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# AGRICULTURAL SCIENCES

## INFLUENCE OF BIOLOGICAL PREPARATIONS FOR PLANT PROTECTION ON PLANT FORMATION AND YEALD OF SUGAR CORN

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### Abstract

The article presents the results of the use of biological preparations BioNorma Pseudomonas and BioNorma Triomax produced (both produced by BioNorma LLC, Ukraine) in the technology of growing sugar corn (*Zea mays convar. saccharata* var. *rugosa*). The influence of biological preparations on the formation of biologized agroecosystems, increasing the productivity of agrophytocenoses, increasing the yield of sugar corn and obtaining environmentally friendly products is shown. Ecologically and economically grounded use of biological preparations in the cultivation of sugar corn.

**Keywords:** sugar corn, biological preparations, yield, cultivation technologies.

Currently, anthropogenic pressure on the environment leads to a violation of the integrity of natural complexes, loss of their ecological functions, deterioration of public health, loss of gross national product, etc. [1] Reduction of these losses can be achieved only by increasing the environmental and economic efficiency of production and improving its technological systems. Therefore, the development of both individual economic systems and the economy as a whole should be based on the conditions of optimization of ecological and economic relations in the interaction of production and the environment.

In the economic literature, the concept has become widespread, according to which the improvement of product quality, as a rule, requires increased costs for its production, and the economic effect of improving product quality is obtained in the field of consumption. [2] The producer of environmentally environmentally friendly and biologically valuable agricultural products, deciding on the feasibility of using a particular tools of production is guided primarily by economic interest - whether this tool will be able to provide a higher level of economic efficiency compared to others. Widespread use of biological factors in the intensification of agricultural production has not only environmental but in most cases economic priority. Protecting plants from diseases caused by various pathogenic microorganisms is an economically and socially important issue; Losses in crop production account for 20% of the harvest in different parts of the world. The use of chemical pesticides is the main method of plant protection. However, chemicals have a number of serious drawbacks. Pesticides pose a serious threat to the soil environment and human health, as their derivatives remain in the soil system for a long period of time and have a negative impact on biological objects, their diversity and composition. This leads to a decrease in soil fertility and further crop failure.

The effectiveness of the effect of bacterization of seeds by microbial preparations on increasing crop yields has been proven and is beyond doubt. But the vegetation period of plants is long, and some factors (drought, pathogens, lack of water and nutrients, etc.)

disrupt the physiological balance of plants, which inevitably affects the yield and product quality. [3] A well-studied and stable alternative to improve plant growth and soil fertility is the use of plant growth-promoting bacteria (PGPB), which have functional characteristics that control the growth, development and yield of crops. These plant growth-promoting effects are due to improved availability and biosynthesis of several important macro- and micronutrients, as well as the protection of plants from stressful environmental conditions. [4, 5] In recent years, the positive effect of numerous strains of PGPB on plants has been confirmed by numerous studies, which has led to the commercialization of a large number of microbial inoculants. [6, 7]

Plant growth-promoting bacteria (PGPM) is a term applied to all microorganisms (eg bacteria, actinomycetes, fungi and algae) that have a positive effect on plant growth through direct or indirect mechanisms (e.g. mineral nutrition, reduction ethylene, disease suppression). [8] PGPM plays an important role in sustainable agriculture. They increase the yield of different crops, improve soil fertility, promote diversity and interaction with other beneficial microorganisms, inhibit the growth and infectious action of potential pathogens and generally maintain the stability of systems. [9] However, more stable positive results can be obtained by inoculating plants with microbial consortia containing two or more beneficial microorganisms. [10, 11] Bioinoculants based on microbial consortia may include bacteria of various species, beneficial bacteria and fungi. The use of different types of PGPM with different mechanisms of action provides a wide range of benefits for the plant, including direct stimulation of plant growth and health, as well as increased productivity. In addition, there is a decrease in the harmfulness of pathogens. [12, 13] Pesticides based on microorganisms and their products have proven their high efficiency, species specificity and environmental friendliness, which has led to their implementation in pest control strategies around the world. It is also shown that the role of biologization in crop cultivation technologies becomes more important the more complicated becomes soil-climatic and weather conditions. [14, 15]

**The purpose of the research** was to ground ecologically and economically the use of biological productions in the cultivation of sugar corn (*Zea mays* convar. *saccharata* var. *rugosa*).

**Material and Methods.** Experimental data were obtained on the basis of field experiments, which studied the technology of growing varieties and hybrids of sugar corn, their sowing and yielding properties depending on the factors of seed treatment with biological and chemical preparations. The experiments were conducted during 2016-2018 at the scientific experimental field of the Skvyrska Research Station of Organic Production of the Institute of Agroecology and Environmental Management of National Academy of Agrarian Sciences of Ukraine (IAP NAAS).

In the experiments there were used maize seeds of the variety of selection of the Skvyrska Research Station of Organic Production of the IAP NAAS and of hybrids of the selection of the LLC "All-Ukrainian Scientific Institute of Breeding (VNIS)". Maize of different maturity groups were represented by the medium-ripe variety Rusalka, the early-ripening hybrid Bagration F<sub>1</sub> and the early-ripening hybrid Barcelona F<sub>1</sub> (Daineris).

The following biological preparations (both from "BioNorma" LLC, Ukraine) were used: biofungicide BioNorma *Pseudomonas* (active substance: bacteria *Pseudomonas fluorescens*, *Pseudomonas aureofaciens*, *Pseudomonas putida*; consumption rate for seeds treatment – 0.5 l per 100 kg) and bioinsecticide BioNorma Triomax

(active substance: *Beauveria bassiana* aeko/106, *Metarhiziumanisopliae*, *Bacillus thuringiensis* seko/212, *Streptomyces avermitilis*; liquid form of the preparation; consumption rate for seeds treatment – 0.05 l per 100 kg).

Chemicals (both from Syngenta AG) used: fungicide Maxim XL (active substance content: fludioxonil – 25 g/l, metalaxyl-M – 10 g/l; chemical group: phenylpyrroles, phnylamides; form: liquid suspension concentrate; consumption rate for seeds treatment – 0.1 l per 100 kg) and insecticide Cruiser (active substance content: Thiamethoxam – 350 g/l; chemical group: neonicotinoids; active group: thiamethoxam; consumption rate for seeds treatment – 6.0-9.0; 144 ml / 80 thousand of seeds).

The experimental plots were placed according to the generally accepted methods of field experiment (according to B. Dospekhov). [16] Placement of repeats was carried out by a continuous method, arrangement of variants – by a method of randomized split blocks. The area of the accounting area was 25.2 m<sup>2</sup>. Repeatability was threefold. Seed treatment was carried out on the day of sowing. In the experiments it was used a liquid form of biological and chemical preparations for seed treatment. Seeds were sown by manual plant seeder, in a dotted manner, to determine field germination of seeds in each variant. The sowing rate was 7 pieces per 1 meter running, 100,000 per 1 ha, the depth of earnings was 4 cm. During sowing, fertilization was carried out with fertilizer "Diamofoska", N<sub>10</sub>P<sub>26</sub>K<sub>26</sub>.

Table 1

The scheme of the experiment

Name of maize variety or hybrid	Variant	№ of experiment / № of repeatability
Rusalka	Control	1/1, 8/2, 22/3
	BioNorma <i>Pseudomonas</i> + BioNorma Triomax	2/1, 7/2, 24/3
	Maxim XL+Cruiser	3/1, 9/2, 23/3
Barselona F <sub>1</sub>	Control	4/1, 14/2, 21/3
	BioNorma <i>Pseudomonas</i> + BioNorma Triomax	5/1, 12/1, 20/3
	Maxim XL+ Cruiser	6/1, 13/2, 19/3
Bagration F <sub>1</sub>	Контроль	10/1, 18/2, 26/3
	BioNorma <i>Pseudomonas</i> + BioNorma Triomax	12/1, 16/2, 27/3
	Maxim XL+ Cruiser	11/1, 17/2, 25/3

The soil at the experimental plot is low-humus chernozem, coarse-pollen-medium loamy on carbonate loess, typical for the right-bank Forest-Steppe of Ukraine.

Yield and structure of yield of sugar corn were determined by the method of Bondarenko L. and Yakovenko K. (2001). [17] The economic efficiency of the technology of growing sugar corn was determined by the calculation method on the basis of industry standards and the current tariff grid according to the standards of labor costs in the cultivation of crops according to generally accepted methods.

The obtained research results were processed by methods of descriptive (variational) statistics, variance and factor analysis using MS Excel 10.0 and Statistica 9.0.

**Results and discussion.** The analysis of quantitative indicators of the harvest, which was collected from the experimental plots, clearly indicates the differences in its formation, depending on the pre-sowing cultivation. The indicators of the minimum and maximum manifestation of these traits indicate their increased diversity.

Table 2

The impact of the use of chemical and biological preparations on the yield of sugar corn for 2016-2018.

Name of maize variety or hybrid	Variant	Standing density, thousand pieces / ha	Number of cobs, thousand pieces / ha	Yield of cobs, t / ha	Increase to control	
					+/-	%
Rusalka	Control	47	71	8,0		
	BioNorma Pseudomonas + BioNorma Triomax	53	96	9,0	9	11
	Maxim XL+Cruiser	72	129	12,1	40	34
Barselona F <sub>1</sub>	Control	50	94	8,4		
	BioNorma Pseudomonas + BioNorma Triomax	58	116	9,8	13	14
	Maxim XL+Cruiser	56	106	9,4	9	11
Bagration F <sub>1</sub>	Control	55	111	9,3		
	BioNorma Pseudomonas + BioNorma Triomax	58	116	9,8	4	5
	Maxim XL+Cruiser	66	132	11,1	17	16
LSD <sub>0.05</sub> for both factors		–	–	0,01	–	–

Pre-sowing inoculation of sugar corn seeds with biological products BioNorma Pseudomonas + BioNorma Triomax had a positive effect on yield increase, provided an increase for corn of Rusalka variety as well as for hybrids compared to the control. For the Rusalka variety the yield increased by 11%, for hybrids Barcelona F<sub>1</sub> and Bagration F<sub>1</sub> – by 14 and 5% respectively.

An important issue in the cultivation of crops is not only the level of their productivity, but also the economic aspects of cultivation technology. After all, the actual efficiency and payback of the applied technological measures, as evidenced by the increased crop yield allows to fully assess the break-even point of this cultivation technology as a whole and recommend it for implementation in production. [18, 19] The purpose of growing sugar corn, like any other crop, in market conditions is to obtain maximum profit from its sale. [20] Sugar corn belongs to the crops with high economic efficiency. [21–24] The selling price of sugar corn is much higher than the price of regular corn, although the

cost of its production is not much higher. Thus, the production of this product in the presence of a market can be quite profitable, even in small areas.

Since the indicators of the cost of production and the level of costs for growing sugar corn in some years of research may vary in a certain range, the evaluation of data was carried out on the average of three years of research. Calculations were performed in the prices of 2016–2018.

The economic efficiency of different variants of the experiment with maize hybrids was determined by the actual costs, which are provided by the technologies of growing the studied crop in the North of Ukraine. To assess the economic efficiency, we used technological maps of crop rotation, taking into account the standards of costs for the implementation of relevant cultivation operations. This allowed to obtain and analyze the main economic indicators, namely the cost of production, net profit and profitability.

The analysis of economic indicators of the studied elements of the technology of growing sugar corn shows a significant impact of pre-sowing treatment on yield, cost, profit and profitability.

Table 3

Economic efficiency of elements of sugar corn cultivation technology

Name of maize variety or hybrid	Variant	Yield, t/ha	Cost, UAH / ha	Profit, UAH/ha	Profitability, %
Rusalka	Control	8,0	14482	57517	497
	BioNorma Pseudomonas + BioNorma Triomax	9,0	14637	66362	553
	Maxim XL+Cruiser	12,1	15108	93791	721
Barselona F <sub>1</sub>	Control	8,4	17534	66166	477
	BioNorma Pseudomonas + BioNorma Triomax	9,8	17622	70578	501
	Maxim XL+Cruiser	9,4	17865	82035	559
Bagration F <sub>1</sub>	Control	9,3	17281	58319	437
	BioNorma Pseudomonas + BioNorma Triomax	9,8	17480	70720	505
	Maxim XL+Cruiser	1,1	17548	67052	482

Fluctuations in the level of crop yield from 8.4 to 11.1 t / ha caused a difference in the cost of production per hectare.

When using biological preparations for plant protection BioNorma Pseudomonas + BioNorma Triomax, the cost of growing products was less than the value of yield, resulting in a decrease in unit cost. Under the influence of these factors, profit and profitability have increased significantly. Conditionally net profit increased by 1-1.2 times. Profitability for options with seed treatment with biological preparations BioNorma Pseudomonas + BioNorma Triomax ranged from 501 to 553%.

Hybrid Barcelona F<sub>1</sub>, for the use of biological products provided a net profit of 1 ha at the level of 70,120 UAH.

The cost of 1 ton of product was highest in the hybrid Bagration F<sub>1</sub> with the treatment by chemicals for plant protection Maxim XL + Cruiser and was 17,865 hryvnias, while in the treatment of seeds with biological preparations BioNorma Pseudomonas + BioNorma Triomax – 17,622 hryvnias.

The profitability of the use of preparations for pre-sowing seed treatment is the criterion that determines the economic feasibility or disadvantage of using such technologies. [25] When using drugs for pre-sowing seed treatment, production costs increase slightly.

When calculating the profitability for all variants of the experiment, it was found that the use of biological preparations for plant protection had a higher profitability compared to control variants in 1–1.2 times, which makes their use promising from an economic point of view.

**Conclusion.** Treatment of sugar corn seeds with biological preparations BioNorma Pseudomonas + BioNorma Triomax, allows to obtain high quality products, increases yields to 9-9.8 t / ha. At the same time, the relatively net profit averaged UAH 69,220 / ha at a profitability level of 519.6 %.

The use of the studied biological products demonstrates high efficiency in the technology of growing sugar corn, which is achieved by optimizing the cost of production, namely by reducing production costs, as well as by increasing the revenue side, because revenue per 1 ha increases due to higher yields.

Economic evaluation of the results obtained in field experiments using such economic indicators as the level of production costs, the level of profitability shows that even under adverse agricultural conditions, the cultivation of sugar corn is profitable.

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# ARTS

## VIVALDI'S BAROQUE: THE LOST PERFECTION OF PERFORMING ART AND COMPOSITION TECHNIQUES

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### Abstract

Baroque music is one of the most impressive parts of musical cultural heritage of western and eastern Europe. And nevertheless all the evolution of musical instruments and music in general, as well as the huge changes in art of performance, especially due to permanent search of new soundings, which are being created by instruments with usage of electromagnetic energy, baroque music still remains to stay actual up to now. One of the authors who were reopened in XX century was Antonio Lucio Vivaldi, whose known compositions list still being updated by new discoveries. In current paper it is discussed the wide range of unrepeatability features of Vivaldi's music, which still remains part time undiscovered for modern performers.

**Keywords:** Baroque music, Vivaldi, instrumental music, violin, performing art, vocal compositions.

Baroque music is being dated as art and compositions which have been created during a period of approximately from 16<sup>th</sup> to 18<sup>th</sup> centuries, countries of Western Europe and especially in Italy [1-3]. Since XX century and up to XXI century the technical progress has the huge influence to the process of evolution of new musical instruments creation. This process including the reconstruction of ancient sounding and ancient authentic instruments too. The classical examples of it could be demonstrated by the phenomenon of music for Hang [4,5]. Simultaneously, there are the significant changes in music styles in general, as well as the huge changes in art of performance, especially due to permanent search of new soundings, which are being created by instruments with usage of electromagnetic energy (thereminvox, electric guitar, etc.). Nevertheless, all these tendencies, the baroque music still remains to stay actual up to now. Sometimes it makes us to look at the well-known classical compositions through the prism of authentic baroque instruments soundings. One of the central points in this phenomenon of baroque music still is interesting is the specific expression of epoch spirit by the unique techniques, which previously were mistakenly considered as primitivistic. Since the II half of XX century, when the numerous names of authors were reopened being found drop by drop from the compositions of later epoch authors according to their noted acknowledgments in some autograph scores, and up to nowadays, baroque music compositions examples are actively rediscovering as forgotten ones or as lost ones, being disclosed for listeners and scientists of XXI century. One of those authors who were rediscovered modern epoch of 20<sup>th</sup> century was A.L. Vivaldi, whose known compositions list is still being reupdated again and again by new discoveries of operas, concertos and other compositions for the incredible combinations of instrumental music, as well as vocal compositions like motets, etc. One of the authors who were reopened in XX century was Antonio Lucio Vivaldi, whose known

compositions list still being updated by new discoveries [6].

According to baroque music historical classification, it is being divided to 3 periods: early baroque period (since 1580–1600 till 1630–1650), middle baroque period (since 1630–1650 till 1680–1700) and late baroque period (since 1680–1700 till 1730–1750). Due to this classification system, Antonio Vivaldi is being considered as one of Italian composers of late baroque period, representing the Venice Baroque. Looking at the wide range of creations of Vivaldi, it might be emphasized, that He was one of the rare universal authors, who were able to give a breath as religious as well as comic and dramatic music using various instruments and the versatility of technical elements which are presented in later epoch periods music, such as like in J.S. Bach's, Mozart's and Paganini's virtuosos compositions: fugues, caprices, concertos, etc [7].

One of the features of compositions of Antonio Vivaldi is the aspire to achieve the maximal approximation to human voice sounding using the various musical instruments, in both cases of strings or winds. Simultaneously with it, in music of Vivaldi always is being used the aspire to obtain the instrumental sounding of human voice vocal. That is why we can see the specific techniques of spiccato and staccato musical touches both in batches of strings and winds, as well as in vocal compositions. One of the brightest examples of combination of two these directions in the works of Vivaldi is aria of Costanza "Agitata da due venti" from "Griselda" opera, 2 act, RV 718 and the "Adagio" from concert for violin and strings RV 314a. Besides, Antonio Vivaldi sometimes used the structurally close forms of 3 part containing concertos in both vocal and instrumental compositions, brilliantly combining the maximal possibilities of chosen instrument or the type of male or female vocal. Practically every II part of string and multi-instrumental concertos of A. Vivaldi are created in style of classical aria with aspire to obtain the

maximal similarity to human voice sounding in both staccato and legato techniques [8].

Sometimes it's noted by author even in name of composition, such as like "Lagro e Cantabile" from the Concert for multiple instruments (2 oboes, 2 clarinets, 2 recorders, 2 violins, bassoon & strings) in C-Dur "Per la solennità di S. Lorenzo" RV 556. It should be especially emphasized the consequent usage of different instruments as accompaniment for making the sound of high and low notes more harmonic even in case of passages which includes alternation in octave steps (such as like in aria of Costanza "Agitata da due venti" from "Griselda" opera, 2 act, RV 718) and some dissonances (such as like in case of the first part "Allegro non molto" (in F-moll) of Concerto No. 4 in F minor, Op. 8, RV 297, "Winter" (L'inverno) from "The Four Seasons" cycle of violin concertos) [6,7]. The other features of Vivaldi music is the presence in vocal batches, inter diapason compositions for voice, like the aria "Agitata da due venti", in which there are involved the high notes mostly specific for soprano, with simultaneous presence of mezzo soprano diapason notes. Besides, for Vivaldi vocal repertoire is specific the usage of coloratura techniques not only for soprano but although for contralto, baritone and other voice timbres. In multi-instrumental compositions Vivaldi often uses the contrasts of timbre of voice, simultaneously with the usage of similar timbre combinations, very often giving a solo role to instruments, which today practically are not used for solo performances [9].

Starting from the early compositions and up to late ones, all the music of Antonio Vivaldi is full of existentialism philosophy, such as like in case of II part of Concert for Violin, organ and strings RV541 "Garve", which is inspired by eternal life conception, and surviving of soul and idea, through all the tortures of earthly body path. Besides, all the deepness of philosophy of existentialism is sometimes expressed in music of Vivaldi by elements of techniques such as like virtuoso's combination of consonance and dissonances in accords, polyphony, chromatic passages, as well as cadenza writing, which are more characteristic for later periods, such as like Mozart, Paganini, and others. One of the examples of His composition with the spectacular demonstration of the mentioned features is Concert for Violin and strings: "Winter" from *Il cimento dell'armonia e dell'inventione*, Op. 8 No. 4 / "Le quattro stagioni", RV297. By the language of music the author expressed in this concert all the fears and hopes of life and death, while the abstraction of comparison of human life sunset and the calendar winter as the fall season of year [10].

Due to modern vocal traditions, the laws of modern opera singing and classical performance art, not always is possible to find the appropriate singer for performing of baroque music, due to the more emphasizing of singing technics, which are extremely differing from the ones, which were dominant in epoch of baroque [11]. The forcing of the strength of voice in both cases of male and female, low or high voices, by the

particular infringement of the crystal purity of the sound, equalizing the timbres of the chest and head registers, excessive vibrato and much more other features of modern opera traditions often make it impossible to perform baroque batches as they were intended by author in the original version [12]. But in controversy to the mentioned above disadvantages of performing baroque in frame of modern vision of performance, the frequently immediate application of some baroque techniques to the classical instruments like violin's bow artificial decreasing is not always giving a positive result for performance quality in case of authentic compositions.

