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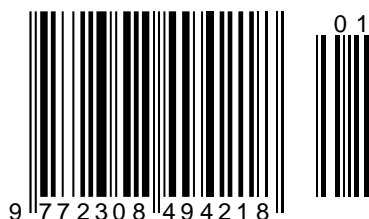
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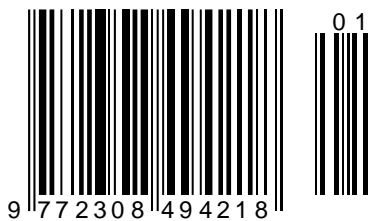
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ABOUT THE POSSIBILITY OF EQUIPMENT OF ARCTIC MILITARY SERVICES WITH THE USE OF NANO MATERIALS

Abstract: The results of previous studies on the choice of a package of materials for gloves and mitts for servicemen in the Arctic did not allow them to reasonably choose such a package that would provide them with a comfortable state for a given time in climatic zones with low temperatures. New research, carried out on the basis of the software developed by the author, made it possible to offer packages of materials that guarantee a comfortable state of service for the military.

Key words: nanomaterials and - technologies, material packages, software, gloves, mitts, innovations, time of exposure to a soldier, low temperatures, comfort, safety.

Language: English

Citation: Blagorodov, A. A., Bordukh, D. O., Prokhorov, V. T., & Volkova, G. Y. (2021). About the possibility of equipment of arctic military services with the use of nano materials. *ISJ Theoretical & Applied Science*, 01 (93), 301-306.

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Introduction

UDC 685.44: 337.32

The development of the Arctic and the creation of comfortable conditions for the participants in this process requires the development of a set of suits that would form these most comfortable conditions for them.

The presence of servicemen in climatic zones with low temperatures in order to fulfill their statutory duties presupposes a set of suits that would guarantee the soldier's fulfillment of statutory duties in full during the entire time of his stay in these zones. To

create such conditions, it is necessary to have software that would guarantee servicemen the implementation of these very statutory duties without harm to health, providing them with a comfortable state without reducing their combat readiness.

Main part

The peculiarities of the choice of materials for gloves for servicemen in the Arctic are provoked by the climatic conditions of this zone in order to guarantee him comfortable conditions during the entire period of their use of their statutory duties. At the same time, special attention was paid to ensuring

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the comfort of not only the soldier's hand, but especially the index finger of the right, if he is right-handed, and the left hand, of course, if he is left-handed. This need is dictated by the specifics of the performance by the military personnel of their duties, namely, to carry out shooting, in which a more intensive cooling of the index finger is provoked. Regrettably, all the variants of materials for gloves considered in previous studies did not provide a comfortable condition of the skin of the hand and index finger for servicemen in the considered range of low temperatures, namely, - 10 ° C; - 20 ° C; - 30 ° C; - 40 ° C.

The use of mitts provides the serviceman with additional protection for both the hand and, most

importantly, the index finger, while the main protection is provided by the glove, and here the authors test not only yarn from various types of wool, forming one or two threads from it, but also the possibility of using nanomaterials capable of thermoregulation and providing the skin of the hand with a comfortable temperature, namely, not lower than 32 ° C. Such studies are possible using the same software that the authors developed and used to substantiate the packages of materials in the manufacture of a set of a suit for military personnel. The characteristics of these materials are shown in Table 1.

Table 1 - Characteristics of materials in the manufacture of gloves for servicemen of the Arctic using cushioning material TPKM AKR - 622 / AKR – 218

Materials used to make gloves	Thickness mm	Coefficient of thermal conductivity, λ , W / m ° C
1 Single strand yarn:		
1.1 From goat hair	0.7	0.015
1.2 Sheep wool	0.8	0.020
1.3 Camel	0.9	0.005
1.4 From dog hair	0.8	0.010
2. Two-strand yarn:		
2.1 From goat hair	1.4	0.015
2.2 From sheep wool	1.6	0.020
2.3 From camel	1.8	0.005
2.4 From dog hair	1.6	0.010
3. A package of materials for the index finger of the hand, suede + yarn from one thread + TKPM AKR-622 / AKR218		
3.1 when using goat hair	1.7	0.02 / 0.015 / 0.009
3.2 when using sheep's wool	1.8	0.02 / 0.020 / 0.009
3.3 when using willow wool	1.9	0.02 / 0.005 / 0.009
3.4 when using dog hair	1.8	0.02 / 0.010 / 0.009
4. Package of materials for the index finger of the hand, suede + yarn of two threads + TKPM AKR-622 / AKR218		
4.1 when using goat hair	2.4	0.02 / 0.015 / 0.009
4.2 when using sheep's wool	2.6	0.02 / 0.020 / 0.009
4.3 when using willow wool	2.8	0.02 / 0.005 / 0.009
4.4 when using dog hair	2.6	0.02 / 0.010 / 0.009
5 Material for the fingertip of the index finger of the soldier's hand and for mitts - "natural suede leather"	0.8	0.020

With the help of the software developed by the authors, graphs were built characterizing the condition of the skin of a soldier's hand for four ambient temperatures, namely: - 10 ° C, -20 ° C, -30 ° C, -40 ° C from the time it was at post, but not less than 1 hour. The figures show the temperature values of the skin of the hand, characterizing the various heat sensations of a serviceman, namely, comfort (32.7 ° C), slightly

cool (23.7 ° C), cool (20.8 ° C), cold (16.1 ° C), very cold (15.2 ° C), pain (10.4 ° C) (frostbite). At -10 ° C, a comfortable state is provided only by a package of suede dog hair (double thread), and for -20 ° C, -30 ° C, - 40 ° C, none of the materials under study and their packages together with natural fur “winter »Do not guarantee comfortable conditions for servicemen.

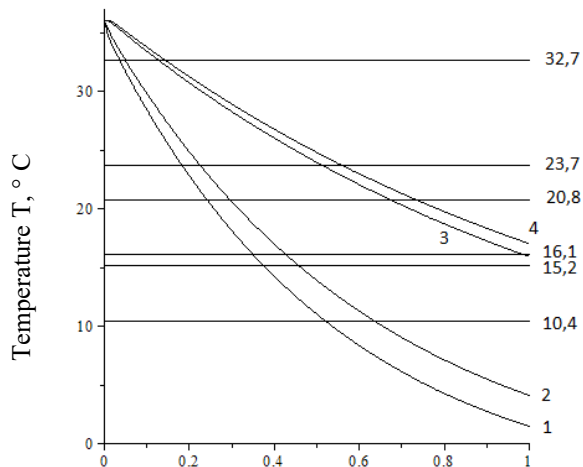
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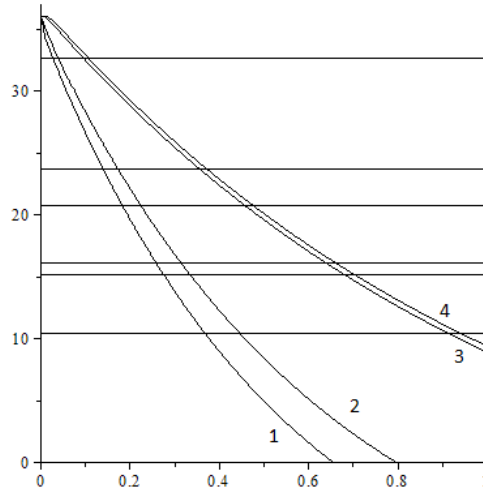
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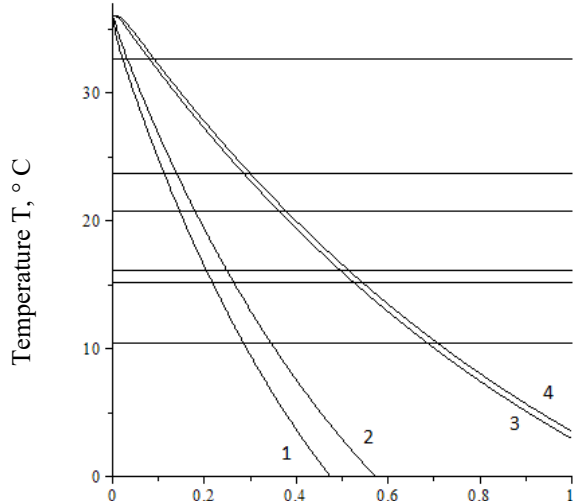
Goat hair, - 10 ° C



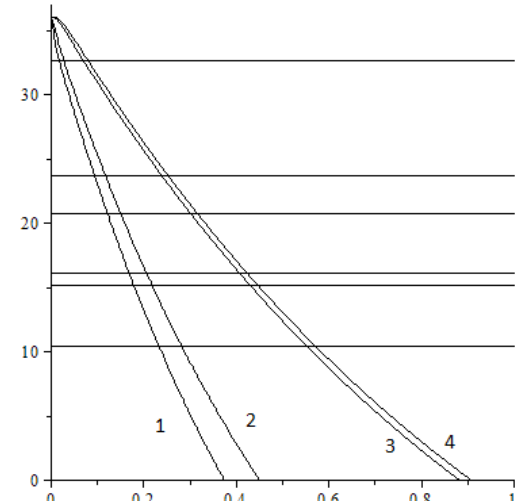
Goat hair, - 30 ° C



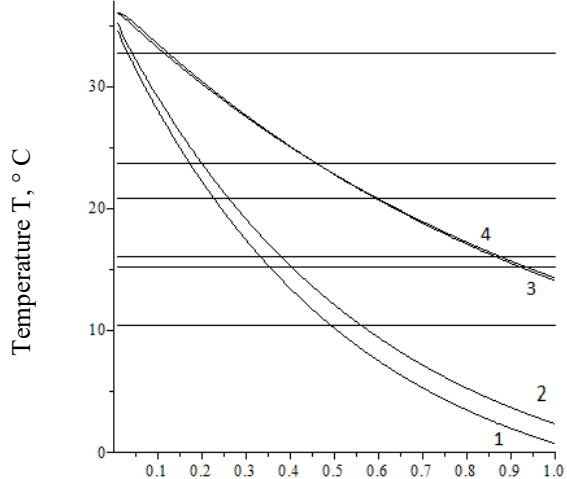
Goat hair, - 30 ° C



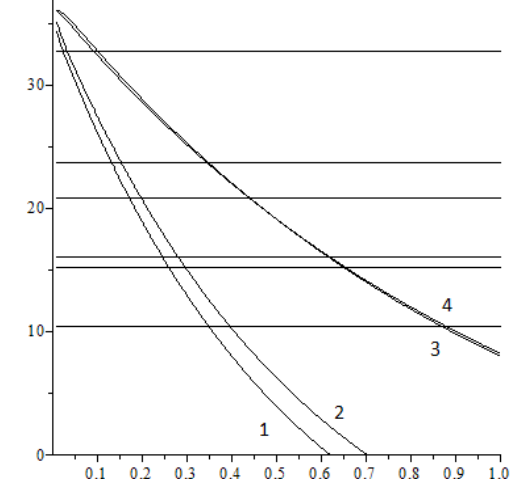
Goat hair, - 40 ° C



Sheep wool, - 10 ° C



Sheep wool, - 20 ° C



Time, h

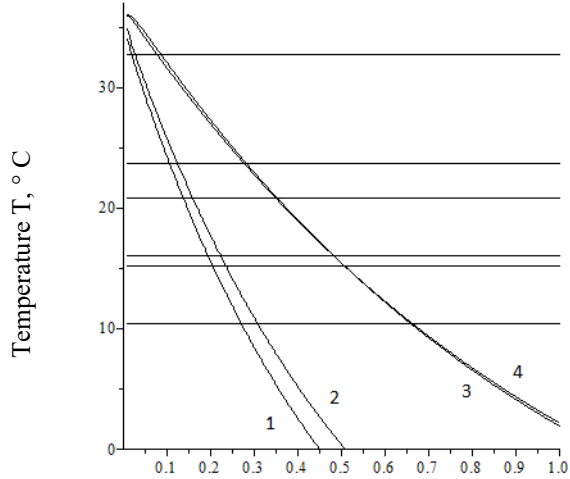
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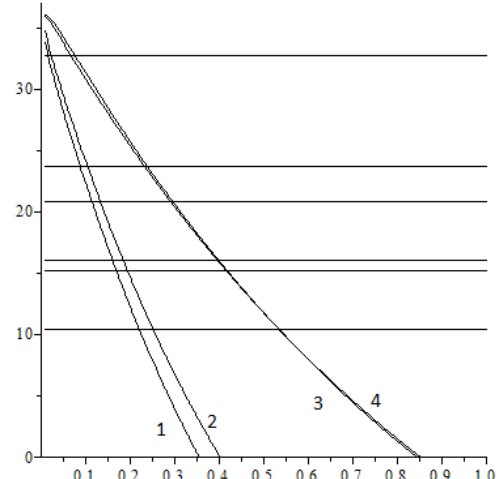
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Sheep wool, - 30 ° C

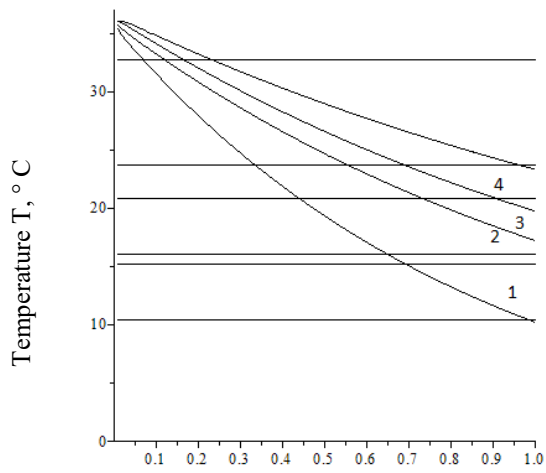


Sheep wool, - 40 ° C

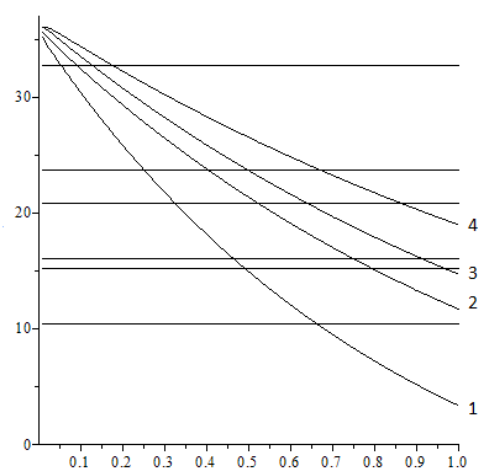


Time, h

Camel wool, - 10 ° C

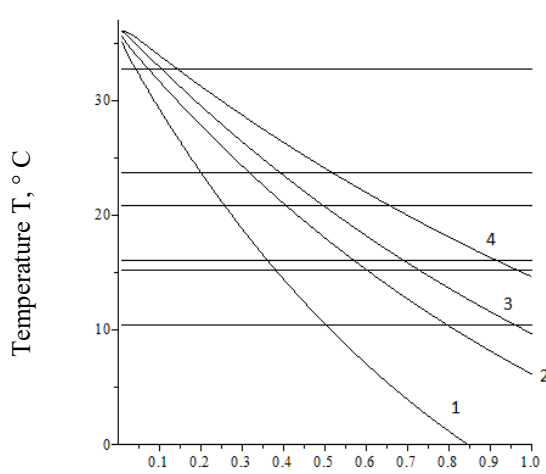


Camel wool, -20 ° C

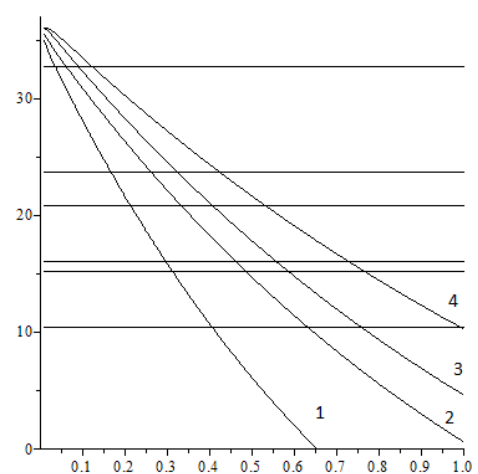


Time, h

Camel wool, - 30 ° C



Camel wool, -40 ° C



Time, h

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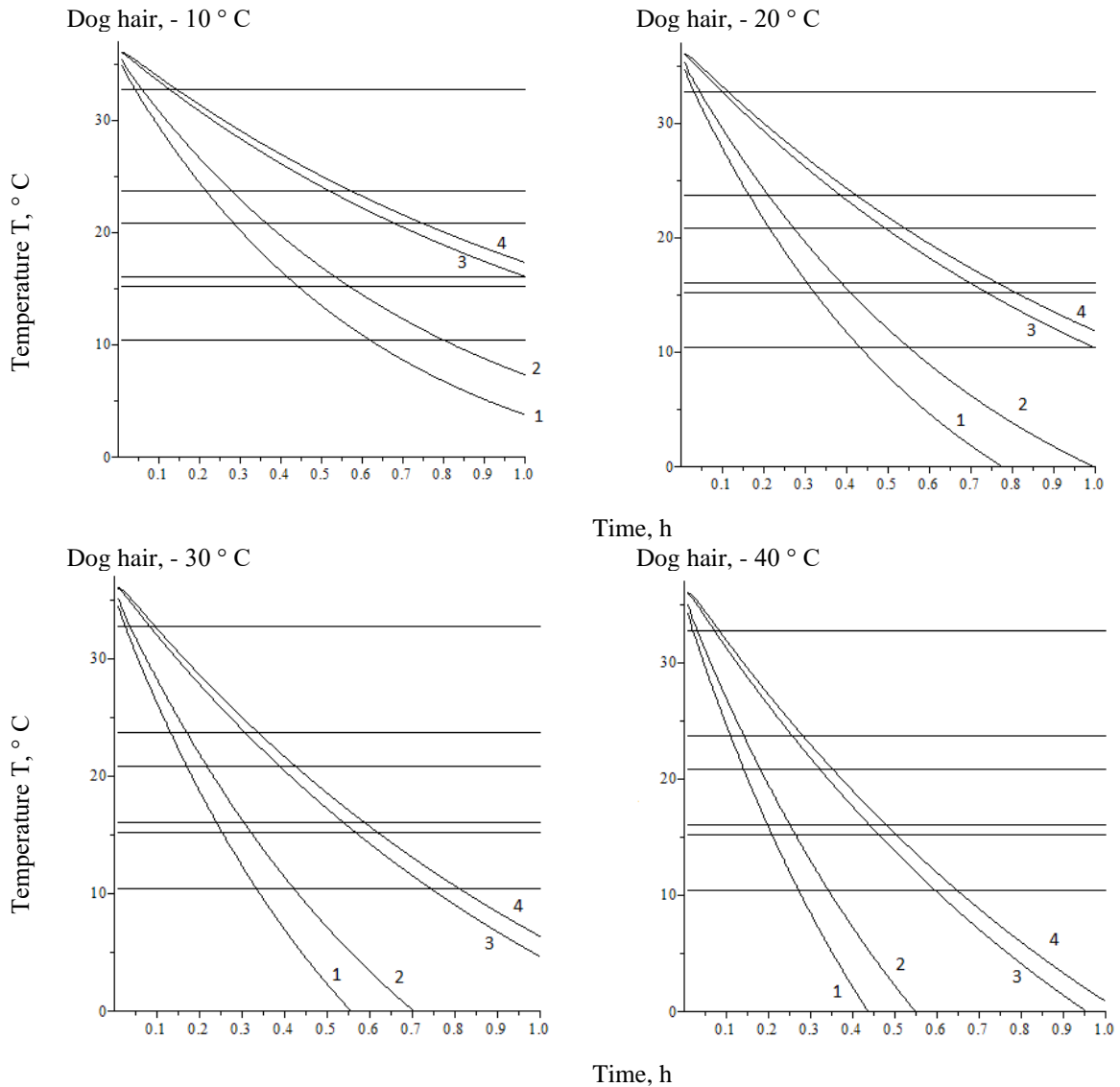


Figure 1 - Characteristics of the state of comfort of the skin of the hand of a serviceman when it is in different climatic conditions when using gloves from various types of yarn, namely: curve 1 - one thread, curve 2 - two threads, curve 3 - one thread + suede + TKPM AKR 622 / AKR 218, curve 4 - two threads + suede + TKPM AKR 622 / AKR 218

Conclusion

For the packages from the materials under study, shown in Table 1, curves were plotted characterizing the state of comfort of the soldier's hand for the following ambient temperatures, namely, curve 1 - at -10 °C, curve 2 - at -20 °C, curve 3 - at -30 °C, curve 4 - at -40 °C (Figure 1).

Consequently, the results obtained substantiated the high efficiency of using the software for a reasonable choice of packages of materials for gloves and other sets of suits for Arctic servicemen and confirmed the need to continue research on the choice of materials that would provide them with a comfortable state in a given temperature regime for at least two hours [7 - ten].

The software developed by the authors allows the manufacturer to have a tool for making an informed decision on the choice of material packages for the suit of the Arctic military personnel, including in the production of gloves to protect the hand from the effects of low temperatures while performing their statutory duties.

Confirmation of such conclusions is the analysis of the most effective temperatures carried out by the authors in terms of comfortable conditions of the skin of the hand, providing a constant temperature within 32.5 °C.

Unfortunately, gloves made from wool yarns of various animals, made from either one or two threads, do not guarantee servicemen such a comfortable state

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even at a temperature of -10°C , not to mention that the air temperature may be lower. In this case, the skin surface of the hand is cooled below the critical value, i.e. below 10.4°C , and can lead to frostbite and irreversible processes.

The use of mitts to protect the hand also does not guarantee servicemen protection from the effects of low temperatures and implies the search for such materials and the formation of such bags for the

manufacture of gloves that would provide them with a comfortable environment, which is possible when using nanomaterials capable of providing balance for 2 hours, allowing servicemen to fulfill their statutory duties, that is, developers must use the main criterion in the production of new materials. - the value of their thermal conductivity coefficient is not higher than 0.005.

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ON THE ADVANTAGE OF USING PRODUCTION IN THE MANUFACTURE OF DEMANDED AND COMPETITIVE PRODUCTS, MESSAGE 1

Abstract: In communication 1, the authors reasonably assert the advantage of using digital production in the manufacture of import-substituting products for consumers in the Southern Federal District and the North Caucasus Federal District.

Key words: efficiency, profitability, competitiveness, demand, consumers, profit, technical and economic indicators, financial advantages.

Language: English

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Introduction

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The restructuring of the quality management organization became more significant. The quality control departments have been replaced by a quality audit service, focused on checking the validity of the quality assurance system by sampling small individual samples from the total batch of products. The next step in improving the standardization of production was the concept of "quality management" by E. Deming. It was formed and optimized for almost half a century, from 1950 to 1992. Based on

the ideas of W. Schukhert, E. Deming formulated three basic "pragmatic axioms":

- any production activity is reducible to a standard form of the technical process and contains reserves for improvement that need to be identified and mobilized;
- production has two standard forms of existence: stable and unstable, therefore the solution of specific (current) problems is ineffective, it is necessary to direct the vector of management activities to fundamental changes;
- the main responsibility for the failure in the development of production should be assumed by the top management.

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How naive does one need to be in order to rely on the sincerity, disinterestedness, and sympathy of competitors when planning economic policy? The President of the Russian Federation stated long ago that our Western partners do not want to strengthen Russia, they need an obedient Russia, such as the Baltic republics that were previously part of the USSR. I didn't want to grieve the politicians responsible for the economy, but following Aristotle, we were forced to state: "Friends in the East are also on their minds" - in the sense of "Plato is my friend, but the truth is dearer". They will help us as we benefit from such assistance.

Main part

E. Deming's doctrine is well known, it has received wide practical application. We would like to draw attention not so much to the structural sections that make up the content of the concept, but to accentuate the question: what does E. Deming owe his resounding success, which contributed to the effectiveness of the application of the provisions developed by him in the real economy? The years of creativity E. Deming fell on two critical events in the world economy. First of all, a project designed for the omnipotence of technical progress turned out to be a myth. History repeated itself with science in the Age of Enlightenment, when it seemed that humanity had found a full-fledged replacement for religion in the face of science. Science is universal knowledge, it will solve all problems. It is only necessary to turn the consciousness of the masses to face science, to make the Enlightenment scientific and universal. E. Deming understood and warned earlier than others: the opinion that mechanization, automation and computerization will make a breakthrough in the sustainability of production quality belongs to the sphere of difficulties in solving the problem of the effectiveness of quality management, as well as the attitude to obtain positive results in the shortest possible time. E. Deming offered his philosophy in the form of a "valuable reaction". The merit of W. Schukhert and E. Deming was that they resisted the platform of classical political economy, did not succumb to numerous "temptations" - technical, statistical and others. Their logic was distinguished by confidence in the historical power of the subjectivity of man as a person. Having weighed the technique and creativity of the individual on the "scales" of history, they confirmed that capital growth is carried out by man. Technique both existentially and functionally depends on a person. And here time worked on Deming's side. The time has come for a revival of Japan. The war destroyed the country's economy, but did not undermine the samurai spirit. Nature taught the Japanese to keep the blows of fate. The national will was ready to return the country to its former greatness in the Pacific region, the inhabitants of the state of the "rising sun"

well understood that the path of revival lies through the industrialization of the destroyed production potential. They just did not know how to implement it. At the very end of the 1940s, leading Japanese specialists united in the Japanese Union of Scientists and Engineers - JUSE. Within the Union, a group arose to study the industrial experience of the United States. She established the dependence of progress in quality management with an increase in labor productivity. We tried to understand the mechanism of the established connection.

E. Deming was invited to go towards the goal not in the American way, but in the Japanese way, moving not from big finances, but from the national mentality, in which the culture of work occupied the most important place. Domestic dem-reformers failed amicably because they knew what to get rid of, but did not know how to do it in a civilized way and, most importantly, what to replace, based on the Russian specifics of reality. The Japanese, on the other hand, decided in advance what they would do. They only needed specifics - a "road map" of movement, so they called E. E. Deming as a navigator or pilot. E. Deming coped brilliantly. E. Deming paid for lectures by the Japanese, our "foremen" - Sores. The Japanese saved the national prestige, ours cut the national historical roots and stole wherever they could. Not surprisingly, 30 years later (by the early 1980s) the Japanese produced 40% of the world's color televisions, 75% transistor receivers, and 95% VCRs. Thirty years later, the Russian Federation still cannot restore its damaged potential. The ideas of E. Deming, Ishikawa, Juran were realized, confirming the importance of counter courses of movement of national interests and innovative, creative, creative thinking of non-committed, honest specialists. The "Japanese miracle" is a product of the interaction of scientific thought, a critical analysis of the production experience of advanced economies and the characteristics of Japanese national identity. Ishikawa, Deming and Juran met happily in that very place and at a time when the situation had matured and objectively - it was necessary to save and return the economic potential of the country and the subjective Japanese nation has a high and cohesive responsibility for its image. Only the Japanese team, losing the 2018 World Cup match in the last seconds. She cleaned everything in her dressing room and left a note in Russian with the only word: "Thank you." Of course, this fact has no direct relation to the topic of our research, but it is indicative as a characteristic touch to the national character. The roadmap for the revival of the Japanese economy in the status of one of the world leaders in the quality organization of production was restored by B.S. Alyoshin with colleagues. We are more interested in the lessons of the movement of Japanese specialists towards the goal. There are quite enough of them not to pass by,

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but this is a feature of our fans to steer the economy along American routes after Gaidar and his students. They really do not like it when something does not want to move in the rut of liberal economic theory that excommunicates the state from production. So, what does the Japanese experience teach (it teaches, that is, it directs thought, and does not write out recipes):

- quality is time, years of consistent, hard work, coupled with the need to collect and analyze creative approaches;
- quality is a product of interaction with a consumer, built on a partnership of mutual respect. Consumerit is understood extremely broadly, including all participants in the production;
- the totality of participation in achieving quality results;
- systematically adjusted audit control;
- a key role in obtaining the stability of the quality of the work of foremen and foremen, their continuous retraining in various forms, including special programs of national and regional television;
- special attention to mobilizing the physical, moral and creative abilities of workers;
- promotion of quality and its key importance for the development of production;
- and, finally, what infuriates the liberals - managers - the need for a consistent state economic policy, especially in the production of export products; mandatory state certification of products for other countries. Attempts to sell non-certified goods outside the state are equivalent to smuggling. State support for exports, assistance in promoting goods to the world market. As the final touch in the Japanese quality management program, it is advisable to consider the idea of dividing problems into sudden and chronic, proposed by J.Juran. It is not realistic to foresee all possible problems in planning and therefore it is not necessary. It is enough to have mobilization reserves to ensure the stability of the movement. The goal should be chronic problems that have become part of the organization - in fact, disorganized production. Chronic problems are often latent in nature, they are, as it were, adapted by production. It is no secret that there is no waste-free technology, therefore, tolerances are a natural state of quality management. Orders, decrees, appeals, slogans are powerless here. Since chronic problems have become part of the organization of production, then they must be overcome within the framework of the existing order. In the 1970s, Japan's expansion into the markets of the world reached such a scale that for the United States, the "Japanese miracle" appeared as a "Japanese threat." The successes of Japan in the production of high-quality and comparatively (with the Americans and Western Europeans) inexpensive products in the range of high technologies forced to re-actively engage in the theory of quality management. The time has come for

the author of the program "Zero Defects" F. Crosby. Building on Deming's experience, Crosby developed his Fourteen Points. A. Feigenbaum's program was the development of Crosby's ideas. As a result, Total Quality Control (TQC) was formed, from which all subsequent quality standardization systems grew

There is no progress without retreats, slowdowns, recessions. The policy is designed to take active, purposeful actions to help overcome the obstacles arising in development. Politicians must stay ahead of the economic movement and direct it, stimulate domestic economic factors with political levers, and clear economic paths to efficient production. Instead, politicians continue to link development plans to the price of oil, the ruble size of the European and American currencies, referring to the integration trends in the world and globalization.

Integration of transnational relations is an objective reality, but for all its objectivity it does not deny the specifics of national economic advancement. Moreover, integration is objectively designed to promote national development. Why doesn't it work out as it should be? This question arises from a logical comparison of the policy in the field of strengthening the defense capability, the restoration of the country's international authority in the most difficult circumstances of the formation of a new world architectonics with the fact that from year to year Russians observe and fully feel on themselves in the sphere of the rest of the economy. two governments? The second one "steps on the gas and brakes" at the same time.

The protracted recession in the Russian economy can be explained in two ways. The first is that the people have lost the ability to work well, squandered "human capital", and the second is that the managers are helpless. The media assure that politicians know their business, keep events under control, take the necessary measures and promise changes for the better in the near future. Therefore, the reason is the poor performance of the performers and the unfavorable world situation.

How naive does one need to be in order to rely on the sincerity, disinterestedness, and sympathy of competitors when planning economic policy? The President of the Russian Federation stated long ago that our Western partners do not want to strengthen Russia, they need an obedient Russia, such as the Baltic republics that were previously part of the USSR. I didn't want to grieve the politicians responsible for the economy, but following Aristotle, we were forced to state: "Friends in the East are also on their minds" - in the sense of "Plato is my friend, but the truth is dearer". They will help us as we benefit from such assistance.

It is time to understand that all economic and political unions in the modern world space are an attempt to achieve national gain in the environment

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of transnational relations, i.e. you can count on partners as long as this cooperation is beneficial to them. From which the conclusion follows - it is necessary to face your economy. Only in this way, albeit with great effort, will it be possible to solve our problems. For example, there are no objective reasons that would justify the decline in production in light industry for a quarter of a century.

Politics is not done depending on the state of feelings - either like or not like the level of everyday perception of the world. It is harmful to be in the "political kitchen" with such an approach. Economic policy does not qualify as "good" or "bad", "effective" or "ineffective". It has the right to be called either "useful" or "harmful". The price of such a policy is too high, and accordingly the responsibility is not limited to the professional form. Politics is politics. It is anti-political and unprofessional to turn politics into a source of one's own income.

Whatever the economic situation develops, it is extremely dangerous to absolutize the meaning of economic criteria, to endow them with the property of universality. F. Engels sharply spoke out against attempts to reduce the teaching of Karl Marx about social development to "economic materialism", "economic determinism." The economic basis is the basis of social organization, but by no means a system-forming factor for its improvement. The most difficult component of economic reforms is the achievement of satisfaction in society by the distribution of the national product. The health of society depends on this satisfaction, and not on the form of ownership. And we have come to an important conclusion - the quality of reforms is assessed not by the changes themselves, but by the ability to impart features of stability to public life.

Conclusion

Integration, globalization is not a panacea for development. They do not cancel the competitive struggle, in which there are more than one winner. There are more losers. Hence the relevance of the old truth, the meaning of which became clear in dialectics. Movement in any conditions becomes self-movement. The Chinese closed themselves off rationally and won. The victory was ensured by the Eastern caution and skepticism about the unification. They realized before us that integration and globalization are types of "pyramids" and are conditionally useful for national development. From the outside, it might seem that the Chinese reformers have abandoned the curse mentality: "to live for you in times of change." From the inside, everything looked traditional - politicians did not betray with a sharp movement on a national scale, they were in a hurry, but with a constant linkage of actions to the state economic order, reforms in the economy subordinated traditional political dominants, did not repent and did not try to please. Nobody seriously thought about any economic shocks. They took finance as the circulatory system of the economic organism into "tight government mittens", introduced toughening for economic and corruption crimes, equating many of them with dangerous actions against the state, did not come up with new parties - they updated the existing one, as before, paid special attention to personnel policy. The Chinese took into account the Soviet party experience of "growing" personnel, which was based on the principle of progressive advancement depending on business efficiency and lifestyle.

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ABU-L-HASAN AL-RUSTUGHFANI: REPRESENTATIVE OF THE MATURIDITE SCHOOL OF THEOLOGY

Abstract: The article is about the scientific legacy of Abu l-Hasan al-Rustughfani, adherent of the Maturidite doctrine, who was active in Samarkand, Mawarannahr (Transoxania), in the tenth century. It also sheds light on a brief analysis of *al-As'ila va-l-Ajviba* and *al-Fava'id* by the scholar.

Key words: Mawarannahr, Samarkand, kalam, aqidah (theology), Ahl al-Sunnah wa'l-Jamaah, Maturidiyyah, Mu'taziliyyah, manuscript, Hanafiyyah.

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Introduction

The scholar's full name is Abu l-Hasan Alib Sayyid ar-Rustughfani [7, p. 63-64]. The name "Rustughfani" is related to or from the village near Samarkand. The scholar was one of the leading figures of the Maturidiyyah doctrine [2, p. 20b].

Ashirbek Muminov, an orientalist, referred to the scholar as *ar-Rustufghani*, rather than *ar-Rustughfani*[5, p. 58]. Abu Salam as-Samarkandi was a predecessor to Abu l-Hasan al-Rustughfani, who studied *al-Mabsut* and *al-Jami al-Kabir* under Maturidi[5, p. 58-59]. The scholar wrote a number of books, including *Irshad al-Mukhtadi'*, *Kitab az-Zava'id 'ala-l-Fava'id* (the work was written as a commentary to his *al-Fava'id*, the manuscript copy of which is housed in at Süleymaniye Library, Turkey), *Kitab bi-l-Khilaf*, *Bayan Ahl as-Sunna va-l-Jama'a*[4, V. 1, p. 358], *al-As'ila va-l-Ajviba* and *al-Fava'id*.

Rustughfani's date of death is also given differently in sources. U.Rudolf, a German researcher, maintains the date as 350/961[8, p. 113], while his Turkish counterparts show it as 345/956[1, p. 47].

As his close friend, Rustughfani also studied directly from Abu Mansur al-Maturidi. Some sources read that Abu Mansur al-Maturidi passed away while

teaching Abu l-Hasan Alib Sayyid ar-Rustughfani from *al-Mabsut* by Muhammad as-Shaibani [4:87].

Below are Rustughfani's two works which have survived to this day.

Al-As'ila va-l-Ajviba[9] deals with questions like the erection of *mizan* (the divine balance or the scales that will weigh deeds on the Day of Judgement) for disbelievers, *hasanat* (whether or not people will be rewarded for their good deeds), expulsion of Adam (PBUH) from Paradise, the issues of *iman* (faith) whether it is bestowed by Allah or acquired, and whether or not angels will get rewarded or punished. The work covers only seven questions and answers.

The Arabic wording of *al-As'ila va-l-Ajviba* is as follows:

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
سئل الشيخ الإمام الأجل علي بن سعيد الرستغفاني رحمه
الله عن الكفار: هل يكون لهم ميزان وحسنات؟
فقال: لا.

وسئل عن هذه المسئلة مرة أخرى فقال: قد روي أن لهم
ميزانا لكن ليس المراد من ميزانهم ترجيح إحدى الكفتين على الأخرى.
لكن المعنى تمييزهم إذا الكفار لعنهم الله تعالى متفاوتون في العذاب. قال
الله تعالى:

وَمَنْ يُشَاقِقِ الرَّسُولَ مِنْ بَعْدِ مَا تَبَيَّنَ لَهُ الْهُدَىٰ وَيَتَّبِعْ غَيْرَ
سَبِيلِ الْمُؤْمِنِينَ نُوَلِّهِ مَا تَوَلَّىٰ وَنُصَلِّهِ جَهَنَّمَ وَسَاءَتْ مَصِيرًا [النساء:
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وقال عز وجل:
النَّارُ يُعْرَضُونَ عَلَيْهَا غُدُوًّا وَعَشِيًّا وَيَوْمَ تَقُومُ السَّاعَةُ
أَدْخِلُوا آلَ فِرْعَوْنَ أَشَدَّ الْعَذَابِ [غافر: ٤٦]

وهذا القول اصوب. وسئل عن قول بعض الناس أن آدم عليه السلام لما بدت منه تلك الزلّة إسودّ منه جميع جسده فلما اهبط إلى الأرض أمر بالصيام و الصلوة فصام وصلى إبيضّ جسده أبيضُ هذا القول؟

قال: لا يجوز في جملة القول في الأنبياء بشيء يؤدّي إلى الطعن والعيب فيهم قد أمرنا بحفظ اللسان عنهم لأن مرتبة الأنبياء أرفع وهم على أنه أكرم من سائر الخلق.
وقد قال رسول الله صلى الله عليه وسلم: "إذا ذكر أصحابي فامسكوا"

فلما أمرنا ألا نذكر الصحابة بشيء رجع ذلك إلى الطعن فيهم. فلأن تمسك ونكفّ عن الأنبياء أولى وأحق.
وسئل: أي شيء الحكمة أن لا يقع ظلّ النبي عليه السلام على الأرض؟

قال: لأنّ الشمس ونورها والقمر ونوره إنما خلقت من نور محمد عليه السلام ونوره أضوأ من نور النهار ونور الشمس والقمر لا يظلّ.

وسئل: هل يجوز أن يُسلم الشيطان؟
قال: يجوز. لأنّ نبياً عليه السلام أسلم شيطان لكرامته.
وسئل: أنّ شيطان يكون في الجنة أو في النار؟
قال: في النار، لأنّه يجوز أن يكفر. أسلم مدة حياته، فلما توفي آدم ارتد شيطان. وهذا الا يكون اعظم حالاً من إبليس فإنه كان مؤمناً ثم ارتد قال بعضهم روي هذا الخبر الا أني يتقبل الله تعالى فأسلم (بزرع الميم) أي فأسلم من شره ووسواسه فلا يحوم حولي. وسئل عن الإيمان انه عطائي ام كسبي؟ قال: لا نقول على الإطلاق انه عطائي او كسبي، لكن نقول ما كان من الله تعالى الى عبده وهو الهداية فهو عطاء منه لأنه لم يسبق من العبد الى الله تعالى ما يستحق به هذه النعمة وما كان من العبد فهو كسبي. وسئل عن الملائكة هل لهم ثواب وعقاب؟ قال: نعم، لهم ثواب وعقاب الا أن عقابهم كعقاب الأدميين وثوابهم كثواب الأدميين لأن ثواب هذا التلذذ بشيء ثم إن الله تعالى جعل لذاتنا وشهواتنا في الدنيا من المأكول والمشروب والمركوب ونحوها فكذلك يجعل ثوابنا في دار الآخرة وأما الملائكة فإن الله تعالى جعل تلذذهم وشهواتهم في طاعتهم لله عز وجل.

The translation of the text:
Bismillahir Rohmanir Rohim (In the name of God, the Compassionate, the Merciful)

The Great Imam, Sheikh Abu I-Hasan Alib Sayyid ar-Rustughfani was asked about disbelievers:

Will their (disbelievers) deeds be weighed on the mizan (the balance) and be rewarded?

The scholar answered: No.

When asked again, the scholar offered the following answer:

In accordance with narrations, they (disbelievers) will face the balance; however, the state of the balance (whether heavy or light) while weighing the deeds should not be inferred from this, but rather the point is to separate them (from one another). Since, disbelievers (may the curse of Allah be upon them) will have a different punishment.

Allah says in surah Nisa, verse 145:

(The meaning of the verse) Surely, the hypocrites are in the lowest level of the Fire, and you shall never find for them a helper.

Also, in surah Ghafir, verse 46:

(The meaning of the verse) It is the Fire before which they are presented morning and evening. And on

the day when the Hour (of final judgment) will take place, (the order will be released): Admit the family of Pharaoh into the most severe punishment.

The scholar was asked again:

How much is it true that the body of Prophet Adam (peace be upon him) turned entirely black after establishing clearly that he had made a mistake (eating from the tree of immortality in Paradise) and that it turned white after performing prayers and fasting on the earth?

The scholar replied:

In a word, we are commanded to abstain ourselves from blaming, degrading and vilifying the prophets and keep our tongue fully away from speaking about their weaknesses, as they hold the highest degree and are the most revered and superior amongst the creation.

Prophet Muhammad (PBUH) said: If my companions are mentioned, stay silent (hold back your tongue from speaking evil about them). (Narrated by Tabarani) Thus, since we are required not to do anything degrading even the companions, the prophets (peace be upon them) are the most worthy people to be deeply respected.

The scholar was asked again:

What is the wisdom behind the reason that the Prophet (PBUH) had no shadow?

The scholar answered:

The brightness of the sun and the light of the moon are created from the light of Muhammad (PBUH). His light is brighter than that of the day, sun and moon. That is the reason why the Prophet (PBUH) had no shadow.

The scholar was asked again:

Is it appropriate for Satan to become a Muslim?

The scholar answered:

Yes, it is. It was a *karamat* (miracle) of the Prophet (PBUH) to have Satan become a Muslim. (Interpretation: It is quite unclear why Rustughfani uses the word "*karamat*" (miracle) in this context, since this word is basically used toward *awliya* (saints) who are granted supernatural power. It would be correct to use the word *mu'jiza* (evidentiary miracle), which is peculiar to only prophets, instead of *karamat* (miracle)).

The scholar was asked again:

(In that case) will Satan go to Paradise or Hell?

The scholar answered:

Satan will definitely go to Hell, because of the fact that Satan expressed disbelief (kufr) later. Satan used to be a Muslim while Adam was alive and became an apostate after Adam had passed away. (Interpretation: This sentence is pretty vague in the work, as the author discusses Prophet Muhammad (PBUH) and surprisingly shifts on to another topic, i.e. Prophet Adam (PBUH). In this event, he is the same as Satan, for he had been a Muslim before becoming an apostate. While narrating the above-mentioned, some said: "Only Allah accepts me and I will be safe" (i.e., I will be safe from the evil and seduction of Satan and he will leave me).

The scholar was asked again:

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Is *iman* (faith) granted (by Allah) or acquired (by a human being)?

The scholar replied:

We do not say that *iman* (faith) is entirely gifted (by Allah) or fully acquired (by a human being), but rather it is granted and is a guidance provided by Allah. This is due to that fact that a human being did not present anything to Allah that could make him rightful for this blessing; and if a human being does anything, it should be considered as acquired.

The scholar was asked the last question:

Will angels be rewarded or get punished?

The scholar replied:

Yes, they will. However, both the reward and punishment will be different from that of human beings, who find pleasure in something because of something else. Allah made us take pleasure and feel passion by eating, drinking, riding and the likes, owing to which, we, human beings, will get our rewards in the hereafter. Unlike this, Allah made angels take pleasure in His worship and service.

