsrc.ac.ru/>.

How do you assess the current performance of..? (percentage of respondents)

Answer	2007	2011	2014	2015	2016	2017	June 2017	Aug. 2017	Oct. 2017	Dec. 2017	Feb. 2018	Apr. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to ...		
														2016	2011	2007
<b>RF President</b>																
I approve	75.3	58.7	64.1	69.1	67.8	67.3	67.5	69.7	68.3	68.9	68.7	68.1	68.5	+1	+10	-7
I don't approve	11.5	25.6	22.3	17.5	18.8	20.0	19.3	17.3	19.4	19.3	20.8	18.4	19.1	0	-7	+8
<b>Chairman of the RF Government*</b>																
I approve	-*	59.3	54.2	58.1	52.3	49.5	47.9	49.7	51.5	49.9	48.3	49.9	49.5	-3	-10	-
I don't approve	-	24.7	27.6	21.7	27.6	31.1	32.1	30.9	29.9	31.3	30.8	27.8	30.5	+3	+6	-
<b>Governor</b>																
I approve	55.8	45.7	40.1	39.3	37.7	39.8	40.6	42.3	40.8	39.4	39.3	39.5	40.3	+3	-5	-15
I don't approve	22.2	30.5	38.9	36.2	39.3	39.3	38.9	38.7	39.2	40.1	37.9	36.1	38.5	-1	+8	+16
* Included in the survey since 2008.																

There were no substantial changes in the assessment of success of the President's work on addressing the key problems of the country over the past two months:

- the share of those who think that the President successfully copes with the task of strengthening international positions of Russia is 55–56%;
- the share of those who believe that the President is successful in protecting democracy and strengthening citizens' freedoms is 43%;
- the share of those who believe that the President successfully copes with the task of economic recovery and promotes the increase in the welfare of citizens is 31%.

Among the tangible changes that occurred in February – April 2018, we should note the increase in the proportion of Vologda Oblast residents who believe that the President successfully copes with the problem of restoring order in the country (by 3 p.p., from 51 to 54%). This is much higher than in 2014–2017 (48–50%) and considerably higher than in 2011 (37%).

It should be noted that, on average, over the past six surveys, the assessment of the President's success in solving key problems of the country roughly corresponds to the level of 2007 (the difference makes 1–2 p.p.). This applies to all problems, except for the “economic recovery and the growth of the welfare of citizens”: the proportion of people who positively assess the work of the head of state in this direction was 47% in 2007 and on average over the past six surveys – 31% (it decreased by 16 p.p.).



In your opinion, how successful is the RF President in coping with challenging issues?\*(  
(percentage of respondents)

Answer	2007	2011	2014	2015	2016	2017	June 2017	Aug. 2017	Oct. 2017	Dec. 2017	Feb. 2018	Apr. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to ...		
														2016	2011	2007
<b>Strengthening Russia's international standing</b>																
Successful	58.4	46.2	50.4	51.7	51.2	55.7	55.3	58.1	57.6	56.5	55.2	56.1	56.5	+5	+10	-2
Unsuccessful	24.9	33.7	32.4	31.3	29.9	26.8	25.8	26.1	26.3	28.3	26.9	26.9	26.7	-3	-7	+2
<i>Success index</i>	133.5	112.5	118.0	120.4	121.3	129.0	129.5	132.0	131.3	128.3	128.3	129.2	129.8	+8	+17	-4
<b>Imposing order in the country</b>																
Successful	53.2	36.6	48.0	50.2	49.2	50.6	49.9	52.0	52.7	52.0	50.9	54.2	52.0	+3	+15	-1
Unsuccessful	34.0	50.0	39.1	37.9	36.7	36.1	35.8	35.6	35.1	34.6	32.7	30.8	34.1	-3	-16	0
<i>Success index</i>	119.2	86.6	108.9	112.3	112.6	114.5	114.1	116.4	117.6	117.4	118.2	123.4	117.9	+5	+31	-1
<b>Protecting democracy and strengthening citizens' freedoms</b>																
Successful	44.4	32.4	37.5	40.4	36.6	40.3	39.1	41.7	42.5	43.3	42.8	42.9	42.1	+5	+10	-2
Unsuccessful	37.0	48.3	45.4	41.5	44.3	40.2	39.7	38.8	38.3	39.3	38.7	37.1	38.7	-6	-10	+2
<i>Success index</i>	107.4	84.1	92.1	99.0	92.3	100.2	99.4	102.9	104.2	103.9	104.1	105.8	103.4	+11	+19	-4
<b>Economic recovery and increase in citizens' welfare</b>																
Successful	47.2	30.7	34.8	34.2	27.2	29.3	28.5	31.3	32.3	31.6	31.0	31.3	31.0	+4	0	-16
Unsuccessful	39.1	56.1	53.4	52.3	59.4	56.9	57.2	55.9	55.3	56.3	53.7	55.3	55.6	-4	0	+17
<i>Success index</i>	108.1	74.6	81.4	81.8	67.8	72.4	71.3	75.4	77.0	75.3	77.3	76.0	75.4	+8	+1	-33