### Conclusion

All in all, summarizing all the mentioned above, it might be concluded that the secrets of baroque music performance still remain particularly unknown and need to be researched by the persistence of a delicate balance between the pursuit of historical reconstruction and contemporary performing art traditions. Thus, the baroque art still remains as so far inaccessible and intangible for scientific analysis as well as so immensely close and familiar to our souls, being simultaneously lost in centuries and reopened today by modern musicians and listeners.

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# EARTH SCIENCES

## MODERN METHODOLOGICAL PRINCIPLE OF ORGANIZATION OF THE SPECIAL PROTECTED AREAS BY THE EXAMPLE OF THE SANGILEN CLUSTER OF THE "UBSUNUR BASIN" NATURE RESERVE

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### СОВРЕМЕННЫЕ МЕТОДИЧЕСКИЕ ПРИНЦИПЫ ОРГАНИЗАЦИИ ООПТ (НА ПРИМЕРЕ КЛАСТЕРА «САНГИЛЕН» ЗАПОВЕДНИКА «УБСУНУРСКАЯ КОТЛОВИНА»)

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### Abstract

The research work is devoted to the application of modern approaches to justify the allocation of protected areas on the example of the cluster "Sangilen" of "Ubsunur basin" Nature Reserve (Tuva, Russia). This work is a continuation of the creation of methods for the arrangement of reserves, which the forest Institute carried out by order of the Ministry of natural resources of the USSR in the 90s. Unfortunately, this work was stopped at the stage of research and did not receive regulatory completion. The traditional characteristics of climate, relief, soils, vegetation and animal population of the watershed of the Republic are given. TES-Khem and Balyktyg-hem. Traditional and modern methods of landscape assessment for the allocation of the Federal specially protected area were used to allocate the cluster. The satellite images of medium and high resolutions, correction of boundaries of protected areas and its buffer zone on natural boundaries is well allocated on the ground (rivers, watersheds). The selected area of the cluster is unique, which determines the habitat of rare species, at the same time it is typical for the mountains of the South-East of Tuva, which allows extrapolating cluster monitoring data to adjacent areas with the same type of landscape structure of mountain systems. The contour decoding of digital satellite images was performed, on the basis of which thematic layers (geomorphology, soil, vegetation, animal population, landscapes) with classification legends of maps were created, the biotopic structure of landscapes was determined. The work on thematic classification of the cluster allows organizing systematic (comparable, extrapolated) environmental studies in protected areas. For the first time the estimation of ecological capacity and stability of landscapes of the cluster to natural and anthropogenic factors is given. According to the ecological capacity of habitats, the possible number of rare species of animals listed in the Red books of the Russian Federation and RT, which can live in the territory of the Sangilen cluster, is calculated. The costs of creating a security regime and further functioning of the cluster are determined.

**Аннотация**

Показано применение современных подходов к обоснованию выделения ООПТ на примере организации кластера «Сангилен» заповедника «Убсунурская котловина» (Тыва, РФ). Приводится традиционная характеристика климата, рельефа, почв, растительности и животного населения водораздельной части рек Тес-Хем и Балыгтыг-Хем. Для выделения кластера использованы традиционные и современные приёмы оценки ландшафтов для выделения федеральной особо охраняемой территории. По космоснимкам среднего и высокого разрешений проведена коррекция границ ООПТ и её охранной зоны по естественным рубежам, хорошо выделяемым на местности (русла рек, водоразделы). Выбранная территория кластера отличается уникальностью, что определяет обитание редких видов, одновременно она типична для гор юго-востока Тувы, что позволяет экстраполировать данные мониторинга кластера на прилегающие площади с однотипным ландшафтным строением горных систем. Выполнено контурное дешифрирование цифровых космических снимков, на основании которого созданы тематические слои (геоморфологии, почвы, растительности, животного населения, ландшафтов) с классификационными легендами карт, определена биотопическая структура ландшафтов. Работа по тематической классификации кластера позволяет организовать проведение системных (сопоставимых, экстраполируемых) экологических исследований на ООПТ. Впервые приводится оценка экологической ёмкости и устойчивости ландшафтов кластера к естественным и антропогенным факторам. По экологической ёмкости местообитаний рассчитана возможная численность редких видов животных, занесённых в Красные книги РФ и РТ, которые могут обитать на территории кластера «Сангилен». Определены затраты на создание охранного режима и дальнейшего функционирования кластера.

**Keywords:** protected areas, Sangilen cluster, number of rare species, ecological capacity, organization costs.

**Ключевые слова:** устройство ООПТ, кластер «Сангилен», экологическая ёмкость, численность редких видов, затраты на организацию.

Введение. Основные назначения заповедников — ведение мониторинга на эталонных участках, репрезентативных для определённого ландшафта или природной зоны, а также охрана редких видов растений и животных, занесённых в Красные книги различных уровней. Как правило, это две взаимоисключающие задачи. Ведение постоянных наблюдений на типичных территориях исключает наличие редких видов, а их присутствие свидетельствует об уникальности ландшафта или его фрагментов, что также не является репрезентативной для мониторинга естественных природно-зональных процессов. Объединение типичности и уникальности возможно на большой ООПТ или при её кластерной организации.

К сожалению, организация и устройство заповедников — до сих пор не решённая методическая задача [Гребенников, 2016; Рожков, Кондакова, 2016; Завадская, Паничева и др., 2017; Lipka, 2017]. В литературе, посвящённой ООПТ много внимания уделяется, что можно и чего нельзя делать на охраняемой территории [Реймерс, Штильмарк, 1978; Краснитский, 1983; Яблоков, Остроумов, 1983; Филонов, 1989; Соколов и др., 1997; Дёжкин и др. 2006]. Но очень мало работ посвящённых не посредственно организации ООПТ как структуре, имеющей природную территорию для ведения научных исследований и мониторинга [Шишкин и др., 2005]. В начале 1990-х годов этой проблемой занимался Институт леса им. В. Н. Сукачёва СО РАН под руководством д. б. н. В. Н. Седых. Для отработки методических подходов устройства территории заповедников было выбрано три заповедника, находящихся в разных природных зонах: «Юганский», «Байкало-Ленский» и «Азас». Ранее заповедники устраивались лесоустроительными

предприятиями как обычные лесхозы с инвентаризацией лесного фонда и проектированием лесохозяйственной деятельности, что в принципе противоречит задачам ООПТ. Институт леса предлагал, используя космическую съёмку провести контурное дешифрирование на основании которого создаются тематические карты (геоморфологическая, почвенная, геоботаническая, лесотипологическая, зоологическая, сукцессионная и т. д.) и подбираются объекты мониторинга. На основании использования этих карт и легенд к ним организовывались тематические или комплексные научные исследования на территории заповедника и создавалась пространственно-временная структура базы данных. Нами апробирован и получил дальнейшее развитие бассейновый принцип организации ООПТ и парагенетическое выделение компонентов ландшафтов. Известные политические события в СССР 90-х годов не позволили реализовать этот подход. Последняя волна (с 2013 г) устройства заповедников Сибири прошла под методическим руководством Рослесинфорга, и не смотря на значительное финансирование оно не вывело заповедники на уровень научных организаций, имеющих обустроенную территорию пригодную для ведения научных исследований. В дальнейшем наши методические подходы в разной степени реализовывались при устройстве национального парка «Алханай», заповедников «Юганский», «Саяно-Шушенский», «Столбы», «Азас», «Кузнецкий Алатау», «Убсунурская котловина».

Заповедник «Убсунурская котловина» Республики Тува (рис. 1.А) состоит из 9-и кластеров, представляющих ландшафтное разнообразие РТ от песков до горно-таёжных и высокогорных территорий (рис. 1.Б).



*А — расположение Республики Тува в РФ; Б — расположение кластеров заповедника «Убсунурская котловина» в Республике Тува; В — кластер «Сангилен» [A — the location of the Republic of Tuva in the Russian Federation; Б — the location of the clusters of the Ubsunur Basin Nature Reserve in the Republic of Tuva; В — cluster "Sangilen"].*

*Рисунок 1 — Кластер «Сангилен» заповедника «Убсунурская котловина»  
Figure 1 — The cluster "Sangilen" of the "Ubsunur Basin Nature Reserve "*

В то же время юго-восточная часть Тувы не представлена кластером заповедника, что не позволяет в полной мере вести системные наблюдения за природными явлениями, выявлять наличие редких видов и вести их охрану. Отличие ООПТ РТ в слабом антропогенном, в тем более техногенном воздействии на природные системы. Пастбищное скотоводство и соблюдение этнических традиций тувинцев природоохранного направления (священные горы, источники, места поклонения, охрана редких видов) существуют несколько тысячелетий, что позволяет быть социальной и культурной основой для организации ООПТ.

Ранее научные изыскания и, в частности, для организации кластера заповедника на нагорье Сангилен не проводились [Соболевская, 1950; Коропачинский, Скворцов, 1966; Очиров, Башанов, 1975; Куминова и др., 1985; Маскаев, Намзалов и др., 1985; Седельников, 1988]. Удалённость и труднодоступность территории обеспечивала естественный заповедный режим. В настоящее время усиливается антропогенный (охотничий) пресс на этот регион не только жителей РТ, но и Монголии, поэтому возникла потребность придать части этой территории заповедный статус. Это позволяет сохранить и наблюдать естественные процессы на юго-востоке РТ, обеспечить охрану редких видов, распространённых в горах юга Сибири. В настоящее время особый интерес представляет изменение климата и его последствия, которые наиболее сильно проявляются в горных системах и реализуется в виде катастрофических пожаров, резко меняющих ландшафтную структуру региона. В связи с этим актуальны изучения пирогенной цикличности и наблюдения постпирогенных сукцессий на больших площадях гарей пожара 2002 г. Практически

отсутствуют сведения о численности и условиях обитания редких видов на Сангилене, что не позволяет вести их эффективную охрану и составить представление о полном ареале их обитания в горах юга Сибири.

Горная система Сангилен представляет собой специфическое горное образование, сочетающее крутые скалы, пологие водоразделы и обширные россыпи. Кроме того, нагорье входит в цепь южных гор Тувы, образуя коридор между Кузнецким Алатау, Танну-Ола, Западными Саянами и Забайкальем. В процессе изысканий предлагается один вариант размещения кластера, расположенного на водораздельной поверхности рек Тес-Хем и Балыгтыг-Хем площадью около 200 тыс. га. Предполагаемая территория кластера представляет эталоны ландшафтов всех высотных поясов и захватывает основные местообитания редких видов позвоночных (красный волк *Cuon alpinus* Pallas; снежный барс *Uncia uncia* Schreber; каменная куница *Martes foina* Erxleben; *Ovis ammon* L; северный лесной олень *Rangifer tarandus angustifrons* Flerov; горный баран *Marmota sibirica* Radde; алтайский улар *Tetraogallus altaicus* Gebler).

Организация кластера «Сангилен» позволит вести биологический мониторинг в малоизученной части Тувы, выявлять обитание и охранять редкие виды животных и растений, занесённых в Красные книги РФ и РТ. Это редкий случай, когда типичный горный ландшафт сочетается с обитанием малочисленных видов, требующих охраны.

Организация кластера заповедника в труднодоступном районе, не освоенном традиционным пастбищным скотоводством, не повлечёт за собой конфликт с местным населением. Запрет на охотничью деятельность способствует восстановлению

промысловых видов и расселению их за пределы заповедной территории, которая является своеобразным воспроизводственным участком. Расположение кластера по госгранице с Монголией, а также ограниченная доступность территории по конным тропам позволяет организовать эффективную охрану кластера и выполнение его основных функций.

Таким образом, организация кластера «Сангилен» (центр 50.05 N, 97.25 E) заповедника «Убсунурская котловина» в Эрзинском и Тере-Хольском кожуунах РТ основаны на международных и отечественных признаках и критериях, а также соответствуют принципам и стратегии формирования сети ООПТ Алтае-Саянского экорегиона. Цель НИР – проведение полевых работ для верификации данных космической съёмки и использования современных методов организации ООПТ (создание тематических слоёв на одной контурной основе, оценка экологической ёмкости и вероятности обитания редких видов, стабильность биотопов и их мониторинговое значение).

Материал и методы. Проводился подбор, анализ и камеральная обработка космических снимков высокого разрешения для выделения территории кластера и его охранный зоны (рис. 1.В). Границы кластера предпочтительно проводились по бассейновому принципу ландшафтной организации территории [Шишкин, 2006]. Полевые исследования необходимы для верификации дешифрирования космических снимков и составления легенд тематических карт (геоморфологической, почвенной, геоботанической, зоологической). В полевых условиях оценивалась типичность и репрезентативность предполагаемой территории кластера для мониторинга экосистем горной системы Сангилен. Выявлялось наличие самих или признаков жизнедеятельности редких видов растений и животных, проводилась экологическая оценка мест их обитания, распространения и численность на территории предполагаемого кластера.

Определялись закономерности распространения растительности (высота над уровнем моря, экспозиция, почвенные и гидрологические условия), лесоводственная характеристика насаждений проводилась на круговых площадках (состав насаждений, высота, диаметр, сомкнутость и пр.), геоботаническое описание на площадках 10 м<sup>2</sup>, учёт животных на маршрутах (визуальный, по следам жизнедеятельности). Лесоводственная площадь состоит из концентрического круга радиусом 12.62 м, что соответствует площади 500 м<sup>2</sup>, при уклоне до 10°. В круге (500 м<sup>2</sup>) измеряются все деревья с диаметром на высоте груди более 8 см [Мурзакматов, 2012]. Подрост измерялся на круговых площадках с радиусом 2,52 м. Проведены маршрутные обследования 1/3 западной части территории кластера.

Таким образом, использованы общепринятые методические приёмы маршрутного обследования территорий, позволившие верифицировать данные дешифрирования космической съёмки, а также в полевых условиях оценить экологическую ёмкость

и стабильность биотопов для выбора мониторинговых объектов в зависимости от целей исследований.

Результаты и их обсуждение. Климат. Территория кластера находится на водораздельных хребтах нагорья Сангилен (2400–3200 м, здесь и далее абсолютные высоты) и его южного макросклона, на которых не проводились метеонаблюдения, поэтому погодная характеристика отличается от равнинной, где расположены метеостанции. По данным ближайшей метеостанции «Эрзин» (150 км на запад, на высоте 1820 м) климат резко континентальный (K 90,8), среднегодовая температура воздуха –3,3° С, января –29,2° С, июля +17,5° С, годовая амплитуда температур 46,7°, сумма температур выше 10° – 1848°, выше 5° – 2145°. Годовая сумма осадков 243 мм, из них 207 мм выпадает в течение апреля – октября, коэффициент увлажнения 0,359. Глубина снежного покрова колеблется от 10 см в степных участках низкогорий до 40 см в высокогорной зоне, где наблюдается метелевой перенос и на наветренных хребтах скапливаются снежные наносы, которые не тают до середины лета. Продолжительность вегетации не превышает 160 дней. Зима длинная, малоснежная с характерной инверсией холодного воздуха по понижениям рельефа и наличием очаговой мерзлоты. Весна короткая сухая с ветрами, что способствует испарению снега и распространению пожаров. Лето умеренно тёплое, полусухое, осень короткая с небольшими осадками. Южный макросклон нагорья более засушливый, с распространением степных склонов, поднимающихся до гольцового пояса. Водораздельные поверхности испытывают засушливость, которая проявляется в преобладании лишайниковых тундр, мелкотравных лугов и мелких кустарников, образующих напочвенный покров высотой 5–10 см. На северном макросклоне выпадает несколько больше осадков и меньше инсоляция, что позволяет выше по склонам подниматься древесной растительности и в меньшей степени распространены степные склоны.

Гидрография. Все водотоки типично горные, имеют ширину от 3 до 10 м, местами широко разбиты поймы и долины, достигающие сотен метров (приложение, рис. 1.С). Водосборная поверхность имеет V-образное строение со слабо развитыми террасами. Для зимнего периода характерно образование наледей, которые длительное время сохраняются на теневых участках и ущельях. Глубина в межень 0,5–1,0 м. Руслу мелких рек и ручьёв загромождены валунами, изобилуют перекатами. Ледостав наступает в первой декаде ноября, вскрытие путём образования промоин проходит в конце апреля. Ихтиофауна представлена только в притоках р. Малый Енисей.

Почвы распределяются по высотно-поясным комплексам (ВПК) и в соответствии с топогеоморфологическим и экспозиционным положением. В высокогорном поясе преобладают маломощные литозёмы (грубогумусовые, серо- и тёмногумусовые), а также торфяные (литозёмы, глезы олиготрофные) верховых болот. В лесном поясе в различных



сочетаниях представлены подзолы, подбуры, бурозёмы и серые лесные почвы. Почвенный горизонт горнотепного пояса маломощный и полностью зависит от крутизны склонов с преобладанием криоаридных, бурых аридных, каштановых и аллювиальных слитых по долинам водотоков, где доминируют промываемые булыжные отложения, засоленные почвы встречаются редко.

Растительность. Для территории кластера характерна высотная поясность с выделением степной, перистепной, горно-таёжной и высокогорной зон. На южном макросклоне хребта Сангилен степные фрагменты доходят до тундровых сообществ, создавая уникальный контакт между двумя типами растительности.

Древесная растительность относится к Сангиленскому округу лиственничной перистеи, горно-таёжных лиственничных и кедрово-лиственничных лесов. [Смагин и др., 1980]. В вертикальной зональности преобладает пояс лиственничной травянистой тайги (до 1500–1800 м). В её составе большую часть занимает брусничная группа лесов в различном сочетании (вейниковая, разнотравная, рододендроновая). До 1600 м распространён перистепной пояс, представленный осоковой группой лиственничников на теневых склонах в сочетании со степными склонами и зарослями караганы гривастой *Caragana jubata* (Pallas) Poiret с ерниковой растительностью. Южные степные склоны мелкотравные, иногда с кустарниковой растительностью (карагана гривастая, кизильник *Cotoneaster* sp., спирея *Spiraea* sp., барбарис *Berberis sibirica* Pall. Региональная особенность Сангилены в широком распространение караганы гривастой, вначале по поймам ручьёв в горно-таёжном поясе, затем в составе мерзлотных ерников и заходит выше всех кустарников в высокогорный пояс, образуя монодоминантные сообщества. В перистепном поясе широко представлены ерниковые заросли, обычно расположенные в нижних частях склонов (приложение, рис. 1С). В их состав, кроме доминирующей берёзы круглолистной *Betula rotundifolia* (Spach) Malyshev, входит рододендрон даурский *Rhododendron dauricum* L., ивы *Salix* sp. и карагана гривастая. Достаточно выражен в округе горно-таёжный ВПК кедрово-лиственничных лесов, занимающий полосу среднегорий в пределах 1700–1900 м НУМ. В его составе зеленомошно-багульниковая (IV–V кл. бонитета), рододендрово-багульничная (Va кл. бонитета), кустарничково-бадановая (IV кл. бонитета), травяно-долгомошная (V кл. бонитета) серии кедровников (*Pinus sibirica* Du Tour) и лиственничников (*Larix sibirica* Ledeb), связанные с горно-таёжными перегнойными кислыми нередко длительно-сезонно-мерзлотными почвами. По нашим данным на высоте 2260 м отмечается переход лиственничных насаждений (осоково-зеленомошных) в кедровые (приложение, рис. 1А). Таксационная характеристика лиственничников: 10 Лц+ К, высота 17 м, диаметр 24 см, полнота 0,6, запас 160 м<sup>3</sup>/га, возраст 200 лет. В подлеске средней густоты встречаются, отдельные кусты берёзки круглолистной, ольховника и ив.

В долинах доминируют ельники (*Picea abies* (L.) Н. Karst) хвощево-зеленомошные (IV–V кл. бонитета). Более 20-ти лет растительность Сангилены не подвергается летней пастбищной нагрузке домашнего скота и формируется под воздействием естественных факторов климата и трофической активности диких животных.

Для лиственничников характерно куртинное возобновление (до 30 тыс. шт. подрост/га) и следующие особенности пространственного расположения деревьев в насаждении. Это объясняется локальной минерализацией почвы кабаном (*Sus scrofa* L.), которые повторно не копают занятые подростом участки.

В составе подгольцово-таёжного ВПК доминируют серии западных заболоченных психрофильных лиственнично-кедровых лесов V–Va кл. бонитета северных склонов, сочетающиеся с мерзлотно-таёжными торфянисто-перегнойными почвами. Среди них аулакомниев-багульничная, багульничково-сфагновая, аулакомниев-ерниковая серии типов леса, ареал которых охватывает верхнюю часть таёжного и обширную территорию подгольцово-таёжного поясов. Моховые и ерниковые биогеоценозы этих серий регулируют грунтовое питание рек за счет медленного оттаивания неглубокой многолетней мерзлоты почвы, аккумуляции влаги в перегнойно-торфянистом слое и постепенного оттока её в реки.