In summary, before getting acquainted with the work, we held the view that *Al-As'ila va-l-Ajviba* was a great work. However, having studied the work, we came to conclusion that it is a small work containing some questions and answers. The reason we decided to include the text and interpretation of the work in our research is to show that the work encompasses uncertain phrases and it remains unclear why the work was authored and who addressed the questions to the scholar. Accordingly, there is no valid reason to take the work as scholarly in terms of the Maturidite doctrine.

Yet, another work *al-Fava'id* by Abu l-Hasan Alib Sayyid ar-Rustughfani has been preserved to this day. The manuscript copy of the work is stored in Majma' al-Khavadis va-n-Navazil by Akhmad b. Musa Keshshi (d.550/1155) under number 547, Yangi Jami' Department, Süleymaniye Library, Istanbul[3, p. 285b-317b]. The work basically covers a number of topics of fiqh, such as fasting, prayer, faith, family and good manners.

Ahmet Ak, a researcher from Turkey, maintains that this work is the first to be written on the Maturidite doctrine[1, p.14]. Having looked through the book, one can have no doubt about the researcher's findings, since the author makes reference to six clear evidences from Maturidi, four of which are directly related to Maturidi[10, p. 302a, 308a, 315a, 317a], while the rest cites the scholar's views[10 p. 313b, 317b].

This work, which sheds light on the issues of both fiqh and faith, is highly acknowledged as the source on fiqh by researchers. The work is written in a traditional style (i.e. questions and answers) typical of that period; and the issues of creed are approached from the perspective of social relations. Some of the questions raised in the work are given below.

The author provides unique elucidations on the issues like entering the mosque first, praying in the first row and leaving the mosque last. The work reads that

Rustughfani puts forth a hadith from the Prophet (PBUH) "The best rows for men are the first, and the worst are the last, and the best rows for women are the last and the worst are the first" as an example. When asked about this, he said that entering the mosque first, in fact, is a good virtue; but, whoever enters the mosque first without displaying arrogance and ostentation to please Allah, and performs the prayer either in the first row or the last, will be rewarded abundantly by Allah.

Allah says in surah al-Waqi'ah, verses 10-12:

And the Foremost are the foremost. Those are the ones blessed with nearness (to Allah) in gardens of bliss.

The following narration merits attentions in bringing this issue to light in *al-Fava'id*:

Abu-l-Kasim al-Khakim as-Samarkandi and Abu Mansur al-Maturidi were praying in congregation in a mosque. Upon completing the prayer, al-Khakim as-Samarkandi leaves the mosque earlier than Abu Mansur al-Maturidi; and then asked his pardon and said: "The reason I left the mosque earlier than you is not placing myself above you, but rather I wanted to put you over me, as the most of good virtue is granted to those who leave the mosque last. So, it was my intention to make you worthy for this moral excellence. I would act the same if it were said with regard to entering the mosque"[10, p. 310b].

Rutughfani arrives at this conclusion reading this narration: "It is much clear from this narration that a true virtue is not occupying the first row in a prayer, but rather entering the mosque first and leaving it last".

Some questions in the work prove that Rustughfani argued or even expressed his anger against the Mu'tazilites. Rustughfani is asked a question, the work reads, whether it is permissible to establish a marriage between Ahl al-Sunnah wa'l-Jamaah and the Mu'tazilites?

The scholar replies: It is impossible, as we hold the view that the Mu'tazilites are disbelievers. (Interpretation: We may deduce from this that Rustughfani himself might have suffered from a Mu'tazili. According to Ahl al-Sunnah wa'l-Jamaah, one cannot attribute disbelief to a person of *Ahl al-Qibla* (people of the Qibla) even if they practice a false creed. Although great scholars like Imam Abu Hanifa and Abu Mansur al-Maturidi confess the Mu'tazilites as a false sect, they never attributed disbelief to them.) This is because of the fact that they consider people as apostates as long as they do not follow them.

Also, Rustughfani writes about eating the meat of the animal slaughtered by Christians and Jews, and rejecting the one slaughtered by a Muslim, simply because of his apostasy. The scholar says that a Mu'tazili considers a Muslim inferior to Christians or Jews unless he practices the Mu'tazili creed. The scholar fiercely criticizes the Mu'tazilites by providing a hadith from the Prophet (PBUH) "The Qadaris (those who deny al-qadar) are the Magians of this ummah." (Interpretation: Because the Mu'tazilites, with regard to divine destiny,

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follow the practice of the Qadaris, they are compared with the Magians in the hadith above.)

Even though one can feel an extreme and denouncing approach of the author in *al-Fava'id*, the author does not step out of the Maturidite doctrine. Based on the above-mentioned considerations, it can be concluded that Rustughfani's *al-Fava'id* is an initial work reflecting the issues of creed of Maturidi and discussing the teachings of the Maturidiyyah.

In conclusion, Abu l-Hasan Alib Sayyid ar-Rustughfani was one of ardent disciples and constant companions of his master Abu Mansur al-Maturidi. *Al-Fava'id* was regarded as one of the most important works on the Hanafiyyah fiqh and the teachings of the Maturidiyyah.

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MODELING THE VARIABILITY OF VARIABLES IN THE MULTIDIMENSIONAL EQUATION OF THE COGNITIVE MEANINGS OF THE VARIABLES

Abstract: The article develops a model of variable variability in the multidimensional equation of cognitive meanings of variables. The inverse semantic problem of transformation of the system of semantic equations of cognitive meanings of variables into a system of algebraic equations of numerical values of variable variability, which are closely related to entrepreneurial activity on the basis of the right of purchase, is solved. The developed mathematical model of digitalization of indicators of entrepreneurial activity on the basis of buy-off law and the model example show the adequacy of the real relationships of the variability of 7 indicators inherent in individuals engaged in "entrepreneurial activity on the basis of buy-off law" under capitalism No. 3.

Key words: variable variability in variable variability in the multidimensional equation of cognitive meanings of variables.

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МОДЕЛИРОВАНИЕ ИЗМЕНЧИВОСТИ ПЕРЕМЕННЫХ В МНОГОМЕРНОМ УРАВНЕНИИ КОГНИТИВНЫХ СМЫСЛОВ ПЕРЕМЕННЫХ

Аннотация: В статье разработана модель изменчивости переменных в многомерном уравнении когнитивных смыслов переменных. Решена Обратная Смысловая Задача трансформации системы смысловых уравнений когнитивных смыслов переменных в систему алгебраических уравнений числовых значений изменчивостей переменных, по когнитивным смыслам тесно связанных с предпринимательской деятельностью на основе откупного права. Разработанная математическая модель цифровизации показателей предпринимательской деятельности на основе откупного права и модельный пример показывают адекватность реальным взаимосвязям изменчивости 7 показателей, присущих индивидам, занимающихся «предпринимательской деятельностью на основе откупного права» при капитализме №3.

Ключевые слова: изменчивости переменных в многомерном уравнении когнитивных смыслов переменных.

Введение

«По сути дела, с развалом социализма в Казахстане сложился не один, а сразу три типа капитализма. И существуют они параллельно»¹.

¹ <https://zonakz.net/2020/01/24/pochemu-nekotorye-v-kr-schitayut-chto-prezhde-kogda-podushnyj-vvp-byl-menee-2-tys->

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Краткие характеристики трех типов капитализма даны в статье¹ и анонсированы в [1]. «Ну а что же делает третий капитализм? Капитализм людей коренной национальности? Это – достаточно сложный вопрос. Во-первых, о том, почему он оказался отделен от капитализма русскоязычных людей. Конечно, на первый взгляд, кажется, что такого явственного отделения нет. Но на самом деле оно, хоть, может быть, не столь зримо, присутствует. Главная особенность третьего капитализма в том, что при ней законы и нормативно-правовые акты присутствуют большей частью как всего лишь внешний фон деятельности. Большинство же ключевой важности вопросов решается так, как велась торговля у казахов издревле. Называется этот прием «жең ұшынан қол жалғау»¹. Далее описывается суть этого приема.

В статье [1] разработана Когнитивная модель сознания индивида при принципе «согласие в темных рукавах». Проведено исследование (формализована предметная область), аналогичное исследованию принципа отрицательной селекции из статьи [1]. Использовались модельные представления о изменчивости других показателей индивидуального сознания индивидов других профессий, индивидов других ценностных ориентаций [1-7].

В настоящей статье приведем новую модель изменчивости переменных в многомерном уравнении когнитивных смыслов $6+1=7$ переменных, соответствующих откупному праву при капитализме №3¹. С применением модели ИПМУКС проведены расчеты по модельным данным, результаты – таблицы Y_{mn} , Z_{mn} , дополняют другие объекты цифровизации в других предметных областях [7-13]. Наглядные графические иллюстрации динамик модельных значений изменчивости показателей сознания индивида и показателей, соответствующих откупному праву. Ниже на Рисунках 4 и 5 визуализированы взаимные динамики 7 рядов собственных изменчивостей.

Рассматриваются новые отношения между индивидами, между поведенческими проявлениями, соответствующие откупному праву при капитализме №3. Когнитивная модель предпринимательской деятельности на основе откупного права (излагается ниже) основана на математической модели изменчивости переменных в многомерном уравнении когнитивных смыслов (модели ИПМУКС). Политика государства, экономические кризисы влияют на изменения индивидуального и общественного сознания. Вопросы формализации предметной области «индивидуальное сознание», рассматриваемые в данной статье, актуальны. Они помогут при профилактике таких проявлений. Но

обличительный задор борцов всегда направлен на личности, они вызывают у индивида страх, стремление обмануть систему менеджмента «shndyk aitu-kondru-aldau-korkyту» [3,4]. Мы разрабатываем знаково-символическое (логико-вербальное) направление анализа, позволяющее отобрать и сопоставить лишь немногие, существенные для анализа параметры явления, образуя однозначный контекст, необходимый для восприятия нашей теории другими специалистами. Общению с ними существенно помогают наши давно известные ПМ ГК [8], ОМ ГК [9-10], ПСЗ[10], ОСЗ[11,12]. Контекст – относительно законченный по смыслу отрывок текста или речи, в пределах которого наиболее точно и конкретно выявляется смысл и значение отдельно входящего в него слова, фразы, совокупности фраз. Под смыслом переменной мы подразумеваем контекст имени переменной.

Когнитивные смыслы показателей предпринимательской деятельности на основе откупного права

Принцип «согласие в темных рукавах» аналогично принципу из статьи [1] и аналогично модельным проявлениям сознания других индивидов [1-7,13-17] позволило смоделировать значения изменчивостей показателей.

Здесь будем моделировать значения изменчивостей показателей «измеряемых» коррелированных переменных $Z_1, Z_2, Z_3, Z_4, Z_5, Z_6$, некоррелированной переменной «предпринимательская деятельность на основе откупного права» (y_1).

Для нас интересен интеллектуальный анализ по реальным и модельным данным различных связей между рядами показателей по смыслу тесно связанных с предпринимательской деятельностью на основе откупного права Смыслы упомянутых показателей следующие:

- уровень отсутствия конкуренции при капитализме №3 (Z_1)
- большая степень централизации при капитализме №3 (Z_2)
- уровень свободы, позволяющий индивидам «вести себя так, как ему вздумается.» (Z_3)
- темп увеличения национального дохода и богатства при капитализме №3 (Z_4)
- степень справедливости распределения ВВП при капитализме №3 (Z_5)
- степень проявления «откупного права» при капитализме №3 (Z_6)

Смысл валидной переменной: «предпринимательская деятельность на основе откупного права» (y_1).

Построенная ниже модель позволила найти адекватные реальным зависимости. Мы наглядно увидели зависимости, не воспроизведенные никем

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ранее. Перечень их таков. Зависимость предпринимательской деятельности (y_1) от степени проявления «откупного права» (z_6), зависимость предпринимательской деятельности (y_1) от уровня отсутствия конкуренции (z_1), зависимость предпринимательской деятельности (y_1) от «откупного права» (z_6), доходов (z_4), расходов (z_5). На эту зависимость похожа зависимость предпринимательской деятельности (y_1) от отсутствия конкуренции (z_1), централизации (z_2), вседозволенности (z_3).

Аксиома существования собственного отклонения изменчивости и шага отклонения.

В статье [2] введено понятие «собственное отклонение» для неизмеряемых значений z -изменчивости неизмеряемого показателя предпринимательской деятельности на основе откупного права и Аксиома существования собственного отклонения и шага отклонения [2]. Данные из Таблицы 1 обосновывают применимость термина «длина одного собственного отклонения (шага) для неизмеряемых значений z -изменчивости неизмеряемого показателя» к нашей задаче. После решения нашей задачи мы приведем визуализацию зависимых z -изменчивостей для j -ой z -переменной. Пусть имеем в j -ом столбце значения изменчивостей $(z_{1j}, \dots, z_{mj})^T$. Если среднеквадратическое значение s_j^2 этих элементов равно 1, то ряд $(z_{1j}, \dots, z_{mj})^T$ называется рядом значений j -ой z -переменной (стандартизированной), если $s_j^2=1$. Если $s_j^2 \neq 1$, то ряд значений называется рядом значений z -изменчивостей для j -ой переменной. Для значения s_j^2 вычисляется одно значение $+s_j = \sqrt{s_j^2}$, определяющее длину (положительную) отклонения, присущей ряду $(x_{1j}, \dots, x_{mj})^T$. Величина $z_{ij} = (x_{ij}^0 - x^{me_j}) / s_j$ определяет сколько штук s_j содержит в себе отклонение $(x_{ij}^0 - x^{me_j})$. Иначе говоря, величина z_{ij} равна количеству собственных отклонений s_j j -ой x -переменной в отклонении x_{ij}^0 от среднего значения x^{me_j} ; $(x_{ij}^0 - x^{me_j})$. Ряд значений z -изменчивостей соответствует j -ой централизованной (нестандартизированной) x -переменной с показателем s_j ; $(z_{1j}, \dots, z_{mj})^T \Rightarrow (x_{1j}, \dots, x_{mj})^T = s_j$. Показатель s_j – единичный шаг отклонений, величина z_{ij} равна количеству собственных отклонений s_j влево или вправо от числа 0, равного средней арифметической для m значений z_{1j}, \dots, z_{mj} : $(1/m)(z_{1j} + \dots + z_{mj}) = 0$. Отклонение числа z_{ij} от числа 0, (равное отклонению измеренного значения x_{ij}^0 от средней x^{me_j} , деленному на собственное отклонение s_j : $(z_{ij} - 0) = (x_{ij}^0 - x^{me_j}) / s_j$ назовем z -изменчивостью измеряемого j -ого показателя. Заметим, что изменчивость равна частному от деления двух отклонений $(x_{ij}^0 - x^{me_j})$ и s_j , имеющих единицы

измерения одинакового смысла. Единицы измерения могут быть метрическими или другими, измеряемыми в шкале отношений.

Для показателей предпринимательской деятельности на основе откупного права? когнитивно сконструированных ниже можно применять в качестве единицы измерения «проценты». В статьях [13-17] не измеряемые, но моделируемые показатели определены двояко: определены их имена-смыслы и смоделированы значения их z -изменчивости.

Многомерное уравнение когнитивных смыслов переменных

Данное исследование является продолжением результатов статей [1,2]. Мы используем в качестве исходной информации статью¹. Эта информации формализована с применением соотношений из ПМ АИКП [18-19] и равенств из теоремы [19]. Когнитивная модель предпринимательской деятельности на основе откупного права формализует поведенческие проявления и присущие капитализму №3. Решена Обратная Смысловая Задача трансформации системы смысловых уравнений когнитивных смыслов переменных в систему алгебраических уравнений числовых значений изменчивостей переменных, по когнитивным смыслам тесно связанных с предпринимательской деятельностью на основе откупного права.

В нашей модели будем учитывать значения весов $\ell=1$ фактора и его измерителя изменчивости – значения дисперсии λ_1 (значение λ_1 равно наибольшей из n дисперсий y -переменных). Это дает одно многомерное уравнение (без свободного члена) для n z -переменных z_1, \dots, z_n . Смысловое многомерное уравнение когнитивных смыслов z -переменных

$$\text{смысл}(z_1) + \text{смысл}(z_2) + \text{смысл}(z_3) + \text{смысл}(z_4) + \text{смысл}(z_5) + \text{смысл}(z_6) = \text{смысл}(y_1)$$

моделирует m уравнений m линейных алгебраических уравнений тех же когнитивных смыслов значений изменчивости n переменных (m раз записанное для $i=1, \dots, m$) с 6 параметрами при $7 \cdot m$ неизвестных:

$$\text{смысл}(z_{i1}) + \text{смысл}(z_{i2}) + \text{смысл}(z_{i3}) + \text{смысл}(z_{i4}) + \text{смысл}(z_{i5}) + \text{смысл}(z_{i6}) = \text{смысл}(y_{i1}), i=1, \dots, m.$$

Эти m смысловых уравнений с 7 известными смыслами 6 z -переменных и 1 y -переменной y_1), имеют 7 когнитивно одинаковые смыслы имеет одно числовое решение в виде матрицы Z_{mn} размерности $m \cdot n$, объединенных в матрицу Z_{mn} . Одно n -мерное смысловое уравнение имеет решение в форме таблицы Z_{mn} из $m \cdot n$ чисел, состоящей из n столбцов m строк. Значения z_{ij} в одном j - столбце ($i=1, \dots, m$) имеют одинаковый смысл $\text{смысл}(z_{ij})$, равный смыслу j -ой переменной

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z_j . Смысл изменчивости валидной переменной равен когнитивной сумме изменчивостей z -переменных, удовлетворяющих смысловому равенству вида:

$$\text{смысл}(y_{i1}) = \text{смысл}(y_{i1}) = \text{смысл}(z_{i1}) + \text{смысл}(z_{i2}) + \text{смысл}(z_{i3}) + \text{смысл}(z_{i4}) + \text{смысл}(z_{i5}) + \text{смысл}(z_{i6}),$$
$$i=1, \dots, m.$$

Это равенство соответствует математической линейной комбинации $y_{i1} = z_{i1}c_{11} + \dots + z_{i6}c_{61}$ математических переменных $z_1, z_2, z_3, z_4, z_5, z_6, y_1$. Среднее значение из m значений изменчивости должно иметь нулевое значение, а дисперсия y -переменной y_1 должна быть равна $\lambda_1 = 2,8700 : (1/m)(y_{21}^2 + \dots + y_{m1}^2) = \lambda_1$. Иными словами – имея одно математическое уравнение с 6 неизвестными z -переменными $z_1, z_2, z_3, z_4, z_5, z_6$ и имея заданный (известный) смысл одной валидной переменной y_1 , и имея 6 смыслов 6 z -переменных $z_1, z_2, z_3, z_4, z_5, z_6$, найдем одну матрицу значений изменчивости 6 z -переменных и один столбец значений изменчивости y -переменной.

Эту задачу схематично изобразим так: $\Lambda_{(t)} = \langle y_1 \rangle \Rightarrow (R_{nn}, C_{nn}, Y_{mn}, Z_{mn})$.

Матрица «весов» C_{nn} должна в первом столбце содержать индикаторы присутствия знаний. На это указывают весомые «веса» 6 значений числа весов λ_1 . Для численного моделирования матрицы «весов» C_{nn} , матрицы безразмерных значений z -переменных Z_{mn} будем применять ОМ ГК [21], апробированная в других предметных областях [1-7,13-22].

Будем рассматривать безразмерные значения всех анализируемых переменных, включая переменные y_1, \dots, y_n и переменные (будем моделировать изменчивости для y - и z -переменных), образующие линейные комбинации $y_1 = z_1c_{11} + \dots + z_nc_{n1}$, $y_2 = z_1c_{12} + \dots + z_nc_{n2}$, $y_3 = z_1c_{13} + \dots + z_nc_{n3}$, $y_4 = z_1c_{14} + \dots + z_nc_{n4}$. Значения остальных модельных факторов y -переменных y_5, \dots, y_n моделируются, их значения удовлетворяют соотношениям $y_j = z_1c_{1j} + \dots + z_nc_{nj}$, $j=2, \dots, n$, но их дисперсии пренебрежимо малы $\lambda_2 < \lambda_0, \dots, \lambda_n < \lambda_0$, причем значение λ_0 удовлетворяет критерию превышения 1.5 и равенства нулю дисперсий y -переменных y_3, \dots, y_n .

Разработаем общую методику для разных задач трансформации системы смысловых уравнений когнитивных смыслов в систему алгебраических уравнений числовых значений изменчивостей показателей, по смыслу тесно связанных с предпринимательской деятельностью на основе откупного права.

Рассмотрим нашу валидную переменную. Ей соответствует 1 y -переменная y_1 , значения которой мы смоделировали выше (Таблица 4 и 5, столбец y_1). Число значений y -переменных равно $m > n$, матрице Y_{mn} соответствует матрица собственных векторов $C_{66} = \{c_{ij}\}$. Матрице C_{66} соответствует матрица весов $C_{66}^2 = \{c_{ij}^2\}$, [18-22]

$i=1, \dots, 6$; $j=1, \dots, 6$. Элементы c_{ij} равны коэффициентам корреляции $c_{ij} = \text{corr}(y_i, z_j)$ между i -ой y -переменной и j -ой z -переменной. Значение коэффициента парной корреляции между двумя z -переменными $r_{ij} = \text{corr}(z_i, z_j)$ является константой (коэффициентом пропорциональности) линейной связи между значениями двух z -переменных [11,15]: $z_{kj} = r_{ij} \times z_{kj}$, $k=1, \dots, m$, $i=1, \dots, n$, $j=1, \dots, n$. Так как $c_j^T c_j = 1$, $c_j = (c_{1j}, \dots, c_{nj})^T$, $c_{1j}^2 + \dots + c_{nj}^2 = 1$, то значения чисел $c_{1j}^2, \dots, c_{nj}^2$ в сумме равных 1, являются весами при значениях z -переменных z_1, \dots, z_n . Ниже используется степень коррелированности $c_{ij} = \text{corr}(y_i, z_j)$, превышающий пороговое значение 0/5, а специалистам по индивидуальному сознанию более привычен термин «вес». Поэтому всюду ниже значение $c_{ij} = \text{corr}(y_i, z_j)$ будем называть «вес», а значение c_{ij}^2 – вес i -ой z -переменной z_i .

Математической моделью новых смысловых переменных являются функции вида $y_{ij} = z_{i1}c_{1j} + z_{i2}c_{2j} + \dots + z_{in}c_{nj}$, $i=1, \dots, m$, которые определяются используемой теоретической моделью [18]: ПМ ГК – как метода вычисления единственной матрицы Y_{mn} , состоящей из m значений некоррелированных n y -переменных с ограничениями на веса $c_{1j}^2 + c_{2j}^2 + \dots + c_{nj}^2 = 1$, на компоненты собственных векторов: $c_{11}c_{k1} + \dots + c_{n1}c_{kj} = 0$, $j \neq 1$, $k=1, \dots, n$.

При объяснении, присвоении названия z -переменной используем правило, где осязательность влияния z -переменной выражается пороговым значением веса $|c_{kj}| \geq c(j)$ для j -ой y -переменной, $j=1$. В соответствии с нашей целью «что-то увидеть в данных» в [1-7,13-17] использован «когнитивный подход в моделировании, ориентированный на то, чтобы активизировать интеллектуальный потенциал исследователя (субъекта) и помочь ему зафиксировать свое представление проблемной ситуации в виде формальной модели». Мы предпочитаем иметь дело с безразмерными величиной типа $x = 6 \times 10^7 / 7 \times 1$. Результирующее i -ое значение j -го показателя x_{ij}^0 равно сумме 2-х слагаемых: $x_{ij}^0 = z_{ij}s_j + x_j^{cp}$, $j=1, \dots, n$, $i=1, \dots, m$, и имеет конкретную размерность. Переменная величина $z_{ij} = (x_{ij}^0 - x_j^{cp}) / s_j$ очищена от размерности, она является стандартизованной переменной. Моделирование z -переменной независимо от средней x^{cp} и дисперсии s_j^2 позволяет придать сумме 2-х слагаемых: $x_{ij}^0 = z_{ij}s_j + x_j^{cp}$, $j=1, \dots, n$, $i=1, \dots, m$, заранее заданные свойства: среднее арифметическое значение j -ой x^0 -переменной равно x_j^{cp} , дисперсия j -ой x -переменной равна s_j^2 . Модельные z -переменные позволяют нам формализовать динамику изменений значений z -переменных, их взаимосвязи. А взаимосвязи между парами z -переменных – выборочные коэффициенты корреляции, смоделировать в точности равными заданным значениям.

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Наша статья является продолжением статьи [1], дополним ее результаты следующим образом. Сперва моделируем матрицу Y_{m6} m значений изменчивости 6 некоррелированных y -переменных. Так как задан смысл только одной y -переменной y_1 , равной линейной комбинации 6 z -переменных: $y_{i1} = z_{i1}c_{11} + \dots + z_{i6}c_{61}$, $i=1, \dots, m$, то моделируем m линейных комбинаций 6 z -переменных. Моделируем один объект - матрицу $Y_{m6} = U_{m6} \Lambda^{(1/2)}_{66}$, где декоррелированная выборка U_{m6} удовлетворяет равенству $(1/m)U_{m6}^T U_{m6} = I_{66}$. Тогда матрица значений изменчивости $Z_{m6} = Y_{m6} C_{66}^{+T}$. Так как матрица C_{66}^{+} (с номером ℓ) такова, что $C_{66}^{+} C_{66}^{+T} = I_{66}$, $C_{66}^{+T} C_{66}^{+} \neq I_{66}$, а матрица U_{m6} имеет номер t , то матрица $Z^{(t,\ell)}_{24,6}$ значений изменчивости 6 коррелированных z -переменных моделируется по формуле $Z_{m6} = Y_{m6} C_{66}^{+T}$. Модельные 6 коррелированные изменчивости z -

переменных имеют свои смыслы, а динамики пар, троек изменчивостей имеют адекватные реальным совместные тенденции (Рисунки 3-6).

Мы смоделировали матрицу $Z^{(t,\ell)}_{20,6}$, состоящую из 6 столбцов, где каждый ее j -ый столбец состоит из 24 значений изменчивостей j -ой z -переменной, $j=1, \dots, 6$ (Таблица 5). Здесь не будем анализировать, интерпретировать отдельные элементы выборки $Z^{(t,\ell)}_{20,6}$, их результаты будут опубликованы отдельно. Ограничимся моделированием изменчивости переменных из многомерного уравнения когнитивных смыслов переменных. Проведем анализ только z -изменчивости переменных, имеющих сильную степень ($\text{const}(j)=0.5, j=1, \dots, 6$), значений своих «весов». Выбор этого критерия связан с нашей возможностью придать смыслы z -переменным, влияющих на 1 доминирующую по величине дисперсию y -переменную.

Таблица 1

	человек	курица	слон	жираф	признаки «откупного права», уровень доходов, расходов, отсутствия конкуренции и т. д.				
движение					проявление признака...				
$S_{\text{шаг}}=(\text{м})$	600	60	500	750	100%	100%	100%	100%	100%
Длина шага(м)	0.6	0.1	0.5	1.5	1%	1%	1%	1%	1%
$Откл_{\text{шаг}}=1000(\text{ш})$	100	600	1000	500	1/100=0,01	1/100=0,01	1/100=0,01	1/100=0,01	1/100=0,01
$Откл_{\text{шаг}}=S_{\text{шаг}}^*$ (Длина шага)	600*0.1м	600ш*0.1м	1000*0.5	500*1.5	100%*1%=100%	100%*1%=100%	100%*1%=100%	100%*1%=100%	100%*1%=100%
Собственное отклонение	600м/(100*0.6м)=1	60м/(600*0.1м)=1	500/500=1	750/750=1	100%/100% %=1(1/%)	100%/100% %=1(1/%)	100%/100% %=1(1/%)	100%/100% %=1(1/%)	100%/100% %=1(1/%)
изменчивость собственного отклонения	- $3 < z_{ij} < 3$	z_{ij}	z_{ij}	z_{ij}	z_{ij}	z_{ij}	z_{ij}	z_{ij}	z_{ij}
Сумма изменчивостей	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$	$z_{1j} + \dots + z_{mj} = 0$

Когнитивная модель предпринимательской деятельности на основе откупного права

Введем обозначения. Смысл z -переменной z_1 , аддитивно входящей в валидную переменную (y -переменную) y_1 , обозначим так: $\text{смысл}(z_1|y_1)$. Заданный заранее смысл валидной j -ой переменной (y -переменной) y_j , $j=1, \dots, \ell$, обозначим *смысл* (y_j). Перечень смыслов *смысл* (y_j), $j=1, \dots, \ell$, приведен в столбце 2 Таблицы 2. «Веса» валидных переменных, вычисленных при реализации модели, приведены в столбце 1 Таблицы 2. Назначим довольно большую долю дисперсий для 1-ой валидной переменной $\lambda_1=5.5$,

а остальным – малые доли дисперсий $\Lambda_{nn} = \text{diag}(5.5, 0.3, 0.0500, 0.0500, 0.0500, 0.3204)$.

Решаем Оптимизационную Задачу вида:

«Веса» валидных переменных из матрицы $\Lambda_{nn}^+ = \text{diag}(\lambda_1^+, \dots, \lambda_n^+)$, согласованную с матрицей C_{nn}^+ с новыми значениями c_{kj}^+ , $j=1, \dots, \ell$, $k \in \{1, \dots, n\}$. Каждая матрица из новой пары матриц $(C_{nn}^+, \Lambda_{nn}^+)$ удовлетворяет требуемым равенствам из ПСЗ и ОСЗ: $C_{nn}^{+T} C_{nn}^+ = C_{nn}^+ C_{nn}^{+T} = I_{nn}$, $C_{nn}^+ \Lambda_{nn}^+ C_{nn}^{+T} = R_{nn}^+$, $\lambda_1^+ + \dots + \lambda_n^+ = n$, $c_j^+ \Lambda_{nn}^+ c_j^{+T} = 1$, $c_i^+ \Lambda_{nn}^+ c_j^{+T} = r_{ij}^+$, $r_{ij}^+ = r_{ji}^+$, $i=1, \dots, n$, $j=1, \dots, n$, C_{nn}^+ , где корреляционная матрица R_{nn}^+ имеет новую матрицу собственных векторов C_{nn}^+ и новые собственные числа $\Lambda_{nn}^+ = \text{diag}(\lambda_1^+, \dots, \lambda_n^+) = n$,

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$\lambda_1^+ + \dots + \lambda_n^+ = n$, $\lambda_1^+ \geq \dots \geq \lambda_n^+$. $\Lambda_{n \times n}^+ = \text{diag}(\lambda_1^+, \dots, \lambda_n^+) = \text{diag}(2.8700, \dots)$

Для матрицы $\Lambda_{n \times n}^+ = \text{diag}(\lambda_1^+, \dots, \lambda_n^+) = \text{diag}(2.8700, 1.1407, 0.6352, 0.3944, 0.4265, 0.5331)$ и пары матриц $(\Lambda_{66}^+, C_{66}^+)$ [3] продолжим когнитивный анализ присвоения имен к каждой из 4-х выделенных z-переменных. Формула валидной переменной равна $y_{i1} = z_{i1}c_{11} + \dots + z_{i4}c_{41}$, $y_{i2} = z_{i1}c_{12} + \dots + z_{i4}c_{42}$, $y_{i3} = z_{i1}c_{13} + \dots + z_{i4}c_{43}$, $y_{i4} = z_{i1}c_{14} + \dots + z_{i4}c_{44}$ $i=1, \dots, m$.

Подставим значения выделенных индикаторов из матрицы индикаторов C_{66} наличия извлекаемых знаний Таблица 2.

Многомерное уравнение 7 модельных переменных, пригодное для когнитивного моделирования смыслов 6 выделенных z-переменных: $y_1 = 0,7000z_1 + 0,5000z_2 + 0,6000z_3 + 0,7000z_4 + 0,8000z_5 + 0,8000z_6$, где y-переменная является линейной функцией от 6 z-переменных вида $y_1(z_1, z_2, z_3, z_4, z_5, z_6) = 0,7000z_1 + 0,5000z_2 + 0,6000z_3 + 0,7000z_4 + 0,8000z_5 + 0,8000z_6$.

Коэффициенты 0.7.0.5.0.6., 0.5.0.8.0.8 (постоянные параметры математической модели) при 6 z-переменных имеют заданные экспертом значения. Они математически интерпретируются и имеют когнитивные (познавательные) смыслы. Значения математических параметров равны парным коэффициентам корреляции: $\text{corr}(y_1, z_1) = 0,7000$, $\text{corr}(y_1, z_2) = 0,5000$, $\text{corr}(y_1, z_3) = 0,6000$, $\text{corr}(y_1, z_4) = 0,7000$, $\text{corr}(y_1, z_5) = 0,8000$, $\text{corr}(y_1, z_6) = 0,8000$. Эти значения отражают мнение эксперта о степени линейной связи между одной y-переменной и одной z-переменной.

Эти коэффициенты корреляции являются коэффициентами корреляции глубинного анализа данных, их значения равны компонентам 1-го собственного вектора $c^+_1 = (0.7000, 0.5000, 0.6000, 0.7000, 0.8000, 0.8000)$ из матрицы C_{66} собственных векторов, вычисленной для корреляционной матрицы

$R_{66} = (1/24)Z^T_{mn} \cdot Z_{mn} \cdot R_{66} C_{66} = C_{66} \Lambda_{66}$, $\Lambda_{66} = \text{diag}(\lambda_1, \dots, \lambda_6)$ - диагональная матрица собственных чисел. Решение ПСЗ $R_{66} C_{66} = C_{66} \Lambda_{66}$ позволяет найти 2 матрицы C_{66} , Λ_{66} (вместо одной матрицы R_{66} 1-го уровня) глубинного 2-го уровня. На 2-ом уровне анализируются 2 матрицы C_{66} и $\Lambda_{66} = \text{diag}(\lambda_1, \dots, \lambda_6)$.

Иначе говоря проводится декомпозиция матрицы 1-го уровня $R_{66} = C_{66} \Lambda_{66}$ C^T_{66} на произведение 3-х матриц. Схематически решение ПСЗ обозначается так: $R_{66} = \rightarrow (C_{66}, \Lambda_{66})$.

Коэффициенты корреляции 1-го уровня r_{12} , r_{13} , r_{14} , r_{15} , r_{16} являются параметрами перехода от изменчивости одной z-переменной (№1) к изменчивости другой z-переменной $z_{i1} = r_{12}z_{i2}$, $z_{i1} = r_{13}z_{i3}$, $z_{i1} = r_{14}z_{i4}$, $z_{i1} = r_{15}z_{i5}$, $z_{i1} = r_{16}z_{i6}$, $i=1, \dots, m$. Для 1-го уровня анализа требуется анализ изменчивостей вида: $r_{ij} = \text{corr}(z_i, z_j)$, параметры вида $c_{ij} = \text{corr}(z_i, y_j)$ и одна дисперсия вида

$\lambda_j = \text{corr}(y_1, y_1) = 2.07115$. дисперсии остальных 5 y-переменных не рассматриваем, так как в решаемой нами Обратной Смысловой Задаче исходными объектами решаемой Обратной Задачи являются один смысл валидной переменной y_1 и 6 смыслов 6 z-переменных.

Модельные значения изменчивостей «измеряемых» коррелированных переменных $z_1, z_2, z_3, z_4, z_5, z_6$, не коррелированной переменной «предпринимательская деятельность на основе откупного права» (y_1).

Математическое решение этого когнитивного смыслового уравнения имеет неединственное решение Z_{mn} , приведенное в Таблице 6 (столбец 5).

Ниже покажем как для одного когнитивного смыслового равенства математически моделируются значения 6*m изменчивостей 6 неизвестных z-переменных (с 6 известными смыслами).

При наличии присвоенных имен и смыслов изменчивостям z-переменных решаем ОЗ вычисления пары матриц $(\Lambda_{66}^+, C_{66}^+)$. Это - решение Оптимизационной Задачи, оно является важным инструментом трансформации многомерного смыслового уравнения в матрицы числовых значений изменчивостей переменных.

Происходит цифровизация значений изменчивостей 6 коррелированных переменных, сумма 6 смыслов которых когнитивно равна заданному смыслу одной валидной переменной. Где есть изменчивость, там имеется знание. Оно может быть полезным или без полезным. Если есть изменчивости существенных переменных, то имеются и скрытые полезные знания. Необходимо применить метод извлечения скрытых знаний, делая глубинный анализ данных. Здесь мы получаем решение ОСЗ в виде матриц «объект-свойства», которые можно подвергнуть обработке для извлечения скрытых знаний, изложенных в статьях [3-7].

Если изменчивость «степени проявления «откупного права» при капитализме №3» (z_6) увеличится на 1, то изменчивость переменной y_1 (смысл валидной переменной «предпринимательская деятельность на основе откупного права») увеличится на 0.8. при условии, если изменчивости остальных переменных не изменились. На такую же величину увеличится значение изменчивости валидной переменной y_1 , если увеличится на 1 значение изменчивости переменной z_5 . Наименее влияет на y_1 z-переменная «большая степень централизации» (z_2).

Мы реализовали процесс, обратный процессу трансформации неопределенной системы равенств в систему сумм когнитивных смыслов изменчивостей показателей индивидуального сознания.

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Таблица 2. Модельная матрица C_{66} – решение
 ОЗ: $\Lambda_{66}=\text{diag}(5.5,0.3, 0.05, 0.05, 0.05, 0.5908) \Rightarrow (C_{66}, R_{66})$

	1	2	3	4	5	6	
с1.	0,2406	0,3131	0,3489	0,3816	0,3758	0,6600	1,0000
с1.	0,1052	-0,3033	-0,2499	0,6854	-0,5792	0,1711	1,0000
с1.	0,2421	-0,1504	-0,6522	0,2401	0,6369	-0,1736	1,0000
с1.	0,3765	-0,5304	-0,1344	-0,5269	-0,0639	0,5264	1,0000
с1.	0,4051	0,7010	-0,4308	-0,2073	-0,3355	0,0584	1,0000
с1.	0,7527	-0,1213	0,4322	0,0801	-0,0315	-0,4738	1,0000
	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	
	5,5	0,3	0,0500	0,0500	0,0500	0,3204	6,0000

Таблица 3. Модельная матрица C_{66}^+ с 6 выделенными индикаторами в ее 1-ом столбце, полученная при решении ОЗ: $\Lambda_{66}=\text{diag}(5.5,0.3, 0.05, 0.05, 0.05, 0.5908) \Rightarrow (C_{66}^+ \Lambda_{66}^+)$, $\Lambda_{66}^+=\text{diag}=(2.07115,1.71117,0.63519,0.39443,0.42655,0.53313)$

с1.	0,7000	0,0000	0,2916	0,4079	0,3140	-0,4000	1,0000
с1.	0,5000	0,8660	0,0000	0,0000	0,0000	0,0000	1,0000
с1.	0,6000	0,0000	-0,5514	0,1981	0,5255	-0,1433	1,0000
с1.	0,7000	-0,4085	-0,1050	-0,4062	-0,0492	0,4058	1,0000
с1.	0,8000	0,4600	-0,2827	-0,1360	-0,2203	0,0383	1,0000
с1.	0,8000	-0,1105	0,3939	0,0730	-0,0287	-0,4318	1,0000
	2,8700	1,1407	0,6352	0,3944	0,4265	0,5331	
	5,5	0,3	0,0500	0,0500	0,0500	0,3204	6,0000

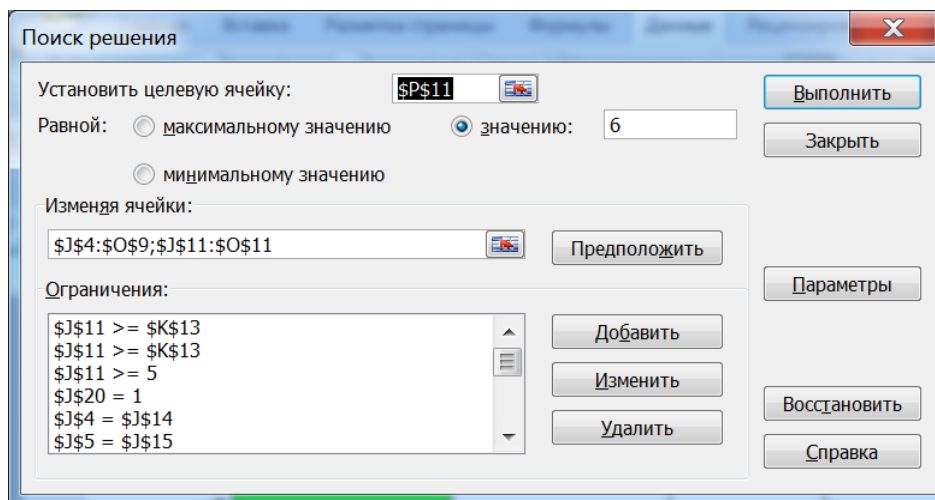


Рисунок 1

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Параметры поиска решения

Максимальное время: секунд

Предельное число итераций:

Относительная погрешность:

Допустимое отклонение: %

Сходимость:

Линейная модель Автоматическое масштабирование

Неотрицательные значения Показывать результаты итераций

Оценки: линейная квадратичная

Разности: прямые центральные

Метод поиска: Ньютона сопряженных градиентов

Buttons: OK, Отмена, Загрузить модель..., Сохранить модель..., Справка

Рисунок 2

Таблица 4. Матрица $Y_{24,6}$ значений y -изменчивостей

	y 1	y 2	y 3	y 4	y 5	y 6
1	-3,8890	-0,0307	-0,1344	0,4010	0,4769	0,0411
2	0,1423	0,7281	-0,0755	1,2213	0,3103	-1,1757
3	3,0473	-0,4109	-0,5507	0,4000	0,8874	0,0536
4	0,2631	-0,2333	-0,1783	-0,3010	0,8206	1,3345
5	-1,0102	-1,2602	2,0904	0,3001	-0,1893	-0,3854
6	1,3966	0,5261	0,2174	0,4235	-1,0160	0,8257
7	-1,4181	0,3980	0,7663	-0,4631	-0,9645	-0,2619
8	-3,0317	-0,7083	-1,5968	0,5273	-0,3996	-0,3391
9	0,6323	-0,0304	0,6336	0,5026	0,7158	0,4186
10	0,7989	-0,3348	-0,5784	0,1334	-0,6983	0,1670
11	-0,4545	3,5238	0,6081	0,6882	-0,2631	0,0914
12	1,3941	-1,1574	1,3157	0,2724	0,4948	0,3589
13	0,0468	-3,1123	0,3408	0,2705	-0,0553	-0,2890
14	1,1362	1,3037	-0,5889	-0,6046	0,8083	-1,1067
15	-0,8290	-1,4310	-0,8998	-0,1236	1,0585	0,2544
16	0,0030	1,6970	0,3321	-1,5907	0,5568	-0,9697
17	1,3669	0,4446	-1,2286	0,7833	-0,7807	0,2615
18	0,4447	1,4722	0,1972	0,5629	0,1910	-0,4166
19	-0,7410	-0,2314	-0,4024	-0,6822	0,2717	1,0211
20	-0,2081	-1,1560	0,1018	-0,3000	0,1461	-0,7757
21	-0,9946	1,6229	-0,2362	-0,4691	0,1025	1,1371
22	1,4209	-1,0175	-0,9487	-0,7360	-1,0639	-1,0400
23	0,4452	-0,2879	0,1805	-0,6845	-0,7954	1,2289
24	0,0381	-0,3143	0,6345	-0,5317	-0,6145	-0,4343
	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
	2,07115	1,71117	0,63519	0,39443	0,42655	0,53313

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Таблица 5. Матрица Z_{24,6} значений z-изменчивостей

y 1	z 1	z 2	z 3	z 4	z 5	z 6	y 1	№
-3,88901	-2,4646	-1,9711	-1,9351	-2,8653	-3,2453	-3,1629	-3,88901261	2
-0,45448	0,02071	2,82448	-0,623	-2,0511	1,05327	-0,4951	-0,45448329	1
-3,03171	-2,3625	-2,1293	-0,9955	-1,9973	-2,2965	-2,7797	-3,0317115	11
0,142319	1,14352	0,70166	0,70042	-1,1783	0,19058	0,59164	0,14231889	8
-1,41812	-1,1563	-0,3643	-1,8345	-1,1065	-0,9027	-0,7697	-1,41812313	18
0,444726	0,82502	1,49728	0,42966	-0,7179	0,84263	0,4863	0,44472586	5
-0,99458	-1,3791	0,90816	-0,6685	-0,6874	0,10241	-1,5963	-0,99458155	7
-1,01017	0,11952	-1,5964	-1,7436	-0,6808	-1,9927	0,34835	-1,01016754	14
0,003023	0,01282	1,47114	-0,0649	-0,5009	0,74568	0,23231	0,00302264	20
1,136223	1,07352	1,69715	1,47001	0,08128	1,53698	0,94347	1,13622261	16
-0,20813	0,11779	-1,1052	-0,0526	0,11575	-0,7482	0,31022	-0,20812974	9
0,03808	-0,0244	-0,2531	-0,6931	0,15833	-0,1025	0,48151	0,03807989	24
-0,82898	-0,6624	-1,6537	0,49411	0,20019	-1,2736	-1,0088	-0,82897866	13
-0,741	-1,2375	-0,5709	-0,3613	0,29622	-0,5134	-1,2243	-0,74100348	17
0,632305	0,88968	0,28981	0,44579	0,31904	0,10275	0,59418	0,63230455	15
1,366875	0,56833	1,06847	1,20504	0,73062	1,72079	0,52704	1,36687503	21
0,798857	0,1589	0,10953	0,43375	0,80464	0,79067	0,4059	0,79885727	10
0,263091	-0,2667	-0,0705	0,43661	0,92164	0,0649	-0,4557	0,26309085	12
1,396593	0,56444	1,15392	0,14972	0,9529	1,49562	0,84834	1,39659346	22
0,046797	0,3407	-2,6719	-0,0939	1,044	-1,5262	0,66173	0,04679681	6
0,445186	-0,6563	-0,0267	-0,562	1,22615	0,48807	-0,0988	0,44518638	3
1,394075	1,48242	-0,3053	0,37352	1,32118	0,07859	1,61219	1,39407495	19
1,420872	0,49968	-0,1708	0,81971	1,43917	1,23146	1,30126	1,42087191	4
3,047254	2,39289	1,16779	2,66992	2,17439	2,1567	2,24689	3,04725431	23
3,5E-06	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	3,4959E-06	
2,071148	3,5786	1,80116	3,64752	3,0785	2,31595	3,01445	2,07114752	

Анализ динамик изменчивости одной валидной и 6 «измеряемых» показателей откупного права при капитализме №3

Сделаем ряд визуализаций динамик и их анализ значений в соответствии с их смыслами. Рассмотрим тенденции роста и падения значений показателей. Нам важно знать какой тренд наблюдается у показателей, если, например, в мы в наших данных наблюдаем рост изменчивости переменной №4 («темпы увеличения национального дохода и богатства при капитализме №3») у, например, при 24 моментах времени. Какая тенденция – роста или падения, мы видим в наших данных? Динамики изменений изменчивости одной валидной (y1) и 6 «измеряемых» показателей откупного права при капитализме №3 отражены в Таблицах 2,3,4, на Рисунках 1,2,3,4,5. Кривые из Рисунков 3,4,5,6 построены для переставленных строк матриц из Таблиц 4,5. Перестановки строк произведены в

соответствии с возрастанием значений z₄ изменчивости переменной №4. Возрастание значений z₄ изменчивости переменной №4 видно из кривых на Рисунке 5. Кривые на Рисунках 3-6 соответствуют указанной перестановке строк матриц Z_{24,6}, Y_{24,6}.