\* Ranked according to the average value of the index of success for 2016.

In the past two months, the support for United Russia increased by 2 p.p. (from 38 to 40%), which corresponds to the level of 2015 (39%) and which is higher than in 2016–2017 (35%).

In February–April 2018, there was a decline in the proportion of those who believe that none of the major political parties expresses their interests (by 3 p.p., from 29 to 26%). It is less than in 2011–2017 (30–34%), however, it is still significantly higher than in 2007 (18%).

The structure of Vologda Oblast residents' preferences concerning political parties did not change significantly and corresponds to the level of 2016–2017: LDPR is supported by 10–11%, KPRF – by 8%, the Just Russia party – by 3–5%.

Which party expresses your interests? (percentage of respondents)

Party	2007	Election to the RF State Duma 2007, fact		Election to the RF State Duma 2011, fact		2014	2015	2016	Election to the RF State Duma 2016, fact		June 2017	Aug. 2017	Oct. 2017	Dec. 2017	Feb. 2018	Apr. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to ...		
		2011							2017										2016	2011
United Russia	30.2	60.5	31.1	33.4	32.8	38.8	35.4	38.0	34.7	33.8	35.2	35.6	37.9	38.4	39.7	36.8	+1	+6	+7	
LDPR	7.5	11.0	7.8	15.4	7.6	6.2	10.4	21.9	11.0	11.1	10.9	11.5	11.6	10.1	9.6	10.8	0	+3	+3	
KPRF	7.0	9.3	10.3	16.8	9.7	7.1	8.3	14.2	7.6	8.5	8.0	7.3	8.1	7.1	8.1	7.9	0	-2	+1	
Just Russia	7.8	8.8	5.6	27.2	3.5	3.6	4.2	10.8	4.8	5.1	5.8	4.5	4.3	3.5	2.5	4.3	0	-1	-4	
Other	1.8	–	1.9	–	0.3	0.2	0.3	–	0.5	0.3	0.4	0.8	1.1	0.9	1.2	0.8	0	-1	-1	
No party	17.8	–	29.4	–	34.4	31.8	29.4	–	29.2	29.1	26.1	26.2	28.5	28.8	26.2	27.5	-2	-2	+10	
It's difficult to answer	21.2	–	13.2	–	11.7	12.2	12.0	–	12.2	12.1	13.7	14.1	8.6	11.1	12.7	12.1	0	-1	-9	

In February–April 2018, the share of people who characterize their daily mood as “normal, fine and good” increased by 3 p.p., from 69 to 72%. This is higher than in all the previous years of measurements.

In addition, over the last two months, the proportion of those who believe that “everything is not so bad; it’s difficult to live, but it’s possible to stand it” increased by 3 p.p. (from 76 to 79%, which corresponds to the average level for 2014–2017).