Субальпийское лиственничное редколесье локально распространено на южных склонах высокогорий в полосе 1800–2100 м НУМ. Для него характерно единичное участие сосны сибирской и ели, высокая мозаичность растительности и почв.

Безлесные высокогорья занимают в округе значительные пространства, а на территории кластера – больше половины и представляют собой сочетания фрагментов горных тундр, лугов, торфяных западин и гольцов (приложение, рис. 1Б). Наиболее выражен подгольцовый пояс лишайниково-мохово-ерниковых сообществ, играющий существенную роль в формировании речного стока, путём метелевого накопления и удерживания твёрдых осадков

Для лесной территории округа характерны старовозрастные травянистые леса с высокой прикорневой фаунистостью, что способствует выгоранию лиственницы изнутри ствола и потеря ею природной пожароустойчивости. В результате катастрофического июньского пожара 2002 г. на юго-востоке Тувы образовалось более 1 млн. га. гарей (приложение, рис. 1Д). Предшествующий сильный пожар прошёл в 1977 г. В результате экспертной оценки и дешифрирования космоснимков более половины лесов пройдено верховым и устойчивым низовым огнём, что привело к усыханию древостоя. В большей степени сохранились фрагменты древостоев нижних частей склонов.

В связи с большими площадями гарей и недостаточным обсеменением, благонадёжное возобновление лиственницы проходит на ограниченной территории (не более 5 %). В условиях успешного возобновления густота лиственничных молодняков



достигает 25–30 тыс. шт./га. В 1994 г. в результате ливневых осадков прошло много селевых смылов грунта, которые в настоящее время успешно заросли лиственницей.

Таким образом, лесная растительность в настоящее время представляет большие территории, пройденные пожаром, с разросшейся травянистой растительностью и молодняками, высокой естественной мозаичностью, обусловленной контрастом мезоклимата южных и северных склонов, а также морозными инверсиями котловин.

Животное население. Оно определяется сложной ландшафтной структурой территории и набором биотопов, формирующих видоспецифичные условия обитания.

Насекомые. Кластер располагается в уникальном географическом месте, на границе Южно-Сибирских, Центрально-Азиатских и Монгольских степных энтомологических группировок. По результатам полевых работ выделяется четыре энтомокомплекса.

Уникальный альпийский энтомокомплекс расположен в верхнем высотном поясе, включая гору Хан-Тайга, и занимающий обширные водораздельные поверхности, способствует обитанию беспозвоночных с большой степенью эндемизма. Изолированность допускает возможные находки редких, характерных только для этой местности видов насекомых. Особенно это касается напочвенной энтомофауны семейств жуков *Carabidae*, щелкунов *Elateridae* (мелкие формы), стафилинов *Staphylinidae* и др. Условия эндемизма обусловлены не способностью летать (редукция крыльев), большинства видов этих семейств, поэтому они имеют слабую миграционную активность, которая способствует популяционной изолированности. При организации мониторинга заповедника особое внимание следует уделить изучению видового состава насекомых переходной полосы скальных выходов и снежников.

Лиственничный лесной энтомокомплекс представлен широко распространёнными видами насекомых, связанных с доминирующей лесной растительностью, в частности с консортой лиственницы как основной лесообразующей породы. Видовое разнообразие лесодрофильных насекомых лиственничников по всей видимости не отличается от выявленного на сопредельных территориях и довольно подробно представлено в работах В. М. Яновского [1980, 1983]. Энтомофауна напочвенного покрова лесного пояса практически не изучена. По долинам рек произрастает несколько видов ив, в том числе карликовых форм, на которых были отмечены несколько видов листоедов. Синий ивовый листоед *Chrysomela collaris* L. встречался в количестве до 50 экземпляров на куст. Энтомологический мониторинг заповедника следует сосредоточить по долинам водотоков горно-таёжного пояса, поскольку они являются миграционными коридорами.

Степной энтомокомплекс приурочен к степным биотопам, местами каменистым склонам юж-

ной экспозиции, доходящих до горной мелкотравной тундры. Комплекс насекомых широко представлен видами из семейства чернотелок *Tenebrionidae*. Здесь обнаружен южно-сибирский *Blaps rugosa* Gebler и монгольский *Anatolica paradoxa* Reitter виды. Наблюдается некоторое сходство со степными энтомокомплексами Убсунурской котловины [Лощев, 2016]. Дальнейшие мониторинговые исследования в степных биотопах необходимо проводить по всем частям склонов в течении всего вегетационного периода.

Долинный интразональный комплекс насекомых, обитающих на речных наносах и в каменисто-галечниковых приводных россыпях, особой индивидуальностью от подобного рода биотопов, не отличается. Здесь обнаружены виды *Nebria catenulata* Fischer von Waldheim и *Diploous depressus* Gebler, которые широко распространены на Восточных Саянах, и в горах Западного и Восточного Танну-Ола [Лощев, Гуров, 2014]. При мониторинге следует обращать внимание на биотопы, примыкающие к истокам рек в подгольцовом поясе, где возможны находки эндемичных видов.

Птицы и млекопитающие. Фоновые виды птиц и млекопитающих ландшафтов приводятся в порядке уменьшения их численности по местообитаниям. Присутствие видов определялось по не посредственной встрече или следам их жизнедеятельности, а также условиям обитания.

Высокогорные тундры: жаворонок рогатый *Eremophila alpestris* L.; каменка плешанка *Oenanthe pleschanka* Lepechin; конёк горный *Anthus spinoletta* L.; варакушка *Luscinia svecica* L.; пеночка-зарничка *Phylloscopus inornatus* Blyth; куропатка тундряная *Lagopus mutus* Montin; овсянка полярная *Emberiza pallasi* Cabanis; клушица *Pyrrhocorax pyrrhocorax* L.; полёвки серые *Microtus* sp. Schrank; бурозубки *Soricidae* G. Fischer; косуля сибирская *Capreolus pygargus* Pallas; марал *Cervus elaphus* L.; лисица обыкновенная *Vulpes vulpes* L.

Лесные ландшафты. Смешанные кедрово-лиственничные насаждения: гаичка буроголовая *Poecile montanus* Conrad von Balenstein; поползень обыкновенный *Sitta europaea* L.; конёк пятнистый *Anthus hodgsoni* Richmond; синехвостка *Tarsiger cyanurus* Pallas; кедровка *Nucifraga caryocatactes* L.; пеночка-теньковка *Phylloscopus collybita* Vieillot; пеночка-зарничка.

Лиственничные насаждения: зяблик *Fringilla coelebs* L.; конёк лесной *Anthus trivialis* L.; чечевица обыкновенная *Carpodacus erythrinus* Pallas; пеночка зелёная *Phylloscopus trochiloides* Sundevall; дрозд темнозобый *Turdus atrogularis* Jarocki; поползень; гаичка буроголовая; синехвостка; полёвки лесные *Modes* sp. (*Clethrionomys*) Pallas; бурозубки; белка обыкновенная *Sciurus vulgaris* L.; заяц-беляк *Lepus timidus* L.; пищуха северная *Ochotona hyperborea* Pallas; кабан; соболь *Martes zibellina* L.; марал; волк *Canis lupus* L.; медведь *Ursus arctos* L.

Степные ландшафты: каменка плешанка; жаворонок рогатый; жаворонок полевой *Alauda arvensis* L.; воробей камennyй *Petronia petronia* L.; славка-завирушка *Sylvia curruca* L.; конёк полевой

*Anthus campestris* L.; полёвки серые, бурозубки, ко-  
суля сибирская, марал, лисица обыкновенная, волк.

Горные степи: жаворонок рогатый; каменка  
пешанка; конёк горный; белая куропатка *Lagopus*  
*lagopus* L.; завирушка гималайская *Prunella*  
*himalayana* Blyth; варакушка; клушица, полёвки се-  
рые, бурозубки, косуля сибирская, марал, лисица  
обыкновенная, волк, рысь.

Скалы, россыпи: овсянка горная *Emberiza* *cia*  
L.; славка-завирушка *Sylvia curruca* L.; воробей ка-  
менный; воробей полевой *Passer montanus* L.; по-  
лёвки серые (*Alticola argentatus* Severtzov), буро-  
зубки, марал, волк, рысь.

Долинный комплекс: славка-завирушка, чер-  
ноголовый чекан *Saxicola rubicola* L.; варакушка;  
камышевка садовая *Acrocephalus dumetorum* Blyth;  
дрозд темнозобый; конёк лесной *Anthus trivialis*;  
полёвки серые (*Microtus oeconomus* Pallas), буро-  
зубки, заяц-беляк; белка обыкновенная; кабан; со-  
боля; косуля сибирская; марал; норка американ-  
ская; лисица обыкновенная; волк; рысь; каменная  
куница; медведь.

Гари лиственныхников разнотравные и ерни-  
ковые: соловей-красношейка *Luscinia calliope*  
Pallas; толстоклювая пеночка *Phylloscopus schwarzi*  
Radde; славка-завирушка, черноголовый чекан;  
горная чечётка *Carduelis flavirostris* L.; полёвки се-  
рые (*Microtus oeconomus* Pallas; бурозубки; заяц-бе-  
ляк; кабан; косуля сибирская; марал; соболя; ли-  
сица обыкновенная; волк; рысь; медведь. Следует

отметить, что гари вносят существенное биоразно-  
образие в окружающий ландшафт, создавая уни-  
кальные постпирогенные сукцессионные стадии и  
местообитания для редких видов [Шишкин и др.,  
2013]. Положительное явление проявляется при не-  
большой площади выгорания сложной configura-  
ции. Катастрофическая проблема возникает, когда  
гари имеют большие площади, охватывающие не-  
сколько высотных поясов.

Редкие и малочисленные виды птиц: чёрный  
аист *Aegypius monachus* L.; сапсан *Falco peregrinus*  
*Tunstall*; балобан *Falco cherrug* Gray.

Организацию мониторинга птиц по биотопам  
приурочена к гнездовому периоду (июнь) и срокам  
пролёта (май, сентябрь).

По материалам дешифрирования космических  
снимков высокого разрешения определена ланд-  
шафтная структура местообитаний кластера «Сан-  
гилен» (табл. 1). Это первоначальный этап ориги-  
нальной методики Института леса по организации  
и устройству, который позволяет создать контур-  
ную основу для тематического интерпретирования  
ООПТ. Водораздельные поверхности и скалы, где в  
основном произрастают и обитают редкие виды со-  
ставляют 1/3 территории кластера. Значительную  
часть (22 %) занимают наиболее кормовые для ко-  
пытных степные, малоснежные склоны. Северные  
залесённые склоны и кустарники (ерники) выпол-  
няют в основном защитные функции.

Таблица 1.

Ландшафтная структура местообитаний кластера

Table 1.

Landscape structure of cluster habitats							
Показатели	Водораздел			Горно-таёжный пояс			Итого
	пологий	крутой	скалы	лесной	степной	ерники	
Площадь, га	31256	19535	13674	66417	39069	25394	195345
Доля, %	16	10	7	34	22	13	100

Наиболее разработан зоологический слой кон-  
турного дешифрирования, который основан на  
общности экологических условий обитания живот-  
ных. Использован унифицированный код (шифр)  
выделов, позволяющий создать визуальный вари-  
ант местообитаний животных. Для описания насе-  
ления животных использована иерархическая клас-  
сификационная схема, включающая пять уровней

генерализации: категория, группа классов, классы,  
группа типов, типы [Шишкин, 2006]. Для пред-  
полагаемого кластера использована ранее разрабо-  
танная экологическая классификационная схема,  
принятая при создании ландшафтной карты запове-  
дника «Убсунурская котловина» (табл. 2). В таб-  
лице 2 оставлены местообитания, встречаемые  
только в кластере «Сангилен».

Таблица 2.

Экологическая классификация территории кластера «Сангилен»

Table 2.

Ecological classification of the territory of the cluster "Sangilen"				
Категории	Группы классов	Классы	Группы типов	Тип
Высокогорная	Гольцовая	Каменистый	Лишайниковая	Открытый
Лесная	Тундровая	Лишайниковый	Мшистая	Кормовой
Степная	Подгольцовое, редколесье	Луговой	Ягодная	Защитный
	Горно-таёжная	Кустарниковый	Мелкотравная	Комплекс.
	Перистепная	Кедровый	Крупнотравная	
	Лесостепная	Лиственничный	Ерниковая	
	Горная	Степной	Рододендроновая	
	Степная	Разнотравный	Акациевая	
Интразональные местообитания:		Долины	Древесно-кустарниковая	
			Луговая	
		Скалы	Не заросшие	
			Заросшие	

Оценка устойчивости (стабильности) природных комплексов. Степень устойчивости определяется по скорости восстановления экосистемы в первоначальное состояние после воздействия. Этот показатель второй по значимости и актуальности при организации ООПТ. Он очень важен при организации мониторинговых наблюдений, поскольку позволяет учесть и прогнозировать сукцессионные изменения растительности и животного населения. По масштабности и значимости антропогенной трансформации природных систем на первом месте стоит традиционная пастбищная нагрузка на степные сообщества. Для кластера «Сангилен» этот фактор в настоящее время не актуален.

Для лесной части кластера превостепенное значение приобретает пирогенный фактор. Пожары закономерно повторяются через 40–50 лет и возникают по мере накопления горючего материала и наступлении пожароопасного сезона. Наибольшие пирогенные изменения проходят в высокогорной и горно-таёжной зонах, когда моховой покров меняется на травянистый и кустарниковый. После верхового пожара восстановление насаждений может занимать 20–30 лет, что зависит от источников обсеменения. При наиболее благоприятных условиях подрост лиственницы на горях достигает густота 17,0 тыс. экз/га, а средний годичный прирост 2018 г через три года после пожара уже равен 11,1 см.

Низовые беглые пожары в лиственничниках травянистых лесостепи принципиально не меняют их свойств.

Третьим современным принципом организации ООПТ должна быть оценка экологического состояния, которая проводится по трёхбалльной

шкале: 3 балла – самый высокий показатель, 2 – средний и 1 – низкий. Показателями в таблице 3 оценки обозначены: степень нарушенности по деградации (1–2, 3, 4 стадий); способность к восстановлению по устойчивости (1–2, 3, 4 степени). Наименьшей деградации подвергаются скальные образования и россыпи, высокогорные гольцы и подгольцовые (мелкотравные) тундры, а также ерники и лесные редины. Они же обладают и высокой устойчивостью к внешнему воздействию. Прогорание ерниковых тундр кратковременно приводит к их смене на травянистый покров, но в течение 3–4 лет порослевое возобновление кустарников восстанавливает исходное состояние. В большей степени деградацию испытывают послепожарные насаждения верхней части склонов, которые менее приспособлены к восстановлению. Низкий средний балл деградации (1,6) указывает на устойчивость ландшафтов к антропогенному воздействию, а высокий (2,2) – к быстрому восстановлению при возможных природных или антропогенных нарушениях.

Экологическое состояние кластера по представленности местообитаний получено путём перемножения баллов на долю (%) ландшафта на территории кластера (табл. 3). Этот показатель отражает возможность деградации ландшафтов и их устойчивость к ней в зависимости от набора и представленности ландшафтов в кластере. Скорость восстановления ландшафтов в 1,7 раза превосходит их деградацию, что свидетельствует об устойчивости природной среды к внешнему воздействию и стабильности условий обитаний, что важно для организации длительного мониторинга.

Таблица 3.

Экологическое состояние территории кластера, баллы\*Сл%

Table 3.

The ecological status of the cluster, the points\*I%

Ландшафты	Деградация	Устойчивость
Тундры	26	78
Леса	68	68
Горные степи	44	66
Скалистые массивы гор	7	21
Ерники	13	39
Наземных всего	158	272

Четвёртый современный принцип включает оценку экологической ёмкости, проектируемой ООПТ. Она определяется по потенциальной численности редких видов, которые могут обитать на ООПТ. Расчёт проводится с учётом кормовых, защитных и гнездопригодных условий кластера, биологических особенностей, а также размера участков семейных пар и их плодовитости [Шишкин, 2006]. Более детальное изучение биотопического распределения редких видов в процессе проведения мониторинговых исследований позволит уточнить плотность обитания редких видов на территории кластера по классам, группам и типам местообитаний (табл. 4).

Высокое биологическое разнообразие кластера «Сангилен» обусловлено представленностью всех природных зон Тувы (от сухих степей до гольцов высокогорий) и биотопическим разнообразием (скальные массивы, варианты степной растительности, лиственничная и кедровая формации в разновозрастном состоянии, тундры, речные долины). На территорию кластера возможны заходы красного волка и постоянное обитание снежного барса. В добыче охотников уже встречалась куница каменная [Красные книги РТ, 1999, 2002]. В настоящее время по опросным данным известны встречи барана горного и оленя лесного северного.

Таблица 4.

Потенциальная осенняя численность редких видов  
на территории кластера по группам классов местообитаний

Table 4.

Potential autumn abundance of rare species in the cluster by habitat class groups

Группы классов	S, тыс. га	Со	Чг	Ау	Гд	Фл	Тр	Мх	Пр	Кк	Мн	Сб	Лсо	Гб
Тундры	50,8	4*	5*		30							2	40	24*
Леса	66,4					6							60	
Кустарники	25,4								22	40		1	30	
Степи	39,1	6	4				120	110	10		15			24
Скалы	13,7	2		30		2			5	30	5	1		5
Всего	195,4	8	9	30	30	8	120	110	37	70	20	4	130	29

Примечание: Со – степной орел; Чг – черный гриф; Ау – алтайский улар; Гд – горный дупель; Фл – филин; Тр – тарбаган; Мх – монгольский хомячок; Пр – перевязка; Кк – каменная куница; Мн – манул; Сб – снежный барс; Лсо – лесной северный олень; Гб – горный баран. \* – залеты в летнее время.

Одна из задач кластера заповедника – реакклиматизация видов, которые в последнее время стали редкими или находятся на грани исчезновения на территории Тувы. К ним следует отнести национальный вид, характерный для высокогорных степей тарбаган (*Marmota sibirica*).

Предполагаемые расходы на организацию и деятельность кластера «Сангилен». Это пятый современный принцип организации ООПТ, который актуален при решении административных вопросов. Прямые расходы деятельности кластера связаны с дополнительным содержанием двух инспекторов, что составит 600 тыс. руб. фонда зарплат, приобретение спецодежды, оборудования, транспорта и пр. Кроме того, необходимы капитальные вложения на строительство двух кордонов (приобретение юрт) в размере 800 тыс. руб. По предварительным расчетам общий объем финансовых затрат на стадии организации кластера потребует около двух млн. руб. и в дальнейшем ежегодно 750 тыс. руб.

Закключение. Кластер «Сангилен» заповедника «Убсунурская котловина» проектируется как эталонный участок нагорья Сангилен. Организация и ведение мониторинга на территории кластера позволит отслеживать природные изменения в горах на юго-востоке РТ. Нагорье Сангелен служит фрагментом единого комплекса гор юга Тувы и экологическим коридором, обладает высоким природным потенциалом для редких видов РФ и РТ. В настоящее время предлагаемая территория для кластера имеет слабое хозяйственное освоение и ее заповедование не повлияет на хозяйственную деятельность региона. Одновременно использование приграничной территории с Монголией позволяет упростить охрану кластера и вовлечь ее в международное научное сотрудничество.

Контурное дешифрирование космических снимков высокого разрешения позволило создать сопоставимые тематические слои (геоморфологии, почвы, растительности, животного населения) с реальным наполнением ландшафтов как функционирующих экосистем.