На Рисунке 3 показана тесная зависимость изменчивости предпринимательской деятельности (y1) от изменчивости степени проявления «откупного права» (z6). На Рисунке 6 показана тесная зависимость изменчивости предпринимательской деятельности (y1) от изменчивости уровня отсутствия конкуренции (z1).

На Рисунке 4 показана зависимость изменчивости предпринимательской деятельности (y1) от изменчивости проявлений 3-х показателей: отсутствия конкуренции (z1), централизации (z2), вседозволенности (z3). Рисунок 5 содержит 5 кривых взаимосвязей изменчивости предпринимательской

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деятельности (y_1) от изменчивости 3-х показателей: «откупного права» (z_6), доходов (z_4), расходов (z_5) присущих индивидам, занимающихся «предпринимательской деятельностью на основе откупного права» при капитализме №3.

Мы знаем названия единиц изменения (шага) изменчивостей валидного показателя индивидуального сознания - проценты, единиц измерения (проценты) «измеряемых» показателей, получаемых линейным

преобразованием значений z -переменных $z_1, z_2, z_3, z_4, z_5, z_6$. Исследование этого проведено в [2-3]. Целью нашего моделирования является выявление трендов изменчивостей $\{z_{i1}, z_{i2}, z_{i3}, z_{i4}, z_{i5}, z_{i6}\}$, $i=1, \dots, m$, «измеряемых» (модели руемых) показателей $z_1, z_2, z_3, z_4, z_5, z_6$, соответствующих нашим моделируемым z -переменным, показателям индивидуального сознания индивидов, занимающихся «предпринимательской деятельностью на основе откупного права» при капитализме №3.

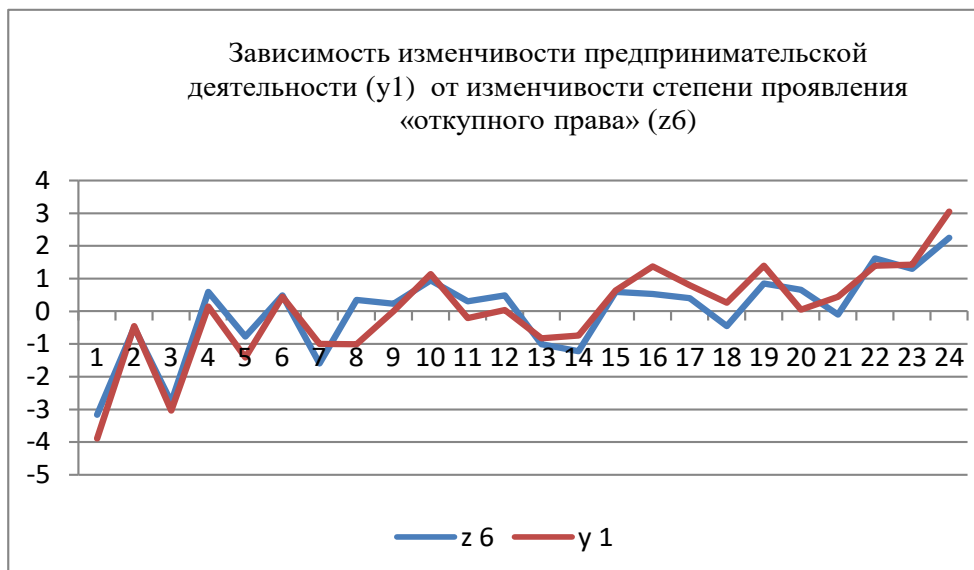


Рисунок 3

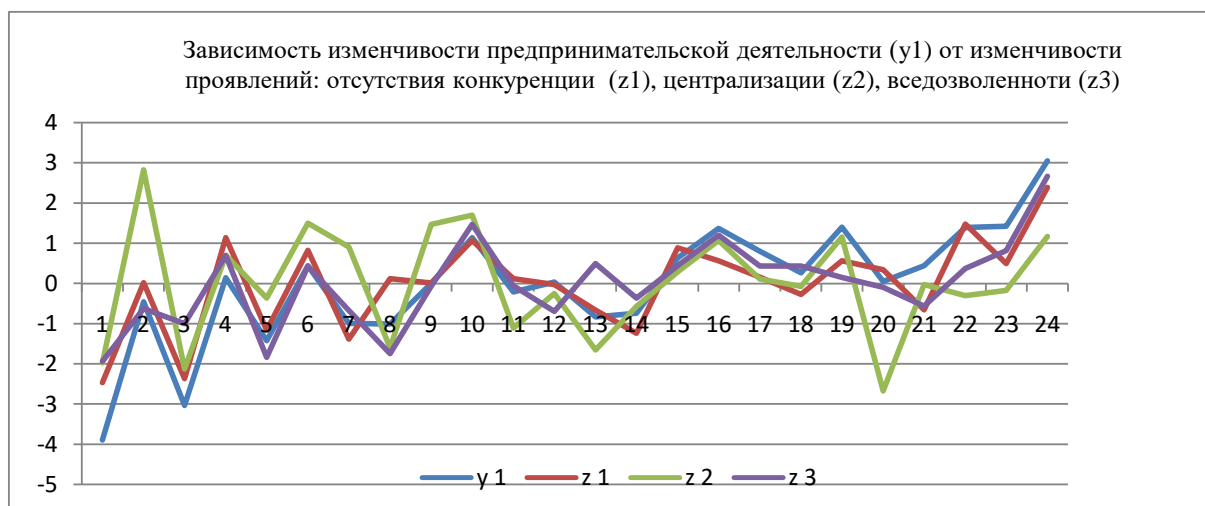


Рисунок 4

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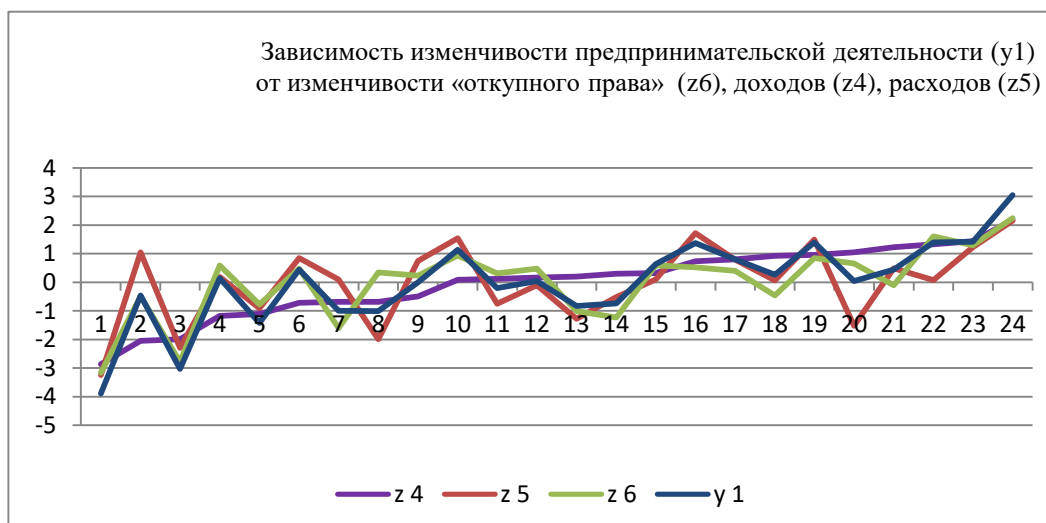


Рисунок 5



Рисунок 6

Заключение

Наша цель состояла в том, чтобы показать возможности применения способа описания ситуаций «показатель–наименование–значение–единица измерения», когнитивного моделирования взаимосвязей между измеряемыми показателями индивида и скрытыми неизмеряемыми независимыми факторами воздействия на индивиды разработать модель и получить экспертным путем, руководствуясь только цифровыми фактами.

Разработано многомерное уравнение, содержащее 7 смысловых переменных. Уравнение содержит в правой части заданный смысл валидной изменчивости, а в левой части - сумму смыслов 6 z-изменчивостей. Суть 6 смыслов

соответствует расположению индикаторов присутствия знаний в первом столбце матриц C^{+66} и $C^{(0)66}$.

Визуализации трендов динамик изменчивостей валидных и изменчивостей «измеряемых» показателей индивидуального сознания и анализа их показывают адекватности реальным тенденциям изменчивостей показателей индивидуального сознания.

Мы в наших данных наблюдаем рост изменчивости переменной №4 («темпы увеличения национального дохода и богатства при капитализме №3») у, например, 24 индивидов. Какая тенденция – роста или падения, мы видим в наших данных? Динамики изменений изменчивости одной валидной (y_1) и 6

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«измеряемых» показателей откупного права при капитализме №3 отражены в Таблицах 2,3,4, на Рисунках 3,4,5,6. Кривые из Рисунков 3,4,5,6 построены для переставленных строк матриц из Таблицах 4,5. Перестановки строк произведены в соответствии с возрастанием значений z_{i4} изменчивости переменной №4. Возрастание значений z_{i4} изменчивости переменной №4 видно из кривых на Рисунке 5. Кривые на Рисунках 3-6 соответствуют указанной перестановке строк матриц $Z_{24,6}, Y_{24,6}$.

На Рисунке 1 показана тесная зависимость изменчивости предпринимательской деятельности (y_1) от изменчивости степени проявления «откупного права» (z_6). На Рисунке 6 показана тесная зависимость изменчивости предпринимательской деятельности (y_1) от изменчивости уровня отсутствия конкуренции (z_1).

На Рисунке 4 показана зависимость изменчивости предпринимательской деятельности (y_1) от изменчивости проявлений 3-х показателей: отсутствия конкуренции (z_1), централизации (z_2), вседозволенности (z_3). Рисунок 5 содержит 5 кривых взаимосвязей изменчивости

предпринимательской деятельности (y_1) от изменчивости 3-х показателей: «откупного права» (z_6), доходов (z_4), расходов (z_5) присущих индивидам, занимающихся «предпринимательской деятельностью на основе откупного права» при капитализме №3.

Назначенные когнитивно смыслы изменчивостей заметных показателей сознания достаточно тесно связаны с изменчивостью валидного фактора. Разработанная математическая модель цифровизации показателей предпринимательской деятельности на основе откупного права правдоподобно выявляет части элементов языка описания ситуаций «показатель-наименование-значение-единицаизмерения». Когнитивный анализ и когнитивное моделирование продемонстрировали эффективность применения Обратной Модели Главных Компонент [10].

Иллюстративный пример по приданию названий-смыслов 6 коррелированным показателям предпринимательской деятельности на основе откупного права при заданном факторе откупного права (y_1) служат обоснованием дальнейших исследований.

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THE PROCESS OF INTEREST RATE LIBERALIZATION IN CHINA: EVOLUTION, CURRENT SITUATION AND TREND

Abstract: With the development of China's economic system and economic management level, the important role of the market in the allocation of resources has been gradually established in China. Reform and vicissitudes have also been experienced many times in China's interest rate management system. Interest rates from the characteristics of the strict control has been gradually transformed into certain characteristic of the market. At the same time, there are market risks in the process of interest rate liberalization reform, and the accumulation of risks should be reasonably controlled to further deepen the reform process. Starting from the process of interest rate liberalization reform, this paper focuses on the analysis of the current situation of interest rate liberalization, analyzes the problems existed in open market interest rates, and finally looks forward to the further development of interest rate liberalization reform.

Key words: interest rate liberalization, system evolution, development trend.

Language: English

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Introduction

Interest rate marketization refers to all kinds of financial transactions subject for different money transactions, reduce government money transactions by administrative interference effects, thus forming a determined by market supply and demand of different period, different risk characteristics of the price of money, on the basis of the central bank's benchmark interest rate, the mediation of short-term financial market interest rate market interest rate system and according to the market demand determine financial

organ's interest rate formation mechanism in the process of the loan interest rate. In the process of China's current reform and opening up, China's interest rate liberalization has adopted a gradual reform approach. The marketization of interest rate gives full play to the market function, improves the efficiency of capital allocation, and thus contributes to the improvement of the real economy and the economic efficiency of the use of financial capital. Studies by relevant scholars show that interest rate liberalization has positive significance for economic

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growth (Li P, Feng M., 2016) and is conducive to weakening credit discrimination (Ma G, Yu W., 2016). In recent years, with the gradual liberalization of the upper and lower limits of loan interest rates, the marketization of loan interest rates plays an important role in alleviating the financing constraints of SMEs (Wang D, Zhang X., 2007). At the same time, the interest rate liberalization reform process can reduce the debt financing cost of listed companies (Zhang, W., et al., 2018).

Since the founding of new China, China has experienced a huge change from restraining finance to interest rate liberalization. China has basically completed the market in the form of interest rates. However, the "dual track system" is still an obvious feature of China's interest rate system, and the restricted interest rate within the banking system coexists with the market interest rate outside the banking system.

Interest rate liberalization is the core part of China's financial system reform. In order to deeply understand the current goal of China's financial system reform, we must review and reflect on the formation process of China's interest rate liberalization and explore the development direction of China's interest rate liberalization. Therefore, this study first summarizes the current situation of China's interest rate liberalization, then starts from the evolution process of China's interest rate liberalization, reflects on the advantages and disadvantages of China's interest rate liberalization, and finally summarizes the development path of China's interest rate liberalization reform.

II. Interest rate marketization in our country present situation analysis

According to the financial development and reform the 12th five-year plan "in" more open and get into shape, won the "principle of market-oriented interest rate reform, in July 2013 and October 2015 in our country were decontrolled loan interest rate and deposit rate limit, has realized the deposit and lending rates" more open "milestones, to adapt to the marketization of interest rate formation and the establishment of the regulatory mechanism as the core of deepening the reform of the new stage. Since October 2015, China's benchmark deposit and lending rates have not been adjusted. Considering the monetary control measures and the interest rate pricing power of financial institutions, the People's Bank of China announced that the benchmark deposit and lending rates will be a transitional arrangement and intends to cancel them when conditions are ripe. For a long time, the bank deposit and lending pricing is mainly decided by the lending and deposit rates, according to the lending and deposit rates to carry out the internal interest rate management (internal funds transfer pricing, FTP), the market interest rate pricing mechanism and self-discipline macro-prudential

policy evaluation (MPA), and other interest rate management also mainly depends on benchmark deposit and lending interest rates, and interest rates still is our country at present are applicable facts (Xu, Z., et al., 2018). In recent years, China has continuously lowered the RRR, increased open market operations and liquidity supply, and reduced the level of interest rates in the financial market, but the impact of market interest rates on loan rates is relatively limited. Since 2018, the risk-free interest rate in China's financial market has dropped significantly, but the real economy has not really felt the reduction of loan costs. The trend of the two has diverged for many times, and the loan interest rate is "easy to rise but hard to fall", which weakens the counter-cyclical regulation effect of monetary policy. The efficiency of monetary policy transmission mechanism is limited because of the dual interest rate system, and the policy transmission chain of interest rate to the real economy is hindered. How to make the loan base interest rate more sensitive to the macro economy, market liquidity and risk situation is the most urgent practical problem at present, that is, to improve the effect of interest rate liberalization. Therefore, while reforming the LPR system directly, the central bank chose to set a new price setting benchmark based on the interest of loans at the same time, all in order to solve this problem. Such a benchmark interest rate would not only be in line with the overall situation of the financial market, but also better communicate the monetary policy intentions of the central bank. (Xiang W, Yan B., 2020). Since 2019, China has taken an important step in unblocking the transmission mechanism of monetary policy and deepening the reform of interest rate liberalization with the LPR reform as the breakthrough point. Now, although the upper and lower limits of China's lending interest rates have been opened, the central bank still maintains the benchmark interest rates of deposits and loans as one of the means of monetary policy. The marketization of interest rates includes not only the liberalization of lending rates, but also the development of necessary financial infrastructure such as gradual transition to price monetary control, adjustment of interest rate transmission mechanism, establishment of deposit insurance system, and interest rate risk management tools. Therefore, China has formed a complex multiple interest rate mechanism system, a macro-economic environment is extremely sensitive, complete market bond market and short-term lending market interest rate, a theoretical completely flexible commercial bank interest rate and a bank also control the benchmark interest rate of monetary policy standby tool. Therefore, how to effectively solve the problem of interest rate marketization is an important subject of promoting the reform of China's financial system and accelerating the development of the socialist market economy with Chinese characteristics.

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III. Evolution process of interest rate marketization in our country

China's interest rate liberalization reform has a profound historical background and institutional roots. There is no special legislation on interest rate liberalization in China, but relevant laws and policies have regulated and adjusted it. These laws and policies are timely adjusted according to the state's control of interest rate liberalization. China's gradual establishment of the important role of the market in resource allocation and the shift of macroeconomic regulation from direct to mainly indirect means are in response to the country's political and economic development. China's interest rate management system has also gone through many reforms and changes, and the interest rate that was under strict control has gradually changed into the interest rate that has begun to take on market-oriented characteristics. The continuously innovative interest rate marketization in China began in 1996 with the unified establishment of the interbank lending market. In China, the reform of interest rate marketization, which has gone through 25 years and made great progress, is advancing steadily. In the financial market, such as the bond market and the money market, the interest rate is almost market-oriented. However, the interest rate of the pre-loan market as the most important financial area of the field marketization has not yet been realized. It can be divided into three stages according to the reform of China's interest rate management system.

Stage 1 (1979-1992): The embryonic stage of interest rate liberalization

The issue of reform of the interest rate system was raised immediately after the implementation of the reform and opening up policy in the late 1970s. In order to improve the efficiency and economy of capital, it is necessary to use the interest lever to raise the level of interest rate to solve the problem. Raising bank deposit rates is the first step, followed by raising bank lending rates. Later, in the reform of the financial system, various financial institutions demanded higher interest rates in order to expand financing and improve the efficiency of loans. With the continuous advancement of China's market economy construction, the emergence of more and more serious incongruity in other economic variables, is due to the highly concentrated interest rate restrictions and price level changes and the flexible change of market laws. Since the reform and opening up, there has been an "illegal" interest rate that avoids restrictions. Therefore, it is necessary to carry out interest marketization according to the free management interest system. In 1983, according to the notice of the State Council approving the report of the People's Bank of China on the transfer of the working capital of state-owned enterprises to the unified management of the People's Bank of China, the People's Bank of China decided to grant the right to fluctuate the

interest of 20% from the top to the bottom of the People's Bank according to the benchmark lending rate. The Provisional Regulations of the People's Republic of China on the Management of Banks issued by the State Council in 1986 stipulated that the short-term loans and interest rates of funds were decided by the lenders in order to enable specialized banks to lend funds to each other. Since then, the national interbank lending business has been launched. In 1990, the Interim Measures for the Administration of Interbank Lending was issued, and the first rule for the systematic use of the interbank lending market was formulated. This regulation stipulated the management principle of the upper limit of interbank lending rates. In 1991, this kind of underwriting issue with market factors has been adopted by the issuance of national debt.

Stage 2 (1993-2011): Steady Advancement Stage of Interest Rate Liberalization

In 1993, the 14th National Congress of the Communist Party of China put forward the basic conception of interest rate marketization reform. Based on the supply and demand relationship of market funds, the central bank's benchmark interest rate was put forward as the control center. Various interest rate levels were determined according to the supply and demand of market funds, and the market interest rate system built the market interest rate management system. In 1996, the central bank established the national unified interbank lending exchange, which formed the interbank lending exchange, thus the formal reform of interest rate liberalization was launched. In the same year, the interest rate ceiling of interbank lending was opened by the People's Bank of China, which became the breakthrough point of interest rate liberalization reform. The condition for interest rate reform was the opening up of interest rates in the interbank market. The Ministry of Finance realized the marketization of national debt through the market platform of the stock exchange, and the interest rate of China's bond issuance began to be marketized. The repurchase rate on interbank bonds was liberalized in 1997. In 1998. Discount and rediscount rates and the cash rate were liberalized. The mechanism of the discount rate is based on the reform of the People's Bank of China on the rediscount rate and the discount rate. The monetary policy is aimed at the necessary rediscount rate, which is formed by the central bank as an independent monetary policy tool. In 2000, China liberalized interest rates on foreign exchange loans and large foreign exchange deposits of more than \$3 million (including \$3 million). The interest rates on small foreign exchange deposits of less than US \$3 million are under the unified management of the People's Bank of China. In 2003, the general idea of China's interest rate liberalization reform was elaborated by the People's Bank of China in the 2002 China's Monetary Policy Implementation Report.

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First borrow foreign currency, then borrow RMB, save money. First, long term, large, then short term, small. The goal of China's market reform is that in the market interest rate, if the deposit of financial institutions is not endowed with the interest rate formation mechanism to determine the level of loan interest rate, the central bank monetary policy means to control the market interest rate and guide the market mechanism is the main position in the allocation of financial resources. In 2004, financial institutions fully lifted the ceiling on RMB lending rates. The People's Bank of China has twice expanded the range of interest rates on loans offered by financial institutions. On the basis of this, the system, which was based on the nature and scale of enterprise ownership, was abolished. We will expand the power of commercial banks to set prices independently, and make lending rates more market-based. The maximum range of interest rates on corporate loans will be raised to 70%, and the maximum range of interest rates on corporate loans will be kept at 10%. In the same year, a ceiling on lending interest rates of financial institutions (except urban and rural credit cooperatives) and a floor on deposit interest rates were opened. These important measures have epoch-making significance in the process of China's interest rate liberalization, which signify that China's interest rate liberalization has successfully achieved the phased goals of "the lower limit of loan interest rate and the upper limit of deposit interest rate". In 2006, the interest rate of commercial individual housing loan increased to 0.85 times of the benchmark interest rate. In 2007, the Shanghai Interbank Offered Rate (SHIBOR) was officially launched, which was helpful to the increase of the basic interest rate in the money market of financial institutions, the improvement of the monetary policy transmission mechanism, and the cultivation of independent pricing ability. Interest rates in the interbank bond market, including non-financial corporate debt financing vehicles, were liberalized in 2008.

Stage 3 (2012-present): Accelerating phase of interest rate liberalization

Interest rates were further widened by the central bank in 2012. 1.1 times of the benchmark interest rate is the floating range of deposit interest rate adjusted, and 0.8 times of the benchmark interest rate is the lower limit of the adjusted range of loan interest. In addition, the floor for the range of changes in lending rates has thus been adjusted to 0.7 times the benchmark rate. In order to further promote China's interest rate liberalization reform, the financing interest rate limit of financial institutions was fully opened in 2013. The lower limit of 0.7 times of the financing interest rate of financial institutions was abolished, and financial institutions independently decided the financing interest rate according to commercial principles. In addition, the limited discount rate on bills was abolished, and the old

method of determining the discount interest rate by the discount interest rate was changed, leaving financial institutions to decide on their own. In 2015, the People's Bank of China formulated the Interim Measures for the Administration of Large Certificates of Deposit in order to standardize the development of the business of large quantities of transferable certificates of deposit, which came into force as of the date of promulgation. At present, only the interest deposit interest rate of RMB is still in a semi-restricted state, that is, the deposit interest rate of financial institutions can replace the financial commodities in each period of the deposit, which means that there is a 1.5 times upper limit. Because the certificates of deposit can be transferred, they are more flexible than the deposit and financial management. In the same period, the People's Bank of China decided not to set an upper limit on deposit interest rates for commercial banks and rural cooperative financial institutions, and was eager to improve the market-oriented formation of interest rates and the adjustment mechanism. The initial realization of deposit interest rate marketization in China comes from the implementation of price setting for various financial commodities according to market subjects through independent negotiation. The lifting of deposit interest rate ceiling in 2015 marked the realization of interest rate marketization in the sense of policy in China, and promoted the transformation of monetary policy regulation from "quantitative" to "price" into a new stage. (Li W., 2019) The focus of interest rate liberalization, starting from the stage when supervisory organs independently abolished interest rate restrictions, gradually shifted to the stage when market subjects participated in the formation of market benchmark interest rate and interest rate structure (Deng H., 2013). The wholesale business interest rate between financial institutions has also been gradually liberalized, the interest rate range managed by the People's Bank of China has been increasingly narrowed, and the types of interest rate management have been gradually reduced, the corresponding structure of interest rate management term has been continuously simplified, and the interest rate with a market-oriented degree has been continuously improved. At the Boao Forum for Asia 2018, Yi Gang, governor of the People's Bank of China, stressed that China still has a "dual-track system" of interest rates. Interest rate integration is of great significance to the improvement of China's financial market mechanism and the optimization of monetary transmission mechanism. Although China is still in the transition stage of interest rate liberalization, great progress has been made in the reform of interest rate liberalization. The following figure shows the process of interest rate liberalization in the past 25 years (data from Wind, research department of CITIC Securities)

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IV. The current interest rate marketization in China is facing a problem

Although it has been continuously promoted over the years, the interest rate problem in China's interest rate liberalization reform has not been solved, and the reform has entered the "attack and defense" stage. Whether from the point of view of improving the effectiveness of monetary policy or deepening financial reform, it is necessary to communicate the way of interest rate transmission through deepening reform, and reduce the loan interest rate by setting the loan interest rate as "two tracks in one track" (Yi, X., 2020).

First, we will energize the real economy. Since 2019, the downward pressure on the world economy has intensified, and developed countries such as the US and Europe have shifted their financial policies towards easing. China's major macroeconomic indicators have remained within a reasonable range, but due to the impact of China-US trade frictions, domestic industrial restructuring and other factors, China is facing new risks and challenges, and the domestic economy is under increasing downward pressure. The epidemic of Covid-19 has dealt a huge blow to the production and operation of some industries, especially small and medium-sized enterprises, making their operation difficulties more serious. In this context, seize the time window financing rates "joining together of two rail track", timely and useful, timely help effect of monetary policy of credit market transmitting monetary policy, so as to make the enterprise's actual interest rates decline, financial support efforts to enhance and strengthen the micro main body activity, accelerate the enterprise production, COVID - 19 outbreak of the war victory, provides support for the real economy energy recovery.

Second, the stagnation of interest rate transmission impedes the effect of policy. Before the market price is (LPR) reform of interest rate loans, loans benchmark interest rate is the main reference pricing when bank financing, especially some Banks through certain times of the benchmark lending interest rate (0.9 times) cooperative behavior, set the loan interest rate lower limit of negative, hindered the adjustment of market interest rates, disadvantage in market interest rates overall downward phase lower lending rates. If the traditional method is used to directly reduce the financing benchmark interest rate and send out strong policy adjustment signals, the risk of real estate bubble may arise, and a new potential lower limit may be formed again. The effective transmission of market interest rate will be blocked.

Third, the key to deepening the reform of interest rate liberalization is to promote the revision of the financing rate track. Bank credit monetary system refers to the system that banks create deposit money by expanding loans and other assets. The direct restriction of bank money creation is loan demand,

and the main reason for determining deposit interest rate is loan interest rate. With the advance of the marketization of loan interest rate, the central bank can change the loan interest rate by adjusting the policy interest rate, which affects the loan demand, and then affects the deposit interest rate. Eventually, both the deposit interest rate and the loan interest rate will be marketized. Therefore, the loan interest rate is the key to "affect the whole body". In order to promote the marketization of loan interest rate, the first step to solve the "double track" problem of loan interest rate is to establish and use a more marketable loan price to set the benchmark, and then gradually reduce the loan benchmark interest rate. Therefore, it is a scientific way to promote interest rate marketization to focus on loan interest rate and deposit interest rate and supplement the reform of LPR formation mechanism (Du R, Sun T., 2020).

V. The trend of interest rate liberalization in China

The reform of interest rate liberalization is not a simple interest rate issue. It is closely related to the development degree of financial market, domestic and international macroeconomic environment, financial supervision system and other factors. Further market-oriented interest rate reform, which is beneficial to further adjust the capital market and goods market operation supporting facilities, city field at the same time, improve the marketization operation laws and regulations, establish a financial market system, and let go of foreign currency interest rates on the market and the relaxation of the capital flow management reform process such as matching, thus effectively guard against and defuse financial risks and maintain financial stability, promote the healthy development of the economy.

First, we should constantly improve the interest rate transmission mechanism. The long-term goal of China's interest rate liberalization reform is to strengthen the construction of the benchmark interest rate system in the financial market. The central problem is that deposit and loan interest rates cannot be effectively guided by financial market interest rates and open market operation rates. First of all, the target interest rate of the central bank should be established and the target interest rate of the central bank should be determined at the same time. Secondly, through accelerating the establishment of the benchmark interest rate system in the financial market, a variety of market interest rate systems and interest rate formation mechanisms have been formed. This institution is based on the benchmark interest rate of the central bank and takes the market interest rate as the intermediary to determine the pre-loan interest rate of the financial structure according to the market supply and demand.

Second, the reform of interest rate liberalization should be steadily promoted. In order to

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comprehensively and carefully consider the impact of interest policies on the financial market at various stages, it is the first step to promote the marketization of financing rate. The main method to promote the marketization of loan interest rate is to relax the lower limit of loan interest rate and simplify the grade of loan interest rate (Li Y., 2012). The second step is a gradual liberalization of deposit interest rates. In order to avoid the rise of interest rate, the decline of real interest rate and the increase of deposit margin, the deposit interest rate must be marketized.

Third, the financial supervision system should be fully and effectively established. A series of policy conditions provide the basis for the smooth implementation of interest rate rules. The effective supervision of interest rate financial system is to better realize the regulation of interest rate rules. To realize the in-depth promotion of interest rate liberalization, it is necessary to strengthen the proportion of interest rate pricing and relax the control of interest rate. But this does not represent a relaxation of interest rate management. Maintain market stability, need to establish and perfect harmonious economy. But the conventional approach to deregulating interest rates is not without risks. The problem of moral hazard and adverse selection in the financial market will be easily caused when the signal transmission and discrimination ability of the behavior subject is limited.

Fourth, we should foster a sound interest rate market and speed up the deposit insurance system. The marketization of interest rate is not complete liberalization, and it needs relevant system. First, we will optimize the structure of the bond market and improve the capital market. The problem of debt risk in the whole capital market needs special attention. It is necessary to upgrade the maturity structure in the bond market, abolish the restriction system of corporate bond allocation and interest rate gradually, and strive to realize the marketization of interest rate of bonds issued by enterprises. Secondly, the deposit insurance system is based on the guarantee of the financial system to prevent the deposit risk caused by the interest rate liberalization (Wang G., 2019). The relevant departments have stepped up the study of the deposit insurance system, formulated and

implemented it at an appropriate time, accepted the handling institutions of problem banks in the form of laws and regulations, provided financial relief, provided a clear basis and procedure for the undertaking of acquisitions and the repayment of debts, and provided practical guarantee for depositors and the stability of the financial system.

Fifth, the financial system construction and reform of the proposal. First, keep an eye on the interest rate changes in the private lending market. The interest rate of the private lending market is generally guided by the change of the interest rate in the formal financial market, which needs reasonable guidance so as to improve the interest rate management in the whole interest rate market system (He, Y., et al., 2018). From the perspective of policy, it is necessary to strengthen the monitoring of private lending interest rate and the system construction of investigation. In view of the usurious characteristics of China's private lending and the prominent problems of regional market fragmentation, it is necessary for the People's Bank of China to establish a sub-branch information monitoring and feedback system and regularize it through reasonable policy guidance and reform. Second, we should actively advocate the innovation of financial products, especially the market risk of financial derivatives within the scope of innovation of financial products. Third, the debt default problem of enterprises and governments should be firmly controlled. Only a low debt ratio can provide conditions for further decentralization of interest rate liberalization in the financial market. The in-depth reform of China's interest rate liberalization still needs to adhere to the gradual and orderly way, within the scope of the system reform that the economy can bear, actively carry out the market-oriented system construction reform, and gradually carry out the gradual and orderly targeted reform on the disadvantages of the old system. Finally, the central bank, in collaboration with local government departments and other macro-prudential regulatory authorities, should establish a comprehensive and systematic financial stability monitoring and evaluation system to better prevent risk contagion among and within financial markets and the transmission of financial risks across industries.

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FORENSIC EXPERTISE IN THE INVESTIGATION OF ACCIDENTS

Abstract: At the present stage of development of the Kyrgyz state, the successful performance of the functions of criminal justice is largely associated with the level of use of evidence in the investigation of crimes.

One of the most effective means of obtaining and collecting information relevant to the case is forensic examination. The quality of the preliminary and judicial investigation is largely determined by the effectiveness of the use of special knowledge in criminal proceedings.

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Introduction

Investigation of the causes of accidents and collapses on the roads of our country is relevant, almost every day we witness transport accidents of various kinds. We are witnessing tragic accidents: the death of children, inattention of vehicle drivers; road users sometimes do not know the rules of the road. The invention of the automobile marked a new era in the technical development of mankind, which had a significant role in its development and lifestyle. Reliability, high technical characteristics, mass scale and availability of vehicles have led to the fact that the car has become an integral part of our daily life. However, along with all the advantages provided by this technical means, the car remains a source of potential threats to human life and health, the cause of irreversible tragic consequences and damage. In terms of the severity of the consequences, injuries and deaths from improper and careless operation of road transport are natural, as a result, the death rate of people and injuries received in road accidents in their consequences are comparable to the consequences of hostilities [1. p. 47].

Prevention reports, statistical data, investigative and judicial practice indicate that in the Kyrgyz Republic, during the period from 2009 to 2019, the number of accidents increased by 1.5 times. The

number of victims in road accidents averaged 1,037 people per year. Traumatism on the roads has almost doubled. In general, over 10 years in Kyrgyzstan 11,553 people died as a result of road accidents, of which 958 were children [2].

The Main Traffic Safety Directorate of the Ministry of Internal Affairs of the Kyrgyz Republic has developed a concept for the future development and optimization of the practical activities of its department for 2020 -2025. It reflects the facts that "The operational situation to ensure the safety of road traffic and the operation of road transport on the roads of the republic is not stable and remains difficult.

The use of high-tech technologies in an investigation is often associated with the possibility of ordering forensic examinations before initiating a criminal case [3].

Expertise is a word of Latin origin from "expertus", experienced, knowledgeable. The production of an expert examination in criminal proceedings is an important procedural action provided for by the criminal procedure law, and the expert's opinion is one of the types (means) of proof. An expert examination is appointed in cases when special knowledge in science, technology, art or craft is required during the production of an inquiry, preliminary investigation and during court

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proceedings. The examination is carried out by experts of the relevant expert institutions or other specialists appointed by the person conducting the inquiry, the investigator, the prosecutor and the court.

Forensic examination is a procedural action consisting in conducting research and giving an opinion by an expert on issues that require special knowledge in the field of science, technology, art or craft and which are put before an expert in order to establish the circumstances to be proved in a criminal, civil and administrative case [4].

Forensic examination in criminal proceedings is quite widespread, since when establishing the truth in a specific case, it is often necessary to resolve issues that require special knowledge. It is the forensic examination that is the procedural form for special knowledge in the criminal process.

Forensic science is one of the unique ways to obtain valuable evidentiary information that helps to establish the truth in a case. It significantly expands the cognitive capabilities of the investigator, making it possible to use the entire arsenal of modern scientific capabilities during the investigation. At the same time, the examination is regulated in the most detail by the current Criminal Procedure Code, which is an important guarantee of the observance of the rights of participants in criminal proceedings. According to statistics, an examination is now carried out on almost every second criminal case. At the same time, forensic medical examination in quantitative terms ranks first among all other examinations.

In addition, the study of 6 criminal cases on road traffic crimes showed that in the overwhelming majority of cases the conclusions of forensic medical examinations, together with other evidence, were used to put forward investigative versions, to determine the general direction of the preliminary investigation (to carry out additional investigative actions, refute the arguments of the accused and others), and also formed the basis of the investigative conclusions [5].

Criminal violation of the rules for driving or operating a motor vehicle belong to the category of crimes against traffic safety and operation of transport [6].

An accident includes events that occurred as a result of the movement of a vehicle that resulted in the death or injury of people, damage to vehicles, cargo, road and other structures, causing other material damage [7].

Studies of the psychological factors of road accidents conducted by D. Klebelsberg are of great interest. These include: distraction, underestimation of danger, incorrect assessment of the situation, fear in behavior patterns and dangerous habits, erroneous prediction of the behavior of other traffic participants, underestimation of one's own erroneous behavior, one's own behavior unpredictable for others, deliberate illegal behavior in traffic conditions, and the like [8].

Side factors causing accidents are: haste, driver's mood, insufficient knowledge of traffic rules, insufficient driving skills, inaction, ignorance of the area, etc [9].

An objective factor that increases the possibility of an accident is the transience of this phenomenon, which in its development includes three stages: initially there is a danger or a pre-accident road situation, then an emergency follows, and then a post-accident situation occurs [10, p. 56-60].

The emergence of a dangerous situation is characterized by the appearance of a moving or stationary obstacle. If no measures were taken to eliminate the dangerous situation, an emergency situation arises in which it is technically impossible to prevent the accident. The post-accident situation is the carrier of the material traces of the accident [11].

The main elements of the forensic characteristics of an accident are: the circumstances of the crime; mechanism of trace formation; characteristics of the personality of the perpetrator of the crime; information about the identity of the victim [12, p. 99-104].

As a result of an accident, both material and ideal traces are formed. Material traces: corpse of the deceased; bodily injuries of road accident participants; traces of blood on the carriageway and on the vehicle; traces of protectors, vehicle parts or debris at the scene; damage to a vehicle or road structure [13, p 78].

A vehicle after an accident retains many marks. By means of photographing, drawing a plan, diagram, protocol description, the position of the vehicle at the scene of the accident is fixed in relation to permanent landmarks and other vehicles. First, the type, make and number plate of the car is recorded; damage resulting from an accident; a search for traces and material evidence is carried out [14, p. 44].

Inspection of a corpse is carried out at the scene of an accident or in a morgue and is carried out according to general rules. Particular attention should be paid to the detection of traces and damage characteristic of a motor vehicle injury. They can be on the clothing and body of the victim. Comparison of injuries on the victim and the vehicle makes it possible to reliably solve the problem of the possibility or exclude contact between the vehicle and the victim's body, and sometimes to identify the vehicle. Inspection of a corpse at the scene of the event provides information on the mechanism of the incident as a whole, on the mechanism of contact interaction. By the location of the corpse in relation to other elements of the road situation, one can conclude about a disguised murder staged under an accident [15, p. 23].

In addition to examining the corpse itself, it is necessary to inspect clothes, shoes and other related items. When examining clothes, their condition, existing damage and contamination are noted. All necessary marks on the body and clothing are

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measured and photographed. If the corpse has not been identified, then during its examination, signs of appearance, the presence of special signs, should be recorded, and an identification survey should be carried out. The clothes are preserved exactly as they were found [16. p. 99].

If the situation allows, the corpse is examined at the scene with the participation of attesting witnesses, a forensic expert or a doctor [17. p. 76].

A forensic medical examination is appointed in all cases where an accident has led to the death of people or causing bodily harm. In addition to general questions about the cause of death, time, nature, location and severity of bodily injury, the state of health of the victim before the incident, the forensic physician decides on the presence of specific traces of road traffic injuries on the victim's body and clothing. They occur as a result of the impact of specific parts of the body against the car and road surface; squeezing the body between the wheels and the road or two cars; friction when dragging the body on the road surface [18. p. 66].

The forensic examination of material evidence examines objects of biological origin, most often blood, hair, particles of bones, tissues and organs of the human body, found during examination of the accident site. The following questions are posed to the expert: does the detected blood originate from a person, if so, does it coincide in group and type with the group and type of the victim's blood; whether the hair found during the inspection of the car belongs to a person and whether it is similar to the victim's hair, and so on [19. p. 60-64].

Forensic medical examination resolves three groups of important issues for the investigation of the case. Questions concerning the corpse of the victim or the driver boil down to establishing:

1) the category, kind of death and the circumstances of its occurrence, such as: violent or not violent, when it occurred, whether it was caused at the place of discovery of the corpse or in another place;

2) the severity of the injuries and the causes of death, for example: why did the death of the deceased follow, whether death followed from the injuries received;

3) characteristics of the injuries found on the corpse of the victim or the driver, namely: what are the injuries on the corpse, are the fatal injuries on the corpse typical for an automobile injury;

4) determining the mechanism and sequence of the formation of various groups or individual injuries on the corpse and the position of the body at various stages of the traumatic effect, such as: are the wounds on the corpse caused by the impact of certain parts of the car, which part of the car or what tool caused the damage, whether data was formed damage from the initial impact, or it is caused by subsequent impacts. The most difficult question is what was the posture of the deceased at the time of the collision, judging by

the localization of the damage present on it, whether it is possible to determine the position of the victim in relation to the car at the time of the collision by the localization and nature of the damage. The solution to this issue in some cases is possible only through a comprehensive forensic and forensic examination or a forensic and autotechnical examination [20. p. 66].