Meanwhile, the self-assessment of people’s financial situation in February–April did not change significantly: the proportion of Vologda Oblast residents who consider themselves to have an “average income” is 41–42% (for comparison: in 2007 – 48%); the share of the “poor and extremely poor” is 46–47% (in 2007 – 42%).

The consumer sentiment index in February–April was 89–90 points. It is higher than in 2015–2017 (77–85 p.), but significantly lower than in 2007 (106 p.). It should also be noted that the value of the index below the level of 100 points (this has been observed since at least 2011) indicates that the majority of the population make pessimistic forecasts about the prospects of the economic situation in the country and the dynamics of their personal financial situation.

## Estimation of social condition (percentage of respondents)

Answer	2007	2011	2014	2015	2016	2017	June 2017	Aug. 2017	Oct. 2017	Dec. 2017	Feb. 2018	Apr. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to ...		
														2016	2011	2007
<b>Mood</b>																
Usual condition, good mood	63.6	63.1	69.4	68.7	68.0	70.4	71.0	73.8	71.0	70.5	68.6	71.5	71.1	+3	+8	+7
I feel stress, anger, fear, depression	27.8	28.9	24.9	25.9	26.2	24.2	23.2	21.2	22.8	24.0	23.4	23.1	23.0	-3	-6	-5
<b>Stock of patience</b>																
Everything is not so bad; it's difficult to live, but it's possible to stand it	74.1	74.8	80.8	78.4	78.0	77.7	78.7	80.5	74.4	77.1	76.2	79.0	77.7	0	+3	+4
It's impossible to bear such plight	13.6	15.3	12.6	14.5	15.6	15.8	14.8	13.5	17.5	16.2	16.3	14.8	15.5	0	0	+2
<b>Social self-identification*</b>																
The share of people who consider themselves to have average income	48.2	43.1	43.2	38.7	42.1	43.1	43.5	45.2	43.0	41.7	41.2	41.8	42.7	+1	0	-5
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	49.1	50.7	49.0	46.6	43.2	45.8	48.8	47.1	46.2	46.5	46.3	-3	+2	+4
<b>Consumer sentiment index</b>																
Index value, points	105.9	89.6	87.6	77.1	77.7	84.6	84.3	86.2	86.7	87.3	89.2	90.3	87.3	+10	-2	-19
* Question: "Which category do you belong to, in your opinion?"																

The improvement of social mood in February – April 2018 is observed in 11 of 14 socio-demographic groups. In all the groups, this figure is much higher than in 2007. We should point out the increase in positive emotions among people who according to their own assessments of their income belong to the bottom 20% of Vologda Oblast residents (by 14 p.p., from 48 to 62%). In part, this may be due to the fact that "Russians have adapted to the problems in the economy, are less worried about them and refuse such radical ways to overcome economic problems as saving on food"<sup>2</sup>. This conclusion was made by experts of Romir Research Holding based on the results of surveys conducted in December 2017. At the same time, we cannot but agree with a more pessimistic assessment of some experts: "The fact that people are getting used to a sluggish crisis and to a stable slight decrease in real income has led to the fact that citizens no longer feel a sharp deterioration in their financial situation"<sup>3</sup>.

In our opinion, a significant increase in the share of positive assessments of social sentiment among the people who according to their own assessments of their income belong to the bottom 20% of Vologda Oblast residents in February – April 2018 can also be associated with the expectation of positive changes in the issues of internal socio-economic development, and above all – in the dynamics of the standard of living and quality of life, which the President spoke about in his Address to the Federal Assembly in 2018.