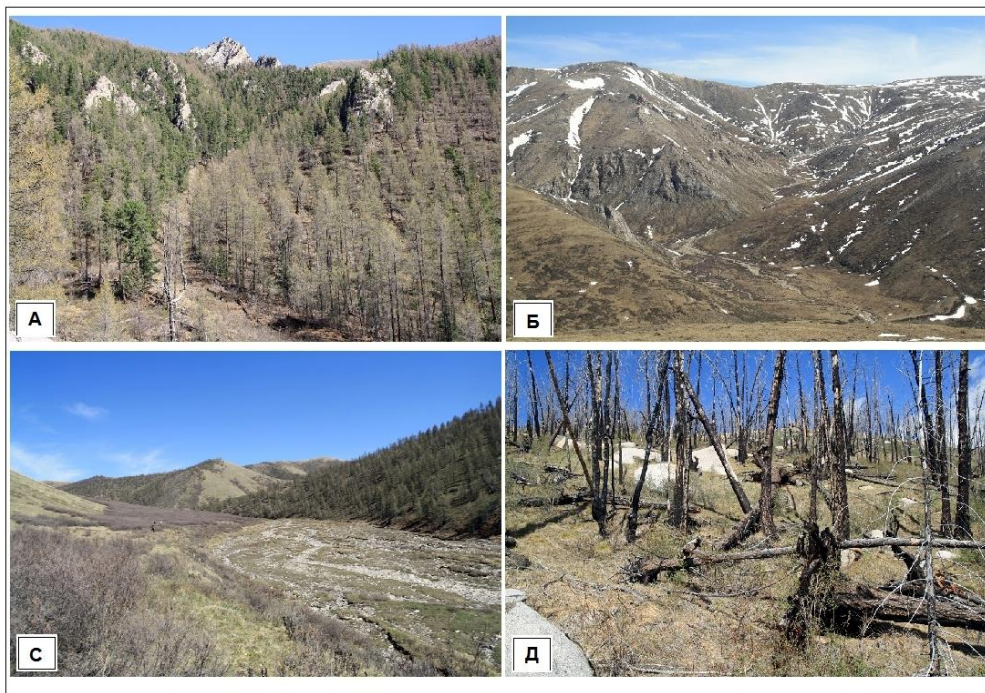
Современные принципы организации ООПТ должны включать: контурное дешифрирование в

сочетании с разработанной экологической классификационной схемой; оценку устойчивости (стабильности) ландшафтов; оценку современного экологического состояния и трендов сукцессионного развития; оценка экологической емкости местообитаний и конечно финансовые затраты на организацию ООПТ. По результатам применения комплекса (дешифрирование, тематическая интерпретация, оценка экологической емкости и ее стабильность) современных методов исследований проведено обоснование расположения, границы и площади заповедного кластера и его охранный зоны, выделение области экстраполяции данных мониторинга. Получен перечень ключевых местообитаний, необходимый для организации мониторинга, определяющих типичность ландшафтов юго-восточной Тувы и условий обитания редких видов растений и животных. Комплекс выполненных исследований позволяет дать заключение о природной и географической целесообразности организации кластера «Сангилен» заповедника «Убсунурская котловина» в юго-восточной части Тувы. Обоснование и выделение кластера «Сангилен» соответствует положениям Концепции развития ООПТ федерального значения до 2020 г. (распоряжение Правительства РФ от 22.12.2011 г. № 2322-р.). В частности, в задачи развития федеральных ООПТ входит: продолжение формирования репрезентативной географической сети, прежде всего заповедников и их кластеров; обеспечение эффективной охраны; интегрирование ООПТ в сферу социально-экономического развития регионов.

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Приложение. Ландшафты кластера «Сангилен» заповедника «Убсунурская котловина».

Supplementary material. Landscapes of the Sangilen cluster of the "Ubsunur Basin" Nature Reserve



*А — В верхнем лесном поясе сосна сибирская предпочитает дренированные «тёплые» местообитания, лиственница сибирская — мерзлотные. С — Перистепной тип растительности. Шлейфы степных склонов заняты мерзлотными ерниками. Поймы рек заливаются только в период наводков. Б — Типичный горный ландшафт кластера «Сангилен». Д — Гарь 2002 года на каменистом водоразделе. Выгорает поверхностная корневая система, что приводит к вываливанию стволов [А — In the upper forest belt Siberian pine prefers drained "warm" habitats, Siberian larch-permafrost. С — Forest-steppe type of vegetation. Plumes of steppe slopes are occupied by permafrost glaciers. Floodplains are flooded only during floods. Б — Typical mountain landscape of the Sangilen cluster. Д — The 2002 fire on the rocky watershed. The superficial root system burns out, which leads to the trunks falling out].*

*Рисунок 1 — Ландшафты кластера «Сангилен»  
Figure 1 — landscape of the Sangilen cluster*

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## ECONOMIC SCIENCES

### QUALITATIVE ASSESSMENT OF AGRICULTURAL LAND AS AN EFFECTIVE USE OF THE LAND RESOURCES OF NAGORNO-KARABAKH

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#### Abstract

**Relevance of the work:** In the article, based on the analysis and generalization of the actual material, the issues of the development of cooperatives are considered, in connection with the integration, new economic structures are formed that can survive in the conditions of tough market competition. The most developing forms of cooperative and integration relations in the agro-industrial complex at the present time are: the creation of processing industries by large commercial agricultural enterprises, which allows them to produce finished products from their own raw materials and use significant amounts of added value for their own needs, the organization of regional multi-industry and food agro-industrial formations, the effective functioning of which makes it possible to implement the principle of profitable distribution of the received added value between the subjects of cooperation in the promotion of the product from the manufacturer to the consumer.

**Keywords:** cooperation, integration, agricultural enterprises, agro-industrial formations, added value, geoinformation technologies, modernized system.

As a result of the awareness of the current environmental situation in the world over the past twenty years, there has been an increased interest in the environmental problems of agriculture, which contributes to the natural restoration of soil fertility and the maintenance of the balance of the natural ecosystem. In this regard, when our lands were liberated from the enemy, who were incapacitated for 30 years, the ruin and disappearance of large enterprises, collective farms, and therefore jobs that had been built for decades, the unprecedented outflow of population from villages and villages, the death of relatives, the lack of understanding of the situation and confusion among people, the impossibility of self-realization of their abilities, that is, the degradation of their way of life, allowed us to think about how to ensure sustainable development of life in the liberated territories. In our opinion, this function is quite feasible for cooperatives, perhaps even only for cooperatives. Among the features of the cooperative form of organization that are of interest from the point of view of using it to solve the described problem, the following can be distinguished:

- a) the ability to work for the common interest of all persons united in it, regardless of the type of ownership, composition, size and other characteristics;
- b) the possibility of participation in its activities of any economic entities – both individual and united in collectives, regardless of the nature of the activity, form of management, legal capacity;
- c) the possibility of forming a cooperative organization on a territorial basis, that is, with the inclusion in its composition, if not all, then the vast majority of economic entities and citizens existing in this area;
- d) the possibility of managing all vital processes in a particular territory on a cooperative basis, primarily through the participation of all participants in decision-making;
- e) the possibility of applying the principles of fairness in remuneration for work, distribution of income,

setting the level of sales prices, mutual assistance, and others, since the main goal for all participants of a cooperative organization is not to achieve maximum profit, but to create a favorable living environment, conditions for guaranteed and sustainable activities, and to maintain demand for manufactured products.

Cooperation and integration are closely linked and mutually dependent. Both of these processes involve the concentration of capital. Both cooperation and integration contribute to scientific and technological progress. Through cooperation and integration, new economic structures are formed that are able to survive in the conditions of tough market competition. Along with the common properties, there are differences between cooperation and integration. In cooperation, enterprises of the same industry act as merged objects; in integration, organizations of different industries: agriculture, processing industry, trade, etc. In most cases, in cooperative formations, raw materials or semi-finished products are produced, in integrated ones-finished products. If cooperative processes are carried out on a voluntary basis (at the will of the united structures), then integration processes are initiated by the integrators. Agro-industrial integration, being a higher degree of development of agricultural cooperation, acts as an objective necessity for the further development of the country and the creation of an effective national food system in them. The most developing forms of cooperative and integration relations in the agro-industrial complex at the present time are: the creation of processing industries by large commercial agricultural enterprises, which allows them to produce finished products from their own raw materials and use significant amounts of added value for their own needs, the organization of regional multi-industry and food agro-industrial formations, the effective functioning of which makes it possible to implement the principle of profitable distribution of the received added value between the subjects of cooperation in the promotion of the product

from the manufacturer to the consumer. It is necessary to involve all economic entities, regardless of their technological connection with agricultural activities, located on a given territory, naturally on a voluntary basis, in the composition of the cooperative. It is clear that there will be difficulties with this at the first stage, but everything will be determined by the motivation and possible benefits, by the skillful organization of explanatory work. The advantage of the cooperative form is the possibility of organizing any type of activity that is in demand for any member and creating jobs, for example, basket weaving, household services, etc. This will allow to unite all residents, to look for ways for rational use of local resources, improvement of the territory, the organization of many activities to meet the needs of the population, for example, baking. As for mass products, the cooperative can organize primary part-time work and processing, as well as become part of vertical specialized (branch) cooperatives – grain, vegetable, dairy, meat, etc. and receive the corresponding benefits from vertical cooperation. The management bodies of the cooperative – the general meeting of members, the management board, etc. - perform the functions of managing both its affairs and the affairs of the territory in which the members are located. The current situation strongly requires the abolition of all taxes on residents of the liberated lands for at least 20 years. The effect of scale is observed in the agricultural sector of the economy of almost all countries of the world with the predominance of small-scale farm production, through the creation of cooperatives that provide various technological and marketing services. In developed countries, the interaction of the system of agricultural cooperatives with vertically integrated farm structures has become widespread as a means of achieving scale of production without directly increasing the size of farms. Thus, in France and Germany, where cooperatives for the joint use of means of production in agriculture are developed, 80% of agricultural enterprises are united in cooperatives. Cooperatives for the procurement, processing and marketing of agricultural products are the most widespread. For example, in Japan, Iceland, the Netherlands, Finland, and Denmark, cooperatives process 90-100% of marketable milk, and in the Scandinavian countries -80% of sold milk and meat on the domestic and foreign markets of agricultural products. Another group of cooperatives provides farmers with production resources (in Sweden and Finland -60% of machinery, France and Germany -50% of fertilizers and feed, in France-two-thirds of grain seeds, in the Netherlands -33% of fertilizers and 55% of feed) or produce and sell certain types of agricultural products, such as potatoes, grain, seeds of different crops, breeding cattle, etc. cooperatives are served by 25% of agricultural enterprises, where 4% of the total number of tractors, 30% of grain harvesters and 35% of forage harvesters are concentrated). In Germany, farmers who have established machine societies and machine rings (2-5 farmers) share or rent machinery for a fee. The further development of the cooperative movement is associated with the improvement of the system of relationships between cooperatives – vertical integration, when

the economic functions of the integrator for the production and distribution of products are performed by a group of cooperatives, and in agro – industrial associations, all these functions are performed by one integrator firm. Such cooperative associations, for example, in the dairy sector, in addition to processing and marketing milk, supply equipment for dairy farms, provide advice and many other services. The main limiting factors for the development of agricultural consumer cooperatives are their small size, the coverage of services to a small part of agricultural producers. In Azerbaijan, as of 1.01.2020, there are 1,666 agricultural enterprises, of which 351 are state-owned, the rest are private, and only 38 cooperatives, the number of which is decreasing every year (in 2017 there were 55 cooperatives).

On our liberated lands, it is necessary to conduct monitoring and qualitative assessment of agricultural land in order to determine the possibility of their use in organic agriculture and to estimate the duration of the conversion (transition) period, carried out using GIS technologies. Geoinformation technologies (GIS) allow conducting full-fledged monitoring studies with the integration of all the indicators of interest. It should be noted that the maps of soil and agrochemical indicators compiled in GIS most fully reflect the level of development of soil-forming processes, especially in conditions of complex terrain. As a result of the conducted agroecological survey, farmers will receive information that allows them to assess the potential of land, determine the real boundaries of land use and increase the agronomic efficiency of production in general. For example, the agricultural lands of the Kelbajar district occupy 90 thousand hectares. The population here was mainly engaged in animal husbandry and kept cattle, bees, sheep and goats. According to the State Statistics Committee of Azerbaijan, in 1990 there were about 40 thousand heads of cattle and 240 thousand heads of sheep and goats in the Lachin district. Before the Armenian occupation, the district sold 6,000 tons of milk, 5,000 tons of meat, and more than 400 tons of wool to the state each year. The determining factor here is the efficient use of land resources. First, it is necessary to ensure the administrative protection of particularly valuable agricultural land in the Karabakh region from being used for other purposes. Secondly, it is advisable to introduce into the land code an economic way to protect productive agricultural land from unjustified development, which brings its initiator economic benefits to the detriment of the entire society. At the same time, it is necessary to improve the system of state control over the use of land. Third, an important place in the system of land relations is occupied by the problem of managing the vast land resources of the country, so a new stage in their development should be directed to the regulatory function of the state. In order to better take into account the place and role of each region in the territorial and sectoral division of labor in agro-industrial production, a General scheme for the placement and specialization of agro-industrial production should be developed, taking into account the general strategy of spatial development of the country, including through the introduction of digital economy mechanisms at all



levels. Special attention should be paid to the development of infrastructure, both for the domestic agri-food market and for entering the world markets.

**Conclusions:** Thus, a systematic focus on solving environmental problems, taking into account environmental aspects, will increase the sustainability of the development of the entire agricultural complex of the country and create prerequisites for a radical solution to the problem of ensuring food security. The availability of a modernized system of science, education, and consulting and information services in the agricultural sector during the period of widespread introduction of innovative production and management technologies at

the global level is considered as the most important resource necessary to ensure competitiveness in this region of the country.

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## THE MAIN DIRECTIONS OF INNOVATIVE DEVELOPMENT OF THE CROP INDUSTRY ON THE EXAMPLE OF ENTERPRISES OF LVIV REGION

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### Abstract

The main purpose of this article is to substantiate the problems of strategic management and to develop a strategy for the development of the crop sector in agricultural enterprises of the studied territory. The article deals with the main issues of the practical application of methods of estimation of competitiveness of the plant industry in modern business environments. The rating of the regions of the studied territory by the availability of resources, the level and the results of the development of the plant growing industry were evaluated. The problems of increasing the competitiveness of crop production are relevance and strategic importance, which has led to an intensification of both international and domestic competition.

Under these conditions, it is necessary to develop a modern concept of increasing the competitiveness of crop production, in particular, in the direction of theoretical, methodological and practical research on the formation of elastic systems of marketing management, the formation of a strategy resource-saving technologies, balanced internal and external food relations, information and corporate organizational production structures in the field of agricultural production. It is proposed to use resource-saving technologies of crop production when using technical and technological modernization and digitization of production.

**Keywords:** market, strategic management, competitiveness, resource-saving technologies, digitization of production.

**Introduction.** Strategy for the development of the agricultural sector of Ukraine's economy for the period up to 2013-2020, considers agricultural production as the main component of the national economy. Since agricultural production provides the basic principles of preserving the sovereignty of the country - food security, and at the same time ensures the formation of economic, environmental and energy security, forms the basis of socio-economic development of rural areas.

Today, the level of economic development of agriculture, in particular crop production, determines the level of economic development of the country as a whole, so it is necessary to understand the main trends in agricultural production, which led to the choice of research topic.

The role of the agro-industrial sector in the country's economy can be considered decisive. According to the State Statistics Service of Ukraine, the agricultural sector is one of the leading sectors of the economy, its

share in total output in actual prices in 2019 is 9.6% and in total gross value added - 13.1%. Positive dynamics is typical for 2020 as well, with the crop industry accounting for 16% of the country's gross value added.

Stochastic environment, uncertainty in economic conditions puts farmers in a position where it is necessary to minimize risks in the production process, where the tool is strategic management as a means of forecasting the state of the environment and objects of interaction, and as a result of these forecasts long-term goals and methods of achieving them. Under the current conditions of uncertainty, the use of an adaptive approach to production management is not sufficient for intensive development of the crop industry, and an important condition for highly efficient operation of the crop industry is the use of strategic management tools that minimize uncertainty and reduce risks. Strategic management is important when considering the organization as a system, when planning combines economic, technological, social and supporting processes of the enterprise, as well as connects the internal and external environment, which leads to improved adaptability, flexibility and thus competitiveness of production.

**Results.** Today in Ukraine, as a result of agrarian transformations, a dual structure of agriculture has been formed, where the individual sector plays a significant role in ensuring the sustainable development of the agricultural sector of the economy. In contrast to the corporate sector, agricultural production is due to the need for self-sufficiency in food of peasant farms. However, the corporate sector in these conditions seeks only to maximize profits, which leads to disparities in the structure of agricultural production, in particular crop products, which is contrary to the principles of sustainable agricultural development.

Specialization in the cultivation of only certain crops has led to the emergence of such a phenomenon as monoculture. In particular, changes in the cultivation of crops over the past 20 years indicate the concentration of farmers on the production of commercialized (commercial) crops. We are talking about a significant increase in the studied period of sown areas under industrial crops: 4.3 times.

This situation is caused mainly by the expansion of crops under sunflower (up to 5849.3 thousand hectares, or 3.5 times) and soybeans (up to 1579 thousand hectares, or 16.9 times). However, it should be noted that under some industrial crops sown areas have decreased. For example, the sown area under sugar beets was significantly reduced in absolute terms (up to 220.6 thousand hectares) - almost twice. The grain and legume production sectors are also characterized by significant changes, the main of which are: an increase in sown areas under corn (2104 thousand hectares, or 2.7 times); expansion of areas under wheat; general reduction of areas under other cereals.

Changes in the values of sown areas in terms of crops affected the change in their structure. Thus, the share of industrial crops increased 1.6 times, but grain and legumes decreased (by 20%). These trends in sown

areas in the corporate sector are mainly caused by pre-defined commercial goals aimed at obtaining stable and high incomes. Given the low solvency and low demand in the domestic agri-food market of Ukraine, it is true that most corporate structures focus on the foreign market, which dictates the steadily growing demand for key crops, including cereals and oilseeds. Harmonization of crop development trends with the principles of sustainable agricultural development is possible by strengthening agricultural diversification, ie the formation of a balanced portfolio of crop rotations and the parallel addition of different crops. This can significantly improve the situation in domestic agricultural production and help ensure the reorientation of management in agricultural enterprises in the direction of its sustainability without significant financial investment. Soil fertility, as well as temperate climatic conditions form all the prerequisites for the effective development of the crop industry. Agricultural enterprises need to use the latest technologies to improve the productivity of agricultural production, because the latest technologies and know-how are a strong argument for increasing yields and maintaining agricultural products at a high level of competitiveness not only within the country but also abroad.

Using the rating method, the efficiency of the development of crop industries in terms of administrative districts of Lviv region was assessed. This assessment provides, on the one hand, to provide a description of the production and economic activities of agricultural enterprises in terms of districts, and on the other hand will provide a description of the state of the studied areas in the business environment and rating in industry competition. The rating provides a general assessment of the agricultural potential of districts, which allows it to be assigned to a certain category. The rating is formed in the form of a consolidated indicator, the increase or decrease of which informs about the dynamics of agricultural development of the studied areas. Based on the results of the rating assessment, it is possible to monitor the studied areas and adjust the indicators of production and economic activity of agricultural enterprises of the studied region.

Rating assessment of districts is carried out by analyzing the indicators of resource availability of agricultural enterprises, analysis of indicators of efficiency of use of production resources of agricultural enterprises, analysis of indicators of efficiency of agricultural production.

Determination of the rating was carried out in the following stages:

- calculation of indices by the ratio of a single value of the indicator to the largest in the region.
- ranking of districts according to each of the indicators (index).
- derivation of integrated indicators of each group.
- determining the rating of the district by deriving the average value of integrated indicators and further ranking of average values.

Table 1

Integrated indicators for assessing the efficiency of agricultural enterprises in the study region

District	District rating	Rating by integrated indicators		
		Provision of resources	Productivity of the crop industry	Final management indicator
Brody district	10	8	3-4	17
Busk district	6	15-16	5	5-6
Horodok district	11	6	9	18
Drohobych district	14	13	12-13	15-16
Zhydachiv district	5	2	10	9
Zhovkva district	13	4-5	16-17	10-12
Zolochiv district	8	14	7	8
Kamyanka-Buzkyy district	3	12	1	1
Mukolaiyv distric	15	18	12-13	10-12
Mosty district	17	10	16-17	20
Peremyshlayny district	9	11	11	7
Pustomyty district	7	7	14	5-6
Radekhiv district	4	9	8	3
Sambir district	12	17	3-4	13-14
Skole district	19	19	19	10-12
Sokal district	1	1	2	4
Starosambir district	18	15-16	15	19
Stryi district	2	3	6	2
Turka district	20	20	20	15-16
Yavoriv district	16	4-5	18	13-14

With such efficiency of crop production in the study region, resource potential should be increased, previously unused land should be involved in production, focus on the most profitable subsectors, but do not forget to diversify production to insure unforeseen situations.

Positive results of the analysis of economic potential and competitiveness of agricultural enterprises of the region provided a general picture of the state of the industry, but to form a specific strategy requires more data, which we decided to obtain through SWOT-analysis (Table 2).

Among the main strengths of the development of the crop industry of the region should be noted the favorable geographical location, proximity to the EU in particular, the functioning of powerful agricultural producers, high efficiency of production. Weaknesses include poor investment promotion, low agricultural image, outdated logistics and environmental impact.

However, the region has significant opportunities, including entering new markets, including EU markets through the benefits of association with the EU, the production of environmentally friendly products, as well as creating an investment climate that investors want to invest in industry (Table 3).