Questions concerning living persons are mainly reduced to the severity of the injuries received, namely: what the injured person has, the severity of the injuries, whether the injuries caused the injuries to the injured person, the mechanism of the injuries, their duration [21].

Questions concerning the biological characteristics of individual objects : 1) whether the blood found on the car or the scene of the accident belongs to a person; 2) whether the detected blood belongs to an animal and to which animal; 3) what are the type and blood group; 4) whether the blood type and group matches the victim's blood; 5) regional origin of blood; 6) human or animal hair was found during an examination in a car; 7) hair color; 8) from what part of the body this hair is and whether it has been pulled out; 9) are they not similar in their characteristics to the victim's hair; 10) whether a substance found on a car, similar to a substance of the brain, belongs to a person; 11) whether these traces are medulla, as well as other questions [22. p. 55].

Sometimes, in cases of this category, a forensic medical examination is carried out based on the case materials, for example, in cases where the death of the victim did not follow directly at the scene of the accident, collision, but after a long time after treatment in the hospital, or when it is necessary to establish the severity of the injuries received by the victim, which for one reason or another it was not possible to do it. In the latter case, the expert is provided with the materials of the criminal case and the medical history [23. p. 88].

The importance of a forensic medical examination is also determined by the fact that an expert's opinion in a number of cases is necessary to establish the circumstances on the basis of which the criminal-legal characterization of the crime event is made. So, when deciding on the qualification of severity and harm to health, one cannot do without the data of forensic medicine and the conclusion of a forensic medical expert, whose role is expanding to assist in establishing the corpus delicti in the actions of a person and the correct qualification of the offense [24. p. 59].

Despite the fact that forensic medical examination occupies a leading place among all appointed examinations and affects the most important interests of a person (life, health, etc.), it has not received sufficient theoretical and legal development. Currently, among the available literary sources, there are only a few works devoted to the essential legal problems of the appointment and production of forensic medical examination in criminal proceedings [25].

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Investigation and trial of criminal cases on the fact of road accidents require the use of special technical knowledge, covering the entire set of interacting elements "driver - car - road - environment", from which the process of road traffic is formed as a whole. In most cases, the corpus delicti or traffic violations can be established only after the production of a forensic auto-technical examination.

Traditionally, the concept of "auto-technical or road transport expertise" means a complex of scientific and technical studies of all stages of a specific road traffic accident carried out by a specialist with special knowledge in this area:

- examination of vehicles (establishing the technical condition of vehicles, determining a specific malfunction affecting the occurrence of an accident.
- investigation of the circumstances characterizing the mechanism of road accidents, i.e. establishment of the speed and trajectory of vehicles, the time for vehicles to overcome certain sections of the trajectory, the locations of vehicles at certain points in time, etc.
- analysis of the actions of vehicle drivers involved in an accident, namely, establishing the technical ability of drivers to prevent accidents, in accordance with the requirements of the Road Traffic Rules for a driver in a specific road transport situation, etc.)

The objects of investigation of the auto-technical examination are vehicles, parts and parts of vehicles that separated during an accident, the place of the accident, as well as the case materials collected during the investigation (protocol of inspection of the accident scene, diagram of the accident scene, explanations of participants and eyewitnesses of the accident, etc.). Therefore, the categorical nature of the conclusions of the forensic auto-technical examination directly depends on the completeness and quality of the materials provided to the expert by the authorities of the court, investigation or the applicant. Opportunities for auto-technical expertise (research):

Research of vehicle collisions, research of collision with an obstacle: determination of the relative position of the vehicle at the moment of impact; establishing the place of collision, impact; establishing the technical feasibility of collision avoidance.

Investigation of the circumstances of the accident: determination of the location of the vehicle at specified times; determination of the vehicle speed at specified times; determination of the braking and stopping distances, the distance traveled by the vehicle at specified intervals; determination of the actions of the driver and pedestrian in accordance with the requirements of the Traffic Rules of the Kyrgyz Republic and other states.

Research of the technical condition of the vehicle: determination of malfunctions of individual units, mechanisms, parts of the vehicle establishing

the causes and timing of malfunctions; identification of the influence of malfunctions on the occurrence and development of road accidents.

To solve specific issues, the expert needs initial data, which are formed from the materials of the inspection of the scene of the incident and during the investigation.

A significant part of the problems in the appointment of an auto-technical examination is associated with the definition of its subject.

The question of the subject of forensic examination received an ambiguous solution in the legal literature. The most common definition proposed by A.R. Shlyakhov, according to which the subject of the examination is the factual data established on the basis of special knowledge (facts, circumstances of the case) [26].

The same opinion is shared by R.S. Belkin, V.M. Galkin, Yu.K. Orlov and other scientists.

When investigating the causal relationship between a vehicle malfunction, the driver's actions and an incident, hypothetical situations are also considered on the subject of how the event would develop if the vehicle was in good working order, the driver complied with the Traffic Rules, etc.

The word "fact" means "an actual, quite real event, phenomenon; what really happened" [27].

"a fragment of reality established by a person, cognized by him, recorded through observation or experiment [28].

Consequently, the phrase "factual data" should be used only to designate information about an event that actually took place and its meaning does not correspond to the essence of the information obtained as a result of the above studies.

In the forensic literature, an event, phenomenon, fact, the study of which the activity of an expert is directed, is most often considered not as a subject, but as the main or general object of expertise. Various material carriers of information act as a means of reproducing events that have fallen into the sphere of judicial knowledge; objects, documents, material furnishings, etc., called auxiliary or specific objects of expertise.

At present, in the theory of forensic examination, the task is considered as a complex formation and two elements are distinguished in its structure: the goal is to establish certain information on the instructions of the investigator, and the conditions in which the goal is set. In this case, conditions are understood as an object of expert research (initial data), carrying certain information through a system of properties, and methods, and used to solve the problem [29. p. 57].

In the process of activity, the goal turns into a present object or state. However, talking about the result is legitimate only in relation to the completed act of activity. The subject of the examination is formed by the investigator and exists from the moment of its appointment, and as an object of

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activity - from the moment of the beginning of the investigation. At the initial stage of the research, there is still no result, but there must already be a subject for examination, since objectivity is an attributive mode of existence, a necessary form of activity. Only the purpose of the examination can act as a subject here, which in most cases is determined already at the preparatory stage of research. This idea is also confirmed by the fact that the criminal procedure law mentions the existence of the subject of the examination at the stage of its conduct when the expert's opinion (result, data) has not yet been received. Thus, the expert has the right to get acquainted with the case materials related to the subject of the examination, to be present during interrogations and other investigative and judicial actions and to ask the interrogated questions related to the subject of the examination.

A common element of the forensic characteristics of crimes related to the management of technology is a socially dangerous mismatch in the functioning of the system "technology-operator-environment". Consequently, an expert study of a road traffic accident can be viewed as an analysis of the abnormal state of the system " driver-car-road - environment " (V AD S), including in this form ulu and assessment of the driver's actions [30. p. 161].

From this point of view, the subject of forensic auto-technical expertise is the VADS system, the state of its elements, their interaction and the identification of the reasons for the violation of the relationship between them: resulting in a road traffic accident.

The classification of auto-technical expertise is of great theoretical and practical importance. It promotes a clear delineation of the types and types of forensic examinations and the competence of experts of different specialties, creates conditions for the optimal organization of scientific research, training and retraining of expert personnel.

The most complete classification of forensic autotechnical examinations was developed by A.R. Shlyakhov, who divided this type of research into five types:

- examination of the technical condition of vehicles (technical and diagnostic);
- examination of the mechanism of various types of road traffic accidents;
- examination of transport and traceability (examination of traces and damage to vehicles, road accident participants);
- engineering and psychological examination of the condition and actions of the vehicle driver and other participants in the accident;
- examination of road conditions, road conditions and surrounding food.

In this classification, each type of examination corresponds to an object of research and tasks solved on a single methodological basis.

N.M. Christi divided all the studies encountered in the production of forensic auto-technical examinations into four main groups:

- investigations related to the establishment of circumstances at the scene of a traffic accident (examination of the scene);
- examination (examination) of the technical condition of vehicles;
- investigations related to the identification of the circumstances of the accident mechanism (examination of the accident mechanism);
- examination (examination) of the actions of the participants in the incident.

It is customary to subdivide forensic (non-forensic) examinations (or expert tasks) into classification, diagnostic, situational, operational and causal [31. p.160].

Research in forensic autotechnical examination by the nature of goals at the first level (the most common division) is proposed to be differentiated into:

1. Classification studies, which include studies aimed at establishing the belonging of an object to a certain category (class) [32].

An important clarification is made by Yu.G. Korukhov, who emphasizes that classification is possible only in relation to an object studied in nature (the study of the display of an object is inherent in identification studies), when there are grounds for attributing it to a predetermined (standardized) class [33. p. 14-15].

By their nature, the classification studies are close to the establishment of mechanism by its separated part. However, the classification does not have and cannot have as its purpose the identification of a vehicle by its assembly or part, since the signs used in the classification autotechnical studies are common for a certain category of vehicles and can act as identification signs only when a unique, issued in one copy is identified. a car or a motorcycle, which practically does not occur as an examination task.

Taking into account the above, the classification in the forensic autotechnical examination should be considered studies aimed at determining the type, class, brand, model, modification of vehicles on which they are installed by structural and functional characteristics of units, assemblies, parts or parts thereof.

2. Diagnostic studies include: establishing the time of the event, the mechanism and mode of action of a given person, individual properties related to a person, things, animals; determination of the state of an object, the reasons and time of occurrence of private events, the mechanism of interaction of objects; analysis of phenomena, physical processes, properties of interacting objects and connections between them, subject to their material fixation, containing a certain information potential about the object under study; identified s causality we

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investigate proxy objects, facts, events; establishing the belonging of an object to some previously defined class [34. p. 46].

In the process of diagnosing, the place in any system is determined not of the objects themselves, which is characteristic of classification studies, but of one of the possible states of the recognized object, its inherent qualities and characteristics. Making a diagnosis involves determining the output parameters of the state of objects (symptoms), comparing them with the appropriate standard and assigning the state to a certain class (the actual diagnosis) [35. p. 35].

Thus, diagnostic studies in forensic auto-technical expertise are the recognition of the states of vehicles involved in road accidents and their compliance with the requirements of regulatory and technical documentation.

3. Situational research is a comprehensive study of the scene by experts to determine the circumstances of the event being investigated, the development of

which is modeled by experts in the form of a series of sequential situations, and in the process of research, the entire complex of traces is used in interconnection.

Thus, the distinguishing features of situational expertise are the object - the situation of the scene as a whole, as well as the need for comprehensive research.

Expertise justifiably acts as an effective means of establishing the circumstances of the case. It allows you to use the entire arsenal of modern scientific tools in the process of investigation and trial of criminal cases. It is the main channel for introducing new scientific advances into investigative and judicial practice in the course of investigation and consideration of cases by courts.

Being a source of increased danger, a car imposes certain duties on its owners, drivers and other users, failure to comply with which may entail civil, administrative and criminal liability.

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HOW TO AVOID CAR ACCIDENTS

Abstract: Improving the safety of the car, including its controlled, is one of the main and complex tasks of the automotive industry, maintenance and traffic control services. Improving the operational characteristics of the car, aimed at preventing or at least reducing the severity of injuries in road accidents, was carried out in this thesis in the direction of improving controllability, stability and reliability, improving living conditions in the car cabin.

The choice of vehicle parameters that provide the best characteristics of controlled and related stability guarantees optimization. Based on this: the acting forces acting on the car when driving along a circular path at a constant low speed; considered the phenomenon of drift of a car wheel associated with the lateral elasticity of the wheel, to a degree affecting the handling and stability of the car; from consideration of the turning scheme of a car with elastic wheels, a graph of the car's handling was built, which connects the parameters (turning radius and speed of the car, the angle of rotation of the steered wheels, centrifugal force, the difference in the angles of withdrawal of the rear and front wheels of the car) the movement of the car along a curve the definition for the critical speed under controlled conditions is determined, which allows to determine three cases of occurrence of neutral understeer and oversteer of the vehicle.

Key words: analysis, influence of the technical condition of the vehicle, stability, the dependence of the angular deviation, the car, the speed when braking the car, when one front or one rear braking mechanism.

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Introduction

Confident actions of the driver in emergency situations are possible only if he understands how various factors affect the behavior of the car in general and knows the features of a particular car. The latter can only be achieved by regular training in this type of vehicle.

Braking and acceleration based on traction. Imagine that, driving at high speed, the driver saw a sharp turn late or an obstacle suddenly appeared on the road. The most correct response in most, but not all cases, is emergency braking. This reaction is correct on a road with a flat dry surface and the distribution of braking forces along the axles is proportional to the load, which ensures a positive margin of static stability. In this case, the car will move straight and the driver only has to prevent the wheels from locking. To do this, when you press the brake pedal, the force

increases only until the start of blocking. Then it must be lowered to unlock the wheels. After that, increasing the effort on the brake pedal, bring the wheels to the start of blocking and release the pedal, repeating this several times. The higher the frequency of pressing and releasing the pedal and the less the deviation from the force causing the start of blocking, the more effective the braking and the shorter the stopping distance. With hydraulically actuated brakes without a booster, or with a properly adjusted booster, the moment when the lock starts creates the feeling on the pedal as if a spring is being compressed to the end, when the foot begins to press against the fixed support. If the effort on the brake pedal causing the wheels to lock is small, the moment when the lock occurs must be determined by other indicators [1. p.296].

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On a road with a high coefficient of adhesion, skidding of the wheels produces a characteristic sound; on a slippery road, it can only be determined with experience. If the wheels of the rear axle lock earlier, the static stability margin becomes negative, and the value of the critical lateral force becomes close to zero, which leads to a skid. The most common mistake in this situation is an attempt to get the car out of a skid without stopping braking. Therefore, to stop the skid, you first need to release the brake pedal, and then turn the steering wheel towards the skid. As soon as the skid stops and the car moves in a straight line, you can start braking again.

If, during braking, the front wheels begin to move to the side, this happens with uneven operation of the front brakes, in order to level the car, you must first also release the brake pedal. Attempting to level the vehicle in this situation without stopping braking is dangerous. When the front wheels are locked, the vehicle does not respond to steering wheel movements [2. p.255]. The driver, starting to turn it, mistakenly hopes that this can force the car to move in the right direction. However, in this case, the wheels will be turned at an angle much greater than necessary to move in the desired direction, and if the driver releases the brake pedal, the car will literally "jump" to the side, which can lead to an accident.

It is necessary to brake on ice even in an emergency situation without disengaging the clutch until the very last moment, since in this case the front (not driving) wheels will quickly lock, while the rear wheels will not be locked due to the supplied torque. The stability margin will remain positive and the risk of skidding the vehicle will decrease [3. p.208].

It is mistakenly believed that engine braking on a slippery road always saves you from skidding. Of course, this reduces the likelihood of skidding, since the braking torque of the engine is much less than that created by the brakes and is regulated more smoothly. One to that something is safe braking only until the moment when the braking force generated by the motor exceeds the traction wheel and the road. After that, in the case of a drive to the rear wheels, a skid will begin, and it will be possible to stop it only by removing the braking torque from the rear wheels, that is, by squeezing the clutch. In theory, this can be done by increasing the engine speed. However, in practice, this may not work even for a well-trained driver, since a fraction of a second is released to find the position of the fuel control pedal corresponding to the transition of the engine operation from braking to traction mode. Therefore, if the skid continues, the clutch must be disengaged. In this case, the absence of longitudinal forces on the wheels will be guaranteed.

Braking techniques on the "skid" border can be expressed in the following phrase, if you press the brake pedal, then the wheels should be in a straight position, if you turn the steering wheel, then the brake pedal should be released.

The ability to accelerate with full use of traction is necessary when, during overtaking, an oncoming vehicle is found to be approaching much faster than anticipated. However, it should be remembered that when driving in icy conditions on a snowy road, a skid can occur not only during braking, but also during acceleration [4. p.416].

The acceleration technique at the skid border is similar to the braking technique at the skid boundary. At the initial moment, the pressure on the fuel control pedal is carried out quickly enough (but not abruptly) until the driving wheels begin to slip, after which it is necessary to start releasing the pedal. When slipping stops, you need to gently press the pedal again until slipping appears and then repeat everything again. The sooner slipping stops and the less the thrust reduction required to eliminate it, the faster the acceleration will occur [5. p.216].

When accelerating at the skid limit, the car usually drifts. To stop them, it is necessary to reduce the tractive force simultaneously with turning the steering wheel. The more the skid, the more you will have to release the fuel pedal. However, if engine braking occurs, it will contribute to the development of skidding, which may require disengaging the clutch, as in the case of engine braking.

The maximum acceleration when accelerating on slippery surfaces is determined by the traction of the wheels with the road. In this case, it is very important to shift into top gear in time to reduce traction. It should be noted that in lower gears it is much more difficult to grasp the clutch boundary, therefore precise recommendations on the choice of the gear shift moment in these conditions are impossible. [6. p.168].

However, it should be pointed out that if even a gentle press on the fuel control pedal immediately causes a skid, then you need to shift to a higher gear. The best effect in these conditions it is possible to learn only the basis of experience.

If fast acceleration is required on a road with a high coefficient of adhesion, it is necessary to ensure the full use of engine power and, accordingly, tractive force in gears, but for this it is not enough just to shift gears at maximum crankshaft speeds. It is also necessary to carry out the gear change itself as quickly as possible.

When it's useless to slow down. There are cases; when the driving speed was too high and the braking distance was short. In the next instant, the car should enter the turn, and the speed is much higher than the permissible one. In these cases, braking becomes useless, and the last chance is the ability to release the brake pedal and steer the vehicle with the steering wheel and, to some extent, with the fuel and clutch pedals. The driver's actions in these cases are determined by the vehicle's stability margin, which, however, does not remain unchanged. If such situations have arisen on a road with a hard, dry

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surface with a high coefficient of traction, then before starting a turn, you must engage a lower gear in which the engine will operate at a given speed of the crankshaft close to maximum. When there is enough time for braking and the road situation allows, it is advisable to be near the outer edge of the road in relation to the center of the curve before turning. You need to start the turn with some advance, which can only be determined on the basis of experience. To compensate for the lag in the response of the car, which always increases with increasing speed, a quick advance turn of the steering wheel is necessary. To increase the turning radius, drive the vehicle by guiding the vehicle from the outer to the inner edge of the pavement with respect to the center of the turn and returning to the outside in a smooth arc. However, entering the lane of oncoming traffic to defuse an emergency is permissible only if there is sufficient visibility of the road and the absence of oncoming vehicles. With a positive stability margin, which, as a rule, most cars have, with an increase in speed, the steering angle required to move along a curved path increases. For each car, in specific driving conditions, there are critical values of the speed and angle of rotation of the steered wheels, upon reaching which its front axle will begin to slide and further rotation of the steering wheel will no longer reduce the turning radius. When that moment comes, turning the steering wheel further becomes not only useless, but even dangerous. Resistance to cornering when the vehicle reaches its grip limit increases dramatically and its speed begins to decrease. When the front axle slides, you just have to wait for what happens first: will the speed decrease to a value that allows you to move along this turn, or the car will reach the edge of the road. If the car does not leave the road by the time the steering wheel sensitivity is restored, then when the steered wheels are turned at a greater than necessary angle, it can completely unexpectedly for the driver rush towards the steering wheel turn. This phenomenon is similar to the release of turned wheels. Since reducing the speed in this situation is the only way to prevent dangerous consequences, engine braking will be the only correct action [7. p.326]

Increasing traction at the wheels in these situations will cause a slower deceleration and therefore may only be useful if it causes the rear axle to skid with good grip on the front wheels. In this case, the turning radius will decrease.

With a decrease in the coefficient of adhesion or due to the design features of the car, the stability margin may have negative values, at which the magnitude of the lateral force exceeds the critical value, which will cause a skid. The nature of the required control actions in this case will change. The question of whether it is possible to brake with the engine and with what intensity does not have an unambiguous solution for this case. Everything is determined by the speed of the skid and the possibility

of stopping it in the presence of braking torque on the rear wheels. In most cases, this issue has to be resolved during the development of an emergency. Disengaging the clutch is the last attempt to stop the skid. It is not possible to determine in advance how much and how to turn the steering wheel. The driver's actions are determined only by the behavior of the vehicle. You can only form a few general provisions.

There is a critical angle of rotation of the longitudinal axis of the vehicle at which it becomes impossible to stop the skid. The later the driver starts to turn the steering wheel and the lower the speed of its turning, the more angle the car will have time to turn. Therefore, turning the steering wheel should be started as soon as the rotation of the car begins to be felt, and immediately at the highest speed.

If the steering wheel continues to turn at a constant speed until the skid stops, a skid will occur in the opposite direction. Therefore, the steering speed must be reduced as the skid speed decreases. The reverse rotation of the steering wheel, as a rule, must be started a little earlier than the rotation of the car in the opposite direction, since the advance of the rotation of the wheels relative to the angle of rotation of the car is the main condition for the rapid termination and elimination of re-skidding.

Advance turning of the wheels during repeated drifts is possible when the driver knows where their neutral position is. To do this, you need to be able to turn the steering wheel to the maximum possible angle without changing the points of contact of the hands with its rim. Skid correction causes an increase in the turning radius. Therefore, having eliminated the skid, it is necessary to turn the steering wheel again in the direction of the turn, which will cause a new skid and everything will be repeated again, until the speed of the car drops to a safe one for driving on this turn or until the car goes straight. In such a situation, it is also better to immediately disengage the clutch, since the presence of traction or braking force on the wheels will only accelerate the development of a skid.

When the front axle is demolished, the car leaves the road to the outside, and when skidding, to the inside of the turn. However, if the maximum speed is significantly exceeded at the entrance to the turn, even in the event of drift, the car, rotating, begins to move to the outer edge of the road. In this case, it is necessary to try to stop its rotation by the methods described earlier, since this will allow, to some extent, to choose the place for the exit from the road, which will help to reduce the severity of the consequences in the further development of the road traffic accident.

From all that has been said, in no way should one conclude that you should not brake at all when cornering. It is often necessary to brake when cornering. But it should always be remembered that the higher the speed and, accordingly, the lateral acceleration of the car, the lower the amount of allowable deceleration.

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When the sum of the braking and lateral forces becomes equal to the traction force, the vehicle starts to drift or drift. Therefore, when braking on a corner, you must be prepared for this and do not forget that to eliminate drift or skid, first of all, you need to brake the wheels [8. p.220].

If an obstacle suddenly appears on the path of the vehicle at a distance less than the stopping distance, then it will be impossible to prevent the collision with the help of braking. However, it can still be avoided by avoiding the obstacle. For example, at a speed of 80 km / h, the minimum possible braking distance is 30 - 35 m, and the minimum detour distance is 16 - 18 m. At a speed of 120 km / h, this difference becomes even greater: 65 - 90 m when braking and 28 - 30 m when bypassing. However, only a well-trained driver can make a detour at a minimum distance. The difficulty lies in the fact that during this maneuver almost all cars, including those with a positive stability margin at cornering, are swept up. In addition, if the drift speed is high, exchange rate fluctuations occur. According to the test data, the detour distance at which a skid of cars occurs is approximately 26 m at a speed of 30 km / h, and approximately 40 m at a speed of 120 km / h.

This suggests that when braking is no longer useful, in some cases a detour can be made even by an inexperienced driver. However, in most cases, this is hampered by the fear of lowering the brake pedal at the sight of an inexorably approaching obstacle [9. p.312].

Driving under the influence of external disturbances. If the vehicle starts to slip sideways due to a crosswind or a sideways slope in the road, braking also produces the opposite effect than expected. As in a corner, only the steering wheel, fuel and clutch pedals remain at the driver's disposal. When eliminating deviations caused by external forces, it is very important to start reacting to their action before the vehicle begins to deviate [10. p.87].

This is possible when the driver senses lateral forces in the form of an increase in steering force. One of the mistakes that often leads to a loss of control in this situation is the desire to immediately return the car to its original place when it deviates to the edge of the pavement. The fact is that when you try to quickly return to the middle of the road, a centrifugal force arises, directed in the same direction as the external force [11. p.135].

As a result, skid occurs earlier than one would expect. Therefore, the first task when the vehicle is deflected to the side under the influence of external forces is to stop this deflection. Only by stopping it, you can begin a smooth return of the car to the middle of the road.

If the car hits the wheels of one side on a soft shoulder or in the snow, it begins to uncontrollably pull into a ditch. In this case, first of all, you need to try to keep the car on a straight line and remember that sometimes it is better to get into a ditch than to be unexpectedly thrown into the oncoming lane with very vigorous attempts to get onto the road.

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SMALL BUSINESS IN THE DIGITAL ECONOMY AND ITS SECURITY

Abstract: This article examines the sphere of the digital economy and the development of the modern economy.

Key words: Economy, digital economy, small business, security, theory, research

Language: English

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Introduction

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Small business currently requires a transition to a qualitatively new state and the search for new growth points, which is due to the rapid development of information technologies, the policy of import substitution, and the state course towards building a digital economy.

Today, the digital economy has become especially popular in recent years. The main publications fall on the period from 2014 to 2017, and most of the studies are of a point nature and describe individual cases of the application of information technology in various industries. Thus, A. Kuntzman defines the digital economy as "a modern type of economy characterized by the predominant role of information and knowledge as determining resources in the production of material products and services, as well as the active use of digital technologies for storing, processing and transmitting information." RK Asanov believes that the digital economy is based on the production of electronic goods and services and their distribution using e-commerce. BN Panshin argues that the digital economy is based on network services. However, at the same time, one can note a small number of works devoted to the role of small business in the formation and development of the digital economy. The insufficient level of use of information technologies significantly limits the possibilities of expanding the market for goods and services, the deployment of joint investment projects, the implementation of large-scale research and

engineering projects. In a situation of acceleration of technological development processes characteristic of the knowledge economy, a low level of information and communication connectivity actually blocks the processes of technological, economic and social development. For example, to accelerate the processes of socio-economic development of Siberia and the Siberian regions, it is necessary to overcome the factor of low density of entrepreneurial activity, expand opportunities for online communications, create conditions for intensifying cooperation between all subjects of economic, technological, social and cultural life. Small business is the key factor integrating the interaction of all stakeholders of the market system. As you know, a similar point in the scientific analysis of any problem is the definition of the methodological foundations of its study. The structure of such bases includes: - first, the definition of logic, that is, the sequence of the study of the problem; - secondly, the formulation of methods by which the analysis of the problem is carried out [1].

Some scholars are investigating the social role of small business (hereinafter - MP) in the regional economy. According to E. N. Tumilevich: "The need to develop small business and conduct a "specific" state policy in relation to this sector of the economy is often justified by the fact that small businesses play a high socio-economic role in the development of the state, protecting the population, increasing competition, leading to an increase in quality of goods, quality of life, etc. At the same time, the identification of the role of small business in the Russian Federation, in our opinion, should be done

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from the standpoint of socio-economic efficiency” [2].

The development of a modern economy based on the use of the latest digital technologies, the creation of new materials, the analysis of large data sets, the development of new management systems, leads to a change in the principles of competitive relations. Competition is taking place not only for the redistribution of existing markets in the "red ocean", but more - for the formation of new markets for goods, services, technologies in the "blue ocean", competition for management systems based on new digital platforms. In such conditions, the digital economy changes the understanding and essence of the economic security of the state, business, household, individuals, generates new threats and risks for participants in economic processes and relations [3]

At present, information technology (IT technologies) in our country has become of paramount importance both for the development of the country's economy and for the security of the state as a whole. With the development of the digital economy and the use of the latest digital technologies, the daily life of society, industrial and economic relations, and the economic structure of the country begin to change [4].

At the same time, new requirements for communication and information systems, computing power, services, etc. automatically arise. In the functioning and development of the digital economy, it is important to ensure information and economic security of the state and business, the protection of personal data and privacy in an all-encompassing digital space. ... At the same time, IT technologies, the introduction of which is a possible impetus for the development of the country's economy, introduce certain risks to the digital economy.

The emerging prospects create a wide field for the growth of new risks that cannot be quantified, characterized by the lack of reliable information on the links between the causes of risks and the onset of adverse consequences. The presence of hypothetical risks that are practically not calculated and analyzed, since there is no scientific knowledge in the relevant field.

So, the development of the digital economy generates certain risks and threats both for the individual citizen of the country and society, and for the sovereignty of the state as a whole. The problem

of information inequality is alarming, and here we can agree with the position of V. V. Ivanov and G. G. Malinetskiy: “The main problem of the information society is information inequality, that is, the differentiation of users by the level of access to information. This is due to political, economic, technological, subjective and criminogenic factors. So, for example, at the political level, the differentiation of information is necessary to solve political problems, tasks of public administration, etc. But the uncontrolled centralization of information, its differentiation can lead to a situation where the information operator can exert direct unauthorized influence on certain segments of the population (for example, electorate)”[5].

The main goal of the information security of the state with the development of the digital economy should be to achieve a state of protection of the individual, society and the state from internal and external information threats. This should help preserve the rights and freedoms of the individual, improve the quality and standard of living, preserve the country's sovereignty and sustainable socio-economic development. For this it is necessary: - to ensure the security of the country's information and telecommunications infrastructure at all its levels; - create conditions for Russia to become one of the leading countries in the export of information security services and technologies; - take into account national interests in international interaction on information security issues; - to ensure organizational and legal protection of the individual, business and the state when interacting in the digital economy; - use domestic technologies to ensure the integrity, confidentiality, authentication and availability of transmitted information and its processing; - to use domestic software (hereinafter referred to as software) and equipment, as well as information security technologies. Thus, the problem of expertise of new digital technologies arises already at the stage of their creation in order to identify risks and threats to the digital economy in order to minimize possible negative consequences. The issue of choosing a risk management method (impact on risk) remains important, for this it is first necessary to carry out identification, assess the likelihood and consequences of each type of risk, which will allow developing a system of measures that do not allow, prevent or reduce possible damage.

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TERMINOLOGY AT AGRARIAN UNIVERSITY IN RUSSIAN LANGUAGE

Abstract: The article discusses the methodological work on the assimilation of terms as one of the most important components of the educational process. The need for the formation of future specialists in the agrarian sphere of skills in working with literature in Russian is recognized.

Key words: Russian language, terms, terminology, agricultural, student.

Language: English

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Introduction

The Russian language in a non-linguistic university is of great importance for the formation of a comprehensively developed and competent specialist. The formation of professional communicative competence is due to the replenishment and expansion of the required vocabulary of students. When teaching the Russian language, special attention should be paid to the selection of terminological material, including when teaching students of an agricultural university. Agrarian science, like any other science, has its own subject of study, its own concepts and categories. The dictionary of agricultural texts consists of general literary words and terms. In addition, words with an ending meaning. It should be noted that words with a terminative meaning also include common literary units, but in this context, they acquire the meaning of a term, i.e. words acquire a specific coloration characteristic of a given branch of science. "Formally, the presence of one and the same word in dictionaries reflecting the vocabulary of the colloquial, every day or generally accepted and scientific styles of speech does not give the right to consider this word known, learned, since in scientific texts it is a different word. He uses his own terminology to formulate laws, theories, to describe and explain agricultural phenomena. Agricultural terms are the exact names, "names of concepts" of objects, their properties,

phenomena and work processes. Successful mastery of the language of agricultural science contributes to the formation of knowledge in the new terminology introduced in the lesson. Methodological work on the assimilation of terms should be considered as one of the most important components of the educational process. The main goal is to assimilate the terminological vocabulary of this subsystem of the language, which allows not only correctly perceive the scientific text, but also actively use the words-terms when constructing your own sentences in a communicative sense. This work should be included in a holistic system of work on the formation of linguistic (lexical) and speech skills. Previously learned word-term must be included in new contexts, in new situations, in different areas of subject-logical relations for repeated repetition. It is important to provide,

a) That the variable word is repeated not in any one form, but in all the most common forms;

b) so that non-thematic and commonly used, inter-style words are repeated in different speech spheres, mobilized as much as possible when working on different topics, contributing to the creation of a conscious transfer skill;

c) that thematic and situation ally fixed words are updated in possible combinations within the framework of a particular topic or situation, but that attention was drawn to the impossibility of

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transferring them to other speech spheres, if it is impossible by language standards.

The lexical skill at any level of knowledge of a language unit involves the development of a strong two-way relationship between form and meaning. Awareness and understanding are important determinants of the accumulation of knowledge and the formation on their basis of relevant skills, which are achieved by repeated repetition. The stages of introduction and somatization of terms and terminological combinations correspond to the preparatory and familiarization stages of the formation of the skill. The activation of the terminological unit in speech is achieved by repeated repetition and imitation of the statement based on training and speech exercises. Following the stage of semantization and presentation of compatible and other characteristics of the term, you should again go to the text, analyze the scope of its use, demonstrate the degree of functioning of the text in similar situations, and then organize the student's reproductive speech actions at an independent level. Note that the text serves as the organizing core of all stages of the formation of the terminological skill.

The main goal of the first stage is the assimilation of terminological vocabulary. To achieve it, it is necessary to create conditions for the transfer of existing lexical skills to terminological units. The main objectives of this stage are the formation of skills to distinguish a term from a non-term, the creation of conditions for the assimilation of the terminology of a physical specialty. To solve these problems, it is necessary to carefully select texts in the specialty from the point of view of the representation of terms and terminological combinations in them, to conduct their lexicographic development, which would contribute to the comprehensive somatization of terminological words, demonstrating its compatibility. In addition, a

system of exercises and tasks should be developed that would help the effective solution of tasks.

The second stage is more complicated both in terms of goals and objectives, and in the number of terminological units absorbed in it. The main goal of this stage, we consider the assimilation of the main lexical-semantic terminological paradigms with generic meaning. The main task at this stage is the formation of specific terminological abilities and skills related to the development of these units, the formation of skills to highlight the terminological combination in the text, differentiating them from free phrases and type compatibility of the term, as well as the ability to independently discover the terminological combination based on analysis its components, the use of terminology in speech.

The main goal of the third stage is the mastery of the highly specialized terms of the agricultural specialty, as well as professional speech. The objectives of this stage are: the formation of skills on the use of highly specialized terminological units in speech; familiarity with the structure of the terminological system of the sublanguage of physics, hierarchical connections within the terminological system, permeating it from top to bottom; the formation of skills to analyze the morphological structure of the derived term; derive the meaning of the term on the basis of knowledge of its components and the assimilation of the most productive word-formation models; familiarity with the specifics of the functioning of the term, the definition of the main areas of their application. The methods of introducing special physical vocabulary that we highlighted seem to be fundamental, allowing us to introduce terminology into the speech of students of a non-linguistic faculty purposefully when teaching the Russian language.

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INTERPRETING THE LANGUAGE AND STYLE OF ANALYTICAL GENRES

Abstract: According to the classification of academician V.V. Vinogradov, in the theory of linguistics there are five styles of speech: colloquial, fiction, scientific, official-business and journalistic. This article provides a rationale for the fact that with the advent of the Internet, the sixth, Internet style of speech arose. It is characterized by a special lexical composition that does not fit the previous classification.

Key words: style, genre, linguistics, language, media text, blogger, print, internet, audience.

Language: English

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Introduction

This problem is considered in the monographs and manuals of M.K. Barmankulov, D.G. Bekasov, V.I. Vlasov, S.M. Gurevich, B. Dustkoraev R. Mukhammadiyev, A. Nurmatova, V. D. Pelta, Khelta

Let us turn to some of the sources. Authors of the classical manual "Theory and Practice of the Soviet Periodicals" allocate six genres: correspondence, article, review, review press review and letter. (13, 256). The textbook Analytical Genres of the Newspaper lists the same six genres. (1, 43). Petersburg scientist V.V. Voroshilov called correspondence, an article, a review and a review. (3, 68).

S. M. Gurevich described dialogical genres (interviews, dialogue and conversation-polylog), situational-analytical genres (commentary, correspondence, article, review), epistolary (writing and its varieties). (4, 189).

Professor of the National University of Uzbekistan named after Mirzo Ulugbek Y.M. Mamatov refers to analytical genre's commentary, article (problematic and thematic), letter, press review, sociological summary, rating, review, journalistic investigation, journalistic experiment. (6, 237).

Many types of analytical genres are cited by A.A. Tertychny: analytical report, analytical

correspondence, analytical interview, analytic survey, conversation, commentary, replica, questionnaire, sociological summary, rating, monitoring, review, article, review, media review, letter review, version, prediction, experiment, epistole, essay, confession, recommendation (advice), analytical press (12, 204).

The electronic version of the list was cited by V.S. Nam. He writes: "Publications on the V Kontakte social network can be conditionally divided into two categories: 1) materials that are published in communities represented by professional journalists or representing print media, for example, RIA Novosti; 2) materials that are published by ordinary users on their pages or in communities of interest.

Since ordinary users do not have knowledge of the traditional system of analytical genres, their publications from the point of view of genre-forming factors combine the characteristic features of several analytical genres at the same time. So, for example, publications from the sociotics community can conditionally be attributed to the genre of a general research article, since it considers issues of psychological aspects... It is found in the expanses of the network and such a genre as "review." Quite often, such publications use obscene or colloquial vocabulary... The genre of "recommendations/advice" can be met in specialized communities... Publications bearing signs of the "rating" genre are found quite

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often... The genre of "analytical conversation" or "interview" is mainly represented by copied materials from professional media sources. Or it is ordinary dialogues or screens of SMS correspondence... In the social network "V Kontakte" surveys are often conducted on various topics, but it is impossible to fully attribute them to the analytical genre "survey," of course... Almost no publication can be attributed only to a specific analytical genre, all materials combine the features of several genres, which distinguishes them from the texts of professional media. " (7, 139). The author is largely right. But his observation that no publication can be classified as a familiar genre is especially valuable. This reasoning shows how much the world of each genre that migrated to the Internet is changing.

Having considered these sources, we came to a conclusion that would be correct in classical option (it demands scientific approach) to allocate the following analytical genres: correspondence, article, review, review, review and letter. They should be considered further in terms of the transformation of the language and style of these genres by bloggers.

We believe that it is very important to note the following pattern characteristic of bloggers, most of whom can be referred to as electronic bumblebees - the main tradition of blogging is the destruction of all traditions and the establishment of the informational domination of chance - a random event that accidentally reflected his blogger, a random assessment (albeit subsequently turned out to be wrong). Previously, it was considered a pattern that was repeated three times, now the random becomes logical, that is, what was said by someone somehow only once, but quickly repeated by dozens of different transmitter sites. And the more implausible, more amazing, more desirable news is for the audience, the more sites are recruited that want to duplicate it. Because, in fact, it's not about the content of the news - in fact, in reality, a high rating is needed, i.e. attention and interest in the site, this is the decisive law of the information era. This is the main criterion, everything else obeys this iron, or rather, diamond-shiny law. Therefore, it would be naive to expect from bloggers that they will adhere to the traditions of previous journalism.

In the final part of the monograph, entitled "Linguistic and stylistic features of newspaper and magazine texts," Y.M. Mamatova writes: "Thus, the language and style of periodical printing are due to the social essence of journalism itself. The newspaper-journalistic style dynamically and effectively interacts with scientific, official-business, literary and artistic styles. There are, however, two divergent trends in the press in Uzbekistan:

- 1) Tendency to maintain the official style, mainly in the press of the official and party;
- 2) In business, infotainment periodicals, preference is given to the synthesis of various styles,

which is explained by the mass nature of human communication and the desire of the press to work for this mass. " (6, 254). Speaking of the object of our study more specifically, we approach the Internet as the third wave of Alvin Toffler. He writes that each next wave with a powerful stream erases previous laws and traditions. (13, 36). We add from ourselves that the previous norms of word use, language and style are also overcome. Attempts to hold on to them are justified only in moderation, it is also necessary to take into account new trends and learn to work in the new conditions. At the same time, it should be recognized that classical linguistics has a centuries-old, justified history and methodology, so it will undoubtedly remain the legislative basis for word use on the Internet.

We believe that in the information sphere, the Internet has become an important component of the third wave. Surprisingly, the form has become both more and less significant compared to the content. Moreover, because it has many species and immediately catches the eye, but it is due to the abundance of form species that it loses its significance for an experienced user who pays more attention to the content. In other words, it used to be considered valuable something that fully met literary standards. The information era has overcome this stereotype, now the message itself is more valuable, its essence.

We do not set the task of fully analyzing the lexical and stylistic resources of the Internet, our task is to study the language and style from the point of view of network genres. The Internet is wider and more extensive than media, the language and style of the Internet is wider and the volume of the language and style of online media. Therefore, we must distinguish, firstly, the language and style of the Internet; secondly, the language and style of the traditions of media on the Internet, i.e. electronic versions of media; thirdly, the language and style of the media messages themselves. The object of this paragraph is the second and third.

Each object, each social institution inevitably influences the language used in it with the help of its essence as a social institution. The same happens with the social institution of the Internet. The time of the Internet dictates to the norms of its language and style a slightly different linguistic-stylistic and literary code, or rather, the unscripted rules of an insufficiently literate majority that dictates and imposes its conditions on the literate part of users. Today, this plan has its own practice, its own set of real linguistic and stylistic behavior of users. In other words, in the use of language and style, users behave much more freely than would be acceptable for normative media behavior. There were contradictions between normative scholars (scholars in the field of language and style) and between writers before, writers always interpreted their rights to use the language and style more broadly than normative

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scholars prescribed them. Creativity cannot be driven into a certain framework, even if it is academic. As for users, they often bring this freedom to absurdity, often elementary not knowing the standards.

In fact, the language of Internet materials is very diverse, from ads and advertising to art novels and scientific articles. But if we take the usual sphere of the Internet, media messages, then we can say that this is a global and powerful newspaper and magazine language resource. The usual language of the newspaper and magazine, once on the Internet, changes in the direction of brevity and business, in the direction of haste and telegraph style. Brief chronicles are more characteristic of the Internet than detailed messages. The off-Internet media language is often closer to the journalistic and artistic language. The Internet language is a high-speed language, a proverb-talk style usually prevails here. And at the same time, he is trying to be free from standards, up to frequent violations of them.

The literary language appears as a result of borrowing the corresponding formation from the national, its processing and stylization, fitting to the established standards. What cannot be said about the language of bloggers who feel very free to choose language tools. If the language of the work of art is characterized by the aesthetic orientation of its vocabulary and the lex used by it, then the blogger language on the Internet is characterized by a more informative and emotionally expressive orientation of the vocabulary used by it. You can also list what came into the language of the Internet in the information era: 1) the expansion of colloquia; 2) jargonism; 3) borrowed vocabulary; 4) evaluation of the fact; 5) speech simplicity and naivety; 6) speech extremism.

Perhaps it is not an exaggeration to say that the language and style of analytical genres on the Internet experience some generic and fatal predestination, expressed in the fact that the Internet is doomed to illiterate speech. There are a lot of people and events, literacy does not keep up with them. The blogger does not speak the language, but knows the information. This is an objective difficulty that network users face.

This raises a very important question, the essence of which is as follows. Is it possible to evaluate the language and style of the Internet as one, albeit essential, but only as one of the sections (parts) of the newspaper-magazine (journalistic) style, one of the five functional styles highlighted by academician V.V. Vinogradov? We think that this would be narrow, because both the Internet itself, both the object and its style and language, respectively, are much wider than the media.

In this regard, we would like to make one fundamental addition. In our opinion, the sixth, Internet language should be added to the distinguished famous scientists of the five functional styles of the Russian language. It is noticeably different from other functional styles in its universality, universality and

difference. Perhaps this sixth style will be the first object style in the history of the Russian language, that is, a style related to one particular object.

This idea is confirmed by the following observation. Speaking about the internalization of journalism, one of the authors writes: "The study we conducted aimed at determining the key factors that, according to journalists themselves, influenced professional practices in the past five years, as well as the nature of these changes. As a research method, a deep semi-structured expert interview was chosen... One hypothesis of the study suggested that over the past five years, the professional practices of journalists have undergone significant changes at almost all stages of activity, not least because of the influence of the Internet. We emphasize that we are talking about journalists of traditional print media, because in the case of Internet journalism we can even talk about the emergence of a separate area with its inherent characteristics. During the study, the hypothesis was confirmed." (5, 65).