<sup>2</sup> Sociologists have found out that Russians got used to the problems in the economy, *RIA-Novosti*, 2018, January 30. Available at: <https://ria.ru/economy/20180130/1513586801.html>

<sup>3</sup> Getting used to a "sluggish crisis", Russians returned to the survival experience of the 1990s. *Materials of an analytical review "The monitoring of the economic situation in Russia"*. Russian Academy of National Economy and Public Administration under the President of the Russian Federation (RANEP). Available at: <https://www.newsru.com/finance/01aug2017/survival.html>

At the same time, the increase in the proportion of those who positively characterize their mood is not observed in all groups: in fact, there are no changes in the estimates of people older than 55 years (64–66%), persons with higher and incomplete higher education (76–78%), representatives of the middle and high-income groups (72 and 82%, respectively).

Social mood in different social groups (answer: “Good mood, normal condition”, percentage of respondents)

Population group	2007	2011	2014	2015	2016	2017	June 2017	Aug. 2017	Oct. 2017	Dec. 2017	Feb. 2018	Apr. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to ...		
														2016	2011	2007
<b>Sex</b>																
Men	65.9	64.5	68.9	69.5	68.8	70.6	72.5	74.6	71.3	70.8	71.0	73.4	72.3	+3	+8	+6
Women	61.7	62.0	69.8	68.0	67.4	70.2	69.9	73.1	70.8	70.3	66.6	70.0	70.1	+3	+8	+8
<b>Age</b>																
Under 30	71.3	70.0	75.1	77.1	76.4	78.1	75.4	80.1	79.4	82.2	74.2	79.6	78.5	+2	+8	+7
30-55	64.8	62.5	69.5	67.2	67.4	71.5	72.0	75.9	71.4	73.1	68.8	74.0	72.5	+5	+10	+8
Over 55	54.8	58.3	65.4	65.5	64.0	64.9	67.4	67.8	66.4	61.4	65.6	64.2	65.5	+1	+7	+11
<b>Education</b>																
Secondary and incomplete secondary	58.4	57.4	62.5	63.6	62.1	63.6	65.8	65.2	63.3	61.2	60.5	65.5	63.6	+1	+6	+5
Secondary vocational	64.6	63.6	70.4	70.1	68.4	72.0	70.2	76.7	73.3	75.0	68.9	72.7	72.8	+4	+9	+8
Higher and incomplete higher	68.6	68.3	76.2	72.7	74.3	75.8	78.0	79.1	77.1	75.6	77.9	76.2	77.3	+3	+9	+9
<b>Income groups</b>																
Bottom 20%	51.6	45.3	50.8	51.8	52.5	52.9	57.1	58.1	57.9	50.7	47.7	61.8	55.6	+3	+10	+4
Middle 60%	62.9	65.3	72.3	71.0	69.4	72.0	72.9	73.7	71.7	72.0	70.3	71.7	72.1	+3	+7	+9
Top 20%	74.9	75.3	84.8	82.0	80.9	83.7	81.3	86.4	82.1	86.2	82.2	81.5	83.3	+2	+8	+8
<b>Territories</b>																
Vologda	63.1	67.1	76.4	73.9	69.9	72.6	74.0	77.0	74.0	72.2	71.0	73.5	73.6	+4	+7	+11
Cherepovets	68.1	71.2	76.3	70.6	71.7	75.7	76.1	77.9	76.9	75.2	71.5	75.0	75.4	+4	+4	+7
Districts	61.6	57.1	61.8	64.6	64.8	66.1	66.6	69.7	66.1	66.9	65.6	68.3	67.2	+2	+10	+6
Oblast	63.6	63.1	69.4	68.7	68.0	70.4	71.1	73.8	71.1	70.5	68.6	71.5	71.1	+3	+8	+8

## CONCLUSION

The results of the public opinion monitoring held in February – April 2018 show that the most significant changes in the beginning of the year occurred in the dynamics of social mood: in most socio-demographic groups the share of positive assessments of the emotional state increased markedly.

Nationwide research registers similar dynamics in the assessments of public opinion. For example, according to the results of surveys conducted in February, VTsIOM experts note that “all indicators of social well-being of Russians are higher today than they were two years ago... The Indices of social feeling are returning to the pre-crisis level of 2014, and the indicators of the economic situation and general vector of development of the country have already exceeded the values of four years ago considerably”<sup>4</sup>.