Table 2

Comparative advantages of crop production development in agricultural enterprises of the studied area

COMPARATIVE ADVANTAGES	
Strengths	Opportunities
Favorable geographical location and logistics connection of the district, proximity to the border with the EU.	Participation in grants and cooperation with international donors on investment in agriculture.
Temperate climate with fertile soils.	Continuation of processes on European integration, search for foreign partners and investors in the agro-industrial complex.
Developed transport infrastructure.	Providing a favorable local investment climate for the external investor.
The policy of local authorities is aimed at supporting small and medium-sized businesses, a set course to attract investment and create the necessary conditions for this.	The initial additional markets, both domestic and foreign.
The presence of several large agricultural enterprises with a strong material and technical base.	Taking advantage of the district's policy to support small and medium-sized businesses.
High rating of the region in the production of crop products.	Production of environmentally friendly crop products.
High quality products, crop yields.	Use of innovations in the field of agricultural production and various scientific achievements.
	The process of creating an industrial park has begun, which is an opportunity for local producers to acquire technologies in agriculture.

Along with the opportunities there are threats: unstable political situation, economy, unfavorable macroeconomic situation, as well as a pandemic.

Table 3

The list of factors that can affect the efficiency of crop production in agricultural enterprises of the region

Sphere of existence	Weak signals of changes in the external environment that may directly or indirectly affect the functioning of enterprises in the crop sector
Natural component	Global trends in climate change Population growth The objective existence of the law of growth of needs Geographical location that dictates its conditions of management Labor migration
Technology market	Emergence of the latest technologies in the field of agriculture Competitors use the latest technologies in agriculture
Foreign policy	Aggressive quota, duty, ban Investment Pressure of strong countries
Public policy	Land Market Law №2178-10 Tax burden Program "Available loans 5.7.9% " Customs regulation Price control Grant policy Infrastructure Inflation
Competitors	Active growth of competitors in the industry Aggressive strategy of a competitor relative to another competitor
Economic situation	Exchange rate Credit rates Demand and supply of goods

**Conclusions.** The analysis of economic potential and rating of agricultural enterprises in terms of administrative districts of the region according to the level of development of the crop industry, as well as the SWOT analysis provided an opportunity to form a strategy for the development of the crop industry. Therefore, the development strategy contains the following main points: maintaining the achieved level of efficiency of crop production in the region; intensification of the crop industry (new technologies, digitalization, innovations, restructuring, business reengineering); development of material and technical base of agricultural enterprises through the use of experience of advanced enterprises of the region (leasing, international cooperation, consultations, etc.); greening of production; use by local farms of the mechanism of cooperation with local self-government bodies, local organizations, international organizations, etc. It should be noted that an important factor in the success of this crop development strategy

is decentralization, which in its course should be the center of accumulation of decisions on agricultural development by creating platforms for discussions, local management decisions and more.

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**STRATEGIC PRIORITIES OF EFFICIENT MILK PRODUCTION IN UKRAINE****Shupyk S.***postgraduate student**of Bila Tserkva National Agrarian University (Ukraine)*DOI: [10.24412/2701-8369-2021-8-2-28-33](https://doi.org/10.24412/2701-8369-2021-8-2-28-33)**Abstract**

The article highlights the current trends in the development of the dairy industry in Ukraine and identifies strategic priorities for efficient milk production. It is established that there are different trends in the dairy farming development. They are characterized by the following: with the increase of natural indicators of milk production efficiency there are no preconditions for overcoming the tendencies to reduce the number of dairy cows.

The main directions of the dairy industry effective development in agricultural enterprises are to increase milk production by increasing the productivity of cows, stabilization and increase of livestock, reconstruction of active farms, their modernization and technical equipment, commissioning of new facilities, improvement of feed production, development of selection and breeding work, improving the animal's reproductive qualities.

The strategic priorities of ensuring efficient milk production are substantiated, among which the following measures are highlighted: concentration and specialization of production; introduction of innovative technologies; improving the quality and safety of milk through the introduction of appropriate quality control systems, improving the genetic potential of animals and quality of the nutritive base, compliance with the conditions of keeping and care of cows, improving selection and breeding work.

**Keywords:** dairy cattle breeding, agricultural enterprises, peasant households, milk production efficiency.

**Introduction.** The current state of dairy farming is characterized by instability and demonstrate the numerous destabilizing economic factors, which are due to increasing globalization and crisis, increasing consumer demand for quality and safety of dairy products, the impact of scientific and technological progress, the worsening problems of environmental safety and so on. Agricultural enterprises operating in these economic conditions facing many problems related not only to achieving the values of economic indicators that ensure its competitiveness, but also to the ability to survive in market conditions. Most dairy farms today are characterized by a low degree of adaptability to market changes and traditional management approaches, which does not allow businesses to develop effectively. That is why there is a need to substantiate the strategic priorities for the development of dairy farming, which would facilitate the adaptation of dairy enterprises to changing business conditions and ensure their sustainable development.

The need to stimulate economic growth of the dairy industry is due to its important role in ensuring food security of the country to meet the needs of the population in food (Kozak, 2018), an important role is to ensure profitability for industry producers (Radko2018), which would stimulate them to increase the volume of its production, expanded reproduction, greening of production. At the same time, the development of dairy farming contributes to solving a number of social problems in rural areas, in particular, increasing the employment of the rural population, job creation in rural areas, solving the problem of increasing the income of the rural population (Ivanova, 2017). In addition, the role of livestock in soil conservation and reproduction, which degree of plowing in Ukraine is high, is positive. The problem of organic fertilization into the soil is relevant, which allows to preserve and increase their fertility. An important role in the development of livestock in the economy of agricultural producers is reflected in the performance of its stabilizing function for the sustainable development of agricultural producers of milk.

**The aim of the study.** The main purpose of the study is to study the dynamic processes of change in dairy farming of agricultural enterprises and private farms, vectors of their impact on the efficiency of milk production, argumentation of principles and practical recommendations for the formation of a strategy for efficient milk production.

**Materials and methods.** In researching the issues of efficient milk production strategic support, systematic, integrated approaches are used, the forces and vectors of internal and external environment factors influence of branch and economic entities functioning are revealed. The study used an appropriate system of research methods: monographic - in formulating the purpose and conclusions of the study. The method of theoretical generalization of foreign and domestic scientists is used in research of approaches to efficient milk production, calculation and constructive, economic and statistical analysis of the current state of the dairy industry and argumentation of strategic prospects for their development.

The information base of the research was the data of statistical reporting of agricultural enterprises on milk production, official data of statistical reporting of the State Statistics Service of Ukraine, as well as the author's own observations and calculations.

**Result and discussion.** The main features of dairy farming development in Ukraine are, on the one hand, the trends in improving the breeding species of animals, increasing their productivity in farms which produce livestock products, and on the other - a sharp reduction in livestock, industry production, reduction in the number of farms that produce it and insufficient level of its profitability. The intensification of crisis phenomena in the studied industry led to the processes of its collapse.

The data in the table 1 show us changes in the number of cattle, including cows and milk production during 1990-2019, which confirms the general tendency to reduce both the livestock and the volume of its production.

Table 1

## Indicators of dairy farming development in Ukraine in 1990–2019

Year	Cattle number, thsd. heads	including cows, thsd. heads	Share of cows in cattle number, %	Volumes of milk production, thsd. tonnes
1990	24623,4	8378,2	34,0	24508,8
1995	17557,3	7531,3	42,9	17274,3
2000	9423,7	4958,3	52,6	12657,9
2005	6514,1	3635,1	55,8	13714,4
2010	4494,4	2631,2	58,5	11248,5
2011	4425,8	2582,2	58,3	11086,0
2012	4645,9	2554,3	54,9	11377,6
2013	4534,0	2508,8	55,3	11488,2
2014	3884,0	2262,7	58,3	11132,8
2015*	3750,3	2166,6	57,8	10615,4
2016*	3682,3	2108,9	57,3	10381,5
2017*	3530,8	2017,8	57,1	10280,5
2018*	3332,9	1919,4	57,6	10064,0
2019*	3092,0	1788,5	57,8	9663,2
2019 to 1990, +,-	-21531,4	-6589,7	23,8	-14845,6
2019 to 1990, %	12,6	21,3	–	39,4

\* Data exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.

Source: calculated according to the State Statistics Service of Ukraine.

According to the results of the data in table 1, it was established that during the analyzed period the number of cattle decreased from 24623,4 thsd. heads in 1990 to 3092 thsd. heads in 2019, or by

21531,4 thsd heads, which was equal to 87,4%. The average annual decline in the number of cows was 256,09 thsd. heads with the decrease in the number of cattle, during this period, at the level of 743,46 thsd. heads. (Fig. 1).

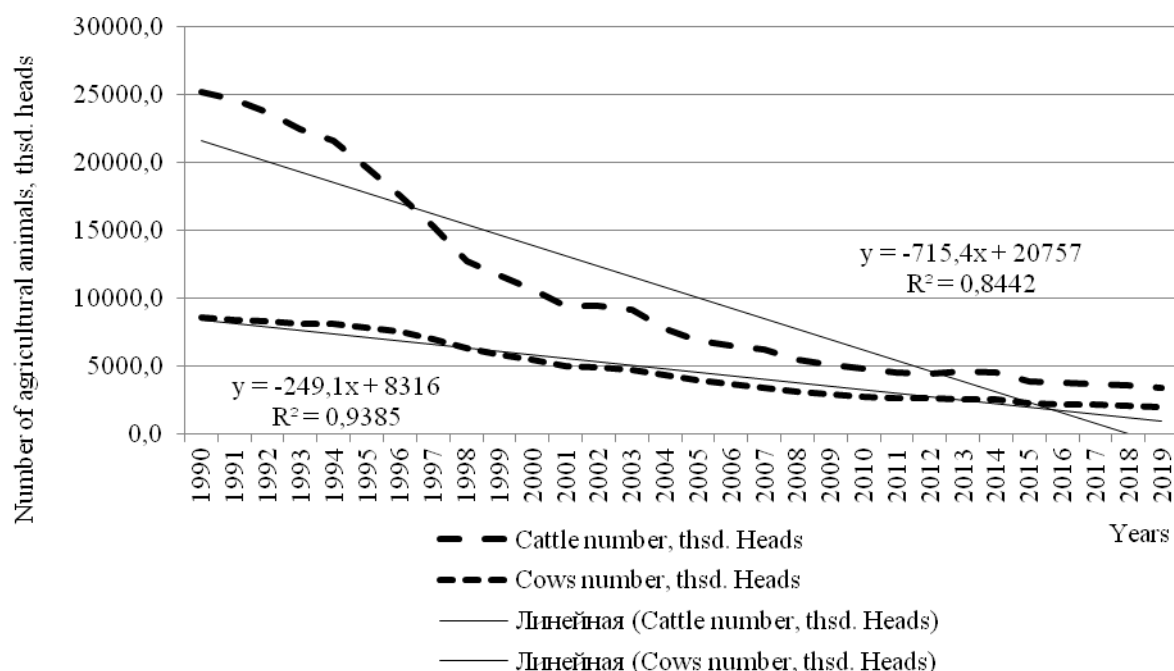


Fig. 1. Trend in milk production and cattle and cow populations in Ukraine for the period 1990-2019  
Source: built according to the State Statistics Service of Ukraine.

It is determined that milk production in 1990–2019 decreased by almost 60 % and accounted in 2019 for 9663,2 thsd tonnes (Fig. 2). During 1990–2019, two trends can be identified in the formation of the milk production volume. They were characterized by the fact that, firstly, the average values of milk production were aimed at reducing in 1990–2002 for 16022 thsd. tonnes and for 11 608 thsd. tonnes in the period from 2002 to 2019. Secondly, the value of the coefficient of variation in the period 1990–2002 increased to 18,9%, and then

reduced to 11,3 in 2002–2019. The main reason for the decrease in the number of cows in agricultural enterprises was the adoption of an unreasonable decision to slaughter and export livestock from Ukraine in 1995–1997, as well as the lack of a proper system of cow reproduction in agricultural enterprises. It is established that with the reduction of the cow number in the corporate sector farms of agricultural economy, during the research period the number of economic entities decreased more than in 4 times.

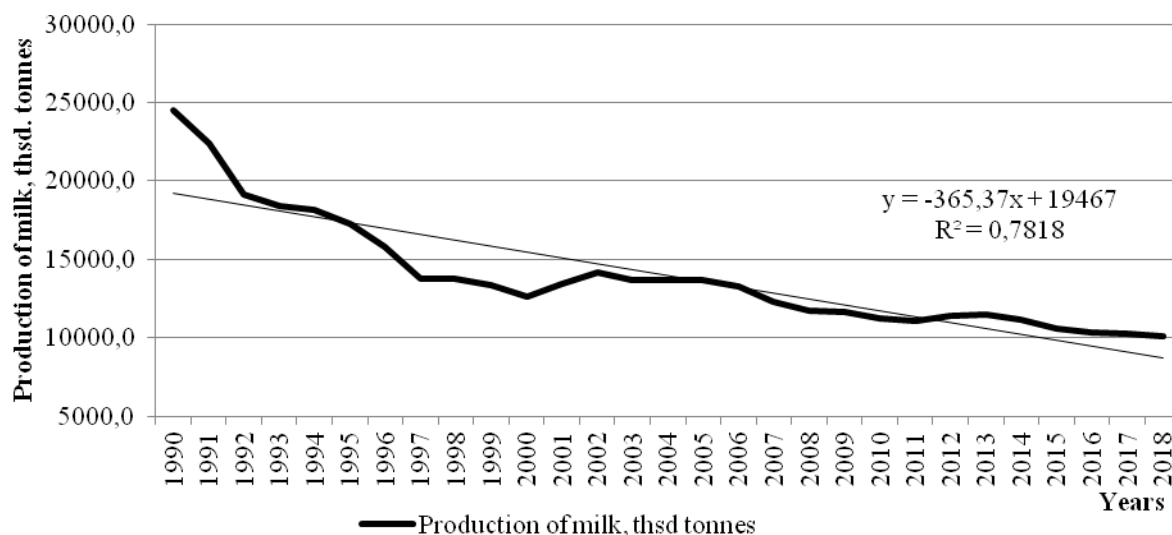


Fig. 2. Trend in milk production in Ukraine for the period 1990–2019

Source: built according to the State Statistics Service of Ukraine.

The study of the dynamics of cattle number, including cows in Ukraine by categories of dairy agricultural producers revealed that there is a clear tendency to reduce the number of cattle, including cows in agricultural enterprises and its increasing in households. Thus, in 1990 - 85,6% of cattle were kept in agricultural enterprises and in 2019 it was 33,9%. At the same time, proportion of cattle in households in their total population increased from 14,4% in 1990 to 66,1% in 2019, including cows - from 26,1 to 75,5% accordingly. The largest proportion of cattle, including cows, in households was in 2010, exceeding 77% of the livestock number in all categories of farms.

It is established that the state of livestock in households in terms of the division of households with a land area of up to 0,5 ha; 0,51–1,00 ha; 1,01 ha and more and their livestock keeping in the industry is as follows: 17,6% of rural households with up to 0,5 ha are keeping cattle, including 16,3% of them are cows; 37,0% of households with 0,51–1,00 ha are keeping cattle and

35,2 of them are cows; 52% of households with more than 1,01 ha are keeping cattle, including 50,6% - cows. Consequently, the increase of land use area in rural households is accompanied by an increase in the livestock number in the industry, because with over than 1,0 ha of land, half of the households started keeping cattle. Such households (with over than 1,0 ha) keep 48% of the livestock in the industry. The main reasons that explain the dominance of livestock in the households are the importance of the industry in rural life, including self-sufficiency in food production for the family, additional income from sales. Which in terms of reducing jobs and low wages in rural areas stimulate to keep cattle, etc.

An important qualitative characteristic at all levels of management is the production efficiency, because its indicators characterize the return of investment into production. Indicators of the livestock industry effectiveness in Ukraine, in accordance with the topic of our research, are presented in table 2.

Table 2

Efficiency indicators of breeding dairy cattle development in Ukraine for the period 1990–2019

Indicator	Years						2019* to 1990	
	1990	2000	2005	2010	2015*	2019*	+, –	%
Production of milk, thsd. tonnes	24508,3	12657,1	13714,4	11248,5	10615,4	9663,2	-14845,1	39,4
Number of animals, thsd. heads: cattle including cows	24623,4	9423,7	6514,1	4494,4	3750,3	3092,0	-21531,4	12,6
	8378,2	4958,3	3635,1	2631,2	2166,6	1788,5	-6589,7	21,3
Livestock units per 100 hectares of agricultural land, heads: cattle including cows								
	58,8	22,5	15,6	10,8	9,0	7,5	-51,3	12,8
	20,0	11,9	8,7	6,3	5,2	4,3	-15,7	21,5
Milk production per 100 hectares of agricultural land, centner	584,9	302,6	328,7	270,6	255,7	233,9	-351,0	40,0
Average milk yield per cow, kg	2863	2359	3773	4082	4644	4976	2113	173,8
Use of fodders per centner, centners of fodder units: of milk production including concentrated	1,47	1,63	1,31	1,18	1,00	0,89	-0,58	60,5
	0,34	0,20	0,30	0,37	0,41	0,49	0,15	144,1
Profitability of milk production, %	32,2	-6,0	12,2	17,9	12,7	20,1	-12,1	–

\* Data exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.

Source: calculated according to the State Statistics Service of Ukraine.

An analyzing of the data in Table 2 shows, that with a decrease in milk production in Ukraine during the analyzed period there is a decrease in dairy production per 100 ha of agricultural land (milk production – 233,9 centner in 2019 compared to 584,9 centner in 1990), the decrease in industry production was primarily due to the reduction of livestock: cattle - by 21531,4 thsd. heads, including cows - by 6589,7 thsd. heads, or 87,5 and 78,1%, accordingly 2019 compared to 1990. The value of the average annual milk yield per cow gradually increased. From 1990 to 2019, it increased from 2863 kg to 4976 kg, or for 73,8%. Increasing of cow's productivity level is positive, because it is considered as a factor of increasing milk production. It should be noted that in some of the enterprises of Ukraine the productivity level of cows reaches 8000-9000 kg per year. However, the level of profitability of milk production decreased during the analysis period in 12,1%, which indicates different vector trends in the industry development. This is primarily due to the decline in investment attractiveness of dairy farming as a result of the following factors: long payback period; low efficiency of state support; significant variability in the milk and dairy products market.

Under such conditions, the strategic priorities for ensuring efficient milk production and integration of the country into the world milk market are, firstly, the need to harmonize the existing legislative and regulatory support of the industry to international standards, optimization of dairy production systems, animal health and their genetic composition, secondly, address the declining trend in livestock numbers and production

volumes, which requires the development of some activities aimed at increasing the number of livestock and production volumes. Therefore, the relevant issue in the further functioning of the industry is the creation of conditions for reproduction and development of the industry, which would be accompanied by an increase in the number of highly productive dairy breeds and production of quality and safe products.

Reduction of milk production and low quality established, because more than 70% of milk produced in Ukraine does not meet the requirements of European standards, neither in composition nor in bacterial safety indicators. This situation requires the voluntary implementation of product certification by business entities in accordance with the accepted and harmonized in Ukraine state standards, which will ensure the effectiveness of the control system in the supply chain. At the present stage of solving the issues of harmonization of legal and regulatory livestock framework is reflected in their adaptation to the requirements of ISO 9000 (quality management standard) and 14000 (environmental safety management standard), in particular by implementing the following standards DSTU: DSTU ISO 9001: 2015 (ISO 9001: 2015, IDT) (DSTU ISO 9001: 2015, 2016). Quality management systems. Requirements "; DSTU 3662: 2018 "Raw cow's milk. Specifications"; DSTU ISO 14001: 2015. Environmental management systems. Requirements and guidelines for use "(DSTU ISO 14001: 2015, 2016).



The issues of product quality in terms of harmonization of livestock regulations to international agreements, regulated by the National Standard of Ukraine DSTU 3662: 2018 "Raw cow's milk. Specifications".

The standard defines the requirements for milk delivered to processing enterprises with the definition of its quality indicators: extra, first and second grade milk. It is defined the set of requirements for the keeping and raising of farm animals, particularly calves, in producing the product of agrarian industry. These issues are relevant for consideration for a number of reasons. One of them is that it is impossible to get high-quality products from low-quality raw materials and export them [Avercheva, 2019]. So, one of the priorities of efficient milk production is the transition to wholesale specialized milk production.

The formation of supply chains for milk and dairy products with high added value is considered as one of the important components of effective development of the industry. The formation of a high value-added chain in dairy farming should be seen as a process of structural transformation in the industry, based on the transition from traditional industry to the industry with modern technologies, approaches to production organization, management and more. Orientation of the industry to increase the sustainability of production, economic, social and environmental orientation of its development is very important in its formation (Varchenko, 2020). Important attention is paid to the coherence of relations between industries, areas of activity that are directly involved in the production (production of fixed assets, equipment, feed, veterinary drugs, etc.) with subsequent delivery to processing facilities and finished products - to the consumer.

Livestock intensification remains a strategic direction of the industry (Svynous, 2019), which will increase milk production and further increase its production efficiency (Petrichenko, 2018). The main factors of dairy farming intensification are full mechanization and automation of production processes, compliance with technological requirements, transition to resource-saving technologies and others. At the same time, no less important aspect in increasing the production intensity level of the dairy industry should be paid to the selection of zoned livestock breeds in accordance with the enterprise direction, level of its specialization and production concentration.