Turning to the origins of blogging, it turns out that the primacy of such a movement existed several centuries ago. According to Professor V.V. Tulupov, "bloggers" and "social networks" existed even in those days that scientists attribute to proto-or Prague journalism. In Russia, they were called kalik passers-by, abroad - wanderers who eventually became professional novelists...." (14, 12).

The conditions of word use and emotional use are dictated by the specifics of the Internet era, which, in turn, is the origin of a powerful system of new information technologies, when technology solves a lot. The most important phenomenological quality of the Internet is speed. Everything on the Internet today predetermines speed, this is due to both the volume and quality of the material. Speed is a key condition for transforming everything on the Internet: presentation and matching, language and style, etc. The announce ability of language and style is a direct result of speed and volume. As a result, the network crowds out the artistic, aesthetic beginning, thoroughness, mindfulness, rechecking of facts, that is, the traditional classics of news writing. Their place is occupied by speed, documentality (including audio-video recordings), emotionality.

The work of bloggers forces us to return once again to French structuralism, or rather to the philosophy of neo-Freidism by J. Lacan, who explains language as a transcendental reality, which is as if it were a thing in itself and cannot be fully analyzed in its entirety.

It is impossible to deny that each historical era has its own sense and taste for language and literature. There are many expressions that in antiquity were revered as a high style, and today they are attributed to a highly ardent or ironic style. In general, the evolution of human consciousness and thinking occurs according to the law, which academician V.V.

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Vinogradov called "an increment of meaning." The meaningful content of each word increases and becomes more complicated from generation to generation, the concept takes on additional shades and assessments, which are indicated by new words that were written from the first, which becomes the head of the word family, a generic word.

The following study was based on ten competencies adopted in European journalism. I.P. Vishnyakova-Vishnevetskaya writes: "Interesting data on this issue are contained in the materials of a study conducted by the European Association of Journalism Teachers (EJTA) from the mid-2000s to 2011. According to the results of an online survey of leading professionals and Russian representatives of the media industry, three competencies turned out to be the most popular in the next 10 years: to identify the main information; be responsible for journalistic work; teamwork." (2, 71).

This is what bloggers do - reveal information. It's not a beating card. Thus, we see that the supply of new and operational information at all times has been and remains the main task of forms of mass communication.

It is known that genres are universal forms of journalistic works, which to a large extent predetermine the author's informational and creative behavior. But it's good that many bloggers do not know the theory of genres and write freely. Because not the artistic merits and not the aesthetics of the text, but the high speed and author's image (the latter is one of the fundamental elements of the style) become prevailing in mass network information activities. Therefore, the author's image is one of the most important qualities of online blogging communication. Blogger catharsis is experienced today by all society, and especially those who believed in the infallibility of traditional journalism and literature. Now they have to cleanse themselves of these stereotypes using blogger methodology, or rather, abandoning any methodology for presenting material.

About what serious transformations genres undergo in the network, writes E.M. Pak: "Sound, video, animation help to clearly record the relevance of the event, influence emotionally and strengthen the influence of the message. And finally, the modification of print genres, the ability to create creolized texts. The fact is that in the electronic sphere, publication becomes multidimensional, multi-channel, paralinguistically active, hypertextual due to non-linear reading of the text. Hypertext navigation leads to polychanicity of hypertext, creolization, and verbal and non-verbal elements form one visual, structural, semantic "functionally whole, aimed at a complex effect on the addressee." (8, 115). This is a very important idea, we believe.

It is necessary to express our opinion on such a new concept as the destruction of the text. Those who

deal with the Internet often hear that during the course of creativity in a virtual network, text is destroyed. Is that so?

First of all, what does the destruction of the text mean? This is often said, including in connection with the concept of the destruction of the genre. It's not the same thing. The destruction of the genre means the creation of a new form, unusual, maybe more attractive than the traditional genre form. Everything is much easier here. Much more difficult with the destruction of the text. In our opinion, the destruction of the text is the neutralization of its positive influence on the audience, its elimination as a value. That is, this is a case where an incorrectly created text is simply not perceived by the reader, since it warps his consciousness.

What exactly can the decay of the fabric of the work manifest itself and does the process take place on the Internet? We think so. The destruction of the text occurs when there is a breakdown of thinking behind it, when after it, as a result of a reaction to such a text, there is a degradation of consciousness, for example, frequent use of mat, indulging in low-lying instincts or declination to suicide. But in principle, arbitrary or distorted presentation and even parody of classics, is not a destruction if it leads to new thoughts and to new creativity, albeit unusual. Which happens quite often, for example, in postmodernism.

Some experts consider the abundant frequent use of colloquial style, unusual genres and colloquialism to be a destruction of the text. This can only be accepted if the destruction of consciousness is behind such a decay of the text tissue of the work. So, we believe that the destruction of the text is the use of swear vocabulary and other mind-breaking revolutions.

Undoubtedly, the formation of the type of genre is also influenced by the audience. Unfortunately, this factor is often forgotten, especially in countries with regulated journalism. At different stages of the blogging movement, the effectiveness of its activities can be decided by a variety of individuals, from journalism leaders nationwide to individual bloggers. But ultimately, in the historical future, this can only be done by the audience, that is, the population of the country itself. We write "the population of the country" because it is it that makes its verdict - if not directly, as users, then indirectly, as people who communicate with users or public opinion as the common denominator of analyzing online journalism. The audience of the Internet, the audience of an individual blogger and the audience of an individual work - these audiences are united and different at the same time.

The question arises - how does the audience perceive the linguistic and stylistic norm on the Internet and the deviation from it. On this score, you should not be mistaken - she perceives the linguistic-stylistic (as well as genre) norm as the blogger

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presents to her. New trends are only initially perceived by her as unusual, they soon become familiar. The method of communication is the method of formation of consciousness. As the blogger will say, the audience will understand. That is, here the unconditional law of neurolinguistic programming works.

Thus, the main linguistic and stylistic features of the use of analytical genres on the Internet are that materials in these genres are presented by bloggers very freely, with the introduction of a

multidimensional and diverse identity into them. In print, two reports are not similar, but what to say about the blogger Internet... The very transformation of genres is multidimensional and limitless. This is due to journalistic technology and its numerous capabilities, so we can only talk about it in a generalized form. It should be recognized that in the virtual conditions of a traditionally holistic genre, there are very few uniform forms and criteria for creating genre texts.

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THE ANATOMICAL STRUCTURE OF THE LEAF OF THE INDIGOFERA PLANT

Abstract: To monitor the growth and development of *Indigofera* in the soil and climatic conditions of the Navoi region, as well as to conduct research and experiments on plants to study the impact of environmental factors on plants. Carrying out phenological observations. The medicinal properties of the plant are also studied in the literature.

Key words: *indigofera*, growth, anatomic, phenological, physiological indicators.

Language: English

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Introduction

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The study of promising plants for the national economy and their zoning in different regions of the country is now becoming increasingly important. One of such promising dyeing plants is the *indigofera* plant, the study of its ecological properties is one of the urgent tasks. However, some of the secrets of growing this crop and getting dye from it remain a mystery even today.

The purpose of the study is to study the anatomical structure of the leaves of the *Indigofera* plant grown in the experimental field in order to study the properties of dyeing and to determine their ability to dye and adapt to drought conditions on the basis of their diagnostic features.

To study the morphological and anatomical structure of the leaf, it was fixed in 70% ethyl alcohol. The epidermis of the leaf was studied on the basis of paradermal and transverse incisions, while the transverse incision of the leaf was studied from the middle part of the leaf. The structure of basic tissues and cells was described on the basis of the methods of

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K. Esau (1969), N.S. Kiseleva (1971), Epiderma-SF Zakharevich (1954). The anatomical preparations were prepared by hand, stained with methylene blue, and hardened with glycerin-gelatin. The microphotos were taken using a computer microphotograph, a Conon A123 digital camera and a Motic BI-220-3 microscope.

The leaf is the vegetative organ of the plant and performs the functions of photosynthesis, transpiration and gas exchange.

The leaf of the indigofera belongs to the group of complex leaves, i.e. it has 3-5-7 leaves in a single leaf band, it belongs to the series of single-leaved patsy leaves.

The structure of the leaf blade is kidney-shaped, located on a small 2-3 mm leaf band. The upper leaf is larger than the lower leaves. The upper part of the leaf is covered with fine hairs, the color of the leaf is dark green.

In the cross section of the leaf, the leaf has a long ribbon-like structure. The flesh of the leaf (i.e., mesophilic) is composed of 2 rows of columnar cells at the top of the leaf and 1 row at the bottom.

In the mesophyll of the leaf, that is, in the columnar cells, it can be observed that there is a large amount of black matter.

In the small leaves of the leaf blade, too, a similarity can be seen when cut, as in the large leaf.

In the leaf section, their mesophyll is distinguished by its thinness and thickness.

When the epidermis of the leaf was torn off, it was observed that the epidermal cells in the upper part of the leaf were larger than in the lower part.

Leaf blades can be found both above and below the leaf. Depending on the location of their epidermal cells, they can be classified as type 2. That is (gemiparatsitnye and paratsitnye) structure. That is, it is so named because it is surrounded by 3-4-5-6 side cells around the mouth.

When the lower and upper layers of the leaf are peeled off, the (T) -shaped hairs can be observed under a microscope, and a large number of round hairs can be observed in the cross section.

In summary:

It was found that the leaves of the indigofera plant contained large amounts of black matter. This can be observed in all large and small sized leaves.

From the leaves of the plant *Indigofera tinctoria* L can be obtained a lot of Indigo dye, which is world famous for its other organs of the plant and is called the "king" of dyes.

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USE OF CASE STUDY TECHNOLOGY IN TEACHING STUDENTS A VOCATIONAL- ORIENTED FOREIGN LANGUAGES

Abstract: The article is devoted to substantiating the effectiveness of case-study technology in teaching students a vocational-oriented foreign language, which contributes to the formation of a steady cognitive interest in the basic disciplines studied, develops communicative, research and creative competencies.

Key words: foreign language, discussion, case-method, student education, technological education, foreign language education, higher education.

Language: English

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Introduction

A specific feature of case-study technology is the artificial creation of problem situations using facts from everyday life, that is, this technology broadcasts genuine situations from the social, professional, economic, cultural life of society. This technology demonstrates the level of academic knowledge and practical skills from the point of view of real event phenomena, forms a cognitive interest among students both in specialized disciplines and in the disciplines of natural science, humanities and mathematical cycles. In addition, case-study contributes to the assimilation of knowledge and skills in collecting, analyzing and storing a large amount of educational information containing all kinds of case solutions. A distinctive feature of case-study technology is the parity of all participants in the process of discussing the case. When implementing case-study technology, students receive knowledge not on the basis of reproductive translation of ready-made knowledge, but on the basis of active creation of teachers and students.

In terms of content, cases can be simple (consist of one object) and complex (consist of two or more objects); by design there are - structured and unstructured; by volume are distinguished - narrow-format and wide-format. But it should be remembered that large-format cases in students can cause certain difficulties compared to narrow-format ones,

especially when solving cases for the first time. Case-study can describe one situation in one organization or a variety of situations in different organizations; can contain known situational models or new, still unfamiliar models, etc. The technology of implementation of case-study, containing disputes, discussions, arguments when teaching students a foreign language, trains the participants in the discussion quite strongly, calls on students to comply with the norms and rules of interaction. A great responsibility lies with the teacher, who during the entire training process must maintain an emotional mood, prevent conflict situations, create comfortable conditions for cooperation and at the same time for healthy competition, and most importantly, ensure the personal rights of each participant. The manifestation of their communication abilities during the discussion of case-study in a foreign language allows each participant to detect their own weaknesses and encourages the thirst for acquiring knowledge of a foreign language and its use in the future professional field. Case-study discussions are preceded by vocabulary and grammar to help learners express their ideas more clearly and to make sure the rest of the case are correct. This once again proves the fact that the use of case-study in teaching a foreign language is effective and contributes to the development of spoken speech. Dialogue and discussion within the

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framework of case-study technology is preceded by active work on improving vocabulary and grammar, designed to help students clearly express their ideas and convince the participants in the case of their point of view.

Thus, it can be concluded that the use of the case method in teaching a foreign language in this case of English is effective and contributes to the development of spoken speech.

More recently, multimedia presentations have been increasingly used. However, the presentation of videos, audio, and video materials often creates some difficulties. Sometimes it is easier to work with printed information (G.Yu. Belyaev, S.N. Gorshenina, I.A. Neyasova), analyze it, then to deal with information presented exclusively in multimedia resources [7, 18]. However, the limited possibilities of reusable interactive viewing of information on printed media can lead to its distorted perception (E.V. Glazkov, I.I. Leif), while the case-study presentation using multimedia products allows to minimize the above problems [9].

Analysis of a large number of publications, as well as the Baltic Humanitarian Journal. 2018. T. 7. No. 2 (23) pedagogical sciences of their own research in this field made it possible to prove the feasibility of identifying the following main stages of the development and implementation of case-study when teaching the foreign language of students:

The first stage. The formulation of the purpose of creating a case, for example, the development of foreign-language communicative competence of students in teaching English. To do this, you need to develop a case-study implementation technology according to an established, well-known scenario, presenting all the details used in the interpersonal interaction of case members. Next, you should compile problematic questions and tasks that are aimed at mastering students in various forms of communication; developing the ability to get out of a particular situation in the shortest possible time:

The second stage. Identify the purpose of the case and the specific real situation.

The third stage. Pre-collect, store, and process various sources of information to extend the case.

The fourth stage. Process the information collected for case-study, analyze each new part, and select the main workbench.

Fifth stage. Preliminary preparation of the initial version of the collected and studied information and its presentation in the form of a case. At this stage, materials are structured, the teacher's position is specified, the layout, the form of the case-study presentation is determined - presentation, video, story-role-playing game, etc.). The main stage of working with information is its search, acquisition, processing and storage.

Stage six. Obtaining permission for a public case demonstration. This stage is relevant if the information presented in the case contains personal data of a particular person or group of people.

Stage seven. Preliminary discussion of the completed case in front of a wide audience, receiving expert assessment from those present, making the necessary changes to improve the case.

Eighth stage. Preparation of methodological recommendations for the development and implementation of case-study technology in order to teach students a foreign language, preparation of a set of tasks and a list of questions for the participants of the case to assess the style and speed of their thinking, to clarify skills in working with cases of various complexity.

The conclusions of the study and the prospects for further research in this area. The technology of implementation of case-study when teaching students English makes it possible to optimally combine multimedia resources and information and communication technologies, which contributes to the improvement of acquired competencies, activation of their research, creative, and thought activities. Depending on the purpose, object and format of the case, various forms and means of presentation are used - presentation, analytical method, video, spectral representation of optimal solutions, etc. Using electronic resources, it is convenient to present numerical information in the form of a diagram, graph, model, diagram, sign, table, histogram of a symbol, etc. The most obvious means of successfully implementing case-study in such situations are spreadsheets and graphs.

When implementing case-study technology in the process of teaching students a foreign language, they are usually based on two positions. The first position is based on the traditional Harvard learning technology and functions under the title - "open discussion." The second, and main, position is based on an individual or frontal survey, as a result of which students give an approximate assessment of the problem situation and offer some options for solving case-study, each sets out their own point of view for its further solution and application in other situations. This method develops skills to work with various sources of information, facilitates more objective monitoring and assessment of students' knowledge, significantly reduces the level of educational tension of students, develops their skills for quick orientation in typical situations, and develops the ability to clearly express their thoughts. When discussing a case, the teacher focuses the students' attention on the main object of the case, directing them to the decision algorithm in this situation. It may even suggest which interactive technologies are most effective in this situation.

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THE MAIN FEATURES OF AN INNOVATIVE APPROACH TO THE TEACHING OF TECHNICAL SCIENCES

Abstract: This article discusses the use of innovative technologies in the teaching of technical sciences. It is based on methods that can be used in higher education.

Key words: method, methodology, technical sciences, innovative approach, innovative methods.

Language: English

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Introduction

Innovative technologies are those that involve not so much mastering the discipline as the formation of competencies, for which they use active and interactive teaching methods. Such technologies include, for example, information and communication technologies (involving computer science in the study of technical disciplines), student-centered technologies (developing natural data of students, communication skills), didactic (using new techniques, methods in the educational process), etc.

From the first meetings with students, teachers of technical disciplines should provide a concrete understanding of the goals of studying the discipline, the contribution of this discipline to the formation of competencies. For this, the educational program should provide for the most part a problematic, research nature of education, motivating future graduates to acquire the required competencies. It is customary to single out several basic methods of organizing classes used by teachers in their field [2-3]. The passive method is a form of interaction

between the teacher and the student, in which the teacher is the main actor who controls the course of the lesson, and the students act as passive listeners. We do not believe that the passive method should be completely abandoned. The question is in the ratio, in the share of passive methods in the entire process of cognition. This method shouldn't take over.

An active teaching method is the organization of the educational process, which promotes a more active than with a passive method, interaction with the teacher. If passive methods presupposed an authoritarian style of interaction, then active ones presuppose a democratic style. At the same time, the teacher "has to revise the traditional teaching methodology, when the classroom has only the usual blackboard and chalk" [4, p.158].

Interactive method. Today it is not enough to be competent only in one's own field and be able to transfer a certain amount of knowledge to students. Currently, the teacher needs to organize the process in such a way as to involve the students themselves in obtaining knowledge, which is facilitated by active,

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and even more - interactive teaching methods. It is known that learners can more easily understand and remember the material they have learned through active involvement in the learning process. The interactive method is the "closure" of students to themselves. The main thing is the communication of students with each other in the process of obtaining knowledge. The role of the teacher in interactive classes is reduced to the direction of students' activities to achieve the objectives of the lesson. Interactive learning is primarily interactive learning.

There are many forms of active and interactive learning, we will recall only some of them: creative assignments, lectures with a mistake, brainstorming, conferences with presentation of reports and discussion, educational discussion, teaching using computer programs, case method. The case method can be presented as a complex system, which includes other, simpler methods of cognition. It includes modeling, systems analysis, problem method, thought experiment, simulation, classification methods, game methods that play their roles in the case method [5]. The acquisition of competencies is based on performance. This means that the very possibility of assimilating knowledge, skills, abilities depends on the activity of students. It is the task of a teacher of a higher educational institution to organize this activity correctly.

Long-term observations of the educational process revealed an increasingly weaker mathematical preparation of applicants, a lack of independence and interest in learning, a desire to look for an answer on the Internet for any reason, inability to concentrate, fear of public speaking and a lack of tolerance for the statements of others. All this stimulated the search for some new approaches to working with current students.

In the learning process, it is necessary to pay attention, first of all, to those methods in which listeners identify themselves with the educational material, are included in the studied situation, are encouraged to take active actions, experience a state of success and accordingly motivate their behavior. For example, a discussion in small groups gives each participant a chance to bring something of their own into the discussion, feel independence from the teacher, show leadership qualities, and repeat the material. And while the new perspectives on learning are not accepted by all teachers as a guide to changing their own teaching patterns, finding interactive ways to interact with the group, research evidence confirming that using active approaches is an effective way of learning cannot be ignored.

The purpose of our experimental study was to determine the possibility and effectiveness of using active and interactive forms in teaching technical

disciplines. The objectives of the study were as follows: within three years, monitor the results of intermediate attestations in several technical disciplines in a number of groups; in several groups, gradually from year to year, increase the share of active and interactive approaches both in lectures and in practical and laboratory classes; to conduct traditional classes in technical disciplines in one group; to carry out a comparative analysis of the results of intermediate certification in groups with a large share of active methods and in the group of traditional education for three years; gather information as far as possible on the main best practices. Classes in all groups were taught by the same teacher.

Research methods

Based on the objectives of the study, the groups of directions 03/08/01 were selected. "Construction", 13.03.02. "Power Engineering and Electrical Engineering" (bachelor's degree profile), with which the authors of this article worked. We used active forms of interaction in teaching such disciplines as "Theoretical Mechanics", "Technical Mechanics", "Modeling in Engineering". Theoretical mechanics is studied in the third semester, students take an exam and coursework with grades. Technical Mechanics is given in the fourth semester and students should receive credit as a result. The course "Modeling in Engineering" is taught to bachelors of the third year of study, intermediate certification is a test.

Several methods were selected.

The brainstorming method was used mainly in the lecture. Lectures necessarily contained problematic questions, the answer to which was proposed to be found by this method. In theoretical mechanics, for example, it was necessary to determine the number of unknown reactions of supports in statics, to formulate the concept of a vector-moment or the order of solving problems. In the course of technical mechanics, at the first acquaintance with the Assur groups, it was proposed to calculate the class of a given Assur group, to simulate a 4th grade group, followed by a performance in front of the entire audience, in which it was necessary to justify your choice. In a lecture on the discipline "Modeling in Engineering", after explaining the classification of types of modeling, it was proposed to characterize the computational fluid dynamics program, which reproduces on a computer the process of flowing around an object with any liquid or gas (which was demonstrated by a slide show). It was necessary to answer the questions: real or mental model, dynamic or static, discrete or continuous, etc.

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NX IS AN INTEGRATED SOLUTION FOR PRODUCT DESIGN, DEVELOPMENT AND MANUFACTURING

Abstract: Siemens NX software is an integrated design, engineering and manufacturing solution that helps you deliver quality products faster and more efficiently. Integrated CAD / CAM / CAE: Intelligent Solutions, Better ProductsNX offers key capabilities for fast, efficient and flexible product manufacturing. This article discusses the advantages and disadvantages of NX.

Key words: Software, Siemens NX, design, engineering, manufacturing, quality products, CAD, CAM, CAE, Better ProductsNX.

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Introduction

The NX™ software product is an integrated CAD system that offers a set of solutions for design and production preparation tasks and contains engineering analysis tools. NX is the result of the merger in 2002 of Unigraphics and I-deas, which were already the leading CAD systems in many industries at the time. The origins of Unigraphics, the first release in 1973, were from the aerospace industry. The I-deas package, released in 1982, was developed under the leadership of companies in the automotive industry. Currently, the NX system is implemented in most industries and in many companies it has become a standardized solution for automating the processes of design and technological preparation of production. The NX system is based on the Parasolid geometric kernel from Siemens PLM Software and is a set of applications divided into the following areas: NX CAD - tools for 2D and 3D design of parts and

assembly units, as well as preparation and release of design technological documentation. NX CAM - tools for automating the creation of programs for CNC machines, managing tool libraries, setting up postprocessors and simulating machining based on the created program. NX CAE is a set of applications for the automation of engineering calculations and simulation of physical processes based on electronic models of assemblies and parts of a product being developed. The suite of applications included in NX CAE is based on the NX Nastran finite element solver and offers advanced tools for preparing simulation models and processing the results obtained. The use of a single platform for applications from various fields allows you to significantly optimize the data flows transmitted between specialists, and to avoid unnecessary translation processes from one system to another. The model developed in NX CAD applications is used as a basis for work in NX CAE

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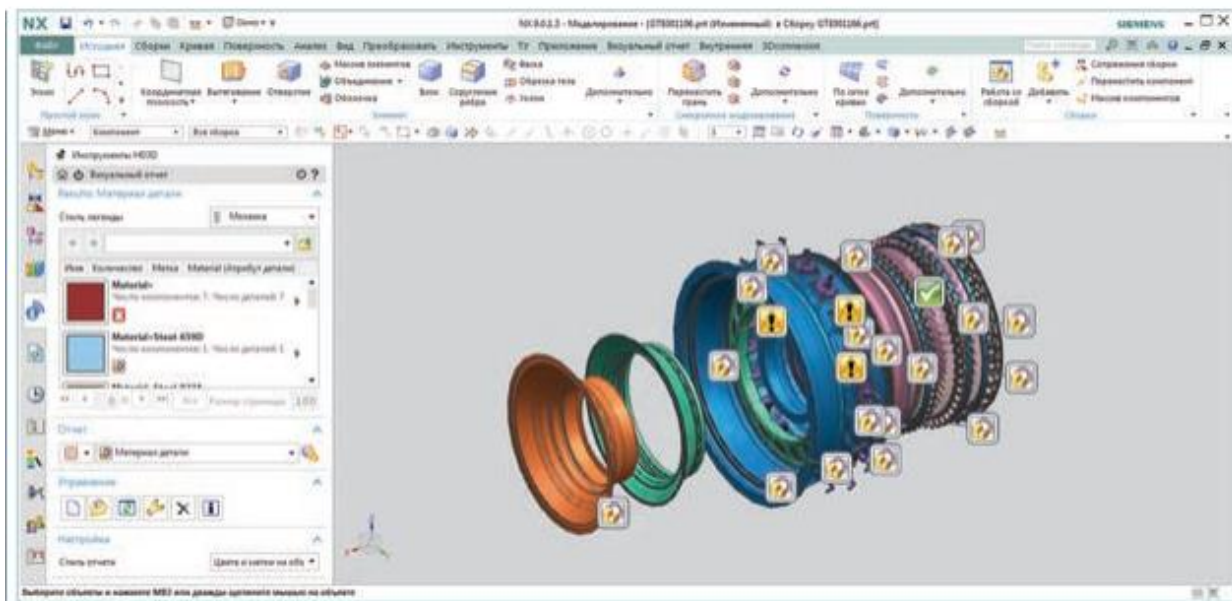
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and NX CAM applications. This provides a concept of work using a master model. This means that the original model serves as a data source for consumers, but at the same time they work with its associated copy. On the one hand, this makes it possible to guarantee the author of the model its safety, and on the other hand, it allows consumers to track all the changes that are made to the model.

Another undoubted advantage of a single platform is the unification of the interface and the availability of the same tools for specialists in various fields. This greatly simplifies the learning process and avoids duplication of the same toolkit for specialists in different fields. NX CAE and NX CAM users have access to advanced modeling tools for NX CAD applications. This makes it possible to quickly and optimally adapt the resulting associative model to the needs of a particular specialist and at the same time not lose connection with the original data source. As a top-level CAD system, NX is focused on automating the design and manufacturing of the final product. This distinguishes it from systems focused on intermediate stages, such as issuing paper documents or preparing programs for CNC machines. The ideology of work in the NX system is based on an electronic model of a product, and all tools for automating development processes are based on an electronic model of a part or assembly unit. NX makes it possible to implement a complete description of the product being developed in an electronic model and use this description at all stages of the development process. The model serves as a data source for the creation and release of documentation, calculations, tooling development, preparation of marketing materials and other main and auxiliary processes.

The NX system implements the concept of an adaptive interface that can adapt to the needs of any user, depending on the tasks performed and the level of system development. For easier mastering of the system and to differentiate the functionality for the needs of different categories of specialists, NX offers a role mechanism. Each role includes functionality in relation to a task or corresponds to a certain level of mastering the system functionality by the user. For novice users, the system offers a role with a minimal set of commands and options, which allows you to quickly start working with the system. And for more advanced users, the corresponding role gives access to advanced command options and opens additional functions for work. The system interface itself can be presented in the form of a standard Windows architecture with floating toolbars, as well as in a more modern form, based on a ribbon menu with advanced customization functions. For more flexible work, NX provides a two-way logic of work - the user can call a command and select geometric objects, and vice versa - when selecting an object, the system offers the user a set of commands that are applicable to this type of object. This significantly speeds up the user's work and allows him to think about the immediate task, and not about the system interface. For quicker mastering of the NX functionality by users moving from other systems, the interface has an interactive command search function. By entering a keyword, the user immediately sees where this or that command associated with the entered word is located. Key words can be either a desired action or a geometric object, or the name of a command from other CAD systems - in this case, NX will show its closest analogue.



Picture 1

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From an architectural point of view, the NX system consists of a set of applications and modules that are focused on solving problems in a specific area from the CAD / CAM / CAE directions. The user himself chooses the application for work in accordance with what he needs and what tools he needs. The availability of an application or tool is subject to license availability. For optimal configuration of workplaces, NX has a flexible licensing system. There are several basic configurations of applications and modules, which are typical workstations, to which additional modules can be connected to expand the functionality. A large set of built-in and plug-in translators allows for two-way data exchange with other CAD systems, with different levels of data transfer.

Electronic mock-up of a product is one of the key links in the construction of an end-to-end design and production process from the technical specification to the finished product. It depends on how fully and accurately the electronic layout will describe the developed layout, what tasks can be solved based on the electronic description of the product, and how deeply it will turn out to integrate all development participants into a single environment. If earlier the use of CAD systems was limited only to the creation of 3D models for linking and creating drawings, now the main goal of introducing and using top-level CAD systems is to provide all participants in the development with the necessary information about the product to solve their problems. Naturally, this task is solved not only by the CAD system in which the data is created, but also by the life cycle management system. In the Siemens product line, this is the Teamcenter® PLM system, which has an integration module with the NX system. Realizing that product design is not limited to 3D modeling, Siemens PLM Software offers an integrated suite of applications in NX and Teamcenter systems that cover all major phases of product design and manufacturing preparation: Requirement Development. The combination of Teamcenter PLM's requirements management capabilities and parametric modeling tools is transforming the way you define and control requirements. The terms of reference is not just a set of documents, but related parametric and textual requirements that are integrated into an electronic layout. This provides tracing between the parts of the electronic layout in the NX system and all the requirements that apply to these parts. When the technical specifications or regulatory documents change, the project participants see which specific unit or part these changes apply to. The feedback also works - the characteristics of the developed electronic layout of the unit or part are compared with the parametric constraints defined in the terms of reference. If the permissible limits are exceeded, the system signals this. Conceptual study of the product. For this stage, NX offers a full range of 2D and 3D

modeling tools, with the help of which the main design options can be worked out and documented. In addition, the NX system has a special application, Mechatronics Concept Designer, designed to conceptually work out the components of the product, determine the relationships between them and the logic of the mechanisms included in the product.

Product layout and decomposition. To solve layout problems, the user is offered basic and advanced capabilities of the Assembly module in combination with modeling tools. It is also possible to use optimization and control tools. Decomposition of the product is supported by the functionality of the WAVE inter-model relationship management module, which allows you to define parametric and geometric dependencies between all components. Detailed study. To detail the components of a product, the NX system provides the user with a toolbox of several applications with the help of which an accurate model of a part or assembly is built. In this case, the model can be based on external source data, determined at the stage of decomposition, and meet the requirements specified at the stage of forming the technical task. Engineering analysis. For carrying out engineering analysis tasks, NX offers two levels of solutions - for applied calculations for designers and constructors, as well as for specialists in calculation departments. In the first case, simple wizards are used that allow you to carry out a preliminary simple calculation of the product being developed in a step-by-step mode. In the second case, we are talking about a set of applications included in the NX CAE direction. In addition to these solutions, Teamcenter provides the Teamcenter Simulation module, which closes design data management tasks and provides a link between design data and engineering calculations. Assembly and analysis. Both NX and Teamcenter applications provide tools for creating assemblies and analyzing collectability. In addition to the formation of the assembly structure and its geometric representation, the user has tools at his disposal that allow you to work out the assembly sequence, analyze assembly and conduct a number of other analyzes. Eliminating errors in the electronic layout helps to avoid corrections and modifications of the product when it has already been put into production and when the cost of corrections is already orders of magnitude higher than at the development stages.

Tooling development. The development of technological equipment is greatly simplified in the presence of an electronic model of the product.

When designing tooling elements, associative links to electronic models of the corresponding units and parts are used. This makes it possible to develop tooling already in the early stages of the readiness of the electronic layout and to quickly track the changes taking place in it. And with the effective use of associative links, it becomes possible to quickly adapt

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existing tooling elements for products that have a certain degree of similarity with those already developed. For tooling professionals, NX offers a full suite of modeling tools as well as a range of specialized die and mold design applications.

Preparation of programs for CNC machines. The tasks of this stage are closed by a set of applications included in NX CAM. At the same time, the possibilities for using NX for production preparation are not limited only to the nomenclature of parts manufactured on CNC machines. The use of modeling tools and synchronous technology allows you to create operational sketches for parts manufactured on universal equipment, as well as prepare models for individual operations on CNC machines. Preparation of documentation. The NX system offers several ways to create design and engineering documentation using

the Drafting and Specifications applications. The user can create both classic drawings based on electronic models of parts and assemblies, and annotate directly 3D models, linking dimensions and annotations directly to geometry. Quality control. For quality control, NX offers a number of tools that allow you to check the electronic layout and documentation for various kinds of inconsistencies. This can be control of design, control of collection, control of the possibility of manufacturing a part with reference to a specific technological process, and many other types of control that accompany the development process. In addition, NX allows you to link information to the electronic model, which is subsequently used in Teamcenter and Technomatix applications for collectability analysis or dimension chain calculation.

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SOCIETY DEVELOPMENT: LAWS AND CONCEPTS

Abstract: The article describes the laws that determine the course of the social process, as objective as the laws of society or nature. Because of this, we can say that laws work regardless of the will or consciousness of people, exclusively independently. It should be noted, however, that the laws of society are limited by social time and space. This is due to the fact that they appear and begin to function only from a certain moment in the development of the universe. From the moment when society reaches its highest material system.

Key words: society, social processes, law, concept, society development, objective conditions, subjective factor.

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Introduction

Social laws are very different from the laws of nature. The laws of society are based on the activities of people. They exist purely within society and its activities; outside these conditions such laws cannot function. There is a direct relationship between how deeply and consciously a person learns the laws of the structure of society, as well as their ways of working and permanent development, so much his level of awareness increases when using them. Moreover, it also affects the way historical and social processes proceed, as well as the progress of society.

Knowledge of the laws of nature and the processes occurring in the environment allows a person to use natural resources reasonably well. Likewise, knowledge of social laws enables people, namely the ruling stratum of the population, who decide the fate of people, to consciously approach the process. This means that the ruling elite should use progressive methods of leadership and administration, because it is in their hands that history. The leaders of any country must first learn and then use social laws. This helps them to build their ruling policy, not spontaneously, but verified at every step. At the same time, relying on scientific knowledge and concepts,

they develop programs in all areas of human activity. It should be noted that all processes occur based on the achievement of certain goals.

METHODS

Social laws are of different nature and degree of manifestation... By nature, they are divided into:

- laws of structure;
- laws of functioning;
- laws of development.

According to the degree of manifestation, they are divided into:

- universal laws;
- general laws;
- private laws.

In essence, the laws of structure reflect the social and social organizational and structural dynamics that are inherent in a particular historical moment.

The laws of functioning serve as a certain impetus that creates the conditions for the transition from one state of relative stability to another. Moreover, the laws of functioning preserve this stability of the social system.

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The laws of development create the preconditions for the formation of conditions conducive to a change in measure and transition to a new state.

The degree of manifestation of universal laws is reflected in a kind of triad of laws of philosophy or laws of dialectics, which operate in nature and in society.

There are the following types of general laws:

The law of the influence of the mode of production on the nature of the social process. This refers to the influence on the formation, activity and development of areas of social life and production, the structure of society.

The law that determines the functions of social life in relation to public consciousness, subject to feedback.

The law that determines the level of personification of an individual from the state of the system of social relations.

The law of socialization, or in other words, the law that determines the level of social and social continuity.

Speaking about private laws, it should be noted that they include laws that are related to a certain area of human life or areas of society.

Social laws are often more trends than laws in their original form. This happens due to some dialectical necessity, and sometimes even quite by accident. These tendencies are formed in subjective and objective conditions, passing the obstacles of social collisions and the chaos that forms at the moments of collision of opposite social tendencies. In turn, these collisions serve as a basis for the formation of the possibilities of their existence in different historical periods. Therefore, the conscious creation of conditions for the existence of such trends makes it possible for society and society to realize opportunities in the existing reality in different spheres of life and production areas.

It should be noted that there are certain conditions and concomitant factors for trends to move into the rank of laws. Among such factors are the achievements of scientific and technological progress. However, one should not forget that, in essence, scientific and technological progress is a regularity of social development. Based on this judgment, we can safely conclude that one of the laws of social activity is the law of combining the real possibilities of society with the discoveries of scientific and technological progress. This law has its roots in the distant historical past, in other words, it is historical. Has objective characteristics in time and space, which are based on social needs and abilities associated with the subject synthesis of science and technology.

Due to its functionality, the law manifests itself in all spheres of human life individually and in society as a whole.

Returning to the question of what is the true difference between the laws of nature and the laws of society, we can conclude that they have different mechanisms of implementation.

It is obvious that the laws of nature, as well as the laws of society, are objective. The connection between processes and phenomena in laws is necessarily stable, periodically repeating, essential and necessary. However, the differences also lie in the fact that in nature all these connections occur by inertia. For example, a ball that is thrown up will surely fall to the floor due to the force of gravity. In society, the objectivism of laws depends only on a person. Provided that the development of personality affects the course of history, since a person can contribute to both the progress of social life and regression. The laws of society are of a historical nature and can arise and function in different historical conditions as certain factors appear for their discovery and activity.

Social laws are effective only when society and people, its constituents have goals and strive to achieve them. In a split society or a society consisting of passive individuals, social laws do not manifest themselves.

The concepts of "objective conditions" and "subjective factor" are characteristic of the implementation of the laws of the social process.

Objective conditions are circumstances and phenomena of a socio-economic nature that do not depend on the will and consciousness of people, necessary for the formation of a certain historical phenomenon (for example: a change in the form of a socio-economic direction). But in essence, these conditions are incomplete.

Only in conjunction with a subjective factor can a specific historical or social event occur or not. The objective conditions are completely dependent on the subjective factor.

The subjective factor is the purposeful, conscious activity of society, social groups, socio-political movements, the ruling elite, and individuals, which is aimed at transformation, maturation or preservation of the objective conditions of social existence.

It should be noted that not always a subjective factor can be progressive, a regressive character is also inherent in it.

The consistency of objective conditions and the subjective factor is manifested in the fact that history is created by people, but this happens not according to their desire and views, but in accordance with certain conditions dictated by specific historical conditions.

A complex and contradictory social process can have the character of progressive development and leaps and bounds. Some scientists are of the opinion that social development occurs along a sinusoid. This means that at first there is a rise to the peak of perfection, and then the process begins to decline

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again to the beginning, thus, the decline of social development begins again.

By virtue of all the indicated factors, it can be concluded that the concepts of social development have a formational and civilized nature.

Formation concept. Socio-economic formation is a concept that is used in Marxism. The basis of the formation is a way of producing material goods.

Each formation is a social organism with its own characteristics, which is formed and developed on the basis of its inherent laws. At the same time, the socio-economic formation is a certain stage in the development of society.

RESULTS AND DISCUSSIONS

Philosophy has its own concept of civilization. In a general philosophical sense, it can be defined as a measure of a certain stage of social development. In turn, in the socio-philosophical sense, the world-historical process is characterized through the prism of civilization and determines a specific type of development of society. Civilization is a social form of the movement of matter.

A. Toynbee's concept is an analysis of the history of mankind through the alternation of a number of civilizations. Civilization according to A. Toynbee is a stable unity of people who choose the same religious customs and geographical limits.

A. Toynbee says that each civilization has its own path of development, different from the path that is inherent in another civilization. Because of this, the scientist decides to analyze the historical factors of social development. First, he raises the question of the "law of challenge and response." This refers to the very emergence of civilization and the process of further development and progress, which is determined by the ability of society and individuals to give an appropriate response to the challenge that has formed in certain historical conditions. This takes into account both natural and human factors.

Here it is quite correct to recall the theory in which it is said that society develops following the example of a sinusoid. Because if society has failed to adequately respond to the challenge of historical conditions, the social organism will decline. To prevent this from happening, but the reaction has entered into history correctly develop conditions for the formation of a "creative minority". These are scientists, politicians and the creative elite who are

able to generate new ideas and implement them, involving the global community in this process.

The development of civilization always entails decline. Of course, it can be postponed, pushed aside and even avoided, but for this it is necessary to rationally dispose of their powers, first of all, by the ruling elite.

At the beginning of his research, he speaks of twenty-one local civilizations, after deliberation and deep analysis, he leaves only thirteen. The creative elite, in his opinion, determines the nature of responses to historical conclusions. Moreover, it is those whose opinion is innovative that lead to an inert majority. The peculiarities of these answers determine the specificity of each of the civilizations.

Analyzing all the properties that are inherent in both concepts - formational and civilizational, we can conclude that they have both in common and different. In addition, when comparing them, disadvantages and advantages are visible.

The truth is that the dialectic nature of the socio-historical process is subordinate to certain patterns of trends in the development of society.

CONCLUSION

The analysis of concepts involves:

✓ Application of the systemic principle. The meaning of which is the description and disclosure of social phenomena, as well as research in a compartment of elements and connections that unite them.

✓ Application of the multidimensional principle, which implies that all the constituent parts of the development of society can be subsystems of others: economic, managerial, environmental, scientific, defense, etc.

✓ Application of the principle of polarization, which is based on the study and study of opposite trends, characteristics, parameters, properties of social phenomena. This means: actual - potential, material - personal.

✓ Application of the interrelated principle. Its essence is to analyze each social phenomenon and its properties in relation to other social phenomena and their properties. Moreover, these relations can be built on the principles of subordination and coordination.

✓ The use of the hierarchical principle of the existence of social phenomena, as well as the connections that are formed with these problems - local, regional, global.

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THERMAL INSULATION MATERIALS: ADVANTAGES AND PRODUCTION

Abstract: The article describes that the use of heat-insulating materials is one of the most important methods of energy saving, and also has an important technological significance, allowing to reduce the thickness of structural elements. Thermal insulation materials are materials characterized by low thermal conductivity and used for thermal insulation of building structures, industrial equipment and pipelines. The range of currently used heaters is quite wide - from foam plastics to mineral wool compositions based on polymer and inorganic binders.

Key words: thermal insulation materials mineral wool, basalt fiber, stone wool, fiberglass, glass wool.

Language: English

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Introduction

All thermal insulation materials and products from them are classified according to various criteria into several groups. By the type of the main raw materials, they are distinguished: organic (polystyrene foam, polyurethane foam, polyvinyl chloride foam, expanded polyethylene, fiberboard insulation boards, wood-concrete products, etc.) and inorganic (basalt fiber, mineral, ceramic and glass wool and products made of them, diatomite, expanded perlite and vermiculite, expanded clay, foam glass, aerated concrete, etc.). By structure: fibrous, granular (loose), cellular. By shape: flat (slabs, mats, felt), loose (cotton wool, perlite), cord (cords, bundles), shaped (segments, cylinders, half-cylinders, etc.). By binder content: containing and not containing. By heat resistance: non-combustible, hardly combustible and combustible.

METHODS

Currently, the following types of thermal insulation materials are most widely used: mineral wool, basalt fiber, glass wool and products from them, perlite thermal insulation materials, foam diatomite thermal insulation materials, foam glass, aerated concrete (foam concrete and aerated concrete) and expanded clay. And with the development of modern

technologies for facade decoration of buildings and structures, the Uzbek market for insulation made of fibrous thermal insulation materials on composite polymer and inorganic binders, one of the components of which is polyvinyl acetate dispersions, is growing especially rapidly.

The solid phase and the main component of all fibrous heat-insulating materials is fibrous wool obtained from melts of various rocks and other silicate materials, as well as from blast-furnace and open-hearth slags and from other waste of metallurgical production. Fibrous wool consists of glassy fibers and non-fibrous inclusions formed as a result of solidification of silicate melt. The fibers, on average, have a diameter of 1 - 10 microns and a length of 2 - 3 to 20 - 30 cm. Mineral wool is obtained from a melt of low-melting rocks, silicate industrial waste, blast-furnace slags and mixtures thereof. Mineral wool is intended for the manufacture of heat-insulating, sound-insulating and sound-absorbing products, as well as as a heat-insulating material in construction and industry with a maximum operating temperature of up to 600 - 700 °C. At higher temperatures, sintering of mineral wool fibers is observed. Basalt fiber and stone wool are obtained from the melt of basalt rocks (basalts and similar metamorphic rocks and marls) at a temperature of about 1500 °C. Unlike

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mineral wool, produced mainly from a mixture of low-melting rocks with industrial mineral waste, heat-insulating materials made from basalt fiber have a longer service life, increased vibration resistance, thermal and water resistance. Basalt thermal insulation does not change its initial properties during the entire period of operation, does not emit harmful substances into the environment, and does not form toxic compounds with other materials. The main components for the production of fiberglass and glass wool are cullet, sand, soda, dolomite, limestone and other components. The fiberization process takes place from a glass mass melted at about 1400 °C, which is defibred, usually by centrifugal force in centrifuges.