<sup>4</sup> Social well-being of Russians: a monitoring. *VTsIOM Press Release*, 2018, no. 3617, March 29. Available at: <https://wciom.ru/index.php?id=236&uid=9013>

At the same time, VTsIOM experts are in no hurry to make categorical conclusions about the dynamics of public sentiment. They note that “when negative sentiment is fading, it doesn’t mean it can turn into optimism... Despite the fact that the direction of the country’s development is perceived more as being correct, the prospects for improving personal financial situation still seem vague”<sup>5</sup>.

The same can be said when we look at the results of studies carried out by VolRC RAS on the territory of the Vologda Oblast: the share of “the poor and extremely poor” since December 2017 is 47% (which is higher than the share of people with “average income” – 41%); the consumer sentiment index in the last two months did not change (89–90 points, which indicates the predominance of pessimistic forecasts among the majority of people); more than half of Vologda Oblast residents are still skeptical about the success of the President’s efforts aimed to ensure economic recovery and growth of citizens’ welfare (54–55%).

Although there have been no significant changes in the dynamics of financial assessments in recent months, this does not affect a high level of people’s support that the head of state has (68–70%). Besides, it is necessary to mention that in the presidential election held on March 18, the share of Vologda Oblast residents who voted for Vladimir Putin was 72.41% (the national average is 65.26%); voter turnout in the Vologda Oblast was 66.2%, while the national average was 61.12%.

Overcoming the country’s backwardness and achieving a decisive breakthrough, first of all in internal development (“to preserve the people of Russia and to guarantee the prosperity of our citizens”<sup>6</sup>) became a keynote of the President’s Address to the Federal Assembly he delivered on the eve of the election (March 1, 2018). This was fully in line with people’s expectations, which is confirmed by VTsIOM experts who speak about “the relevance of the agenda, first of all, various aspects of ensuring the security of Russians and prospects for addressing social and economic problems”<sup>7</sup>. No less important is the fact that “a significant part of Russians perceived the Address through the prism of the program of action of the head of state for his next term in office. In this context, the purpose of the address is not only to identify the development objectives, but also to demonstrate the reality of ways to achieve them”<sup>8</sup>.

Thus, the fact that social mood of Russians has improved despite the continuing acuteness of current socio-economic problems proceeds mainly from people’s perception of the goals of the country’s development for the coming years, backed by specific instructions of the President, digital criteria for their achievement, and personal responsibility of the main executors. Whether any of the positive changes in the assessments of public opinion outlined in the beginning of the year can become a trend will depend primarily on how the instructions of the President will be executed by the new Cabinet of Ministers, the composition of which will be announced after the inauguration of Vladimir Putin in May 2018.

*The materials were prepared by M.V. Morev, T.V. Urvanova., I.V. Paranicheva.*

<sup>5</sup> *Ibidem.* (Opinion of Yu. Baskakova, head of the practice of social modeling and forecasting at VTsIOM).

<sup>6</sup> Address of the President to the Federal Assembly, May 1, 2018. *Official website of the President of the Russian Federation.* Available at: <http://www.kremlin.ru/events/president/news/56957>

<sup>7</sup> Address of the President to the Federal Assembly 2018: first impressions. *VTsIOM Press Release*, 2018, no. 3602, March 13. Available at: <https://wciom.ru/index.php?id=236&uid=8989> (opinion of M. Mamonov, head of the practice of political analysis and consulting at VTsIOM).

<sup>8</sup> *Ibidem.*

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<sup>1</sup> Information about the modified Harvard standard is given in the book: Kirillova O.V. *Redaktsionnaya podgotovka nauchnykh zhurnalov po mezhdunarodnym standartam: rekomendatsii eksperta BD Scopus* [Editorial Preparation of Scientific Journals according to International Standards: Recommendations of a Scopus Expert]. Moscow, 2013. Part 1. 90 p.



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