Concentration and specialization of milk production are important factors in improving efficiency. Their impact on the final indicators of enterprises performance is significant, as evidenced by the research results of many scientists (Hutsul, 2008). We believe that the development of specialized enterprises with rational indicators of milk production concentration will create conditions for the formation of conditions for the effective dairy farming development.

Among the factors that determine the peculiarities of livestock development in Ukraine is the ratio of milk production in agricultural enterprises and households, which changed significantly during 1990-2019. If in 1990 agricultural enterprises produced 76% of total amount of milk, in 2019 it decreased to 27,4%. It should be noted that some scholars believe that the use of land,

labor and material resources is more efficient in households compared to their use in agricultural enterprises. Therefore, the amount of profit per unit of land area could be higher (Makarenko, 2013).

Most scholars believe, the livestock development in households cannot be considered a strategic direction of industry development, because households, despite the possibility of producing more products per 1 hectare of land, have lower indicators of agricultural output per worker and per unit of capital (Demchak, 2019). In addition, the technologies used by households in production of livestock products are mainly based on manual labor and cannot be considered as economic structures that can provide future sustainable development of the industry. We believe that households have increased the production of dairy products only because, unlike large enterprises, they are more flexible and adapted to changes in the environment.

In addition, the analysis of global trends in dairy production development shows that the priority factors for improving efficiency are state support for the dairy industry, use of highly productive breeds of animals, introduction of science-based technologies in production and processing processes, creation of state systems to stimulate milk consumption, high quality of manufactured products and its safety, training of progressive personnel for the dairy industry. We believe that agricultural enterprises and households are interested in updating the technical base of the industry. If for agricultural enterprises the increase of technological upgrading improves its performance indicator, then the households with increasing technological efficiency create conditions for their transition to farms.

It is established that the state support of milk producers of all agricultural holdings should be focused on expanding their production base and ensuring efficient milk production, which requires budget funding, especially under the programs of 50% reimbursement of purchased breeding heifers and livestock facilities, as well as compensation interest rates on bank loans.

**Conclusions.** Common trends in the dairy farming development in Ukraine during 1990-2019 are the livestock reduction and decline in production volumes. Thus, there was a decrease in cattle number from 24623,4 thsd. heads in 1990 to 3092,0 thsd. heads in 2019, or by 87,4%, and the number of cows - from 8378,2 thsd. heads in 1990 to 1788,5 thsd. heads in 2019, or by 78,7%. As a result, milk production during 1990-2019 decreased by almost 60 %, reaching 9663,3 thsd. tonnes in 2019.

It is proved that the cattle number in the dairy industry has been declining rapidly in agricultural enterprises, and in households it has increased until 2010, followed by a decrease in both cattle and cows. Percentage of cattle, including cows in households in their total number increased from 14,4% in 1990 to 66,1% in 2019 and from 26,1 to 75,5%, accordingly.

It was revealed that during the analyzed period the volumes of milk production significantly decreased from 18634,1 to 2728,6 thsd. tonnes, or by 85,4%. At the same time, the growth of milk production in households could not compensate decline in production in agricultural enterprises.

It is determined that in difficult situation in live-stock development of Ukraine, some of the efficiency indicators have changed positively. The average annual milk yield per cow increased from 2863 kg in 1990 to 4976 kg in 2019, or by 73,8%. Fodders use per centner of milk decreased from 1,47 to 0,89 centner of feed units, which is positive, and profitability level of milk production in 2019 was 20,1%. Strategic priorities for overcoming the crisis situation to stabilize and effectively develop the dairy industry is possible only with increasing innovation and investment activities, effective use of innovative technologies, development of specialized milk production, improving quality and safety of product, promoting the development of dairy products with high added value.

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## THE POSITION OF ARTIFICIAL INTELLIGENCE IN THE STRATEGIC PROCESS OF INDUSTRIAL ENTERPRISE

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## МЕСТО ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В СТРАТЕГИЧЕСКОМ ПРОЦЕССЕ ПРОМЫШЛЕННОГО ПРЕДПРИЯТИЯ

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### Abstract

In modern conditions, artificial intelligence and digitalization of technological and economic processes play an increasing role in the activities of enterprises. While there is no doubt about their application to technology, in the complex field of strategic management, there are many questions about what elements of this complex socio-economic system they can currently be applied to, and what results can be expected.

The main purpose of the proposed article is to examine the model of the strategic process of the enterprise for the possibility of its digital transformation and to identify objective and subjective factors that prevent this. To do this, the article provides a comprehensive step-by-step analysis of the strategic process and attempts to find the place of digital technologies in each of them.

The article is written based on the study of literary sources (monographs, textbooks, scientific articles) presented.

### Аннотация

В современных условиях в деятельности предприятий все большую роль играют искусственный интеллект и цифровизация технологических и хозяйственных процессов. Если в отношении технологии их применение не вызывает сомнений, то в отношении такой сложной сферы как стратегическое управление существует немало вопросов по поводу того, в каких элементах этой сложной социально-экономической системы и в каких масштабах их в настоящее время можно применять, и каких ожидать результатов.

Основная цель предлагаемой статьи – рассмотрение модели стратегического процесса предприятия на предмет возможности ее цифровой трансформации и выявление объективных и субъективных факторов, препятствующих этому. Для этого в статье осуществлен всесторонний поэтапный анализ стратегического процесса и сделана попытка нахождения места цифровых технологий на каждом из них.

Статья написана на основе изучения литературных источников (монографий, учебной литературы, научных статей), представленных в открытой печати и на специализированных сайтах Интернета

**Keywords:** Digitalization. Strategic management. Strategic process. Strategy. Politics. Strategic analysis. The formation of strategies. Strategic choice. Strategic forecasting. Strategic planning. Plans. Programs. Strategic control.

**Ключевые слова:** Цифровизация. Стратегическое управление. Стратегический процесс. Стратегия. Политика. Стратегический анализ. Формирование стратегий. Стратегический выбор. Стратегическое прогнозирование. Стратегическое планирование. Планы. Программы. Стратегический контроль.

Под стратегическим процессом можно понимать совокупность действий по формированию и реализации стратегии предприятия. Он состоит из сгруппированных в логической последовательности взаимосвязанных этапов, различающиеся частными целями и задачами, а также используемыми подходами, методами и инструментами их решения [1].

Этот процесс состоит из трех крупных стадий. Во-первых, исследовательской (стратегический анализ и прогноз); во-вторых, концептуальной (от формулировки видения до постановки целей), которая, обычно, завершается установлением общих направлений деятельности предприятия, и, в-третьих, формирования стратегий и планов, их реализации корректировки по итогам осуществления.

В условиях активного охвата всех сфер жизни общества цифровизации неизбежно встает вопрос о возможностях и путях ее использования, в том числе, и в стратегическом управлении.

Здесь с помощью цифровых технологий можно осуществлять мониторинг ситуации, анализ и обобщение полученной информации, разработку вариантов формализованных решений, их сравнение, оценку на основе заданного алгоритма. Все эти действия могут осуществляться посредством искусственного интеллекта (ИИ), под которым понимается «способность цифрового компьютера или управляемого компьютером робота выполнять задачи, обычно связанные с разумными существами» [2].

Возможности применения цифровых технологий в рамках стратегического анализа.

Исходным этапом стратегического процесса в рамках его первой (исследовательской) стадии является стратегический анализ, основными объектами которого являются:

1. Итоги деятельности предприятия за предыдущий период. Современный уровень развития цифровизации позволяет это успешно сделать, выявить сложившиеся тенденции, сравнить с поставленными задачами и имеющимися возможностями. Он может сделать общие выводы, сравнить с заданными критериями или известными результатами основных конкурентов.

2. Внутренний потенциал и рыночные позиции. Анализ внутреннего потенциала может быть осуществлен искусственным интеллектом для объективных факторов достаточно точно; для субъективных – частично точно. Например, демографические характеристики персонала изучаются на основе официальных данных кадровой службы, а

психологические – весьма приблизительно на основе обобщения результатов тестирования и социологических опросов, которые весьма ненадежны, поскольку взгляды людей на себя, на предприятие, на условия труда и пр. могут меняться непрерывно и непредсказуемо.

3. Привлекательность новых сфер деятельности. Если она оценивается по чисто количественным параметрам (ожидаемой прибыльности, величине необходимых инвестиций, срокам их окупаемости и т.п.), то искусственный интеллект даже в современном его состоянии с этой задачей справится без труда. Однако дать оценку психологических предпочтений потребителя он, понятно, не способен. Кроме того, видимость привлекательности (или, наоборот, непривлекательности) может формироваться искусственно с целью манипулирования конкурентами, и такую ситуацию искусственный интеллект распознать и проанализировать также не сможет.

4. Конкуренты и конкуренция. При наличии достаточной информации проанализировать положение дел конкурирующих предприятий, ключевые факторы успеха, определить возможные направления их действий, оценить остроту конкуренции и т.п. искусственный интеллект, естественно, без труда сумеет. Однако все это он осуществляет в соответствии с программой, основанной на принципах формальной логики, поэтому может обозначить, руководствуясь имеющимися примерами их поведения в аналогичных случаях, лишь возможный набор вариантов действий соперников, но не их реальное поведение, продиктованное неизвестными и не поддающимися учету факторами, например, влиянием неформальных связей, неожиданными шагами своего и других государств (изменение ключевой ставки, введение или, наоборот, отмена ограничений на те или иные банковские операции, внешние санкции, как это было в случае присоединения Крыма, и пр.).

Искусственный интеллект и стратегическое прогнозирование

Следующим этапом стратегического процесса является создание системы прогнозов на предстоящий период, то есть аргументированных представлений о будущем состоянии предприятия и окружения, в виде набора научно обоснованных гипотез (в самом простом случае - утверждения о возможности или невозможности того или иного события). Кроме того, прогноз может содержать описание возможных вариантов развития предприятия,

наиболее рациональный из которых кладется в основу разработки стратегии, а, соответственно, планов, программ, крупных проектов, связанных с ее реализацией. В настоящее время существует более 150 методов прогнозирования, но в целом они крайне субъективны, и ни один не универсален [3].

Существует две основных модели прогнозирования.

Поисковая модель основана на изучении предприятия и его окружения в прошлом и настоящем и составлении на основании этого представлений о будущем и путях его достижения, для чего используются математические и статистические модели различной степени сложности. Здесь цифровизация ускоряет процессы обработки информации и получения результатов. Такая модель в наибольшей степени применима для предприятий традиционных отраслей, где ситуация меняется относительно медленно.

Экспертная модель основана на суждениях специалистов, и в условиях нарастания неопределенности ситуации выходит на первый план. На взгляд автора современные цифровые методы могут быть эффективны при поиске решений общего характера достаточно простых задач (наподобие ситуации с управлением автомобилем без водителя). В основе таких решений может лежать принцип формального дополнения того, чего явно не хватает, или устранения излишнего (так, автомобиль без водителя спокойно движется по свободной дороге, или избегает столкновения при появлении препятствий).

При реализации экспертной модели видятся два пути.

Первый предполагает использование в качестве базы прогнозирования достаточно точных прогнозов в смежных областях. Наиболее точным является демографический, основывающийся на статистических данных численности родившихся, коэффициентах смертности, дожития и пр. и позволяющий с высокой степенью точности оценить численность и структуру населения в искомом периоде. Отталкиваясь от него, можно спрогнозировать, например, не только общий размер будущего спроса, но и величину потребностей отдельных групп населения в искомый период времени.

Второй путь основывается на оценке имеющихся ресурсов и возможности удовлетворения с их помощью будущих потребностей и не требует специальных математических расчетов.

На взгляд автора, искусственный интеллект может достаточно успешно решать аналогичные проблемы, например, оценить целесообразность в будущем прокладки железной дороги в США через Берингов пролив с учетом всех выгод и угроз, варианты приблизительные трассы и затраты гораздо точнее, чем это сделано сейчас, решить другие подобного рода спорные проблемы, например, прокладки трансканалов, соединяющего Индийский Океан с Каспием и Волго-Дон-2. Однако ему не под силу учесть влияние сопряженных с этим политических интриг, меняющихся взглядов

лидеров тех или иных государств и обстановке в мире в целом.

Цифровизация и стратегические приоритеты

Следующим этапом осуществления стратегического процесса на предприятии является формирование его стратегических приоритетов, к которым относятся видение будущего, миссия, цели, задачи, политика.

Это достаточно сложная и спорная проблема, и рассматривать ее начнем с видения, под которым понимается представление руководства предприятия о его будущем и месте, которое оно должно занять в своем окружении. Причем особенностью видения является присутствие в нем эмоциональной составляющей.

Видение будущего конкретизируется системой целей предприятия, во главе которой находится генеральная цель. Она всегда связана с получением конечных выгод, которые имеют денежный эквивалент. Для предприятий, не выпускающих акции, выгоды выражаются в получаемой после уплаты всех налогов прибыли, и норма последней является показателем эффективности их работы. Для предприятий, эмитирующих таковые, речь может идти еще и о приросте биржевого курса этих ценных бумаг, а совокупная стоимость всех акций, как известно, определяет стоимость самого предприятия. Думается, что в недалеком будущем искусственному интеллекту вполне по силам будет на основе проведенного анализа генеральную цель предприятия определить.

Достижение генеральной цели происходит путем реализации 4-6 основных целей в ключевых сферах деятельности предприятия (производство, инвестиции, маркетинг и пр.), которые также, на взгляд автора, могут быть сформированы искусственным интеллектом.

В последние десятилетия западные специалисты приложили все усилия, чтобы скрыть главную цель предприятия и заменить ее для привлечения потребителей миссией, которая обычно красочно расписывает (иногда на множестве страниц), что то готово для них сделать, чтобы те покупали его продукцию или пользовались услугами. Чем больше будет клиентов, тем выше будут доходы предприятия и лучше его финансовое положение.

Сама миссия состоит из набора достаточно общих обещаний, формализовать и конкретизировать которые весьма затруднительно, но сформировать ее из набора «красивых» фраз искусственный интеллект может вполне. Однако поскольку миссия играет определенную роль в формировании высокого имиджа предприятия у дотошных и одновременно верящих всему, что обещают, потребителей, то по-настоящему красивой и убедительной искусственный интеллект сделать ее, думается, не в состоянии.

И, наконец, элементом целевого блока является политика, которая представляет собой совокупность ориентиров и ограничений для всех сторон деятельности предприятия. Она субъективна, разрабатывается и реализуется только ключевыми

его собственниками и высшим руководством, и, на взгляд автора, не может входить в «компетенцию» искусственного интеллекта. Кроме того, политика имеет зачастую манипулятивный характер, допускает возможность негласного нарушения действующего законодательства, использование различных лазеек в нем, особенно в сфере доходов и управления человеческими ресурсами, в чем искусственному интеллекту «разобраться», видимо, не под силу.

К сожалению, очень многие авторы не делают различий между стратегией и политикой, что негативно отражается, в том числе, и на практике.

Искусственный интеллект и стратегическое планирование

Следующим этапом стратегического управления, как известно, является стратегическое планирование – формирование и выбор наиболее эффективных стратегических альтернатив. Его суть – создание и совершенствование системы стратегий предприятия, а не так называемых стратегических планов, которые ввиду своей чрезвычайной сложности могут существовать лишь в виде общего концепта.

Сами стратегии представляют собой шаги, обеспечивающие достижение поставленных целей, а, поэтому им соответствуют. Основными типами стратегий являются: генеральная, функциональные (например, финансовая, маркетинговая и пр.) и бизнес-стратегии.

Создание стратегии – процесс творческий. Обычно он входит в компетенцию, либо первого лица – собственника или менеджера (если предприятие небольшое), специальной группы приглашенных со стороны экспертов или заинтересованных работников. Искусственный интеллект, конечно, обладает определенными «творческими способностями» (как отмечалось, может писать стихи на заданную тему), но его творчество имеет формальный характер и не может пока выйти за рамки заложенной в него программы. На сегодняшний день функция ИИ может состоять в данном отношении, видимо, в обеспечении разработчиков необходимым материалом и, возможно, в формировании каких-то самых общих проектов стратегических решений.

Что же касается осуществления стратегического выбора (прежде всего, оценки и выбора вариантов стратегий), здесь возможности искусственного интеллекта представляются более широкими, поскольку данный процесс является более формальным, чем разработка альтернатив, особенно,

если речь идет о финансовой или инвестиционной стратегиях, принятие решений по которым основывается на многочисленных расчетах количественных показателей.

Изложенное позволяет сделать вывод, что цифровые технологии и, прежде всего, искусственный интеллект, могут достаточно эффективно, хотя, и в разной степени, использоваться на этапах стратегического процесса. Речь идет о мониторинге и анализе ситуации, разработке основ стратегий и планов, стратегическом выборе, контроле. Однако, нужно иметь в виду, что применение этих инструментов пока (а, вероятно, и в будущем) возможно только на основе формальных алгоритмов. Эффективно действовать там, где требуются учет человеческой психологии, неформальные подходы к принятию решений и т.п. они не в состоянии.

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# JURISPRUDENCE

## FEATURES OF THE LEGAL REGULATION OF DIGITAL MONEY AND DIGITAL RIGHTS

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## ОСОБЕННОСТИ ПРАВОВОГО РЕГУЛИРОВАНИЯ ЦИФРОВЫХ ДЕНЕГ И ЦИФРОВЫХ ПРАВ

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### Abstract

The article considers the features of the legal regulation of monetary circulation and settlement legal relations carried out in the form of digital money. The main novelties of civil legislation in this area are described and their expediency and effectiveness are analyzed.

### Аннотация

В статье рассмотрены особенности правового регулирования денежного обращения и расчетных правоотношений, осуществляемых в форме цифровых денег. Охарактеризованы основные новеллы гражданского законодательства в данной сфере и проанализирована их целесообразность и эффективность.

**Keywords:** digital money, digital rights, legal regulation

**Ключевые слова:** цифровые деньги, цифровые права, правовое регулирование

Получившие в последнее время распространение альтернативные формы денежного обращения и, соответственно, реализации расчетных правоотношений, обусловили необходимость актуализации нормативной базы, регулирующей данную сферу.

Альтернативное денежное обращение предполагает эмиссию и применение в качестве инструмента исполнения денежного обязательства иных видов денежных знаков, которые могут быть санкционированы или не санкционированы органами государственного управления, но за которыми закреплен правовой статус средства платежа. При этом альтернативное денежное обращение может существовать как в виде наличных денежных знаков, так и в форме их безналичных аналогов.

В настоящее время альтернативное, или параллельное, денежное обращение, представляет собой определенный потенциал для развития платежной системы, снижения затрат, связанных с обеспечением функционирования традиционного денежного обращения, однако, вместе с тем, порождающий трудности его правового регулирования, а, следовательно, актуализирующий необходимость совершенствования нормативной базы, которая в настоящее время затрагивает данные вопросы достаточно фрагментарно.

В последнее время достаточно широкое распространение получают так называемые «электронные деньги», правовая категория которых закреплена в ст. 3 ФЗ № 161 (2011), согласно которой электронные денежные средства рассматриваются в качестве альтернативного платежного средства,

права на которые отличаются от прав обладания денежными средствами, поскольку такие денежные средства не могут быть размещены на классическом счете, а, следовательно, не имеют способности выполнять функцию накопления личного или национального богатства [9].

Одновременно ряд ученых, например, А.И. Савельев, высказывают точку зрения, что электронные денежные средства имеют право приобрести статус законного средства платежа на основе безналичных расчетов, поскольку способны исполнять денежные обязательства.

По нашему мнению, сформировавшийся в настоящее время подход к оценке правового статуса электронных денег на основе актуальной правовой базой, не предусматривающей, по сути, нормативное регулирование данного вида денежных средств, является в большей степени тормозящим возможности их дальнейшего внедрения в практику реализации расчетных правоотношений. В данном случае необходимо осуществлять научные исследования, направленные не столько на поиск возможностей адаптации существующей правовой базы к регулированию возникающих новых форм денежных средств, сколько на создание новой системы законодательства, учитывающей актуальные изменения в области расчетных правоотношений и денежного обращения в целом. При этом целесообразной и необходимой новеллой станет разработка нормативного регламента, определяющего сущность и правовой статус электронных денежных средств, особенности регулирования их оборота,

включая, в том числе, использование накопленной зарубежной практики.

В Российской Федерации процесс внедрения и признания правового статуса электронных денег в настоящее время находится на своей начальной стадии, что подтверждает ограниченным упоминанием о существовании данной формы в ФЗ № 161, что уже в определенном роде представляет собой прогрессивную новеллу отечественного гражданского законодательства и является значительным шагом в урегулировании вопросов правового регулирования денежного обращения, осуществляемого посредством альтернативных форм. Также достаточно значимой вехой в развитии законодательства, регулирующего осуществление расчетных правоотношений и организацию денежного оборота стало принятие в 2020 г. Федерального закона № 259-ФЗ «О цифровых финансовых активах, цифровой валюте и о внесении изменений в отдельные законодательные акты Российской Федерации», вступившего в силу с 01.01.2021 г., тем не менее, предусматривающего возможность при знании легитимной природу цифровых денег и, как следствие, цифровых прав участников национально платежной системы.