RESULTS AND DISCUSSIONS

Currently, three main fiber-forming technologies are used in the production of fibrous heat-insulating materials: centrifugal blowing, multi-roll and spun-vertical blowing. The most common is the centrifugal blowing method. It should be noted that the cotton wool produced by this method is of low quality, with a large (up to 25%) amount of non-fibrous inclusions and fiber-forming waste. The spun-vertical-blowing method provides waste-free processing of the melt, but due to the low power and high cost of the platinum-rhodium alloy feeders used in the technological process, it is used mainly on low-productivity lines. The centrifugal-roll method (centrifugal-multi-roll) is the most widespread in foreign practice and is based on the supply of melt to rapidly rotating rolls. In Uzbekistan, this technology has also been introduced at a number of large Uzbek enterprises.

The quality of products made from fibrous thermal insulation materials is determined by many parameters. Among the most significant are the chemical composition of the solid phase, the content of non-fibrous inclusions, the geometry and orientation of fibers in space, and a high-quality, environmentally friendly binder.

The chemical composition of the solid phase primarily determines such characteristics of heat-insulating materials as strength, heat resistance, and chemical resistance. The strength of heat-insulating materials is also determined by the parameters of the pore structure of the product and the orientation of the fibers in the direction of stress. Homogeneous pore volume distribution and a decrease in their average diameter increase the strength of thermal insulation materials. Compressive strength increases with the number of vertically oriented fibers. The selection of a binder with improved adhesion properties in relation to aggregates also has a positive effect on strength.

The fibrous structure also provides another important property of fibrous heat-insulating materials - low thermal conductivity, as well as negligible shrinkage and preservation of the geometric

dimensions of products during the entire period of operation. The thermal conductivity of different types of mineral wool at normal temperatures is 0.034 - 0.045 W/ (mm/°C) and largely depends on the geometry and orientation of the fibers in space. The most effective heat insulators are those with randomly oriented fibers.

Most of the products made of fibrous thermal insulation materials have high temperature resistance, effectively prevent the spread of flame and are used as fire insulation and fire protection. More acidic formulations are more stable than basic ones. Fibrous products from rocks of the basalt group can be used in very high temperatures. Basalt fiber materials are able to withstand temperatures up to 1000°C and above, and even after the destruction of the binder component; their fibers remain intact and bound together, retaining their strength and creating fire protection.

Modern multicomponent binders are an important component of fibrous heat-insulating materials, which has a great influence on the operational and thermo physical characteristics of fibrous heat-insulating materials. Fibrous thermal insulation materials are characterized by high water absorption, reaching up to 600% when immersed in water. And, as you know, an increase in the moisture content of a heat-insulating material significantly impairs its heat-insulating properties. The use of hydrophobizing impregnations in the binder composition can reduce water absorption to 1.5 - 2%. Studies on the selection of a binder for the production of thermal insulation boards have shown the effectiveness of using compositions from components of organic and inorganic origin for these purposes. Combined binders currently used, containing in their composition a polyvinyl acetate dispersion, synthetic resins, sodium water glass, surfactants, water repellents, dedusting and other additives, provide high operational properties of the resulting products, with increased thermal and water resistance, effective water-repellent properties, invariability of structure, stability of geometric dimensions for the entire service life.

The technology of production of heat-insulating materials from polyurethane foam is a special case of manufacturing materials for thermal insulation of various production methods and applications. The use of heat-insulating materials is one of the most important methods of energy saving, and also has an important technological significance, allowing to reduce the thickness of structural elements. Thermal insulation materials are those characterized by low thermal conductivity and used for thermal insulation of building structures, industrial equipment and pipelines... The range of insulation materials currently used is quite wide - from foams to mineral wool compositions based on polymer and inorganic binders. All thermal insulation materials and products

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CONCLUSION

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DEVELOPMENT STRATEGY OF AN INNOVATIVE MANAGEMENT OF THE INDUSTRIAL COMPLEX OF THE REPUBLIC OF KARAKALPAKSTAN

Abstract: The article discusses the ways of development of the innovative management system and the strategy of the industrial complex of the Republic of Karakalpakstan. The development of the industrial complex is analyzed, and promising areas of the region's industry are identified.

Key words: Industry, innovation strategy, industrial development, cluster.

Language: Russian

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СТРАТЕГИЯ РАЗВИТИЯ ИННОВАЦИОННОГО УПРАВЛЕНИЯ ПРОМЫШЛЕННОГО КОМПЛЕКСА РЕСПУБЛИКИ КАРАКАЛПАКСТАН

Аннотация: В статье рассматриваются пути развития инновационной системы управления и стратегия промышленного комплекса Республики Каракалпакстан. Проанализировано развитие промышленного комплекса, а также определены перспективные направления отрасли региона.

Ключевые слова: промышленность, инновационная стратегия, индустриальное развитие, кластер.

Введение

В Узбекистане осуществляются глубокие структурные преобразования и реализуются важные стратегические задачи. В соответствии со Стратегией действий по дальнейшему развитию Республики Узбекистан в 2017-2021 годах предусматривается «развитие и либерализация экономики, направленные на дальнейшее укрепление макроэкономической стабильности и сохранение высоких темпов роста экономики, повышение ее конкурентоспособности, модернизацию и интенсивное развитие сельского хозяйства, продолжение институциональных и структурных реформ по сокращению присутствия государства в экономике» [1].

Осуществление реформ и реализация комплексных мер по диверсификации и модернизации отраслей промышленности в последние годы способствовала обеспечению

эффективных структурных сдвигов в развитии данного сектора экономики.

Экономический рост будет обеспечиваться в первую очередь за счет создания инноваций, конкурентоспособных производственных цепочек и наращивания инвестиций на эти цели. Согласно исследованиям Гарвардского университета, наша страна имеет все возможности и относительные преимущества в производстве промышленных товаров более 50 наименований. В частности, имеются все условия для того, чтобы нефтехимическая, металлургическая, машиностроительная, электротехническая, фармацевтическая, строительная, текстильная, кожевенно-обувная, пищевая отрасли, а также сферы, связанные с «зеленой экономикой», стали «драйверами» национальной экономики. Необходимо принять все меры для поддержки

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инициатив частного сектора и новых проектов, развития кооперации в этих отраслях[2].

Основная часть.

Современный этап развития Узбекистана характеризуется наметившимся ростом экономики, важной составляющей которой является текстильная промышленность. При современной актуальности процессов интеграции в мировую экономику серьезное внимание обращается на стабильное развитие отрасли. Текстильная промышленность Узбекистана не только один из самых быстроразвивающихся сегментов экономики, но и лидер в привлечении иностранных инвестиций, экспорте продукции. Основными факторами конкурентоспособности продукции являются: качество продукции; ее цена; качество обслуживания товаров на определенном рынке; затраты на потребление товара для его использования; управление качеством [5].

Важным фактором роста конкурентоспособности любой страны является ее поэтапный переход на инновационный путь развития. По мнению авторитетных специалистов, «в решении всего спектра стратегически важных проблем различных стран в XXI веке ключевая роль отводится инновациям, инновационной деятельности и основанной на знаниях экономике или инновационной экономике»[3]. Действительно, мировой опыт показывает, что переход на путь устойчивого развития таких высокоразвитых стран, как США и Япония, ряда государств Европейского Союза и Юго-Восточной Азии, достигнут в основном за счет расширения инновационных процессов в реальном секторе экономики.

Промышленность Республики Каракалпакстан характеризуется относительно низким (в последний год – средним) уровнем развития, обусловленным преобладанием добывающих и сырьевых отраслей, недостаточной диверсификацией и модернизацией производства, несбалансированным территориальным размещением промышленных объектов, неудовлетворительным уровнем самообеспеченности населения потребительскими товарами и др.

Эффективное использование имеющегося природно-ресурсного и производственного потенциала сдерживают такие проблемы, как высокая зависимость отдельных видов производства от импортного сырья и недостаток местных и импортных сырьевых ресурсов; медленный процесс модернизации и технического перевооружения производства при имеющихся случаях высокого износа основных фондов;

отдаленность от других регионов страны и недостаточно благоприятные условия инфраструктурной обеспеченности в отдаленных территориях. В результате наблюдается недозагрузка производственных мощностей, несоответствие производства важнейших потребительских товаров потребностям населения, диспропорции в развитии территорий[8].

Между тем регион обладает достаточным природно-ресурсным и производственным потенциалом и преимуществами, которые можно задействовать для ускоренного развития промышленности в перспективе.

Индустриальное развитие Республики Каракалпакстан на перспективу определяется следующими конкурентными преимуществами, экономическими и природными особенностями территории:

- концентрация базовых объектов (УП «Кунградский содовый завод», ООО «Устюрт газ», хлопкоочистительные и мукомольные предприятия), имеющих стратегическое значение для Узбекистана;

- ведущее положение в выпуске карбоната динатрия, природного газа, электроэнергии, растительного масла, спиртных изделий, имеющих спрос в регионах страны и за ее пределами;

- высокие позиции в экспорте хлопка-волокна, химической продукции и изделий из нее, служащих фактором для развития сопутствующих отраслей промышленности;

- наличие месторождений полезных ископаемых нефти и газа, кирпично-черепичного, керамзитового, цементного, железно-рудного сырья, облицовочных камней, мрамора, известняка, вермикулита, как ресурсов для расширения продукции строительной индустрии и потенциальных объектов привлечения инвестиций;

- надежность энергетической системы, характеризующаяся наличием собственной теплоэлектростанции (АО «Тахиаташ иссилик электростанцияси»), обеспечивающей потребности региона и других областей страны в электричестве;

- наличие местной сырьевой базы для глубокой их переработки и расширения потребительских товаров, характеризующейся выращиванием сельскохозяйственной продукции – овощи, бахчи, мясо, молоко, шерсть, кожа;

- внедрение новых форм пространственного развития – СЭЗ «Нукус-фарм», способствующих освоению экспортоориентированной импортозамещающей продукции фармацевтической промышленности с применением высоких технологий;

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- эффективное использование незадействованных производственных площадей за счет организации малых промышленных зон, стимулирующее активизация предпринимательской и инвестиционной деятельности.

Целью долгосрочного развития промышленного сектора Республики Каракалпакстан является достижение сбалансированного конкурентоспособного производства за счет реализации конкурентных преимуществ, оптимального и эффективного вовлечения потенциала.

Для реализации поставленной цели необходимо решение следующих **задач**:

- модернизация и расширение ранее созданной производственной базы;
- диверсификация промышленности на основе углубления перерабатывающего производства;
- максимальное использование местных ресурсов и возможностей для расширения производства готовой продукции с высокой добавленной стоимостью;

- формирование в регионе сбалансированного и конкурентоспособного производства за счет освоения и внедрения высоких технологий, привлечения инвестиционных средств, в том числе иностранных и пр.

Основными **направлениями индустриального развития** Республики Каракалпакстан являются (рисунок 1):

1. **Наращивание** производственного потенциала за счет модернизации действующих мощностей, диверсификации производства на основе создания кластерных образований.
2. **Расширение** производственных мощностей агропромышленного комплекса за счет глубокой переработки сельскохозяйственных ресурсов;
3. **Повышение** эффективности новых форм пространственного развития: свободных экономических и малых промышленных зон.
4. **Обеспечение** сбалансированного развития территорий, в частности сельских районов, за счет местного роста.

Рисунок 1. Стратегические направления развития промышленности¹



I. Обладая преимуществом концентрации крупных стратегически важных промышленных объектов, на территории Республики Каракалпакстан имеются возможности **наращивания производственного потенциала за счет модернизации действующих мощностей и диверсификации производства**. В этом плане актуальным становится эффективное использование имеющейся производственной

базы в сочетании с богатым природно-сырьевым потенциалом (минерально-сырьевые), что будет способствовать формированию «точек роста» – опорных территорий перспективного развития.

Для Республики Каракалпакстан формирование «точек производственного роста» будет связано, в первую очередь, с организацией кластеров, в основе которых лежат перспективная специализация, высокий потенциал региона в

¹ Составлено автором

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области внедрения техники и технологии с последующим выходом продукции на мировой рынок[3].

Создание кластерных образований на базе выявленных точек роста в виде организации производства по цепочке добавленной стоимости не только повысит конкурентоспособность продукции, но также даст синергетический эффект для расширения масштаба индустриализации при решении задачи углубления обрабатывающего производства с высокой степенью готовности.

Отличительной особенностью региона является наличие месторождений углеводородного сырья, на базе рационального использования которых имеется возможность расширения производственных мощностей. Для дальнейшего развития промышленности предлагается создание **топливно-химического кластера** по комплексной переработке углеводородного сырья и техногенных отходов, начиная от его добычи и заканчивая выпуском различной продукции (химической и нефтехимической, медицинской, строительных материалов и пр.).

Предпосылками и потенциальными источниками создания кластера являются:

- освоение и использование на территории региона месторождений углеводородного сырья (Муинакский и Кунградский районы Устюртского региона);
- имеющиеся крупные производственные объекты по его добыче и переработке нефти и газа (ООО «Устюрт газ», СП ООО «Uz-Kor Gaz

Chemical»);

- широкий спрос продукции в различных отраслях экономики (химическая, медицинская, машиностроительная, стройиндустрия и пр.);

- относительно высокая инвестиционная привлекательность топливной отрасли, что может создать предпосылки для привлечения инвестиций в сопутствующие производства;

- наличие трудовых кадров и опытных специалистов, подготавливаемых в вузах и колледжах региона;

- благоприятные условия производственной инфраструктуры и материально-техническая база промышленного транспорта (железнодорожного и трубопроводного).

Потребителями продукции глубокой степени переработки нефтегазового сырья будут практически все отрасли промышленности, транспорта, сельского хозяйства, оборонный и топливно-энергетический комплексы, а также сфера услуг, торговля, наука, культура и образование.

Расширение химической отрасли будет обусловлено освоением и созданием производства таких видов продукции, как полиэтилен, полипропилен, ПВХ, минеральные удобрения, аммиак синтетический, капролактамы, сода каустическая и кальцинированная и пр.

В рамках деятельности кластера открываются возможности освоения широкого ассортимента продукции, имеющей спрос как на внутреннем, так и в других регионах страны и за рубежом (рисунок 2).

Рисунок 2. Смежные и вспомогательные отрасли топливно-химического кластера



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Принимая во внимание быстро развивающуюся строительную индустрию и жилищно-коммунальный сектор, можно наладить производство: полимерных материалов, стеклопластика, пенопласта, различных строительных клеев и лакокрасочных материалов, красителей, полиэтиленовых и полипропиленовых труб.

Кроме этого с развитием машиностроения в Узбекистане (Андижанская, Самаркандская, Хорезмская области) возрастает спрос на детали из конструкционных полимерных материалов, специальные лакокрасочные покрытия, изолирующие, шумопоглощающие материалы и пр. Освоение производства автомобильных и специальных шин, а также широкое развитие легкой промышленности обуславливает необходимость дальнейшего выпуска химических волокон и нитей.

Развивающееся сельское хозяйство, требующее повышения плодородия почв и защиты урожая от сельскохозяйственных вредителей, имеет спрос на выпуск различных минеральных удобрений (калий хлористый, карбамид, аммиачная селитра).

Помимо этого продукция химической индустрии применяется в медицине и быту – выпуск лекарственных и парфюмерно-косметических средств, а также в качестве упаковочных материалов и тары для пищевой промышленности.

В состав кластера наряду с добывающими предприятиями будут входить малые предприятия по глубокой переработке сырья, объекты инфраструктуры, науки и образования, сети реализации товаров.

Для успешного развития кластера необходимо решение следующих задач:

1. Среди инвестиционных проектов ведущее значение будет отведено проведению геологоразведочных работ, направленных на разработку месторождений и добычу углеводородов (природного газа) (м.Урга, Куаташ, Акчалакской группы, а также Камдынской группы Устюртского региона).

2. Создание исследовательской лабораторий со специализированно оснащенными установками по переработке газа (Муйнакский и Кунградский районы).

3. Модернизация, техническое и технологическое перевооружение действующих объектов топливно-химической отрасли (ООО «Устюрт газ», СП ООО «Uz-Kor Gaz Chemical», УП «Кунградский содовый завод»).

4. Обеспечение доступа к современным зарубежным технологиям и комплектным поставкам технологических установок по производству химической и нефтехимической

продукции, обеспечивающих конкурентоспособность продукции.

5. Освоение производства топливной продукции (сжиженный газ, бензин), химической продукции (полиэтилен, полипропилен, минеральные удобрения, лакокрасочные материалы, клей и пр.). Изучение спроса на продукцию и привлечение заинтересованных лиц с целью повышения эффективности воспроизводства.

6. Помощь в разработке нанотехнологий и расширение их использования для получения химических материалов со специфическими эксплуатационными свойствами (сверхпрочность, твердость, химо-термостойкость, химическая и каталитическая активность и др.), широко используемых практически во всех сферах деятельности.

7. Постоянное исследование конъюнктуры рынка, мониторинг внутреннего и зарубежного потребительского рынка продукции, налаживание маркетинговых исследований, определения спроса и покупательских предпочтений, а также выявление потенциальных потребителей на продукцию базовых предприятий как на внутреннем, так и внешнем рынках, а также широкое внедрение системы сертификации и стандартизации продукции.

8. В целях обеспечения наиболее благоприятного доступа к соответствующему качественному сырью при решении вопросов закупки необходимо проведение мониторинга мирового и отечественного рынков сырьевых ресурсов и конъюнктуры цен на них.

9. Обеспечение благоприятной инфраструктурой, включающей создание специализированных складских помещений и хранилищ. В этом плане необходимо проработать вопросы размещения с учетом близости к сырью, транспортной обеспеченности и наличия соответствующей производственной базы (Кунградский район).

Так, тесное взаимодействие государства, крупного бизнеса и малого предпринимательства позволит обеспечить формирование устойчивых перспектив развития ТЭК и смежных отраслей экономики. В результате в среднесрочной перспективе планируется увеличить добычу нефти и природного газа более чем в 1,5 раза, производство кокса и продуктов нефтепереработки – в 1,2 раза, химической продукции – в 1,5 раз, резиновых и пластмассовых изделий – в 1,7 раза.

Богатые месторождения полезных ископаемых также создают возможность организации **кластера строительных материалов и технологий**, эффективное использование которых позволит обеспечить регион строительными товарами местного

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выпуска. Формирование кластера по производству строительных материалов, стимулируя развитие предприятий промышленности строй материалов, будет направленно на повышение технического уровня производств, преодоление технологической отсталости от уровня передовых экологически чистых технологий, используемых в отрасли и, на создание рынка конкурентоспособной продукции.

Предпосылками и потенциальными источниками создания кластера являются:

- концентрация месторождений полезных ископаемых строительных материалов (кирпичное сырье, пески для бетона и силикатных изделий, известняки для производства извести, песчано-гравийные материалы, пыльные камни, вермикулит, цементное сырье, мрамор);

- в результате реализации региональной Программы локализации налажен выпуск талькомагнезита (Берунийский район), вермикулитового концентрата (Караузякский район), глицерина и ДСП (Чимбайский район) с уровнем локализации 100%;

- наряду с производством нерудных строительных материалов, сборных железобетонных и бетонных конструкций, асфальтобетона, налажен выпуск портландцемента (ИП ООО «Каракалпак цемент» в Караузякском районе) общей мощностью 200 тыс.тонн. По окончании реализации проекта, включающего 3 этапа, общая производственная мощность предприятия составит 1200 тыс.тонн цемента в год за счет местного сырья, что создаст возможности повышения экспортного потенциала территории;

- возрастающая потребность в строительных материалах в процессе индустриализации и благоустройства территорий. Принимая во внимание потребность строительных материалов в капитальном строительстве жилых, социально-культурных и промышленных объектов целесообразно наладить производство цемента, железобетонных конструкций и шлакоблоков, гиперпрессованного и жженого кирпича, извести и пр. (*Караузякский, Кунградский, Берунийский, Амударьинский районы*).

- относительно высокая предпринимательская активность в промышленности строительных материалов и пр.

Принимая во внимание потребность строительных материалов в капитальном строительстве жилых, социально-культурных и промышленных объектов, при проведении ремонтно-эксплуатационных работ, при создании кластера имеется возможность наладить производство:

- металлургического комплекса – арматура, строительные металлические конструкции и

изделия, раковины, мойки, и прочие санитарно-технические изделия и пр.;

- деревообрабатывающего комплекса – деревянные строительные конструкции, пиломатериалы, фанера, плиты и панели из дерева и продуктов его переработки;

- химического комплекса - пластмассовые изделия, применяемые в строительстве, а также краски и лаки; утеплители, основой которых является минеральное или полимерное сырье;

- целлюлозно-бумажного комплекса – обои, листы гипсокартона, основой которых являются картон и гипс.

Для дальнейшего развития кластера целесообразно решение следующих задач:

1. Модернизация, техническое и технологическое перевооружение действующих мощностей за счет реализации проектов по увеличению производства портландцемента с 200 тыс.тн до 1200 тыс. тн. в год на ООО ИП «Каракалпакцемент», жженого кирпича с 1,0 млн.шт до 3,0 млн.шт в год на ООО «Халкабад курилиш кирпич», натрия сульфата до 5,0 тыс.тн в год на ООО «USTYURT SODIUM SULFAT», железобетонных изделий до 50,0 тыс.тн в год на ООО «EURO BETON» и пр.;

2. Ввода в действие новых производственных мощностей по выпуску 720 тн. вермикулита и 52,0 тыс.тн извести на ООО «JAMANSAY KON ZAHIRALARI», 200 тыс. тн. в год портландцемента на СП ООО «Титанцемент», 3,0 млн.шт жженого кирпича на ООО «MANGIT SUV», 1800,0 тн. водоземлюльсии на ООО «LAKO KRASKA KUNGRAD» и пр.;

3. Для перехода на выпуск готовой конкурентоспособной продукции и освоение нового ассортимента товаров необходимо критически обследовать минерально-сырьевую базу, включая оценку и актуализацию запасов полезных ископаемых, изучить спрос на продукцию и привлечение заинтересованных лиц с целью повышения эффективности воспроизводства, освоение выпуска строительных материалов на основе технологий нового поколения, а также вовлечение в производство отходов угольной промышленности.

4. Повышение эффективности и конкурентоспособности предприятий строительной отрасли промышленности за счет снижения энергоёмкости, материалоемкости и трудоёмкости производства.

5. Формирование системы кадрового обеспечения, совершенствование системы управления в строительной отрасли, в том числе повышение кадрового менеджмента, внедрение стандартизации продукции.

6. Проведение работ по созданию специализированных терминалов с целью увеличения перевозок, оптимизации схем

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доставки строительных материалов, их перегрузки и хранения.

7. Создание экономических стимулов и побудительных мотивов для отходообразующих производств строительных материалов, в переработке или передаче отходов с целью последующей переработки. Предоставление льгот предприятиям, производящим конкурентоспособную, экспортоориентированную продукцию.

8. Решение вопросов бесперебойного обеспечения электричеством, газом и водой. Если инфраструктура позволяет, то следует создать промышленные зоны (комплексы) и разместить эти производства компактно, тогда с минимальными затратами можно решить инфраструктурные и производственные проблемы.

9. Содействие местным производителям, иностранным фирмам и предпринимателям в поиске инвестиционных возможностей и конкретных партнеров в рамках деятельности кластера.

Реализация вышеизложенных мероприятий позволит расширить ассортимент строительных материалов, увеличить объемы производства портландцемента – в 2,2 раза за 2021-2022 гг., сборных конструкций и прочих изделия для зданий и сооружений из цемента бетона или искусственного камня – в 1,3 раза, известняка – в 1,5 раза.

Наряду с рациональным использованием полезных ископаемых Республика Каракалпакстан обладает богатым опытом по выращиванию хлопка-сырца. Сформировавшаяся специализация по выпуску высококачественного хлопка-волокна при наличие кадрового и инфраструктурного потенциала дают возможность организации **текстильного производства в виде промышленного узла** в юго-восточной части региона (*Берунийский, Элликкалинский, Амударьинский, Турткульский районы*).

Так, в качестве точек роста на базе производственного потенциала целесообразно создание производств, производящих полуготовую и готовую продукцию в соответствии с потребностями внутреннего и внешнего рынков и имеющих возможность стать базой для внедрения инновационных технологий. В состав кластера будут входить фермерские хозяйства – производители хлопка-сырца, хлопкоочистительные заводы (Амударьинский,

Берунийский, Кегейлийский, Турткульский, Ходжейлийский и Элликкалинский районы), малые предприятия, специализирующиеся на выпуске пряжи, готовых швейных и текстильных изделий, поставщики оборудования и вспомогательных материалов, торговые сети, научный потенциал региона.

Развитие смежных и сопутствующих производств на базе текстильного промышленного узла с модернизацией и расширением действующих производств в перспективе будет способствовать расширению ассортимента товаров всевозможных наименований, объединенных единой производственно-технологической цепочкой выпуска продукции, начиная от приобретения сырья до сбыта готовой продукции и даст возможность внедрения инноваций.

Немаловажное значение в индустриальном развитии Республики Каракалпакстан приобретает совершенствование территориальной организации производства. Поэтому среди приоритетных направлений развития промышленности региона выделяется **обеспечение сбалансированного развития территорий**, в частности сельских районов, за счет местного роста. С целью выравнивание территориальной неравномерности в уровнях развития территорий предполагается стимулирование деятельности менее развитых районов (Караузьякский, Элликкалинский, Турткульский, Нукусский, Тахтакупырский, Шуманайский и Тахиаташский).

Стимулирование развития сельских районов предполагается осуществлять путем реализации межрегиональных и межтерриториальных проектов с целью активизации предпринимательской инициативы местного населения, имеющегося трудового потенциала и природно-экономических ресурсов путем установления хозяйственных связей с другими, более развитыми и ресурсов обеспеченными территориями Узбекистана. В перспективе это может создать «толчок» для развития и внедрения инноваций в других близлежащих районах, имеющих схожий потенциал.

В качестве пилотных проектов предлагается организация производства электротехнической продукции, минеральной воды, обуви и изделий из кожи, парфюмерно-косметических, синтетическими средств, швейных изделий, деревообработка.

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Таблица 1. Перспектива развития промышленности Республики Каракалпакстан

Наименование показателей	2021 г.	2030 г.	Целевые ориентиры
Среднегодовые темпы роста промышленного производства, %	110,5	112,0	
Доля промышленности в ВРП, %	31,0	32,0	сохранение уровня
Доля добавленной стоимости в промышленности региона, %	38,5	41,0	внедрение ресурсосберегающих техники и технологий, доведение до средне республиканского параметра (40%)
Доля регионального производства в промышленности, %	22,0	30,0	активизация предпринимательской деятельности, доведение до средне республиканского параметра (30%)
Доля высокотехнологичной продукции в технологической структуре промышленности региона, %	0,3	0,7	внедрение современных технологий, достижение республиканского параметра (1,5%)
Удельный вес региона в промышленном развитии Узбекистана, %	4,8	5,0	не ниже 5,0%

В условиях рыночной экономики развитие региона может осуществляться в рамках таких стратегий, которые обеспечат ему получение прибыли, устойчивое финансовое положение, а также конкурентоспособность в относительно длительном периоде. Это во многом зависит от выбора типа стратегии и отражения ее в планах региона. На выбор типа стратегии влияет множество факторов внешней и внутренней среды. Факторы, определяющие стратегию, отличаются один от другого и никогда выбор одинаковых стратегий не происходит в сходных ситуациях[6].

В среднесрочной перспективе планируется увеличение производственных мощностей электроэнергии, хлопчатобумажной пряжи, готовых текстильных и трикотажных изделий, портландцемента, мясной и молочной продукции, освоение производства таких новых видов продукции, как абразивно-чистящие и жидкие моющие средства, изделия из фарфора и стекла, каолин, целлюлозы, биологически активные добавки. Кроме этого будут введены новые производственные мощности по выпуску джинсовой ткани, стиральных машин, радиаторов, водонагревателей, нестандартных

металлоконструкций, медицинских изделий из стекла, обуви и пр.

В целом реализация инвестиционных проектов по технологической модернизации действующих предприятий, а также организации новых производств с учетом максимального использования потенциальных резервов и возможностей будут способствовать повышению индустриализации экономики, диверсификации и технологического уровня производства региона (таблица 1). При этом в среднесрочной перспективе рост производства промышленной продукции увеличится в порядка 1,5-2,0 раза при среднегодовом приросте 110-111%, в долгосрочной перспективе – в более 4 раза раз при среднегодовом приросте 112-113,5%.

Вывод.

Важнейшими задачами по повышению индустриального уровня развития Республики Каракалпакстан должны стать:

1. Изучение спроса на продукцию и привлечение заинтересованных лиц с целью повышения эффективности воспроизводства;

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2. Создание условий для расширения производства, в частности бесперебойное и качественное обеспечение предприятий электричеством, газом и водой, а также проведение поиска альтернативных проектов по увеличению энергетическими ресурсами за счет альтернативных источников и современных энергосберегающих технологий, что обеспечит снижение энергоёмкости и тем самым позволит повысить эффективность производства;

3. «Пробуждение» предпринимательской инициативы местного населения путем активизации деятельности районных управлений торгово-промышленной палаты по повышению предпринимательской грамотности населения, а также путем организации посещений местными предпринимателями инновационных ярмарок, проводимых не только в Узбекистане, но и в других странах (Россия, Казахстан, Китай и т.д.);

4. Эффективное использование пустующих незадействованных объектов для создания малых промышленных предприятий, рассмотрение

возможности их предоставления под «нулевую» ставку;

5. Содействие местным производителям, иностранным фирмам и предпринимателям в поиске инвестиционных возможностей и конкретных партнеров;

6. Создание закупочных центров, позволяющих собирать сырье у населения, а также формирование благоприятных условий хранения (складские помещения и холодильные камеры).

Развитие промышленности региона с учетом проектов и предложений сходитя с модернизационным сценарием развития региона. Ускоренное индустриальное развитие будет обусловлено за счет обеспечения конкурентоспособности выпускаемой продукции, увеличения доли средне- и высокотехнологичной продукции, диверсификации производства на основе более эффективного использования потенциальных резервов и возможностей роста, благоприятной конъюнктуры спроса на внешнем рынке на производимую продукцию и повышения инвестиций.

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TURA NAFASOV – THE FOUNDER OF UZBEK ONOMASTICS

Abstract: The system of Proper names in Uzbek takes an important place in the dictionary, linguistic analysis of the nouns, i.e. studying their formation and development analysis of orthographic problems are very actual and require solution in the modern Linguistics. Moreover, investigating of this stage in Uzbek Linguistics started in the 60th of XX century and during the short period many great reseaches have been done by scientists. One of the greatest scientists Tura Nafasov, who takes crucial place in the sphere of Uzbek Onomastics. The article deals with the investigation of the scientific reseaches, handbooks and monographs, dictionaries as well as Tura Nafasov's activities in the sphere of nomination and their propaganda.

Key words: Onomastics, Uzbek Onomastics, Toponymistics, toponymist-scientist, nomination, toponymic qualifier, commission of nomination, folk-heritage.

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ТУРА НАФАСОВ - ОСНОВАТЕЛЬ УЗБЕКСКОЙ ОНОМАСТИКИ

Аннотация: Система собвенных имен существительных в узбекском языке занимает значимую часть в словарях, лингвистический анализ этих существительных, т.е. изучение их строение, форму образования и развитие, анализировать проблемы, связанные с орфографией являются актуальными проблемами и ставят перед собой задачи для решения в современной лингвистике. Так как, изучение этого уровня в узбекском языкознании началось в 60-е годы XX века, в протяжении короткого времени были проведены немало научных исследований. За этот период появились выдающиеся специалисты в сфере ономастики. Т. Нафасов является один из ученых, который стоит в первых рядах исследования топонимики узбекского языка того времени и учителем исследователей узбекской топонимике. В статье изучается все научные работы, сделанные профессором, такие как, его исследования в этой сфере, созданные им учебных пособий и монографии, словари, а также деятельности в сфере номинации и их пропаганды.

Ключевые слова: ономастика, узбекская ономастика, топонимика, ученый-топонимист, номинация, топонимический определитель, комиссия номинации, народные слова.

Введение

Профессор Тура Нафасов, лингвист, который внес большой вклад в становлении и развитии

узбекской ономастики, достиг бы 83 лет осенью, если он был жив.

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В 1938 году в селе Давташ, что в Чиракчинском районе Кашкадариньской области республике Узбекистан, родился будущий ученый – ономаст Тура Нафасов. Тура Нафасов родился в интеллигентной семье. Он был старшим ребенком в семье Нафаса Суярова - учителя сельской школы. В трудные и опасные 1930-е годы в сельской местности не хватало учителей для обучения и воспитания детей в селе. Понимая это, Нафас Суяров учился в течение нескольких месяцев на курсе подготовки учителей в городе Чиракчи в 1936 году и получил сертификат об обучении. Позже, в 50-х годах прошлого века, он поступил в Каршинское педагогическое училище. В 1965-1970 гг. окончил факультет узбекского языка и литературы Каршинского государственного педагогического института. До конца лет своей жизни, до 1973 года, он работал учителем и руководил школу в селе Давташ. Таким образом, Нафас Суяров обучил грамоте ещё три поколения в селе Давташ [1]. В 1936–1941 годах, днем обучал чтению и письму учеников, а вечером, их родителей. Иногда приходилось учить более старшее поколение, чтобы развивать культуру и просвещение в селе.

В 1945-1949 годах Тура Нафасов получил своё начальное образование у отца в начальной школе в Давташе. С 1949 по 1955 год учился в средней школе № 4 в селе Окчава Кашкадарьинской области. Расстояние между селами Окчава и Давташ составляло 10 км. Тура Нафасов добирался в школу каждый день пешком, на осле или на велосипеде. Зимой ему приходилось оставаться у дяди дома ночевать. Будучи учеником в 9-10 классах учительница родного языка, Алмашева, научила их читать художественную литературу. Это был замечательным опытом для школьников. Тура Нафасов в своих воспоминаниях упоминает, что после уроков проводил много времени над чтением произведений великих писателей Айбека «Кутлуг кон» (Святая кровь), Абдуллы Каххара «Кўшчинор чироқлари» (Светильники Кушчинара) и «Сароб» (Мираж), роман Семена Бабаевского «Кавалер золотой звезды».

После окончания средней школы Тура Нафасов с сентября 1955 года по июнь 1956 года работал учителем 3го класса в средней школе села Янгиабад. В 1956-1958 годах учился в Самаркандском физкультурно-педагогическом училище. В течение двух лет он самостоятельно изучил учебники по родному языку, литературе, истории и иностранному языку и усердно старался стать филологом.

В 1958-1963 годах учился на филологическом факультете Самаркандского государственного университета. В этот период в университете работали профессионалы филологических наук, хорошо известные

писатели и лингвисты. Такие как, известный ученый Орифжон Икрамов - декан факультета, академик, профессор Вахид Абдуллаев, Улуг Турсунов – заведующий кафедрами. С 60-х годов ученые, ставшие представителями филологических наук Хамдам Бердиёров, Худойберди Дониёров, Нуриддин Шукуров, Сайдулла Мирзаев, Рахматулла Кунгуров, Абдужаббор Мухтаров, Абдулла Сулейманов, Махмудали Юнусов, Вахоб Эгамовы были патриотами науки и любимыми учителями студентов. Ученые, которые с самого начала научной деятельности придерживались принципов привить своим ученикам глубокие тайны науки, лингвистики и литературы, как на теоретических, так и на практических основах. Большинство студентов этого периода, как Бойкузи Турдалиев (покойный), Усмон Санакулов - стали докторами наук, Эргаш Киличев – профессор, Жахонгир Кучкаров, Куйли Хуррамов – кандидатами наук, Поён Равшанов – известный учёный, историк и литературовед, кандидат наук, доцент, член союза писателей Узбекистана, заслуженный педагог Узбекистана, Эркин Ньматов - поэт, Мухаммад Салом - писатель, Усар Саидов, Исомиддин Исломов (покойный) – преподавателями ВУЗа.

На протяжении всех лет обучения он глубоко интересовался изучением языкознания. Можно сказать, что обсуждения на кафедре узбекского языкознания на очередных заседаниях кружка «Молодой лингвист» вдохновили Тура Нафасова на изучение этой науки. На IV-V курсах он был старостой этого кружка. Организован сборник студенческих отчетов по рукописям. Он опубликовал статьи на страницах широкоформатных газет. В 1962 году он принял участие в научной конференции, проходившей в Казанском государственном университете в связи с 75-летием татарского писателя Галимжана Ибрагимова, он выступил с докладом «Перевод рассказов Галимжана Ибрагимова на узбекский язык». В конце выпускных курсов обучения он заинтересовался темой тюркских слов на русском языке. Он исследовал более 600 слов на русском языке разного периода на турецком языке. И обосновал что, ряд тюркских слов на русском языке *какютюг, деньги, товар, карандаш, товарищ* были приобретены с тюркского языка. Он опубликовал свое исследование в 1965 году как отдельную статью [2].

Творческая среда филолога (написание стихов, написание историй, публикаций в газетах и журналах, написание форумов, лекции на конференциях, викторины в кружках) побуждала Т. Нафасова писать новости и статьи в региональных газетах. Он опубликовал десятки статей в таких газетах, как «Культура Узбекистана», «Физиолог Узбекистана»,

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«Молодой Ленин», «Кызыл Узбекистан», «Путь Ленина», «Кашкадарьинская правда».

Т. Нафасов окончил Самаркандский ГУ с отличием в 1963 году и получил степень филолога-преподавателя. Работал преподавателем на кафедре узбекского языкознания в Каршинском государственном педагогическом институте. С 1964 года он был деканом факультета. С 1 октября 1965 года по 1 октября 1967 года работал стажером-исследователем в Институте языка и литературы им. А.С. Пушкина. Окончил аспирантуру 1 октября 1968 года. В 1968-1970 годах он стал старшим преподавателем, затем доцентом (1970-1989), профессором (1989). С 1977 по 1986 год работал деканом. В 1985-2003 годах возглавлял отделение узбекского языкознания. В 1996–1998 годах возглавил филологический центр, затем деканат узбекского филологического факультета.

Тура Нафасов с ноября 1965 года, в начале своей карьеры в качестве стажера-исследователя в Институте языка и литературы, он начал изучать топонимику узбекского языка. Согласно заявлению, темой его кандидатской диссертации является лингвистический анализ топонимов Кашкадарьинской области по прямой рекомендации доктора филологических наук, профессора Азама Шерматова. Сначала он изучил топонимику в научной литературе. Затем начал собирать названия городов и деревень. С этой целью с марта по декабрь месяц 1966 года он путешествовал по всем деревням и записал все виды в стенограмме. Местные жители помогли ему собрать комментарии, повествования и мифы, связанные с именами деревень. Он также записал фольклор, загадки и другие слова, которые отличались от литературного языка, как песни людей, аллы и невесток. В частности, народные сказки о «Келиной» были записаны в тетради. В целом, общественность стала собирать литературные, художественные, образовательные, лингвистические факты о всех видах жанров. Можно сказать, что эта работа продолжалась до конца его жизни. Он напечатал некоторые из собранных материалов в статьях, брошюре. Турецкие аллы. Жители южных городов и сел Узбекистана [3-5]. и, таким образом, увидел лицо мира.

В середине 60-х годов прошлого века исследования узбекской ономастики стали одной из актуальных проблем лексикологии. Поскольку апелляционная лексика, семантическая лексика изучалась довольно последовательно, и был опубликован ряд монографий, научных статей и статей. Первоначально Э.Бегматов защитил кандидатскую диссертацию на узбекские имена. Он опубликовал ряд статей, брошюр и словарей.

Ономастика стала новым направлением в узбекской лингвистике. Методы и приемы

методов ономастики, классификации ономастики не определялись в лингвистическом направлении. Известно, что ономастический материал изучались историками и географами в семантике до 60-х годов. Лингвистическое изучение конкретного региона земли было важным и теоретически, и практически. В Узбекистане Тура Нафасов был первым кто собрал макро- и микропроцессы в Кашкадарьинской области в сельской местности, записал и откалибровал их местное произношение и литературную форму, создав тем самым основу ономастики, ономастической базы республики - словарный фонд.

Профессор Тура Нафасов написал диссертацию на основе следующего порядка изучения региональных топонимов по лингвистическому направлению: 1. Этногенетический и исторический анализ топонимов. 2. Структура и формирование топонимов. 3. Лексико-семантические особенности топонимов.

Топонимический слой является более сложным, чем лексический слой. Методы исследования топонимики в лингвистике не изучены достаточно. В топонимии приведены много примеров из сагда, хорезмийского и древнего иранских языков, в частности имена города, села, реки, гор много. Тура Нафасов в докторской диссертации изучил древние иранские составляющие элементы в -кент/ -канд / -кат / -канд / -кан / -ган / -канд / -ганда / . Из последних работ ученого было обнаружено, что в топонимии Узбекистана много древних иранских топонимов. Они в основном следующие: -ман / -мон / -майн / -мейн / -диз / -ди, -жон / -шон, -гон / -ган / -ком / -кон, -за / -зо / -зой, -мас / -мос, -дувон / -тувон, -митан / -метан / -матон / -метон, -гирд / -кирд / -жирд, / -кас / -хас / -кас, -каш / -кеш, / -куш / -гар / -гор / -гур / -кар / -кор, -вар / -вор / -ур / , -вагн, -фагн / -боғ, -арна / -орна, -руд / -рут, - ровут / -равот, -хон, -он, -кана и другие.

В своих последних статьях Т. Нафасов рассмотрел систему исторических и современных названий мест с топоэлементами и тополексемами [6].

Так называемые топоэлементы не служат для обозначения географических названий в текущем состоянии языка. Это активные темы, которые составляют топонимы в далеком прошлом - считаются независимыми лексическими единицами. Topolexems создали серию идентичных имен в Узбекистане и прилегающих к нему регионах, или одно и то же имя повторялось одинаково в нескольких областях. Диссертация Тура Нафасова и его последние статьи были определены как одна из лексемных / топоформантных топонимов, и они взаимосвязаны. По словам Т. Нафасова, он

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отличается от таковых различных топонимов: Зарметан, Парметан, Наматон, Шаматон. Символ знака, который представляет объект лексемы, обозначает мотив названия.

Тот же метод изучения древнетюркских диалектов был применен к топонимам с лексемами "қиз". Топонимы с лексемами "қыз" в основном встречаются в восточном (Кызылтепа, Кыркыз), частично в гидрономии (Кызбулак) и в городской микротопонии (Кызгургон, Киркыз). Во всех этих названиях лексема "қиз," означала тип рецидива и название объекта, роль объекта.

Согласно диссертации профессора Т. Нафасова, лексико-семантический метод является наиболее древним методом изучения ономастики. Этот метод также называют ономастической конверсией в других исследованиях. Т. Нафасов охарактеризовал этот метод как «номинация» и написал, что найденные в нем топонимы также были исследованы таким образом.

В ономастических исследованиях изучение название топонимических объектов очень важен с точки зрения теории и практики топонимии. Нелепо думать, что имена Чанғароқчи, Ўроқли, Болғали и Тароқли основаны на названиях трудовых оружий. Названия местностей как *Кийикчи, Балықчи, Қушчи / Қуччи* не имеют отношения к профессии. Названия животных не имеют никакого значения в формировании названий *Тайлоқ, Қарсоқли, Калтаой*. А также названия *Баҳрин, Бургут, Кўкқаргане* являются названиями имен птиц. Название *Бахмал* и лексема *бахмал* (название тканитипа бархатного) не взаимосвязана. Оқтўнни, Кўктунни, Қоратунни не относятся к лексеме *флаг*. В системе топонимики существует множество таких иллюзионных типов обманчивых языково-речевых процессов. Важное теоретическое и практическое значение имеет определение типичных мотивационных основ в топонимических, общих, ономастических исследованиях. Имена создаются в различных социальных, географических, языковых средах. Многие фонологическо-фонетические, морфемические структуры названий изменились, так как большинство имен появилось несколько сотен тысяч лет назад. Существуют большие конкретные различия между значениями и названия с нынешним значением названия и примечаниями, основанными на названиях ономастики.