Так, согласно нормам ФЗ № 259 (2020), регулирование правоотношений, возникающих с использованием цифровых денег и иных цифровых финансовых активов, в т.ч. с участием иностранных лиц, регулируется нормами российского законодательства.

Информационные системы, уполномоченные осуществлять выпуск цифровых финансовых активов, имеют право на осуществление выпуска цифровых прав, учет и обращение которых также регулируются нормами российского законодательства, в частности ФЗ № 259 (2020).

Ряд норм «цифрового законодательства» сопряжен с нормами Федерального закона от 27.06.2006 г. № 249-ФЗ «Об информации, информационных технологиях и защите информации», а также упомянутого ранее ФЗ № 115 (2001).

Вместе с тем, начальная фаза процесса правового признания электронных денег обуславливает необходимость доработки соответствующих правовых норм, содержащихся в федеральном законодательстве Российской Федерации, в частности – норм ФЗ № 161 (2011) и ФЗ № 259 (2020).

Согласно информационному письму Банка России от 11.03.2016 г. № ИН-017-45/12 «О предоставлении клиентам – физическим лицам информации об особенностях оказания услуг по переводу электронных денежных средств», электронные денежные средства приравниваются к безналичным денежным средствам, представленным в национальной валюте Российской Федерации или в иностранной валюте, которые могут быть учтены в качестве платежного средства кредитными учреждениями, не требуют открытия расчетных счетов и перевод которых осуществляется при помощи электронных платежных систем.

При этом Л.Г. Ефимова в своей монографии «Банковские сделки: право и практика» (2001,

2018) отмечает, что обращение электронных денег оставляет запись на соответствующем счете, а, следовательно, выполняют функцию платежа и могут быть приравнены к законному платежному средству, однако не являются ценными бумагами и не имеют материальной формы [5]. В свою очередь, Л.А. Новоселова предлагает охарактеризовать перемещение денежных средств по счетам клиентов как специфический порядок передачи прав на денежные ресурсы, который отличается от классической формы его реализации [7].

В данном случае мы видим, что названные авторы признают за расчетными правоотношениями посредством альтернативных форм специфику их реализации, которая должна быть закреплена должным образом в законодательных нормах. Достаточно актуальной проблема регулирования безналичных и альтернативных денежных расчетов является в контексте ее взаимосвязи с категорией «банковская тайна», поскольку ФЗ № 161 (2011) определено, что движение денежных средств в альтернативных или электронных формах осуществляется посредством открытых банковских счетов, имея при этом крайне низкий уровень защиты, что порождает угрозы для совершения правонарушений в данной сфере. При этом нормы упомянутых ФЗ № 161 (2011) и ФЗ № 259 (2020) указывают, что информация о движении данных видов денежных средств не предполагает открытие специальных счетов, исполнение расчетных правоотношений может быть осуществлен без их открытия, что позволит обеспечить защиту интересов субъектов и соблюдение принципов банковской тайны.

Подобное разногласие между нормой и практикой ее применения отражает проблемы нормативного регулирования и нуждается в дальнейшей проработке.

Еще одним дискуссионным моментом правового регулирования электронных денежных средств в российской практике является вопрос определения характера их происхождения, поскольку нормы ФЗ № 161 устанавливают производный их характер, который препятствует признанию возможности их независимого существования. Так, в частности, ст. 30.1 и 30.6 ФЗ № 161 (2011) не включают такие понятия, как «эмиссия электронных денежных средств», употребляя его лишь в контексте выпуска пластиковых дебетовых или кредитных карт, данная норма также не отражена в ФЗ № 259 (2020), в котором определены права, полномочия и ответственность участников национальной платежной системы, осуществляющих производство цифровых денег и цифровых прав.

Препятствуют признанию законного платежного статуса электронных денег также и нормы, которые содержатся в ст. 140 ГК РФ, ст. 27 ФЗ № 86 (2002), определяющие, что законным платежным средством на территории Российской Федерации является рубль, а выпуск денежных суррогатов запрещен. При этом норма ст. 29 ФЗ № 86 (2002) указывает на то, что Банк России эмитирует исключительно наличные денежные средства, исключая в



данном случае возможность производства и выпуска электронных денежных средств и денежных суррогатов за счет государства. Наличие данных правовых норм порождает также проблемы, связанные с исполнением налоговых обязательств, которые не могут быть исполнены при помощи электронных денег ли денежных суррогатов, что подтверждает сохраняющуюся в настоящее время ограниченную способность их обращения.

Исходя из данного обстоятельства, можно отметить, что электронные денежные средства имеют низкий уровень универсальности, как средства платежа, в сравнении с классическими наличными или безналичными денежными средствами, что находит свое отражение на субъектном составе расчетных правоотношений.

Например, ч. 9. ст. 117 ФЗ № 161 (2011) содержит прямой запрет на осуществление расчетов при помощи альтернативных денежных средств между юридическими лицами и индивидуальными предпринимателями, а также запрещает транзакции электронных денег в деньги наличные, что характеризует определенную отсталость отечественного законодательства от мировой юридической практики.

Электронные денежные средства, их возрастающая популярность в зарубежной практике, привели к возникновению и распространению новых денежных суррогатов – криптовалюты, являющейся в настоящее время одним из наиболее обсуждаемых платежных средств [8]. Криптовалюты представляют собой разновидность электронных денег, сгенерированных при помощи современных технологий и являющиеся специфической формой частных денежных средств [9].

Несмотря на значительное распространение, в современной юридической практике по-прежнему сохраняются противоречивые позиции по отношению к признанию правового статуса криптовалют. Например, Боливия, Эквадор, Тайвань, Бангладеш, Румыния не признают законности криптовалют как средства платежа, в то время как США, Аргентина, Австралия, Швейцария, Германия, Дания готовы признать за ними данный правовой статус. В Великобритании, Иордании или Бразилии по-прежнему не выработана четкой правовой позиции в отношении платежного статуса криптовалют, в то время как в Японии биткойны эмитируются за государственный счет и, следовательно, считаются законной формой исполнения денежных обязательств [6].

Российское законодательство по-прежнему не закрепляет юридическое понятие «криптовалюта», «виртуальная валюта» или «цифровая валюта», несмотря на то, что генерирование виртуальных денег в нашей стране достаточно распространено [3].

К решению данной проблемы отечественный законодатель, пусть и незначительно, но, тем не менее, приблизился посредством ввода во все тот же ФЗ № 259 (2020) понятия «цифровые деньги», «цифровые права» [1], в некоторой степени снимая неопределенность установления права собственности на криптовалюту, что приведет к прояснению

ее правового статуса. Однако значение данной правовой нормы, несмотря на ее инновационность, крайне незначительно в разрешении проблемы правового регулирования альтернативных форм денежного обращения [2].

Другими словами, в настоящее время денежные суррогаты в регулировании денежного обращения в Российской Федерации по-прежнему имеют правовой статус неполноценных денег, не имеющих внутренней товарной способности, обладающих низким уровнем ликвидности и ограниченной возможностью выступать в роли средства платежа и исполнения денежных обязательств [4].

При этом согласно действующему законодательству Российской Федерации, за использование денежных суррогатов и их эмиссию установлена гражданская и уголовная ответственность. Так, известна попытка получить признание в качестве законного средства платежа так называемых «коллонов», выпущенные в 2014 г. в виде локальной валюты жителем Егорьевского района Московской области, которые были признаны решением Егорьевского городского суда Московской области по делу № 2-1125/15 от 01.07.2015 г. денежными суррогатами и запрещены к выпуску и употреблению.

Таким образом, подводя итог изложенному, ранее отметим, что в настоящее время проблема правового регулирования альтернативных денежных средств и электронных денег, несмотря на накопленный зарубежный опыт, в отечественной юридической практике встречает значительное сопротивление со стороны законодателя, пытающегося охранить монополию на эмиссию и регулирование обращения классических форм денежных средств.

Тем не менее, необходимо учитывать, что появление и распространение новых форм платежных средств (электронных денег, криптовалют и т.п.) является неотъемлемым элементом современной эпохи, которые в будущем вытеснят из обращения ставшие классическими наличные деньги и потеснят в своем объеме долю расчетов, осуществляемых в безналичной форме при помощи стандартных банковских инструментов.

Следовательно, признание законного статуса электронных денег как средства платежа и исполнения денежных обязательств являются вопросом времени, что впоследствии приведет к необходимости пересмотра и переработки нормативной базы, которая должна будет предусмотреть возможности включения данных видов денежных средств в систему платежно-расчетных инструментов и предложить действенный механизм их правового регулирования.

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# PEDAGOGICAL SCIENCES

## CLIL TECHNOLOGY AS AN INNOVATIVE APPROACH

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### Abstract

The article considers the subject-language integrated approach (CLIL), which is currently characterized in the world scientific and methodological literature as one of the innovative approaches to the organization of bilingual education and involves the implementation of two learning goals in two subject areas-language and subject; various interpretations of its essence are presented, its varieties, opportunities and features of implementation in bilingual education through the application of its basic principles and strategies.

**Keywords:** bilingual learning; subject-language integrated approach; CLI components and principles, CLIL versions, CLIL implementation stages.

Modern complex and constantly changing living conditions dictate higher requirements for human capabilities, both physical and social. Comprehensive development of the individual is the primary task of education today. That is why the most important goals of training are called the development and formation of a strong and reliable system of knowledge, skills and abilities that are necessary for the future independent activity of students. Knowledge of a foreign language, especially English, becomes a basic skill in modern conditions, is an absolute necessity for successful career development and personal growth. One of the reasons for this global trend is clearly reflected in the extremely important observation of the British linguist D. Greddol, who argues that these educational and social changes are caused by the development of the Internet and the parallel growth of globalization. Thus, the popularity of bilingual education is increasing every day, and this situation certainly requires changes in the teaching of a foreign language, that is, it is necessary to develop new effective approaches and methods, forms and ways of organizing the process of language acquisition.

To this end, in 2004 The European Commission recommended the subject-language integrated approach (CLIL – content and language integrated learning) for implementation in universal education. The principle of this approach is bidirectional, namely: the subject is studied through a foreign language, and the foreign language is also studied through the subject. It is important to note that this approach does not require adding additional academic hours to the curriculum. Moreover, within the framework of Russian education, the subject-language integrated approach could be considered as one of the ways to solve the problems of small rural schools, where the academic load of the teacher often exceeds the norm.

To date, there are quite a large number of definitions of the subject-language integrated approach

(CLIL), each of which in one way or another characterizes its multi-faceted essence (Kotlyarova, 2012).

For example, F. Ball, who works within the framework of this approach in Spain, gives five definitions in his article. The first and most simplified is interpreted by the European Commission as follows: "Subject-language integrated learning is learning in which students learn a subject through a foreign language and Vice versa".

The most detailed, detailed and generally accepted definition is considered to be the founder of this approach, D. Marsh, who in 1994. he first used the term "content and language integrated learning" (the acronym "CLIL" is currently used in scientific and methodological literature in various languages). Later, this concept became the official name of the subject-language integrated approach. Coyle give a more detailed explanation of this concept, defining it as an educational approach where subjects or parts of subjects taught in a foreign language, therefore, pursued a two-pronged objective: to study the discipline content and the simultaneous learning of a foreign language.

D. Coyle to describe a CLIL essence of a scheme of 4"C", which is presented in the form of a triangular pyramid with four vertices:

1. "content"(content);
2. "communication";
3. "recognition" (cognition);
4. "culture".

Each component of the design proposed by D. Coyle has indicators. "Content" is designed to answer questions: "What are the goals of training?", "what should I teach?", "What do students learn?", " what is the result of this training?". "Communication" defines the working language of training, the creation of a special dictionary, language correction in the learning process, the choice of communication types, indicating the need to use polylogical discussion forms of interaction in the learning process. "Cognition" highlights the

thinking skills that determine the concentration of attention on the subject and the language being studied, the types of questions that lead to correct answers, and the tasks necessary for reasoning. "Culture" involves choosing the socio-cultural meaning of the topic and combining all the lesson material, as well as taking into account the individual qualities of students. The most remarkable thing is that, according to the author, the Central part of the entire pyramid is the "communication" element, which means the implementation of the other three components through communication.

Russian and foreign scientists distinguish the following didactic principles that define CLIL:

1. the principle of duality (reliance on native and foreign languages);
2. the principle of integration of a foreign language and subject content;
3. the principle of gradual complication of content;
4. the principle of focusing on the acquisition of knowledge on a specific subject using two languages (native and foreign);
5. the principle of developing motivation for the ability and willingness to use a foreign language for special purposes;
6. the principle of unity of mental and speech activity in a foreign language.

The main methodological principles of CLIL were defined by K. S. Grigorieva:

1. multiculturalism;
2. sustainable learning;
3. the development of thinking skills of the highest order;
4. intensive and productive foreign language proficiency of the teacher;
5. variety of teaching methods;
6. use of authentic educational material.

According to the classification of F. Ball, who notes in one of his works the relatively recent appearance of the subject-language integrated approach (CLIL), as well as the complexity of recognizing this approach in practice, distinguishes two versions of the implementation of the subject-language integrated approach: content-driven and language-driven (Maljers, Marsh, Coyle, Hartiala, Marsland, Pérez-Vidal, Wolff, 2002).

Also, in foreign scientific and methodological literature, such concepts as "hard" and "soft" CLIL are often found. When implementing the "soft" version of CLIL, the Learning process is focused on a foreign language, and its study becomes one of the main tasks. This model assumes that teachers of language subjects present the material through a scientific or professional context. The introduction of the "hard" version of CLIL sets a double goal for the teacher: teaching the content of the subject itself and teaching the academic language (Usova, 2012).

Both concepts are successfully applied in educational institutions today, but in order to meet the requirements of the subject-language integrated approach, a foreign language teacher or a teacher of a particular subject needs to make changes to their methodological principles of work (Vaindorf-Sysoeva, 2012). These transformations are fundamental to CLIL.

The introduction of a subject-language integrated approach to learning certainly has an important educational potential, which consists in its cognitive and linguistic advantages. Analysis of the principles and versions of the subject-language integrated approach shows that the "soft" version of the CLIL model is the most recommended at the initial stage of training (Smith, 2010).

Based on the analysis of specific features of the "soft" version of the subject-language integrated approach, the following stages of implementing this CLIL model in the process of teaching a foreign language were identified:

1. review and selection of the necessary educational and methodological material;
2. distribution of means and techniques of pedagogical communication;
3. direct implementation of CLIL in the learning process.

Based on the principles of the subject-language integrated approach, the following pedagogical conditions are necessary at the first stage of implementation (Fortanet-Gomez, 2013):

1. correct definition of the object of study;
2. correct selection of the material taking into account the psychological aspects of cognitive activity;
3. mandatory consideration of age characteristics.

Thus, at the first stage, the teacher needs to analyze and select the necessary educational and methodological material that corresponds to the level of knowledge of a foreign language, in particular English, and the profile subject of students (Coyle, Hood, March, 2010). It is worth noting that the level of cognitive abilities of students should be determined as accurately as possible, since too simple or, conversely, complex material is likely to negatively affect the level of motivation of students (Meyer, 2010).

At the next two stages of distribution of means and techniques of pedagogical communication, as well as implementation in the learning process, the following pedagogical conditions are necessary:

1. high professionalism and creative cooperation of a subject teacher and a foreign language teacher;
2. stimulation of cognitive activity at all stages of the lesson;
3. optimal combination of individual and group forms of work.

Therefore, at the stages of planning and application, it is subject to the language integrated approach (CLIL) teacher is recommended to create a visual standard for the unit, which should include several lessons dedicated to the same topic and fit into a certain time frame in accordance with the curriculum of the educational institution (Salekhova, Grigorieva, 2013). This standard, which is necessary for the successful conduct of foreign language classes within the framework of the subject-language integrated approach, must also follow scheme 4 "C":

1. content ("content») the training material is aimed at improving skills and abilities in the relevant subject;

2. communication ("communication») defines the communicative purpose of discussing the topic of a specialized subject through a foreign language;

3. cognition ("cognition») focuses on combining the knowledge gained with the expression of their own thoughts in a foreign language;

4. culture ("culture") involves the selection of material aimed at learning and defining yourself, the people around you and the world as a whole.

The use of a subject-language integrated approach requires thorough, time-consuming training from a teacher (Serikov, 2014). Moreover, this process requires constant creative search. However, as mentioned earlier, this approach does not require an increase in academic hours for mastering a foreign language and reducing the hourly load on specialized subjects. It is worth noting that the subject-language integrated approach, when implemented, can be the optimal solution to the problem of small rural schools, where the load on the teacher is often exceeded multiple times (Ball, 2017).

It is also worth noting that at the initial stage, the application of the subject - language integrated approach (CLIL), based on full immersion in a foreign language, is quite difficult to implement (Marsh, 2017). Therefore, you can start by implementing CLIL elements in the course of the lesson. The following activities and exercises can serve as such elements:

- search for analogs of Russian-language terms in the proposed text;
- highlight keywords;
- creating a relationship diagram(mind-map);
- formulation of questions;
- creative task.

Thus, when planning and conducting a class with using CLIL at the initial stage, a certain algorithm of actions is followed: the material is analyzed and selected, and means of pedagogical communication are planned for further practical application. Choosing the CLIL version or varying it (soft –hard) can be an extremely effective learning model at all stages of implementing this approach in the educational process.

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**BILINGUAL EDUCATION AND PAUL DIEI METHOD****Belov N.S.**

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DOI: [10.24412/2701-8369-2021-8-2-45-47](https://doi.org/10.24412/2701-8369-2021-8-2-45-47)**Abstract**

This particular article is focused on discussing the topic of bilingual education in Russia, its main features, the most common problems and their solutions. As well, as the authors analyze the role of the Paul Diei method within bilingual education and shows the opportunity of implementing Paul Diei's introspective analysis in the process of arranging educational process within bilingual classes. Application of the introspective analysis method to Psychology course would help a teenager process his or her identity not as derived from the surrounding, but as a matter of selfhood, which is crucial for the process of simultaneous acquisition of several foreign languages..

**Keywords:** Bilingual education, the models of bilingual education, Paul Diei method.

Nowadays the development of educational sphere is one of the most important aims of government and educational institutions. Over the past few years, universities and schools have been developing more and more new educational programs to raise the educational level of learners (Cummins, Jim, Melnikova, K.A., Vershinina L.V., etc.). Statistics show that with the creation of new modules, especially bilingual, students began to develop their intellectual abilities at a fast pace, and their thinking process was specifically evolved by learning with a special approach. This educational module called bilingual. In the beginning of the 21st century, analysts state that knowing of one language for a professional worker in economic, social, political or educational sphere is not enough. The world operating (professional) structure needed people with knowing of multiple languages to develop and improve cross-cultural aspects of international professions. Moreover, it would strengthen and make more accessible the disciplines of international relations. That is why at that moment they decided to focus on insertion of bilingual studies in school and university curriculum.

Bilingual education involves teaching academic content in two languages. Firstly in a native and, than in secondary language. The amounts of each language used in accordance depend on the program model. Moreover, bilingual education refers to two languages utilization as means of instruction for students and considered part of or the entire school curriculum (Zhu-

kova, T.A., Bogoslovskiy, V.I., etc.). Bilingual education involves learning subjects in two languages, one of them is native, and second one is foreign. The choice of the second language highly depends on the content of learning. Most of all, this approach involves second language as an instruction language of entire curriculum.

The aim of the current research is to demonstrate the possibility of implementing introspective methods (Paul Diei's method in particular) in the process of arranging educational process within bilingual classes.

Jim Cummins, the researcher of the Ontario Institute for Studies in Education at the University of Toronto, says that children first language must be well developed before starting learning an academic subject on their second language. If you can comply with this norm, then the particular child will succeed in studying the academic program in a second language and will be able to show decent results without any of additional retraining. Cummins's «developmental interdependence theory» implies that success in second language depends upon a first well-developed language. The theory implies a direct connection between two language systems of learning to obtain the maximum result in bilingualism studies, the main feature of which is the direct study of the first language, ideally for understanding the entire structure of the second one.

Bilingualism includes different educational models. To understand the general picture and the diversity of this method, let us turn to these models and briefly

analyze their main details. Внимательно остановимся на анализе этих моделей. Первая модель - *Transitional Bilingual Education model*. This model involves studying the native language for three years in order to switch to bilingualism. The student must familiarize himself with the disciplines in his native language; understand their use, both in a practical form and in an academic one. Research (Reynolds, Allan G.) has shown that it is not difficult for students to transfer their received knowledge from their native language to a foreign language later.