Профессор Т.Нафасов во всех своих статьях, в частности, «Толковый словарь топонимов Узбекистана» (1988), «Толковый словарь учебных топонимов в узбекском языке» (2007) уделит особенное внимание к правильному объяснению значений топонимов. Он пытался воссоздать древние формы основанных на топонимических лексемах и морфемах и объяснить их значениями

того времени. Это позволяет правильно классифицировать топонимы с точки зрения лексико-семантической, номинации и мотивации.

Ономастические словари (ОС) - относительно новый тип словаря в узбекском языке. Хотя, было создано много типов привлекательных лексических словарей, теоретические и практические аспекты ОС не были разработаны. ОС изначально были созданы географами, историками [7]. Причиной низкого состава ОС было то, что имена собственные на языке не были полностью записаны, а те которые были исследованы оставались лишь на руках некоторых исследователей, и в стране не было ни единого ономастического фонда. По мнению Т. Нафасова, следующие типы ономастических словарей как, толковый, орфографический, морфемические, географические, исторические должны быть составлены, где сравниваются их значения с устvom народа и оригинальным языком [8]. Самым важным из них является толковые словари. По словам ученого-топонимика, такие словари встречаются только в концептуальном и научно-образовательном направлениях [9].

Тура Нафасов создал два топонимических словарей. В его первом «Толковом словаре топонимов Узбекистана», который охватывает региональные макро- и микротопонимы Кашкадарьинской и Сурхандарьинской областей, в основном определяются значения ойконимов, гидронимов и оронимов [10]. Второй словарь комментирует топонимы относящиеся ко всем регионам страны [11].

Этот словарь, основан на топонимах южных областей Узбекистана и хорошо структурирован. Словарь является также исследовательской работой. В словаре научный потенциал интерпретаций и исследований всех топонимов не одинаковы. Большинство этнотопонимов интерпретируются как апелляционные лексические единицы → тотем → имя этнонима → этноним → топоним. Тюркские языковые единицы *Бойсун* (39), *Бойтерак* (39-40), *Дархан* (59), *Жилисув* (73), (86), *Иссиқкул* (86), *Мойариқ* (119-120), *Оқчава* (150-151), *Сайроб* (162), *Чамбил* (200-201), *Қапчигай* (236-237), *Қарши* (238-241), *Қашқадарё* (242-243), *Қорабайир* (248), а также ряд ойконимов, гидронимов и оронимов, которые тщательно и обоснованно анализированы в совершенной форме. Топонимические единицы *Бешикент* (33), *Варганза* (50), *Вахшивор* (51), *Дарбанд* (57-58), *Заравут* (80), *Зармас* (81), *Кеш* (96), *Лангар* (108), *Нушкент* (131-132), *Панжоб* (153-154), *Шеробод*, которые являются древниеэранскими единицами, с научной точки зрения заслуживают доверия.

Одним из наиболее сложных вопросов в области ономастики, включая топонимы, является

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создание правильных названий, точнее, топонимов. Общеизвестно, что в случае апеллятивной лексики образование аномальных названий не однозначны. В большинстве топонимов конца 60-х годов прошлого века некоторые из топонимических исследований, такие как -гар (Чармгар), -дор (Чорвадор), -лар (Оклар), -он/-ён (Токчиён), -ли (Гиштли), -боп (Алачабоп), -лик (Қишлик), -кор (Пахтакор), -чи (Пахтачи), -лик (Заргарлик), -гарон (Камангарон), -и (Урганжи, Қўқони), -ак (Қурғонак), -дон /-тон (Риштон, Багдон), а также названия деревней, районов, где использовались словесные дополнения. Или ойконимы, которые возникли на основе этнонима: *Қўштамғали, Ачамайли, Кийикчи, Қорақўнғирот, Тўқманғит, Қайчили, Тоқчи, Дукчи, Дужчи, Бўлмас, Ўлмас*. Состав этих топонимов морфемический - сложный. Тура Нафасов утверждал, что создание всего этого было сделано на уровне апеллятивной лексики. И на основе этого образования они образовали ономастические единицы. Правда, при образовании таких ойконимов как *Тошли, Гиштли* или *Чўмичли* есть определенные особенности. По мнению Нафасова, в таких названиях Тошли, Гиштли ойкономические индикаторы исчезли. Первоначально они назывались как *Тошлиқишлоқ, Гиштли қишлоқ* (Гиштлитепа) [12]. Но *Қорахитой қишлоқ* или *Қорақишлоқовул* не образованы при помощи ойконимов. Этнонимы стали без каких-либо грамматических изменений образовали ойконимы. Этот тип ономастического названия является специфическим типом топонимии. Профессор З. Досимов назвал этот метод ономастической конверсии. А профессор Т. Нафасов назвал этот явление **топонимикой**. В одноименной статье он обосновательно объяснил, что названия *Дашт, Кудук, Аксу, Корасув* также были построены таким образом. В ряде статей он утверждает, что необходимость обзора и оценки ономастического преобразования должна отличаться от необходимости в апеллятивной лексике [13].

Одна из наиболее важных составляющих топонимии - это то, что они не выражают одни названия, они функционируют как группа, ряд значений. Тополексема или топоформант встречается в топонимии разных регионов. Т. Нафасов изучил проблему топонимических явлений в словарях словаря ареальных топонимов, определил диапазон топонимов и пришел к основному выводу. Комментарий к интерпретации топонима языка и других областям является соответствующим принципом Т. Нафасова и отражаются во всех его топонимических изучениях.

Наиболее важными лингвистическими и нелингвистическими особенностями в топонимии являются ономастическая номинация и

мотивация. Есть много топонимов, созданные несколько тысяч лет назад, и имена, которые были созданы в недавнем прошлом. Топонимы созданные в прошлом времени, людьми разных народов, племен и кланов, и их нынешнее использование людьми современности, развитие и состояние языка могут привести к неправильным интерпретациям и выводам по отношению значений названий в топонимике. Подчеркивается, что ученый должен понимать природу топонимов. Чтобы понять это, необходимость изучения сравнительных, сравнительно-исторических, географических, археологических и этимологических методов в топонимии.

Профессор Т. Нафасов много лет работал заведующим кафедрой узбекского языкознания (1985-2004). Он особое внимание уделил к привлечению потенциальных исследователей в отделе. Большинство молодых людей, работающих в этот период, в настоящее время являются учителями на академическом уровне, лекторами и практикантами, которые преподают лингвистику на высоком уровне. В частности, Б.Менглиев - доктор филологических наук, профессор, Х. Жабборов - доктор филологических наук, профессор Н. Шодмонов - доктор филологических наук, Б. Бахриддинова - доктор филологических наук, Э. Жабборов, Т.Жумаев, И.Худойназаров, О. Бегимов, О. Уринова, О. Шукуров, Н. Юлдошева, Н. Мусульмонова стали кандидатами филологических наук. Благодаря его умению направлять их к науке, научный потенциал кафедры вырос и появились новые направления научных исследований.

Основное научное направление кафедры было сосредоточено на изучении речи, лексики и грамматики Кашкадарьинской и в целом южных областей Узбекистана. Топонимика южных провинций республики изучалась довольно последовательно, были опубликованы монографии [14-15], словари [16] и программы [17-18]. Научные исследования на тему ирригационной лексики [19], слова и термины, относящиеся к народным играм [20], а также были разработаны топонимия [21-22] и этнонимия [23] в узбекском языке на основе топонимии южного Узбекистана [24]. Систематизировалась и исследовалась лексика в области животноводства на территориях Кашкадарьинской и Сурхандарьинской областей [24]. Доцент Н.Мирзаев продолжил исследования по этнографической лексикографии и опубликовал первый этнографический словарь на узбекском языке.

Изучение узбекского языка как систему стало основным направлением научной работы кафедры с 90-х годов XX века. Докторские диссертации Б.Менглиева, Б.Бахриддиновой, О.Шукурова,

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Ш.Бобожонова, Ю.Хамраева, Н.Мусурмановой, Н.Юлдашевой связаны с лингвистической морфологией, лексикологией, семасиологией и синтаксисом лингвистики.

Профессор Т. Нафасов за время своей научно-педагогической деятельности активно участвовал в международных и национальных конференциях. В своих научных статьях Т. Нафасов доложил об актуальных проблемах ономастики и были опубликованы в городах как Москва (1989, 1991), Тбилиси (1989), Уфа (2002), Чебоксары (2002), Хельсинки (1990), Баку (1986, 1987, 1988, 1990), Волгоград (1989), Фрунзе (1991, 1993, 1997, 2006), Андижан (1990, 1993), Самарканд (1968, 2000, 2006, 2007), Бухара (2001, 2007, 2008), Нукус (1990), Ургенч (1991, 1993в Гулистане (1987, 1997), Наваи (1993, 1998).

География статей, опубликованных подписанием Т. Нафасова, достаточно широка. Из-за этой необходимости и необходимости многие статьи в газетах были опубликованы. Кроме того, Т. Нафасов является автором научно-популярных статей. Особенности плацентимов, которые сильно отличаются от других лошадей, легко понять и хорошо понять, поэтому их статьи были опубликованы во многих газетах и журналах республики. Одной из благородных работ ученого являются фундаментальные исследования, такие как «Деревня Кашкадарьинского хана», «Чиракчинама», «Городская махалля Карши и названия улиц». Кроме того, Т. Нафасов примирился со словами народа Кашкадарьи,

употребляемыми на живом языке. Первый том словаря «Слова народного узбекского народа Кашкадарьи» был опубликован в 2011 году в жизни ученого. Следующий том книги был почти готов. Но из-за серьезной болезни этот том не был представлен для публикации. Мы думаем, что дети учителя, а также ученики выполняют эту задачу.

Известный ученый, Тура Нафасов подготовил 2 кандидата наук, 9 из которых были официальными соискателями. В течение многих лет он был членом Ученого совета К08700622 в Самаркандском государственном университете. Кроме того, ученый являлся членом номинальной комиссии при исполнительном комитете Кашкадарьинского облисполкома и председателем топонимической комиссии при исполнительном комитете города Карши по локализации макросов и микропроцессоров в городе.

Ученый имеет богатое научное наследие. И это далеко не полный и тем более не поименный перечень того, что Т.Нафасов передал обостренное внимание к исследуемым языковым явлениям: высочайшую требовательность к достоверности каждого из выявленных фактов, к их всестороннему анализу, начиная с историко-этимологических штудий и заканчивая описанием современного состояния через исследование топонимов, основывая узбекскую ономастику. Нет сомнений, что это наследие занимает достойное место в истории узбекской ономастики.

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THE MODERN STATE METHODS OF TEACHING THE RUSSIAN LANGUAGE AS A PEDAGOGICAL SCIENCE

Abstract: According to the author, the methodology of teaching Russian in the national the school is still closely linked to the methodology of teaching the Russian language like a native. The article substantiates the need to restore the Institute of national schools in its former form as part of the RAO for propaganda and dissemination Russian language and culture in the national regions of the country.

Key words: methods of teaching the Russian language, languages of national republics, national school, Institute of national schools.

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Introduction

The methodology of the Russian language as a pedagogical science is less than two hundred years old. It has its own object-subject area, its own content, a system of fundamental concepts, and research methods that differ from other Sciences. Currently, there are three branches of methodology of the Russian language: the methodology of Russian as a native language, the method of the Russian language in non-Russian school and methodology of Russian as a foreign language. These industries are United by the same subject, so they have a lot in common, but there is also a specific one.

Such outstanding scientists as F. I. Buslaev, K. D. Ushins - Kiy, I. I. Sreznevsky, V. P. Sheremetevsky, D. I. Tikhomirov, F. F. Fortunatov, A.D. Alferov, and others played A special role in the formation and development of the method of Russian zyk as a native language. In the fundamental work of F. I. Buslaev "On teaching the Russian language", published in 1844, the foundations of the theory of teaching the Russian language were first laid. The author considered the main task of teaching students the Russian language to develop their "innate gift of speech" by analyzing samples of literature and folklore. Reading, writing, speech development, work

on grammar and vocabulary, etymology F. I. Buslaev recommended to consider together.

The founder of scientific pedagogy in Russia, K. D. Ushinsky, made A huge contribution to the further development of the Russian language methodology. Before the revolution, many generations of the Russian language were taught by K. D. Ushinsky's textbook "Native word", which has passed 145 editions. Until now, such didactic principles of the scientist as the principle of nationality, the connection between theory and practice, consciousness, independence of students, visibility, and many others are not outdated. Also relevant are the ideas of K. D. Ushinsky about the role and place of grammar in teaching the native language, about the speech development of students, etc. All this is reflected in the works of many modern Methodists of Russian as a native language: A.V. Teku - chev, L. P. Fedorenko, V. A. Dobromyslov, A.V. Dudnikov, R. M. Lviv, T. A. Ladyzhenskaya, M. G. Baranov.

A significant role in the promotion and dissemination of the Russian language among the peoples of the entire country was played by the Research Institute of national schools Of the Academy of pedagogical Sciences of the USSR, which was opened in the 1940s.scientists such as F. F. Sovetkin, N. K. Dmitriev, E. I. Korenevsky, G. P. serdyuchenko,

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V. M. Chistyakov, A. A. Lipaev, A. F. Boytsova, N. Z. Bakeeva, S. S. Filippov immediately began to work here. Later they were joined by graduates of the Institute's graduate school I. V. Barannikova, N. B. Ekba, E. V. Efremova, R. B. Sabatkov, G. N. Nikolskaya, N. M. Khasanov, and Kh. Sokunov. The Institute mainly worked on the compilation of programs, textbooks and teaching AIDS on the Russian language and literature for national schools. For example, textbooks for schools of the far North (authors A. F. Boitsov, L. A. Varkovitskaya, K. F. Grab-Fly, T. M. Kara - vaeva); for the initial classes of schools of the peoples of the Abkhaz-Adyge, Turkic and Finno-Ugric groups (authors M. H. Morgunov, N. B. Ekba, M. Z. Akhiyarova, A. I. Grekul, M. I. Sazhin). In addition, unified textbooks were created for grades 4-11 of national schools (authors N. B. Ekba, G. N. Nicholas, H. H. Akunov, N. M. Khasanov, M. V. Panov, R. B. Samodaev, L. Z. Shakirova). A major success in the work of the Institute was the preparation of generalizing methods for schools of peoples of three language groups (abkhazo-Adyge, Turkic and Finno-Ugric), taking into account the latest achievements of the methodology and related Sciences (Authors S. D. Ashurova, E. V. Efremova, G. N. Nikolskaya, M. V. Panov, Kh. Kh.Sukunov, N. M. Khasanov, N. B. Ekba, etc.).

In the early 1970s. the Academy of pedagogical Sciences opened the Institute of Russian language teaching in schools of national republics, the main backbone of which was made up of leading scientists of the Institute of national schools N. Z. bakeyeva, I. V. Barannikov, K. V. Maltseva, M. N. Borisova, A. I. Grekul. The Institute of national schools was transferred to the Ministry of education of the RSFSR. After that, the Institute of national schools began to develop mainly the content and methods of teaching Russian, native languages and literature in non - Russian schools.

The Institute paid special attention to pilot testing of programs and textbooks in schools in all national regions. This work usually involved the most experienced teachers, who constantly collected material about the course of the experiment. The Institute paid for the work of these teachers. Based on the results of the experiment, textbooks were prepared for the next edition. Now, unfortunately, textbooks are issued without such verification, so they do not always meet modern requirements. Due to the fact that there were no national schools in Moscow, each researcher was required to spend three months on research trips in the republics during the calendar year and provide assistance to local public education bodies.

Further development of the methodology contributed to the research of former graduate students conducted in the national regions of the Russian Federation, which helped to create such important books as "Methods of teaching Russian language in 5-

9 classes of the Bashkir school" (ed. by K. Z. Sabirianova); "Scientific basis of methods of teaching Russian language in the Tatar school" (author L. Z. Shakirova); "Methods of the Russian language in 4-8 classes of the Yakut school" (ed. by K. F. Fedorova); "the study of the syntax of the Russian language in Chuvash school" (author G. A. Anisimov); Russian Russian language morphology training in the Chuvash school (author: G. A. Anisimov); methods of development of connected Russian speech in the Buryat school (author: M. N. Mangadaev) etc. Unfortunately, after the transformation of the Institute of national schools into the Institute of national problems of education and the closure of its branches and laboratories, no such work was created in the republics on the methodology of teaching Russian in non - Russian schools, which negatively affects the quality of knowledge, skills and abilities of modern students.

It should be noted that the Institute of national schools, its branches and laboratories mainly employed native speakers of the languages and cultures of the peoples of the Russian Federation, who are well aware of the difficulties that non - Russian children encounter when learning Russian as a second language.

Since the late 1960s, the Institute of national schools and its former graduate students have defended a huge number of doctoral theses on the methodology of teaching the Russian language. Here it is fashionable to name the dissertations of A. F. Boitsova, N. Z. Bakeeva, N. B. Ekba, L. Z. Shakirova, G. G. Burzhunov, L. G. Sayakhova, K. Z. Zakiryanov, G. A. Anisimov, R. B. Sabatkov, R. B. Garifyanova, A. M. Aiberov, Z. M. Zagirov, G. N. Nikolskaya, N. M. Khasanov, and others. The Defense of these works was mainly held at the Institute of Russian language teaching in the Union republics Of the Academy of pedagogical Sciences of the USSR.

Currently, the terms "methods of the Russian language", "linguistics" and "linguamethodical" are used as synonyms. Although the proponents of this term understand linguodidactics as the theory of language learning, the scientific foundations of this theory have not yet been developed. As for the methodology of the Russian language, it as a pedagogical science since the time of F. I. Buslaev has its own object, subject and methods of research, its own conceptual apparatus and methods of proof, so we consider it unacceptable to divide it into theory and methodology, as is done today.

The modern level of methodological science is characterized by the presence of different approaches to language teaching: system-functional, structural-semantic, communicative, cognitive, and others. When teaching Russian as a second language, a special place is given to the use of a communicative approach. For this purpose, scientists from national regions of the Russian Federation widely use

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achievements in the field of linguistics, psycholinguistics, communication theory, and cultural studies. For example, teachers of the Bashkir state University under the guidance of Professor L. G. Sayakhova have made significant progress in applying this approach. The works of this group for the first time reflected such problems as "Language and culture", "cross - Cultural communication", implemented the basic linguistic methodological idea "Dialogue of languages and cultures". L. G. Sayakhova is a well - known scientist in the field of educational lexicography. A number of works by L. G. Sayakhova are devoted to the formation of a language personality in school. She is the author of Russian language textbooks for high school students of the peoples of the Turkic group. The Republic has its own scientific and methodological school, in the creation of which, along with L. G. Sayakhova, other graduates of the Institute of national schools took an active part: M. G. khairulina, K. Z. Zakiryanov, R. V. Almukhametov.

In conclusion, it should be noted that methods of teaching Russian language in national schools is still

closely connected with the methods of teaching Russian as a native language and methodology of teaching Russian as a foreign language. At one time, special studies were periodically conducted on the problem of interaction and interaction of these three branches of methodology. So, in the 1980s. on behalf of the higher attestation Commission of the USSR I had to perform master's and doctoral theses for several years on methods of teaching Russian as a native language, methods of teaching Russian language in national schools and methods of teaching Russian as a foreign language. As a result of this analysis, it was found that the three mentioned branches have much in common in approaches to teaching the Russian language, as well as in the principles and methods of presenting educational material. At the same time, the features that distinguish these branches of methodological science from each other were identified. Let's hope that the links between the three branches of technology will become closer and deeper in the future.

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ABOUT THE POSSIBILITY OF JUSTIFIED DECISIONS ON THE CHOICE OF MATERIALS FOR COMFORT SUITS FOR ARCTIC EMPLOYEES

Abstract: The article presents the results of research on the creation of a suit and accessories to protect employees from the cold in the Arctic. When developing a heat-protective clothing set, the authors draw attention to the fact that the requirements for thermal insulation of all areas of the body should be met. Particular attention must be paid to protecting the hands and face. Considering that previously conducted studies on the choice of a package of materials for knee pads and elbow pads did not ensure the formation of comfortable conditions for servicemen in the Arctic when they were in climatic zones with low temperatures, the authors developed a software product that allows the manufacturer to reasonably choose a set of materials for a suit along with accessories that guarantee servicemen comfortable conditions during the entire period of its service in climatic zones with low temperatures.

Key words: thermal protective clothing, accessories, cooling, materials package, employees, Arctic conditions, software product, mathematical models, comfort, boundary value problem, climatic zones, time of exposure to low temperatures.

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Introduction

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An extensive program for the development of the Arctic required from costume manufacturers a substantial justification for the choice of a package of materials to ensure that those employed when working in climatic zones with low temperatures provide them with comfortable conditions. Therefore, it is understandable that heightened attention to the Arctic of all of Russia, which is provoked by the desire of the leaders to equip it and make the life of employees comfortable, able to fulfill their statutory duties at the proper level. One of the main conditions for the performance of these tasks is the formation of a suit for employees, in which they will really have access to all the actions that are formed by the conditions for their work, and at the same time they will be guaranteed a comfortable state during the entire time they are in climatic zones with low temperatures.

The main tasks in the field of development of science and technology for the development of the Arctic will be achieved through the following set of measures:

a) development and implementation of a comprehensive program of fundamental and applied research for the development of the Arctic, including in the field of industrial robotics, supercomputer modeling, geocryology (permafrost science), glaciology, geology, geomorphology, mineralogy, oceanology, geophysics, unmanned transport systems, remote sensing Land, renewable and portable energy sources, medical care and methods of accelerated adaptation to Arctic conditions, industrial hygiene and occupational medicine, Arctic biology and biotechnology, Arctic ecology, hydrometeorology, construction on permafrost, integrated navigation and communication facilities;

b) development of an international research program (including expeditionary ones) of the state of the Arctic ecosystems, global climatic changes and the study of the Arctic;

c) formation of a register of critical technologies for the development and sustainable development of the Arctic, creation of a mechanism for coordinating their development and financing;

d) construction of a drifting ice-resistant self-propelled platform and research vessels for the purpose of research and study of the Arctic;

e) performing hydrographic research to ensure the safety of navigation, as well as long-term hydrographic research, including deep-water research, to study the underwater environment;

f) ensuring the creation of new functional and structural materials necessary for the implementation of economic activities in the Arctic;

g) creation of a system of scientific and educational centers in key areas of fundamental and

applied research in the interests of developing the Arctic;

i) development of a system for monitoring, assessing and forecasting the development of science and technology in the Arctic zone.

Main part

The urgency of the problem of creating a suit for protection from the cold is confirmed by numerous studies in this area, conducted by domestic and foreign scientists. Currently, one of the directions for developing a suit for the Arctic conditions is the field of professional clothing, in particular, clothing for the needs of the federal authorities. Survival in the polar regions directly depends on the consumer's body temperature, more precisely, its preservation. And this is only possible with a suit.

The first requirement for a suit in the Arctic is layering.

The top layer should be moisture resistant, the middle layer should contain woolen fibers (preferably), or synthetic, the inner layer of the suit should have good air permeability. The second requirement is that the suit must be comfortable. This is ensured by sufficient air circulation and does not provoke overheating of the soldier's body. The set of equipment for the Arctic serviceman includes clothing, a protective bulletproof helmet, chemical and biological protection clothing, warm clothing, a rescue bag, a tent and a parachute. Such a kit should provide protection and survival in a variety of climatic and combat conditions.

Currently, in connection with the new conditions for the presence of employees in the Arctic regions, the quality, efficiency of protective clothing for various purposes and, first of all, army protective clothing, is being improved very quickly and revolutionary, using the latest advances in the field of nanomaterials and technologies. According to American scientists, whose research is available in the open press, the use of modern protective clothing in the US Army has allowed them to reduce casualties in hot spots by 15%. Discomfort can cause a decrease in activity, especially in relation to solving problems associated with neuro-emotional stress, with the need to concentrate, and also increase the risk of occupational accidents and injuries. Moreover, cooling of tissues can lead to decreased physical activity, which contributes to the risk of accidents.

Cooling of a person, both general and local (especially of the hands), contributes to a change in his motor activity, disrupts coordination and the ability to perform precise operations, causes the development of inhibitory processes in the cerebral cortex, which can be the cause of injury. With local cooling of the hands, the accuracy of the combat mission decreases; activity decreases by 1.5% for each degree of decrease in the temperature of the fingers.

The above means that a set of thermal protective

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clothing intended for work in open areas, in particular in climatic regions I A and I B ("special" and IV climatic zones), must include protective equipment for the face and respiratory system.

The hands and feet play an important role in thermoregulation, being specific heat exchangers between the body and the environment. The state of thermal comfort is provided at a foot skin temperature of 29–31 °C and a heat flux of 52–87 W / m². The thermal resistance of the tissues remains within the range of up to 0.3 clo. The creation of clothing for protection from the cold in climatic region IA is a very difficult task, since the thermal insulation capacity of clothing is largely determined by the thickness of the package of materials, an increase in which may be one of the reasons for a decrease in human performance. It is very difficult to provide the necessary protection against cooling of the surface of the head (including the face), hands, feet, due to the low efficiency of their insulation.

The use of materials with low air permeability and closed construction for protection from wind exposure can lead to the accumulation of moisture in the garment and reduce its thermal insulation, especially when performing intense physical work.

Taking into account the peculiarities of climatic conditions (cooling of the face, respiratory organs) and the real possibility of creating clothes for carrying out activities, the duration of continuous stay in the cold was taken to be no more than 2 hours for climatic region IA and 1 hour for region IB. In this case, it was taken equal to 52 W h / m², which corresponds to the lower limit of the permissible thermal state.

For climatic regions I A and I B, the value of the weighted average heat flux from the surface of the human body should be 98.0 and 107.0 W / m², respectively. Taking this into account, to ensure a given thermal state of a person at a temperature of relatively calm air (–24.4 °C –41.0 °C), the thermal insulation of the kit should be 0.560 and 0.668 °C ·

m² / W, respectively.

In real conditions, the amount of thermal insulation is influenced by the wind factor, as well as by physical activity. The above values should be adjusted for corrections for combined exposure to wind and physical activity for a set of clothing that includes an insulated overalls or jacket with trousers (or semi-overalls).

Taking into account the average of the most probable wind speed values in the climatic region IA (6.8 m / s), for the manufacture of an insulated suit, you should choose a top material that has low air permeability (approximately 7 dm³ / m² s), but sufficient moisture permeability (≥ 40 g m² / h). For region IB, it is advisable to use materials of the same breathability due to the large temperature difference between the outside air and under clothes.

Based on this, heat-protective clothing should have thermal insulation of 0.709 °C m² / W (4.6 klo) and 0.728 °C · m² / W (4.7 klo) (1 klo = 0.155 °C · m² / W).

Previous studies on the assessment of selected materials for the formation of overhead bags on the knee and elbow joints of employees for their suitability to ensure their comfortable state and prevent their chronic diseases - arthritis and arthrosis - using the software developed by the authors did not confirm the formation of a comfortable state of employees.

The authors continued the search for new materials, including those made using nanotechnology from the groups of hot-melt adhesive cushioning materials (TKPM), the characteristics of which are given in Table 1.

The paper considers the process of cooling the surface tissues of the knee and elbow of a serviceman when exposed to low temperatures.

The characteristics of the materials under study are shown in Table 1.

Table 1 - Characteristics of a package of materials for the protection of knee and elbow joints using hot-melt interlining materials (TKPM).

Model	Package materials	Thickness, mm	Heat conductivity coefficient λ, W / m · °C
1	2	3	4
Model 1	cotton linen	0.9	0.044
	Wool sweater or pants	2.4	0.027
	Nylon lining	1.6	0.042
	Thinsulate insulation (one main layer)	6.0	0.044
	Gasket materials:		
	1. TKPM "Picardy" 1242/17	1,2	0.041
	2. TKPM "Kufner" R171G57	1,3	0.031
3. TKPM "Kufner" B141N77	2.1	0.021	
4. TKPM AKR-622 / AKR218	3.5	0.009	

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Model 2	Arctic-tech - outer layer (85% PE + 15% cotton)	1.8	0.041
	Arctic-tech (knee pad or elbow pad)	1.8	0.041
	Thermal underwear	1.76	0.039
	Wool sweater or pants	2.4	0.027
	Nylon lining	1.6	0.042
	Thinsulate insulation (two main layers)	12	0.036
	Gasket materials:		
	1. TKPM "Picardy" 1242/17		
	2. TKPM "Kufner" R171G57		
	3. TKPM "Kufner" B141N77		
	4. TKPM AKR-622 / AKR218	2.1	0.021
	3.5	0.009	
Arctic-tech - outer layer	1.8	0.041	
Foam rubber - damper	2.2	0.027	
Arctic-tech (patch pocket)	1.8	0.041	

For the description, a mathematical model is built in the form of a boundary value problem:

$$\frac{\partial T_i}{\partial t} = a_i \left(\frac{\partial^2 T_i}{\partial r_i^2} + \frac{2}{r_i} \frac{\partial T_i}{\partial r_i} \right) + \frac{q_{iv}}{c_i \rho_i}, \quad i = 1, 2, \dots, n,$$

$$T_1(0, t) \neq \infty; \quad \lambda_n \frac{\partial T_n}{\partial r_n}(R_n, t) + \alpha(T_n(R_n, t) - T_c) = 0;$$

$$T_{i-1}(R_{i-1}, t) = T_i(R_{i-1}, t);$$

$$\lambda_{i-1} \frac{\partial T_{i-1}}{\partial r_{i-1}}(R_{i-1}, t) = \lambda_i \frac{\partial T_i}{\partial r_i}(R_{i-1}, t), \quad i = 2, \dots, n.$$

Initial conditions, where t is time; T_i is the temperature of the i -th layer; $i = 1, \dots, n$; T_c - ambient temperature; c_i - coefficient of heat capacity of the i -th layer; a_i - coefficient of thermal diffusivity of the i -ro layer; ρ_i - density of the i -ro layer; λ_i - coefficient of thermal conductivity of the i -ro layer; q_{iv} is the volumetric density of the heat flow of the i -ro layer; α is the coefficient of heat transfer from the surface of the skin or protective layer (hair, hat); $f_i(r_i)$ - initial temperature of the i -ro layer. $T_i(r_i, 0) = f_i(r_i)$

The solution to the problem is in the following form

$$T_i(r_i, t) = \sum_{k=1}^{\infty} D_k(t) X_{k,i}(r_i),$$

where are the eigenfunctions of the corresponding boundary value problem:

$$X_{k,i}(r_i) = \frac{1}{r_i} \left(A_i \sin \left(\frac{\mu_k r_i}{\sqrt{a_i}} \right) + B_i \cos \left(\frac{\mu_k r_i}{\sqrt{a_i}} \right) \right)$$

$$\frac{\partial^2 X_i}{\partial r_i^2} + \frac{2}{r_i} \frac{\partial X_i}{\partial r_i} + \frac{\mu^2}{a_i} X_i = 0,$$

$$X_1(0, t) \neq \infty; \quad \lambda_n \frac{\partial X_n}{\partial r_n}(R_n) + \alpha X_n(R_n) = 0;$$

$$X_{i-1}(R_{i-1}) = X_i(R_{i-1});$$

$$\lambda_{i-1} \frac{\partial X_{i-1}}{\partial r_{i-1}}(R_{i-1}) = \lambda_i \frac{\partial X_i}{\partial r_i}(R_{i-1}).$$

When analyzing the effect of the selected materials (Figure 1, 2), which are recommended for the formation of packages on the elbow and knee joints, we can confidently conclude that the Arctic serviceman will be guaranteed protection against arthrosis and arthritis.

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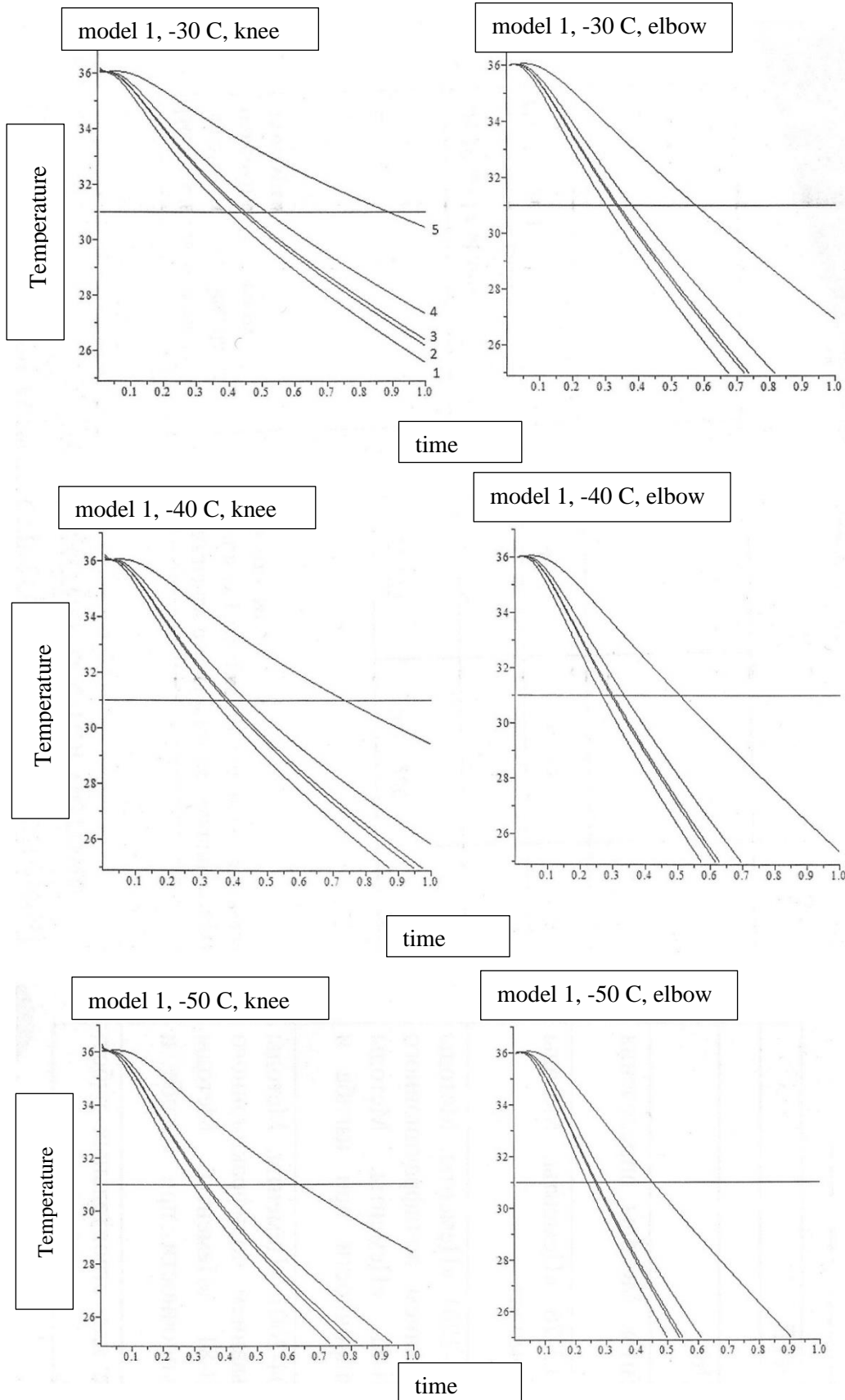


Figure 1 - Characteristics of the state of comfort of the skin of the elbow and knee of a serviceman when he is in the zone with a temperature of -30°C , -40°C , -50°C for a package of materials of model 1, where the curves: 1 - without cushioning material, 2 - TKPM " Picardies "1242 \ 17, 3 - TKPM" Kufner "R171G57, 4 - TKPM" Kufner "B141N77, 5 - TKPM AKP-622 \ AKP218

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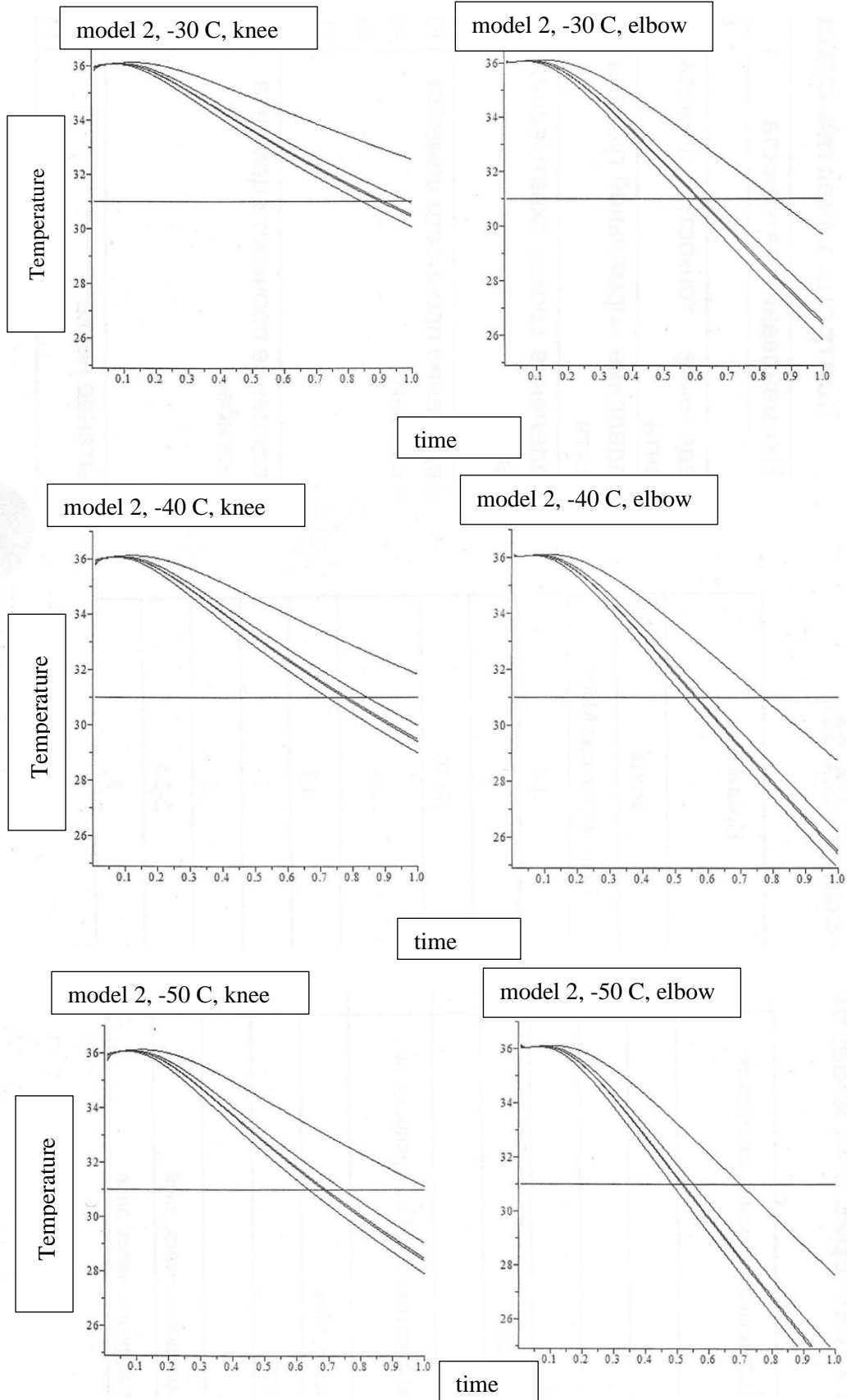


Figure 2 - Characteristics of the state of comfort of the skin of the elbow and knee of a serviceman when he is in the zone with a temperature of -30 ° C, -40 ° C, -50 ° C for a package of materials model 2, where the curves: 1 - without cushioning material, 2 - TKPM " Picardies "1242 \ 17, 3 - TKPM" Kufner "R171G57, 4 - TKPM" Kufner "B141N77, 5 - TKPM AKP-622 \ AKP218

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Conclusion

The analysis of the obtained results confirmed the effectiveness of the software product for a reasonable choice of a package of materials for the overhead parts of a suit of an Arctic serviceman in order to form comfortable conditions when he is in areas with low temperatures.

Thus, the software product creates the opportunity for the manufacturer to manufacture a suit set that provides the user with comfort and perform his duties for the entire time specified by him, and the developers of new materials - to have the main characteristics of new materials in order to confidently provide users with all the requirements for a suit set. for military personnel.

The main tasks in the field of ensuring the protection of the population and the territories of the Arctic zone from natural and man-made emergencies are achieved through the following set of measures:

a) identification and study of the risks of natural and man-made emergencies, methods of their prevention;

b) development of technical means, technologies and equipment for carrying out emergency rescue operations and extinguishing fires, development of the aviation park, aviation infrastructure and aviation rescue technologies in order to ensure the protection of the population and territories, reduce the response time to emergencies, taking into account the tasks to be solved and naturally -climatic conditions of the Arctic zone;

c) improving the methods of protecting the population and territories, extinguishing fires and temporarily placing the population and the professional contingent in the Arctic conditions in the elimination of natural and man-made emergencies;

d) improving the methods of increasing the level

of protection of critical and potentially hazardous facilities, ensuring the sustainability of their functioning in emergency situations in the Arctic;

e) improving the regulatory legal and regulatory framework in the field of protecting the population and territories, critical and potentially dangerous facilities from natural and man-made emergencies, in the field of fire safety, taking into account the specifics of facilities planned for construction in the Arctic zone;

f) development of systems for monitoring and forecasting emergency situations in the Arctic zone, including on the basis of receiving and processing space information;

g) development of an anti-crisis management system within the framework of a unified state system for the prevention and elimination of emergency situations;

h) development of the technical and tactical capabilities of the Arctic integrated emergency rescue centers in the prevention and response to emergencies by improving their structure and composition, base infrastructure and modern material and technical support, taking into account the tasks to be solved and the natural and climatic conditions of the Arctic zone;

i) organization and participation in exercises, trainings to check the readiness of the forces and means of the Arctic states to eliminate natural and man-made emergencies, including during the implementation of large economic and infrastructure projects;

j) development and establishment of requirements for rescue equipment and means of rendering assistance to preserve life and health in the event of radiation accidents and incidents in the Arctic zone.

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THE ROLE OF LEXICO-SEMANTIC WAYS IN THE INTERPRETATION OF ANTHROPONYM TARAGAY AND TOPONYM TARAGAY

Abstract: This article deals with the analysis of materials from literary, historical, lexicographic sources in order to identify the lexical and semantic signs of ononymy of the anthroponym Taragay and the toponym Taragay.

Taragay, functioning in the modern Uzbek language, is used both as an anthroponym and a toponym. The toponym Taragay is the name of beautiful, well-maintained village of Chirakchi - the district of Kashkadarya region of the Republic of Uzbekistan.

As a result of the analysis of historical facts, other information based on the materials of the sources, the corresponding conclusions were given in the work that the toponym Taragay arose on the basis of the anthroponym Taragay // Turagay.

Key words: Taragay, Turgay, Talagay, Turagay, Turagay, toponym, anthroponym, analysis, lexico-semantic, comparatively comparative, source, role, interpretation.

Language: Russian

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РОЛЬ ЛЕКСИКО-СЕМАНТИЧЕСКИХ СРЕДСТВ В ИНТЕРПРЕТАЦИИ АНТРОПОНИМА ТАРАГАЙ И ТОПОНИМА ТАРАГАЙ

Аннотация: данная статья посвящается анализу материалов литературных, исторических, лексикографических источников с целью выявления лексико-семантических признаков онимичности антропонима Тарагай и топонима Тарагай.

Тарагай, функционирующая в современном узбекском языке, используется как в качестве антропонима, так и топонима. Топоним Тарагай является наименованием красивого, благоустроенного села Чиракчинского района Кашкадарьинской области Республики Узбекистан.

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В результате анализа исторических фактов, других сведений на основе материалов источников в работе сделаны соответствующие выводы о том, что топоним Тарагай возник на основе антропонима Тарагай // Тургай.

Ключевые слова: Тарагай, Тургай, Талагай, Турагай, Тўрагай, топоним, антропоним, анализ, лексико-семантический, сравнительно-сопоставительный, источник, роль, интерпретация.

Введение

Тарагай (на узбекском языке *Тарагай*) – сельский населенный пункт в Чиракчинском районе Кашкадарьинской области Республики Узбекистан. Это одно из самых древних, красивых и благоустроенных сел региона. Оно расположено в отрогах Зерафшанских гор, на стыке ряда районов Кашкадарьинской и Самаркандской областей и отличается от близлежащих сел своей многовековой историей.

Село *Тарагай* – место нашего рождения. С молодых лет нас интересовало: почему село так называется? Кем был *Тарагай* и почему в его честь названо это село? Потом у нас появились новые вопросы. Например, почему данное наименование является единственным в Узбекистане для сельских населенных пунктов?

Руководствуясь чувством ответственности перед своими односельчанами, необходимо было найти ответы на все, интересующие нас, вопросы. В связи с этим мы решили выяснить понятийное содержание детской гипотезы.

Исторические источники свидетельствуют о том, что отца выдающегося государственного деятеля и полководца Амира Тимура звали Мухаммадом *Тарагаем*. Может, село назвали в его честь, а может, в честь внука Амира Тимура – Мухаммада *Тарагая* Улугбека?

Житель села *Тарагай* Иброхим ота (ота, буквально отец – почтительное обращение к старшему – Х.Дж., Р.С.) Нурматов внес в историю рассматриваемого нами вопроса определенную ясность: «Согласно преданиям о Сахибкиране (Владелец счастливого созвездия – Х. Дж., Р. С) Тимуре, его отец *Тарагай* жил в нашем селе. Его сын, Амир Тимур, в молодости пас здесь отары овец, коз и коров. Поэтому в окрестностях нашего села расположены села Говхона и Бузовут (порусски - коровник; хлев и козы серого, земельного цвета - Х.Дж., Р.С.)».

И это не последнее из преданий о селе *Тарагай*, связанных с тимуридами. Несколько слов о пещере, имеющей отношение к Амиру Тимуру. После того, как на территории современного Узбекистана и некоторых близлежащих к нему территориях (в то время – государство Маверауннахр – Х.Дж., Р.С.), воцарилась династия шейбанидов, сменившая династию тимуридов, в горных районах Китаба, Шахрисабза, Самарканда и Чиракчи началось физическое истребление представителей племени барлас, выходец из которого был Амир Тимур. Уцелевшие потомки славных воинов Амира

Тимура, а также некоторые прямые потомки великого государя и полководца нашли убежище в недоступных горных местах. Одним из них была большая пещера, расположенная в окрестностях южной части села *Тарагай*. Ожидания беглецов, что их жизнь спасет дух великого предка, оправдались. Благодарные люди, как повествует легенда, назвали пещеру в честь Амира Тимура.

Наряду с обращением к престарелым жителям села и записями их ответов на вопросы, включая также рассказанные ими мифы, предания, легенды, автору удалось изучить и сведения, содержащиеся в некоторых художественных, этнографических, исторических произведениях.

Выясним лексическое значение слова «*Тарагай*». К настоящему времени имеется ряд упоминаний и толкований данной единицы в художественных, исторических и научных источниках:

1. Как пишет популярное российское издание «Аргументы и Факты»: «Настоящее имя одного из величайших полководцев в мировой истории — Тимур ибн *Тарагай* Барлас, что означает «Тимур сын *Тарагая* из рода Барласов». В различных персидских источниках упоминается уничижительное прозвище Тимур-э Лянг, то есть «Тимур Хромой», данное полководцу его врагами. «Тимур-э Лянг» перекочевало в западные источники как «Тамерлан». Утратив уничижительный смысл, оно стало вторым историческим именем Тимура»[1].

2. Российский и советский востоковед, тюрколог, арабист, исламовед, историк, архивист, филолог; один из основателей российской школы востоковедения Василий Бартольд писал в своем труде «Царствование Тимура»: «Официальная история сообщает точную дату рождения Тимура (вторник 25 шабана 736/9 апреля 1336 г., год мыши), имя его отца (эмир, или «нойон», *Тарагай*) и матери (Текина-хатун)»[2].

3. В произведении «Зафар-наме» Шарафуддина Али Яздий имя отца Амира Темура пишется в следующей форме - амир *Тарагай*, *Тарагай-бек*: «Ибо, как сказал Пророк, молитвы и благословения Аллаха ему: «Добронравие людей проявляется в их боязни законов божьих». Смысл этого хадиса относится к достойному отцу государя Сахибкирана, имя которого амир *Тарагай*. Сей *Тарагай-бек* относился с большой любовью и уважением к людям науки, мудрецам и отшельникам, чтил их и присутствовал на их собраниях. Особенно он чтил рабов господних,

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возлюбленных им, благодаря сей истинной дружбе с Творцом...»[3].

4. Восточный историк Ибн Арабшах В своем наиболее известном труде «Аджайиб ал-макдур фи тарих-и» пишет следующее: «О правописании имени Темура: «Т» сверху две точки и каср «И» с двумя точками снизу и сукун; в середине «У» с даммой, «Мим» и «Р» без точек. Это правильное написание его имени и построение согласно правилам графики арабов. Но особенности арабского языка в том, что иноязычные народности, искажая буквы, могут произносить, как на свой лад. В связи с этим они используют при графическом изображении варианты: Тамур//Тамурланг. Их нельзя укорять в этих погрешностях. «Темир» – это по-тюркски. Темур ибн *Taragai* ибн Абагай родился в кишлаке Хаджа Илгар. Хаджа Илгар является местностью, подчиненной Кешу - пусть Аллах охраняет его от всяких бед! Кеш (Шахрисябз) является одним из городов Мавераннахра и расположен примерно в тринадцати фарсах от Самарканда. Рассказывают, что ночью, при рождении (Темура), в воздухе летало что-то похожее на железную (металлическую) шапку. Потом оно исчезло в пространстве, будто бы распространилось по всей земле. Будто бы оно разбросало во все стороны огонь и искры, и будто бы они заполнили [своими лучами] пустыни и оседлые места»[4].

5. Французский писатель Марсель Брион утверждает в своем труде «Амир Тимур»: «Семья Амира Тимура не имела никаких родственных связей с чингидами, она происходила из старинного тюркского рода. Эта семья проживала в окрестностях сравнительно небольшого города Кеш – «зеленого города» (Шахрисябза). Амир Тимур воспитывался отцом *Taragaim*, который являлся правителем Кеша и его окрестностей»[5].

6. Советский историк-востоковед, член-корреспондент Академии наук СССР, действительный член Академии наук Таджикской ССР, заслуженный деятель науки Узбекской и Таджикской ССР Александр Якубовский упоминает, что пиром (духовным) отца Амира Тимура – *Taragay* Баходира, был знаменитый шейх Шамсиддин Кулол. Последний сыграл выдающуюся роль в становлении и дальнейшем феноменальном развитии знаменитого полководца и государя [6].

Однако, далеко не все исследователи согласны с такого рода выводами. Речь идет о таком варианте написания имени *Taragai*, как Тургай. В «Толковом словаре узбекского языка» имеется два значения в содержании слова «тургай»: 1. Общее наименование мелкой певчей птицы, относящейся к одному из семейств отряда воробьинообразных. Полевой перепел. Черный перепел. 2. Наименование одной из узбекских классических песен[7].

1. Известный узбекский литератор Тохир Каххор в своем предисловии к очередному изданию книги Хермана Вамбера «История Бухары, или Мавераннахра» на русском и узбекском языках считает неправильным написание имени отца Амира Тимура как «*Taragai*». На самом деле правильным будет написание «Тургай», как это приводится в книге Вамбери. В подтверждение данного аргумента он приводит следующее: «Отец Тимура Тургай (битбилдик – перепел, это слово также имеет такой вариант в узбекском языке, как муллатургай – Х.Дж.,Р.С)» и далее продолжает в комментарии: «Как было прочитано Вайлом (по-русски также «Отец его Тургай (перепел) был главою Берлас... Не *Taragai*, как и читает Вайл)». Далее он продолжает: «Действительно, мнение Вамбери верное. Потому что он дал вариант написания смысла слов Тургай, *Taragai* без комментария» [8,6].

2. Академик Академии наук Узбекистана Абдулахад Мухаммаджанов в своем историческом очерке «Темур ва темурийлар салтанати» («Царство Тимура и тимуридов») отметив, что отца Амира Тимура называют Амир Тургай, пишет: «В исторических книгах и учебниках имя отца Амира Тимура приводится как *Taragai*. Но это слово не имеет смысла. По нашему мнению, его имя Тургай Баходир. Согласно древней тюркской традиции, мужчина-отец, услышавший благую весть о рождении у него сына-первенца, выбегал наружу. Предмет, который первым ему попадался в глаза – будь-то одушевленный, или неодушевленный предмет – и становился именем ребенка. Таким образом, можно предположить, что имя отца Амира Тимура взято от имени птицы тургай - перепел. Внук Амира Тимура также носил имя Мухамад Тургай. Данное мнение также отражено в труде Хермана Вамбери»[9,9].

3. Известный русский востоковед и исламовед (XIX век) Владимир Череванский пишет во второй книге своей многотомной исторической эпопеи «Две волны», пишет что имя отца Амира Тимура не *Taragai*, а Тургай. Оно означает перепел [10].

4. «Тургай – название речной системы и небольшого города в степной области Средней Азии, - пишет уже упоминавшийся выше Василий Бартольд. Далее он уточняет: «По-тюркски слово тургай, или торгай, означает «небольшая птица» (Радлов, Словарь, III, 1184, 1457); кара-тургай это скворец; укрепления Оренбурга назывались Тургай-кала»[11].

Как и следовало ожидать, далеко не все исследователи согласны и с такой точкой зрения. И большинство из них не ограничиваются отрицанием вышеприведенных аргументов и приводят новые выводы, которые значительно

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расширяют рамки рассматриваемого нами вопроса.

1. Известный узбекский писатель Пиримкул Кодиров в своем романе «Амир Темура сиймоси» («Образ Амира Тимура»), написанном в научно-художественной форме, дал критическую оценку случаям написания имени отца Амира Тимура как Тургай: «В последние века были созданы книги, в которых имя Тарагай баходира (баходир - богатырь - Х.Дж., Р.С.) приводятся в форме «Тургай». Это не выдерживает никакой критики. Тургай – маленькая певчая птичка. Для выходца из рода богатырей, такое пренебрежительное отношение является неправильным. В тюркском языке слово «*Taragai*» несет в себе следующие смыслы: «пусть распространяется как свет, умножится, пусть будет хозяином больших территорий». Как известно из истории, такого рода пожелания сбываются. Поэтому Амир Темура дал своему первому внуку Улугбеку еще одно имя, Тарагай» [12,9].

2. Основатель узбекской топонимики проф. Тура Нафасов в своей книге «Кашкадарё кишлокномаси» («Летопись сел Кашкадарьи») дает следующее толкование топонима *Taragai*: «*Taragai* – село в Чиракчинском районе. Одно из племен, вошедших в состав узбекского народа, носит наименование *Taragai*. Детское имя одного из тимуридов, Мирзы Улугбека, - Мухаммад *Taragai*. Слово Улугбек выступает в качестве псевдонима, в словосочетании Мухаммад *Taragai* слово *Taragai* служит указанием на родоплеменное происхождение. *Taragai* – наименование одного из племен в составе племенного объединения (клана) барлас. По этой причине последняя часть имени заимствована из наименования племени *Taragai*. Слово, послужившее основой имени племени, в монгольском языке толгой//тулгай//тулгай – это голова, руководитель, хозяин, лидер, покровитель, высшая точка, верхушка горы». Исследователь, анализируя происхождение топонима *Taragai* в рамках тюркских языков, приходит к следующему выводу: «В киргизском языке *Taragai* – место в горах, свободное от растительности, без сосен». В Кыргызстане «у истока реки Нарын есть река *Taragai*. В Монголии и Казахстане Талагай – наименование горы. Хотя в ядре слова звуки р, л различаются, на самом деле вышеотмеченные слова одинаковы. В киргизском языке «*Taragai* – место, лишенное растительности», в казахском языке «талагай – холм, возвышенность, вершина», в узбекском языке это слово издавна несет в себе смысл «гора».

Первоначально слово Тарагай было наименованием горы и поэтому село, расположенное в окрестностях данной горы, получило именно это наименование. *Taragai* – древнее слово и наименование, имеющее

отношение к тюркскому и монгольскому языкам, а также этноним» [13, 240-241].

3. Известный узбекский литературовед Поён Равшанов в предисловии к книге «Тимур-наме» приводит следующие суждения об имени и отчестве отца Амира Тимура: «Тимур – единственный сын своего отца. Сын и отец находят друг друга через 12 лет. Если предположить, что имя отца *Taragai* или *Turagai*, в «Тимур-наме» между буквами «т» и «р» в слове *Taragai* находится «вав» (араб. واو — двадцать седьмая буква арабского алфавита). Она износится как короткий русский звукорп «у», «аналогично «ў» («у с краткой» в белорусском алфавите) или как «w» в английском слове «water – Х.Ж., Р.С.) Таким образом, упомянутое нами слово читается как *Turagai*. Традиционно в некоторых узбекских семьях одинокий ребенок считается самым красивым. Как отмечено в «Темур-наме»: «Баёнкули спросил у амира *Turagai*: «Есть ли у тебя другие сыновья?». Амир ответил ему: «Нет». Не является ли Амир *Turagai* единственным сыном?! Не являются ли слова «туракол - будь», «яшайкол - живи себе» истинным смыслом наименования *Turagai*? Ведь смысл таких имен, как Тухтамыш, Тухтасин заключается именно в этом - желании обмануть темные силы, или судьбу, не дающие детей после первенца. Горное место вблизи Китаба, Шахрисабза и Чиракчи называется село *Taragai*» [14,22].

4. В словаре Махмуда Кашгари «Дивани лугатит-тюрк» встречается лексема *tūra*. Его значение переводится как щит, иначе, - тура калкон, т.е. щит – средство защиты от ударов врага, или средство для маскировки от врага (ширма, экран). Другой вариант - это слово *tora* (в нем буква о пишется как ö), оно означает верхушку, крышу дома, верх. Данное слово так же используется в варианте *tor* [15,240].

5. В словаре, составленном на основе произведений Алишера Навои, приведены четыре значения лексемы *tūra*. Первое - *tūra1*) - личность, имеющая отношение к ханскому роду, принц. «Принц все замки заключил в один шнур, А затем перехитрил шестьдесят человек» («Вал Искандера»). 2) – щит высотой в человека; препятствие, используемое в древних войнах. «Египетские отшельники велели офицерам собрать двери для секир и щитов». (Из «Насойим ул-мухаббат»). 3) – правило, закон, дисциплина, обычай: «Согласно обычаю преклонно голову пред ханом, Дай мне несчастному, тишину» (Из «Хазойинул маоний»). 4) – обернуть, приложить: ...«В этой умме (сообществе) совершенство в сферах наездничества и духовности приложено к намерению храма» (Из «Насойимул мухаббат» [16,12].

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Таким образом, содержательные и интересные, а также зачастую, полемические взгляды таких ученых-исследователей, как Шарафуддин Али Язди, Ибн Арабшаха, Херман Вамбери, Тохира Каххара, Абдулахада Мухаммаджонова, ТурыНафасова, Поёна Равшанова, Василия Бартольда, Марселя Бриона и других, о смысловом содержании и этимологии слов *Taragai*, *Turagai* и *Turgai* в основе своей не тождественны. Становится ясным сугубо личностный подход, основанный, тем не менее, на исторических, географических, этнографических и лингвистических доказательствах. На наш взгляд, вариант написания слова *Taragai* как *Turgai* в книгах Х. Вамбери и А. Мухаммаджонова логически объясняются тем, что в арабской графике гласные звуки не отражаются, и, в конечном счете, есть такое правило, как выпадение апострофов коротких гласных при их написании. Таким образом, топоним *Taragai* можно читать и писать в различных вариантах. Возможно, в виду того, что в топониме *Taragai* при написании арабским шрифтом в буквах Та (араб. طاء, Ра (араб. راء. (и Гойн (арабская буква غ), буква Алиф (араб. لف) указана в коротком варианте написания и, из-за отсутствия ее выражения, большая часть исследователей прочитали вышеуказанный топоним как *Targai*, *Taragai*, *Turgai*, *Turgai*, *Turagai*.

Целесообразным представляется перейти к другим рассуждениям. По нашему мнению, корнем слова «*Taragai*» является понятие «распространение». Таким образом, в корне данного слова заключены такие смыслы, как «распространяться», «распространять свет».

Не являются ли лексема *Turagai* настоящим именем отца Амира Темура по убедительным версиям Махмуда Кашгари: *тура қалқан* означающее не что иное, как щит, используемый при защиты от врага, а также Алишера Навои: *тўра* – это знак принадлежности человека к ханскому сословию. В данном случае создание ядра антропонима *Turagai* можно объяснить использованием слова **ТУРА** (по узбекски **ТЎРА**).

Такого рода толкования близки к реалиям жизни. Так как в большинстве словарей смысл данного слова трактуется как человек, занимающий высокую должность. Оно используется в качестве дополнения к именам уважаемых или особо почитаемых людей, их званиям, должностям. В современном узбекском имязнании принято считать, что от имени собственного *Тура* образованы имена мужчин и женщин, как *Турамурод*, *Туракул*, *Турахон*. Существует и такой вариант как *Тура Тураевич*. Очевидно, родители, желая своим детям блестящее будущее выбирают такие имена. Исходя из этого, можно без обиняков утверждать,

что именем отца Амира Тимура является имя *Turagai*. Таким образом, тура – корень, гай – аффикс, создающий имя. Имена *Turagai*, *Turgai* созданы точно также как имена *Kar-chigai*, *Karagai*, *Kan-chigai* и другие.

Еще одно мнение также заслуживает особого упоминания. В узбекском языке функционируют глаголы “*тўра+моқ*”, “*тура+т+моқ*”, смысл которых заключается в словах «созидание», «создание». В древне-огузском наречии применяется преимущественно вариант “дўрамоқ”. Жизненность данных примеров можно подтвердить и таким аргументом, как нередкое употребление в обиходном языке выражения “Илоё, *тўрамай* кеткур!”. Оно несет в себе смысл: не родись, исчезни, умри и как видно является проклятием. Можно привести и такое выражение, как “Қаердан ҳам сани дўратган (тўратган) эканман?” (“И почему я тебя создал?”). Оно употребляется как выражение сожаления в устах родителей.

В конечном счете, похоже, что такие имена как Тўрабек, Тўрахон, возникли из образований, несущих в себе смысл: “созидающий, созидательный бек”. Известный узбекский поэт Боборахим Машраб, уроженец из Намангана, использует слово “*тўра*” в смысле “*шоҳ*” (царь). [17]. Если учесть, что наличие в наманганском регионе топонима *Тўрақўрган* (Курган царей), становится понятным, почему данное место возвеличивают в качестве города царей.

Обратим внимание на морфему “-гай” в качестве морфемы, которая создает имя личности, действие личности, предмет, событие в прежней (устаревшей) форме. Например, “Олгай иссиқ йўк-ку, сояга қочасиз?” – “Нет же изнуряющей жары, почему вы прячетесь в тени?”. (Вместо современного “-увчи”). Прибавление аффикса “-гай” к глаголу *тура* создает значение «созидающий, созидательный». Учитывая на данное предположение, можно сделать следующий вывод: *Turagai* представлен в качестве «созидающего, созидателя», сравнимого со Всевышним, в данном случае подразумевается возвеличивание конкретной личности – обладателя качествами, присущими Всевышнему.

Таким образом, основываясь на фактах, изложенных в трудах различных ученых, историков, писателей, а также на материалах народных преданий и легенд, на сведениях, почерпнутых из бесед с информантами старшего поколения, можно утверждать, что основой топонима *Taragai* – наименования села в Чиракчинском районе Кашкадарьинской области Республики Узбекистан, послужил антропоним *Taragai*//*Turagai*. В рассмотренном нами примере *Taragai* – это имя отца полководца и повелителя

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Амира Тимура. Это один из самых характерных примеров взаимодействия топонима *Taragai* и антропонима *Taragai*. Может, в рассмотренной нами важной теме имеются другие мнения?

Авторы готовы к дискуссии. Анализ исследований по изложенной проблеме свидетельствует о её неисчерпанности и требует новых изысканий.

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ANALYSIS AND ASSESSMENT OF THE SOCIAL RELATIONS AS A QUALITY OF LIFE COMPONENT IN PEOPLE WITH ONCOLOGICAL DISEASES

Abstract: Social relations are a component in the quality of life that the World Health Organization sets as an area of its main tool for its research. The presence of oncological disease causes damage to the human individual in physical, social and psychological aspects. The article presents the results of a conducted research with the purpose to identify deficits in quality of life in terms of social relations which are caused by oncological disease. The research was conducted among 304 persons in the age group 35-60 years, diagnosed with oncological disease varying its duration of treatment. The research tool used is a questionnaire developed by the author for the purposes of the research. The article presents a quantitative and qualitative analysis of the results obtained. Deficits in the quality of life have been identified in terms of social relations caused by cancer at different stages of the disease. The role of the social work with people with oncological diseases for preserving their quality of life to the maximum extent is substantiated.

Key words: oncological disease, social work, social relations, quality of life.

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Introduction

The intensity in the development of oncological diseases in recent decades puts them at one of the leading places globally. Studies reveal a worrying trend that not only is the number of people suffering from malignant neoplasms increasing, but also the age of onset of the disease in both genders is decreasing. Twenty million people worldwide live with a cancer diagnosis and it is the cause of 12% of all deaths. The presence of oncological disease affects to varying degrees the quality of life of the affected individual and people in its immediate environment. The results of the author's observations regarding the ongoing change in the quality of life of people in active age who have been diagnosed with oncological disease,

show that the disease changes their lives in various aspects in terms of social relations.

The working group of the World Health Organization defines the quality of life as (WHO, 1997) "the perception of individuals of their own position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". The World Health Organization, originating from the holistic or the overall concept of health, sets criteria for measuring the quality of life, including the social health and well-being. It is set as a main area in the tool for researching the quality of life of the given organization, which is used as a basis for developing a research tool adapted to local conditions and the

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specifics of the researched group presented in the publication.

The purpose of the article is to present the identified deficits in the quality of life by indicators of criteria "social relations" in people with oncological disease in active working age. In order to achieve the set goal, we set ourselves the following tasks:

- selection of components of the quality of life in terms of social relations which are to be researched;
- structuring a research tool;
- selection of an age group of persons with oncological diseases, which would allow the clearest differentiation of deficits in the quality of life that stood out in the research;
- identification of two groups of persons with oncological diseases in which the disease is at different stage, which will allow us to outline the period of occurrence of the established deficit in the quality of life;
- presentation of the quantitative indicators from the conducted research;
- presentation of qualitative indicators from the conducted research;
- analysis of identified deficits in the quality of life in the two groups of subjects and differentiation of those that stand out more clearly in only one of the two groups.

Materials and methods

The purpose of the publication is to analyse and evaluate social relations as a component of the quality of life of people with oncological disease. In order for this to be achieved, a research was conducted in 2018 and 2019 among people with cancer of various organs and systems, in the age group 35-60 years, residents of the districts of Ruse, Razgrad and Silistra in the Republic of Bulgaria. A representative sample of 304 respondents (5.71% of the total number of cancer patients in the specified age group and residents of the specified regions) was formed, which is consistent with the specifics of the empirical research and is based on an unintended selection of a general population of 5318 individuals with oncological diseases, patients of Complex Oncology Centre - Ruse Ltd. and University Multifunctional Hospital for Active Healthcare "Medika - Ruse" Ltd., which allows to be formed an appropriate general entirety and the necessary representativeness of the empirical research.

The choice of the indicated age group (35-60 years) is based on observations made by the author regarding the occurring change in the quality of life of persons of active age, in whom oncological disease is discovered. It is found that the disease changes life in the following aspects:

- The patient cannot fully fulfil his/her work commitments and is forced to terminate for an indefinite period of time the development of his/her professional career, which leads to loss of professional

positions, career stagnation and financial losses. The persons in this age group have established professional positions and working careers and usually these persons are contributors of the main income in the household.

- The patient cannot fully fulfil his/her family commitments to children, spouse and parents for an indefinite period of time, which leads to a change in the lifestyle of everyone in the immediate family environment. During this age period, people usually have their own family, spouse and children, who rely on their support and help. They also usually have elderly parents who also rely on their help (physical, moral and financial).

- The patient cannot actively participate in social life, which affects his/her emotional state and leads to weakening or loss of friendships and social contacts. This is the age period when each person's social life is most active.

In order to more clearly differentiate the period of manifestation of a certain deficit in the quality of life in terms of the time of its occurrence during different stages of treatment of the disease, respondents are divided into two groups: Group 1 - persons with oncological disease diagnosed two weeks ago and Group 2 - persons who are in the treatment period of the disease for one year.

The methods for collecting information were selected and used in accordance with the concept, purpose and objectives of the empirical research: modified and adapted for the purposes of the research and the local conditions version of the "World Health Organization Quality of Life Research Tool". Area 4 of that research instrument covers the quality of life indicators related to social relations. The specifics in assessing the statements in the given area of the questionnaire are in accordance with the five-point scale used in format of Likert, which consists of a series of statements with a certain number of possible answers in graded form (1 - no; 2 - rather no; 3 - I have no opinion; 4 - rather yes; 5 - yes), from 1 - "extreme left" to 5 - "extreme right". This scale examines the respondent's positive or negative opinion of certain statements relating to components of his/her quality of life indicators.

The research tool used was completed voluntarily and anonymously by 148 persons in the age group 35-60 years, who according to the given criteria are classified in Group 1 and 156 persons in the same age group who meet the criteria for inclusion in Group 2.

Results

1. Quantitative and qualitative analysis of the results on the indicators "age" and "gender" of the surveyed persons.

To achieve objectivity in interpreting the results obtained, five age subgroups are indicated in the questionnaire: from 35 to 39 years inclusive, from 40

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to 44 years inclusive, from 45 to 49 years inclusive, from 50 to 54 years inclusive, and from 55 to 60 years inclusive. The values are presented as a percentage of the total share.

The analysis of the obtained results shows the following quantitative data, presented in relative shares in relation to the total count:

- The highest relative share of the surveyed persons is occupied by the persons in the age group 55-60 years - 30.6% from Group 1 and 30.1% from Group 2.

- The lowest relative share of the persons covered in the research is occupied by the persons in the age group 35-39 years - 8.2% from Group 1 and 9.0% from Group 2.

It is evident that with the increasing age the relative share of persons with oncological disease in both groups increases. The obtained results regarding the age of the persons covered in the research directly correlate with the data on the age distribution of all registered persons with oncological diseases in the districts of Ruse, Razgrad and Silistra in 2018.

Of all subjects studied in Group 1, 82 are female (N = 82). They represent 56.16% of the respondents. The average age of these 82 women is 47.4 years with a standard deviation of SD = 6.4. 64 of the surveyed persons are male (N = 64) and they represent 43.84% of all persons surveyed. The average age of these 64 men is 52 years with a standard deviation of SD = 5.7. Of all surveyed persons from Group 2, 78 persons are female (N = 78) and represent 52.3% of the respondents in the group. The average age of these 78 women is 48.02 years, with a standard deviation of SD = 6.2. The surveyed male subjects in Group 2 are 71 in number (N = 71) and represent 47.7% of all subjects in this group. Their average age is 52.70 years, with a standard deviation SD = 5.2. The values are presented as a percentage of the total share. The presented data show that the incidence in women is higher in both groups of subjects.

2. Analysis of the social relations as a component of the quality of life in people with oncological diseases.

In order to identify existing deficits in the quality of life in regards to the area "social relations", the individuals of the two studied groups were surveyed with a questionnaire containing sixteen identical questions for both groups, aimed at assessing their satisfaction with their social relations. The following questions are included in the research tool:

Question No.1: Have you noticed any change in the relationship with your family members?

Question No. 2: Have you noticed any change in your relationship with your friends?

Question No. 3: Do you see a change in the relationships in the work team?

Question No. 4: Do you see a change in the community's attitude towards you?

Question No. 5: Do you receive support from your family members?

Question No. 6: How satisfied are you with the support you have received from your friends?

Question No. 7: Do you receive support from the members of the work team?

Question No. 8: Do you receive support from the community?

Question No. 9: Do you receive enough advice and support at the medical establishment/hospital?

Question No. 10: Do you need psychological counselling?

Question No. 11: Do you need health counselling in regards to protecting your rights as a patient?

Question No. 12: Do you need social counselling in regards to your social rights and needs?

Question No. 13: Are you looking for support from people in the same health condition?

Question No. 14: Do you receive support from people in the same state of health?

Question No. 15: Would you join support groups for people in the same health condition?

Question No. 16: Would you give support to people in the same state of health?

For this group of questions, the Cronbach's Alpha coefficient is 0.641, which we consider to be a good consistency. The correlation coefficient between the questions varies between 0.245 and 0.683, which is accepted as an acceptable value.

2.1 Quantitative analysis of the obtained results from the answers to the questions assessing the social relations of persons with oncological diseases.

When assessing the impact of the oncological disease on the social relations of persons diagnosed with the disease two weeks ago (Group 1) and one year ago (Group 2), the answers outline the following trends:

- 36.7% of the respondents from Group 1 and 45.2% of Group 2 do not notice any change in the relationships in their family;

- 34.0% of the respondents from Group 1 notice a change in the relationships in the family (without specifying in which direction it is);

- 33.3% of the respondents from Group 1 notice a change in their relationships with friends

- regarding any change occurring in the working team or the community, the answers are mostly negative in both groups;

- 74.8% of the respondents from Group 1 and 72.9% - from Group 2 receive support from their family;

- 49.7% of the respondents from Group 1 and 43.1% - from Group 2 receive support from their friends;

- 41.2% of the respondents from Group 2 receive consultations and support in the medical establishment/hospital;

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- 57.1% of the respondents from Group 1 and 58.8% from Group 2 answered that they need psychological counselling;
- 63.7% of the respondents from group 1 and 74.8% from Group 2 answered that they need health counselling;
- 63.3% of the respondents from Group 1 and 77.4% from Group 2 answered that they need social counselling;
- 45.6% of the respondents from Group 1 and 49.7 - from Group 2 answered that they seek support from people in the same health condition;

- 52.7% of the participants in the research from Group 1 and 59.4% - from Group 2 share that they would join support groups for people in the same health condition;
 - 61.9% of the participants in the research from Group 1 and 71.0% - from Group 2 share that they would support people in the same health condition.
- The numerical values of the results obtained from the answers to the questions from both groups of respondents are presented in Table 1:

Table 1. Quantitative results from the answers to the questions

Questions	Group	Answers				
	No.	No	Rather No	I have no opinion	Rather Yes	Yes
1. Have you noticed any change in the relationship with your family members?	1	36,7	11,6	0,0	17,7	34,0
	2	45,2	11,6	0,0	31,0	14,2
2. Have you noticed any change in your relationship with your friends?	1	26,5	20,4	0,0	19,7	33,3
	2	39,6	13,6	0,0	31,8	14,9
3. Do you see a change in the relationships in the work team?	1	12,2	27,2	36,1	18,4	6,1
	2	9,0	16,8	45,8	14,2	14,2
4. Do you see a change in the community's attitude towards you?	1	14,1	21,1	49,3	9,2	6,3
	2	11,7	13,0	54,5	9,7	11,0
5. Do you receive support from your family members?	1	2,0	3,4	0,0	19,7	74,8
	2	1,9	3,9	0,0	21,3	72,9
6. How satisfied are you with the support you have received from your friends?	1	2,8	3,4	13,8	30,3	49,7
	2	0,7	5,9	5,9	44,4	43,1
7. Do you receive support from the members of the work team?	1	5,6	20,8	43,8	20,8	9,0
	2	10,4	14,3	51,3	17,5	6,5
8. Do you receive support from the community?	1	5,4	21,8	47,6	12,9	12,2
	2	7,2	15,0	50,3	17,6	9,8
9. Do you receive enough advice and support at the medical establishment/hospital?	1	17,8	15,1	6,2	32,9	28,1
	2	0,7	5,9	6,5	45,8	41,2
10. Do you need psychological counselling?	1	11,6	7,5	7,5	16,3	57,1
	2	5,2	2,0	5,9	28,1	58,8
11. Do you need health counselling in regards to protecting your rights as a patient?	1	10,3	5,5	2,7	17,8	63,7
	2	3,3	1,3	0,7	19,9	74,8

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12. Do you need social counselling in regards to your social rights and needs?	1	13,6	4,1	2,7	16,3	63,3
	2	3,2	1,3	0,6	17,4	77,4
13. Are you looking for support from people in the same health condition?	1	9,5	15,6	8,2	21,1	45,6
	2	8,4	16,8	2,6	22,6	49,7
14. Do you receive support from people in the same state of health?	1	17,7	20,4	6,8	34,0	21,1
	2	8,4	19,4	1,9	36,1	34,2
15. Would you join support groups for people in the same health condition?	1	3,4	8,2	21,9	13,7	52,7
	2	1,9	8,4	11,0	19,4	59,4
16. Would you give support to people in the same state of health?	1	0,0	1,4	8,8	27,9	61,9
	2	0,0	0,0	6,5	22,6	71,0

Graphically, the responses are represented by a diagram of Figure 1 for Group 1 and Figure 2 - for Group 2

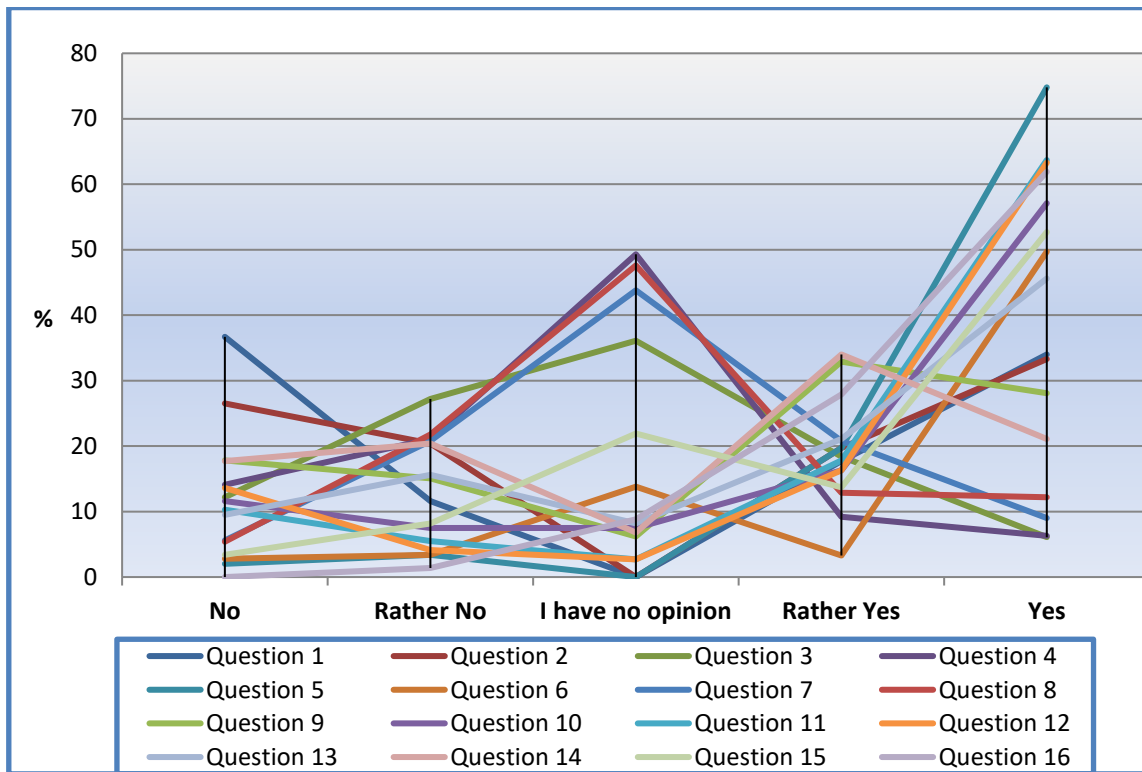


Fig.1: Graphical presentation of the answers to the questions received from Group 1

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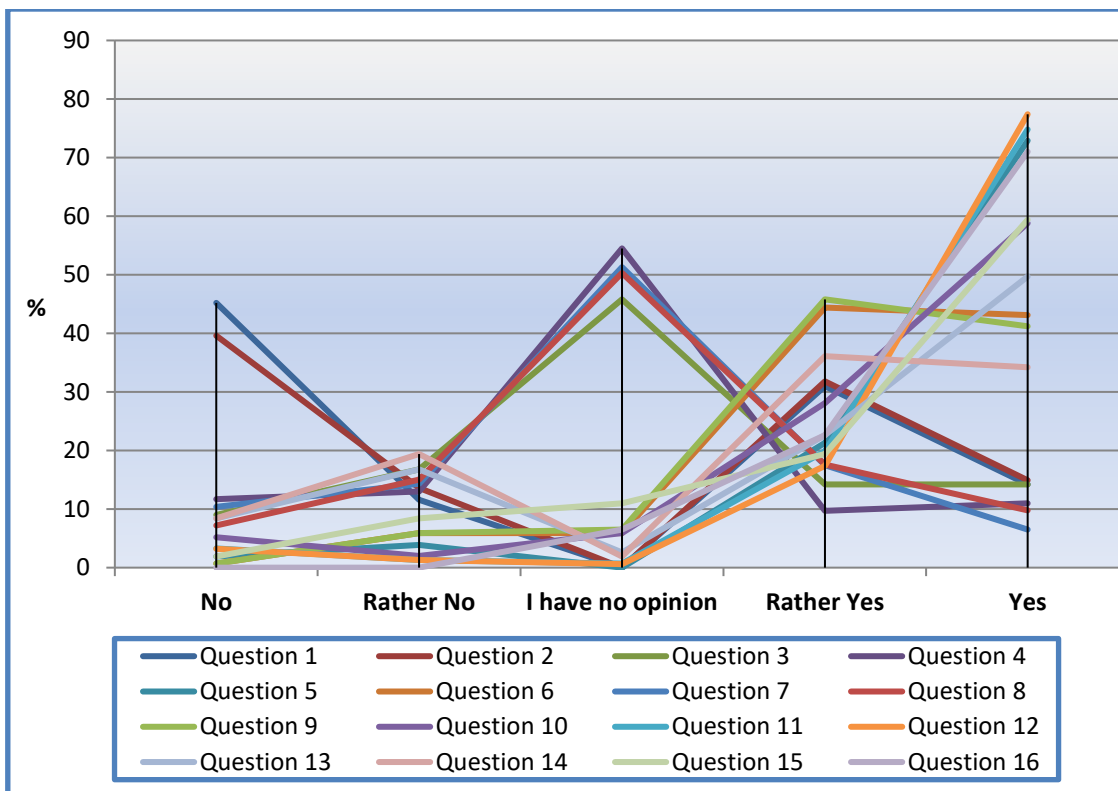


Fig.2: Graphical presentation of the answers to the questions received from Group 2

2.2 Qualitative analysis of the results obtained from the answers to the questions assessing the social relations of persons with oncological diseases.

In both groups, the object of the research is approximately the same share of people who report a change in the relationships with their family, friends and work team and those who do not report one after the onset of the oncological disease. It is not clear from the questions thus asked whether this change (or lack thereof) is in a positive or negative aspect. This is analysed through the answers to the following questions, which specify the level of support received. 94.5% of the respondents from Group 1 and 94.2% - from Group 2 answered that they receive support from their family members. 80.0% of the respondents from Group 1 and 88.5% of Group 2 received support from their friends. Regarding the support received from the working team and the community, in both surveyed groups, the answers “I have no opinion” prevail. Our interpretation of this is that a very large part of the surveyed persons in this period are in prolonged incapacity for work due to illness and do not have contact with the members of the working team. The interpretation of the result in terms of community support is identical to the interpretation we make in terms of a change in the position in the community. The share of people who state that they need psychological counselling during this period is high

(73.4% - from Group 1 and 86.9% - from Group 2), although when answering a question from section 2, 52.9% of the subjects from Group 1 and 88.4% from Group 2 answered that they receive one. This can be explained by the intense stress caused by the oncological disease and the uncertainty of what lies ahead. 81.5% of people with oncological diseases from Group 1 and 94.7% - from Group 2 answer that they need health counselling, and respectively 79.6% from Group 1 and 94.8% - from Group 2 - from social counselling regarding their social rights and needs. These answers are a clear proof that in the period of treatment of the oncological disease the ill person is approached mainly as a patient of the medical establishment, and not as an object of social and psychological help and support. And the fact that ill people need one speaks for itself - 66.7% of the respondents from Group 1 and 72.9% from Group 2 answered that they seek support from people in the same health condition and 65.1 % of Group 1 and 70.3% of Group 2 - receive such. There is a high share of people who indicate that they would join support groups for people in the same health condition (66.4% of Group 1 and 78.8% of Group 2). 89.8% of all respondents from Group 1 and 93.6% from Group 2 would support people in the same health condition. The answers to the last questions clearly outline the

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need for professional psychosocial assistance to people with oncological diseases.

The qualitative analysis of the obtained results of the answers to the questions from the field "Social relations" presents a tendency towards deterioration of the quality of life of the persons with oncological diseases and in the individuals from both groups.

Discussion - Analysis of identified deficits in the quality of life of people with oncological diseases in the area "Social Relations".

In people with oncological diseases subject to our research, we found the following deficits in the quality of life, which were also found in Group 1 and Group 2:

- need for social counselling;
- need for health counselling;
- need for psychological counselling;
- need for support from people in the same state of health;
- need to be included in support groups for people with similar needs

The analysis of the obtained results shows that the examined persons from Group 1 show a high degree of lack or insufficient support from people in the same health condition. This deficit in the quality of life is not so pronounced in the subjects from Group 2.

The following deficits in the quality of life in terms of their social relations are more pronounced in the persons with oncological diseases in whom the disease was diagnosed one year ago (Group 2):

- change in the relationship with the work team;
- changing the attitude of the community towards the ill person.

These deficits are not so clearly expressed in the respondents from Group 1.

Conclusion

The article presents the results from a conducted research aimed at assessing the deficits in the quality of life in terms of social relations that have occurred as a result of cancer in people in the age group 35-60 years. The research also establishes the period in which deficits occur in the studied components of a main area of the quality of life - social relations. The impact of the oncological disease on the change in the

patient's relationship with family members, friends, work team and the community's perception towards him/her, has been studied and thoroughly analysed. Results are presented in terms of support received from family members, friends, work team and the community. The need of people with oncological diseases in this period for social and psychological support and social, health and psychological consultations has been studied and analysed. The readiness and attitude of these patients to provide help and support to people who are in the same state of health and to include them in self-help groups was also researched.

The summarized results of the research show that people with oncological diseases, no matter how long ago the illness was discovered, report the need for social counselling, the need for health counselling, the need for psychological counselling, the need for support from people in the same health condition and inclusion in support groups for people with similar needs. The persons in whom one year has passed since the diagnosis of the oncological disease, in addition to the indicated deficits, also report a change in the relations with the working team and a change in the attitude and perception of the community towards them.

The identified deficits in the quality of life in terms of social relations of people with oncological diseases show a clear need for psychosocial assistance and support for this category of individuals. The social work with persons with oncological diseases in the Republic of Bulgaria at this stage is poorly developed, and in some regions also non-existent activity. In the country, the clinical social workers with the necessary qualification to work with this category of users are not enough. There are few medical establishments in the team of which a clinical social worker or psychologist works. And the psychosocial work with this category of persons in outpatient conditions is not normatively established and if it is carried out, it is at the request of the patient or his/her family and is in the form of private practice.

The research clearly proves the need for normative differentiation of the social work in medical establishments, development of models for psychosocial work and their application in persons with oncological diseases in hospital and outpatient settings.

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According to the results of research work of the past 2020 and published scientific articles in the journal «Theoretical & Applied Science», Presidium of International Academy of Theoretical & Applied Sciences has decided to award the following scientists - rank Corresponding member and Academician of International Academy, as well as give diplomas and certificates of member of International Academy.



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Scopus ASCC: 1400. Business, Management and Accounting			
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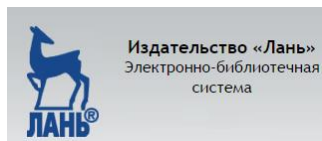
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