Следующая модель - *Immersion Bilingual Programs* (Cummins, Jim). In this type, the second language (Not native) is included in the general program from the very beginning of studying. Pupils are placed in the atmosphere and the already started process of foreign language learning, trying to adapt to the general pace of work. The main difference from the previous model is the presence of several subtypes/ different approaches to the implementation of this model. Simply put, there are three different immersions: Firstly, total immersion with the entire class learning second language on usual basis; Secondly, partial immersion when half of the time spent on learning second language; finally, dual immersion, which includes dividing the class into two halves. One half knows the first language; the other half knows the second language. The model subgroup implies the mutual learning of languages through communication and helping each other in the educational process.

Следующая модель - *Foreign language as the second one* (Shin, Sarah J.). This model is considered classical, because it relies on teaching a foreign language as the second in a row. Students learn the main curriculum in their native language, but at the same time practice it in the second language in a smaller ratio of time. The rest of the models, that are really complicated and small, can be noted as subtypes of the previous ones, because they have similar aspects; their manifestations in practice. An estimated, approximately 60% to 75% of the world's population is bilingual, and bilingual education is considered the most common educational approach used around the world. Nevertheless, in each country this program is carried out in a certain way that is peculiar to it. For example, in Russia, programs with parallel or basic study of a foreign language prevail in the form of English or German. Attention is paid to the French language too. In Canada, the situation is slightly different; the focus is on learning French. A separate example of the introduction of bilingual programs is Israel. In this country bilingual education programs help both the Hebrew-and Arabic-speaking populations become bilingual. Moreover, they provide opportunity to immigrants to adapt to their culture by learning language. These both programs focused on these two specific features.

It is clear, that the motivation considerably influences the process of personality becoming (regardless the chosen model). In this work we endeavoured to show the opportunity of applying introspective method. Teaching is a key task for humanity. Learning and teaching are linked together. It is part of human being.

We are all learning all day long and every day. We interpret everything that we see, and from those interpretations, we make conclusions, which we use afterwards. We know from experience what is going to happen because of our actions. This way of thinking is part of us that is how human being works as a system. How amazing that education is usually viewed as a special and separated subject, ignoring that all of us are teaching and learning at all times. From our birth to our death, we are changing and progressing. We need to adapt to external and internal (psychological) conditions. As adults get older, their body is less flexible, their energy may decline, their brain is working less rapidly and so on, that is why ageing people need to adapt and to learn how to compensate all these deficiencies. In youth, it is the opposite: children and young people get stronger every day and they must adapt to these new conditions. What was impossible a year ago is now possible: it creates new conditions to which adaptation is necessary. Everybody has experimented that the more we learn, the less we know, so that we have to learn even more. Nevertheless, studying is not considered as fundamental as it should be. Life is disconnected from education. We do not realize how important adaptation for us is. Adaptation is the very first step of learning. Animals are learning, human beings are learning too.

To address education is quite a huge challenge. Educators, teachers, professors but also parents, friends are involved in this process as well as the person being educated.

The authors will try to point out the major issues of this subject. Understandably, a few pages cannot contain all details and issues of this matter, but starting with essential definitions and directions, we may offer at least a starting point, enabling every reader to continue and develop these ideas. Many debates might be raised about all subjects addressed in this paper, if the author did not start by defining the mission of education. What is a teacher's task? What is Education? Is it transmission of knowledge, transmission of values, transmission of methods, or transmission of ways to adapt to a society ...?

These are typical subjects, which are addressed when one talks about education. Endless discussions may arise if the terms are not properly defined and if the goal, the aim of education is not being defined as a starting point. Indeed so many professors, teachers and people are involved in education, that each of them has his or her own knowledge, experiences and know-how. I accept this, but I simply want to focus on the fact there is a link between what we can teach and who we are. Those are two parts of one single problem: how to transmit our knowledge?

We propose to follow a simple and logical scheme, starting by definitions and progressing then step by step in two parts:

#### **Part 1: Fundamentals.**

1. Why is bilingual education needed?
2. What is bilingual education?
3. How to construct bilingual education?
4. When is bilingual education ended?
5. What task is assigned to teachers?

6. How can teachers manage all constraints they have?

7.

### **Part 2: How can teachers control themselves and improve their efficiency.**

1. How to formulate personal problem?
2. How to make introspection?
3. How to correct attitude and become objective?
4. How to improve coherence and harmony to be transmitted to pupils?

Education has to start with self-education first. How would it be possible to teach anything, without having learned it before? To teach, whoever we are, we need not only to know the subject to be taught, but to apply this knowledge to ourselves.

Education is the most efficient task, because it refers not only to others but first of all to ourselves. It is a permanent discovery of our external and internal world. By teaching, one can progress every second, every day. The need of understanding is the basis of our brain development. Don't you remember when you were asking "why" every second about everything? That is extremely important to have a question that you may ask to yourself: «what do you remember from your studies?» Most of us remember very few of what we were taught. If it is so, why do we pay so much attention to all the little things and details we try to convey to students? What is truly more important, details, or the way of thinking? Answering this question can calm our anxiety and provide students with the essential of knowledge, which is comprehension as everything can be forgotten except comprehension.

Drawing a line, we want to underline the significance and apparent interest in application of introspective methods to the process of designing

educational process within bilingual classes. The further development of this study is aimed at working out a set of tasks based on Paul Diel's method.

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## **ROLE OF PEDAGOGICAL MANAGEMENT IN A MODERN PRESCHOOL EDUCATION SYSTEM**

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## **РОЛЬ ПЕДАГОГИЧЕСКОГО МЕНЕДЖМЕНТА В УСЛОВИЯХ СОВРЕМЕННОЙ СИСТЕМЫ ДОО**

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### **Abstract**

This article examines the role of pedagogical management in the context of the modern system of preschool educational organizations. Various features, principles of pedagogical management are given and considered.

### **Аннотация**

В данной статье рассмотрена роль педагогического менеджмента в условиях современной системы дошкольных образовательных организациях. Приведены и рассмотрены различные признаки, принципы педагогического менеджмента.



**Keywords:** pedagogical management, management, preschool education system, leader, educational process, marketing, monitoring, teacher.

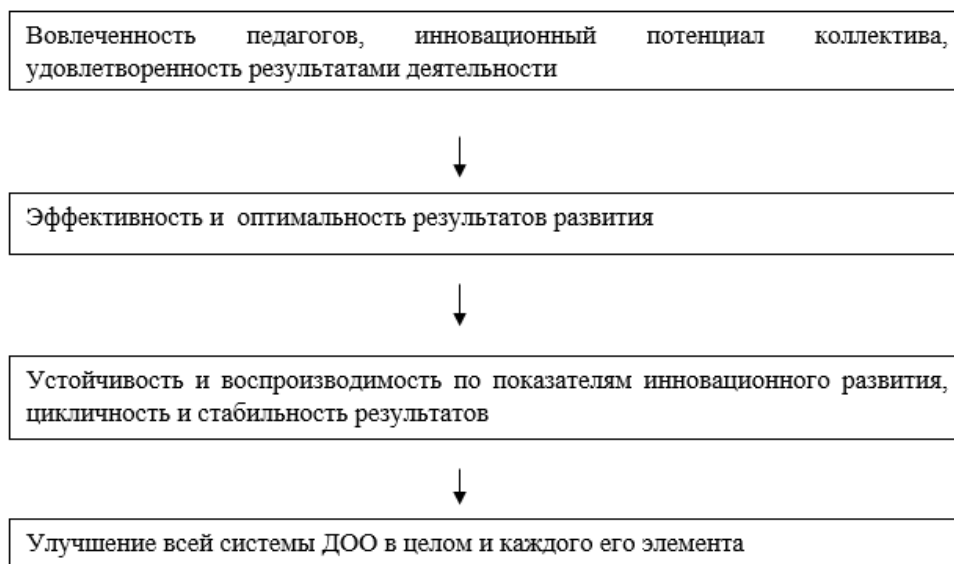
**Ключевые слова:** педагогический менеджмент, управление, система ДОО, руководитель, образовательный процесс, маркетинг, мониторинг, педагог.

Современная дошкольная образовательная организация представляет собой сложно-развивающуюся систему и многофакторный процесс управления. Данная организационная структура требует грамотного руководства, включающий управленческое мастерство, маркетинг образовательной деятельности, педагогический мониторинг и планирование.

В настоящее время, содержание управленческой деятельности развивается и меняется на глазах. На смену концепциям приходят новые тренды и требования. В этих условиях от руководителей требуется не столько исполнительность, а больше инициативы, творческого подхода, лидерства, креативности и достижения стратегических целей. Все

это должно адаптироваться к новым современным социально-экономическим условиям, которые становятся все более дифференцированными, изменяя содержание управленческой деятельности. Педагогический менеджмент в системе дошкольной образовательной организации будет направлена на изучение развития через новые подходы управления и создание условий для эффективного функционирования. Будет возрастать самостоятельность и ответственность руководителей за результат.

Решение проблемы в современной системе ДОО имеет несколько основных актуальных признаков, которые имеют существенное влияние для дошкольного образования:



Условием, формирующее концепцию в педагогической системе является управление, а мастерство управления данным процессом – педагогический менеджмент. Который направлен на эффективность и качество, включающий комплекс различных принципов и методов, организационных форм и способов управления образовательным процессом. Особенность педагогического менеджмента включает способность ориентироваться на удовлетворение потребностей рынка, чтобы управленец постоянно повышал эффективность своей деятельности, умел принимать правильные решения, правильно разработать стратегические планы и их достигать, также гибко реагировать на запросы потребителей.

Нынешняя социально-экономическая ситуация заставляет любого руководителя быть более подготовленным к различным ситуациям и изменениям, поэтому в современных условиях роль педагогического менеджмента наиболее значимая, в нашем случае, это в системе дошкольных образовательных организациях. Получение квалификации руководителя в сфере дошкольного образования

стало наиболее актуальной, и любой педагог может пройти обучение менеджменту в институте и центрах дополнительного профессионального образования. В данный процесс дошкольные образовательные организации должны активно внедряться, должно быть организовано сообщество из заведующих нового поколения, которые должны управлять по-новому, используя свои определенные компетенции. И соответственно, что образовательные учреждения, которыми они будут руководить, получают статус высшей квалификации. Поэтому, необходимо обеспечить сферу дошкольного образования подготовленными кадрами в области управления, инновационного менеджмента, которые должны отвечать запросам общества, соответствовать всем современным требованиям и тенденциям, эффективно внедрять свое мастерство, выдвигать свои идеи и инсайты в практику.

Педагогический менеджмент в системе ДОО также влияет на совместную деятельность с различными культурно-образовательными организациями, обеспечение полноценного развития детей, работу с людьми и педагогическим процессом, целью

которой является создание благоприятной среды для реализации целей и задач.

Можно выделить несколько основных принципов педагогического менеджмента, на которых должна совершенствоваться система управления:

- цель (планирование, организация, контроль);
- умение ставить и достигать социально значимые и перспективные планы;
- системное управление в организации, умение работать в команде, разумное разделение управленческого труда, включать творчество и разум в работе с коллективом;
- регулярное повышение квалификации, совершенствование педагогического менеджмента;
- рациональное сочетание прав и обязанностей коллег, распределение ответственности и управление контролем, коллегиальность в управлении;
- сочетать гибкость и динамичность управления в коллективе, также готовность работать с внешними факторами и отдельными связями в системе ДОО.

Маркетинг и мониторинг являются неотъемлемой частью педагогического менеджмента. Марке-

тинг мы охарактеризуем как процесс распространения образовательных услуг, который включает последовательную реализацию функций управления, такие как планирование, организация, руководство и контроль. А мониторинг, систематическое наблюдение за процессом в целях выявления соответствия полученным результатам и изначальным предположениям. В нашем случае, педагогический мониторинг включает обеспечение педагогов и руководителей образовательных учреждений своевременной и качественной информацией для принятия управленческих решений. Объект управления системы ДОО предполагает и учитывает взаимосвязь внутри детского сада и окружающей среды, администрации с общественностью, руководителю с подчиненным, педагогу с педагогом, педагогу с родителем, педагогу с детьми, ребенок с ребенком. Данный педагогический мониторинг включает диагностирование, прогнозирование, планирование, стимулирование, контроль на различных уровнях дошкольного образования.

В дошкольных образовательных учреждениях педагогический менеджмент должен строиться на следующих принципах:

оптимальное соотношение централизации и децентрализации в управлении	единство единоначалия и коллегиальности в управлении
рациональное сочетание прав, обязанностей, ответственности в управлении и самоконтроля	сочетание гибкости, динамичности управления всей системой ДОО и его отдельными связями
осуществление научного подхода в управлении, преодоление формализма	сочетание государственных и общественных начал, расширение самоуправления; опора на достижения научной организации труда

Современный и грамотный руководитель будет принимать эффективные решения в управленческих вопросах, поддерживать свой коллектив и команду в повышении педагогического мастерства, создавая оптимальные благоприятные условия в образовательном процессе, также придерживаться цели выработать единое действие с педагогическим коллективом, обеспечивать связь и преемственность детского сада со школами, семьей и т.д.

Таким образом, педагогический менеджмент в системе дошкольных образовательных организаций это социально-значимая задача, от которой зависит качество образовательной системы и эффективность управления педагогическим процессом. Поэтому необходимо внедрять различные модели, учитывающие социально-экономические условия развития города, региона.

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## FEATURES OF ORGANIZING STUDENTS' INDEPENDENT WORK IN FOREIGN LANGUAGE SUBJECTS THROUGH THE MOODLE PLATFORM

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### **Abstract**

The globalization of social processes, rapid changes in the information and communication infrastructure, international convergence and multidisciplinary cooperation have led to the fact that modern society places new demands on the ways of obtaining and transmitting knowledge and the role of man in these processes. The entire structure of society, all its component elements (technological, organizational, economic, socio-psychological, etc.) begin to be transformed in a direction that meets the needs of information civilization. Informatization issues are an objective legal concept of open education. The main task of informatization in higher education institutions at the moment is the transition of the world society to a new civilized stage of its development.

**Keywords:** learning process, independent work, e-learning course, LMS (Learning Management System) MOODLE, method, feature, curriculum, Information and Communication Technologies (ICT), lifelong learning, informatization.

In recent years, the process of informatization and computerization has covered all spheres of our society. The use of information and communication technologies (ICT) has become an integral part of the curriculum of any educational institution. The rapid development of the internet and the improvement of digital devices such as personal computers, tablets and mobile phones have led to their becoming the main source of information acquisition and storage. The task of teachers is to find ways and means to ensure the effectiveness of the educational process, as well as to maximize the potential of these devices for organizing independent work of students [1].

The rethinking of traditional educational technologies in the context of rapidly developing information flows led teachers to adopt the concept of "e-learning" - training with interactive and multimedia content based on the use of internet communication and network software. The advantages of e-learning include resource savings; the possibility of distance learning; optimization of independent work skills; access to an unlimited amount of information, including information of an educational nature; to increase the motivation to learn at the expense of novelty. The use of a computer in the educational process contributes to the implementation of such didactic principles as consistency, visibility, accessibility, personalization and communicative orientation. At the same time, the maximum potential for using information technologies in solving methodological problems such as increasing the independence and responsibility of students, and increasing the level of motivation for the subject are being studied.

There are many problems with the systematic introduction of ICT into the educational process, as it is not easy to find a tool that ensures the technicality and productivity, as well as the effectiveness and interactivity of creating an environment of interaction "teacher-student", "student-student" and "teacher-student group".

The situation has changed due to the active promotion of freely distributed software products to the information technology market, such as Moodle, Edmodo, Blackboard, SkillSoft, efront, etc., which are used to manage, monitor, and distribute online courses and training programs in educational institutions.

In modern society, the higher education system should provide training of competent specialists who are able to adapt to the requirements of the dynamically changing labor market on the basis of flexibility and readiness to carry out self-education activities. Therefore, students should not only gain knowledge within the university, gain experience in creative, scientific and informational activities, but also develop the need for "lifelong learning". This is facilitated by the effective organization of independent work of the student.

In this article, we will consider the Moodle (Modular Object Oriented Dynamic Learning Environment) learning management system, which is characterized by its simplicity and ease of use and wide capabilities, as an effective way to organize independent work of students. This system is quite capable of ensuring the technical level of introduction of electronic technologies in the educational process. It should be noted that the Moodle platform was originally designed to organize activity training based on the interaction of all participants in the educational process.

In the process of strengthening the role of independent work of students in the context of credit technology, certain requirements are also imposed on teachers. The teacher should organize independent work of students in order to help them with the necessary educational material in mastering the subject under study. Since independent work of students involves performing extracurricular tasks, the role of the teacher is to properly manage it. [2] Conducting independent work in distance learning mode and its management requires the teacher to include not only the theoretical part of the subject being studied in the students' independent work

tasks, but also video and audio fragments, on-line communication, chats, forums, test questions, webinars, essays, project tasks, etc.

Therefore, the most convenient way to organize independent work of students is to organize independent work of students using a distance learning system. One of the most common distance learning systems is the Moodle platform, which allows you to carry out all types of independent work, including work on learning languages.

The use of the Moodle virtual learning environment for the organization of independent work of students presents a number of advantages over traditional methods and forms of organization, in particular: the possibility of implementing the principle of individualization of activities; the presence of quick feedback; great opportunities for visual presentation of the material; the variable nature of independent work; activity, autonomy. This learning environment allows you to organize active cognitive self-activity of students, optimize it, increase the amount of information reported in the lesson, and increase interest in learning [3]. The Moodle system allows mutual exchange of knowledge, communication during training, supports the exchange of files of any format between the teacher and the student or students, has a rich set of tools for providing course materials and organizing work with this material. These are text, audio and video materials, tasks for students, test questionnaires, and so on. By changing the combination of different elements of the course, the teacher can organize the study of the material in such a way that the forms of training correspond to the goals and objectives of a particular lesson, and the student can master it qualitatively, using a set of different elements, which include a glossary, task, workshop, workbook, forum, chat, video conferences, wiki. You can edit texts collectively using the Moodle system. There may be several attempts to pass the test. The teacher can set a time limit for working with the test and evaluate the result of the work. The assessment can be carried out by the teacher himself, indicating the correct answers to the test questions, or the correct answers are given by the program itself. Within the framework of the course, the teacher can create and use any assessment system, monitor students' attendance, activity, and the time of their online academic work.

In the context of integrating the services of the MOODLE platform into the process of organizing independent work of students in a foreign language, it is necessary to observe a number of general methodological principles. First of all, it is the principle of pedagogical expediency of using new information technologies in teaching. Most teachers came to the conclusion that "the feasibility of computerization is determined by the criterion for achieving pedagogical, methodological and economic efficiency in comparison with traditional forms of educational work" [1]. Any teacher who uses modern information technologies within their subject should, firstly, know the methodology of their application, secondly, have a clear methodological justification for such integration, and thirdly, if necessary, be

able to change or adapt existing methods and technologies for using information technologies, taking into account the specifics of their course of study.

Independent work of students in a foreign language based on the use of the MOODLE platform in the context of the information and learning environment is characterized by a number of features, namely:

- the student's activity is highly motivated;
- there is a cognitive or practical task or problematic issue based on it;
- special time is allocated for completing the task;
- students consciously strive to achieve the goal set by the teacher;
- students show independence and activity in the process of completing the tasks set;
- students acquire skills of independent work;
- self-management and self-management of the student's own cognitive and practical activities are carried out;
- students strive to achieve success in their educational and professional activities and are in need of creative self-realization.

Researchers note the activation of students independent work is being developed through an organized system of tasks performed with the help of an electronic training course, consulting, and monitoring of completed tasks.

- For this purpose, students are required to work independently within the framework of the academic discipline:
- independent study of theoretical material in different volumes: abbreviated types of theoretical training material on each topic, individual topics or several topics, additional training material that is not included in the main course;
- tasks for repetition and systematization of theoretical material;
- perform practical tasks to consolidate the acquired knowledge and skills: tasks, exercises, graphic works, modeling, design works;
- performing research works;
- it is recommended to study independently the materials of an individual educational topic or module, including theory and practical tasks [4].

In most cases, for the study of theoretical educational materials, students are offered such works as writing abstracts, compiling a bibliography on the topic, writing a synopsis, translating a small amount of theoretical information into a question-and-answer form, compiling glossary works on terms within the given subheadings [5].

To sum up everything that has been stated so far, integration of the services and services of the MOODLE platform is necessary at all stages of organizing independent work of students in foreign language lessons in the context of the information and learning environment. We found that using them contributes to the effectiveness of this process, as the tools of the MOODLE platform have such characteristics as accessibility, sociability, interactivity, and security. The use

of its services in the practice of teaching foreign languages makes it possible to organize a single educational network space, provides access to free electronic educational resources, helps to organize control and supervision of the activities of all participants in network interaction, ensures individual and joint participation in the creation, modification and replenishment of web resources. With the integration of internet technologies into the process of modern specialist training, the self-activity of students is significantly stimulated, their motivation and independence increase, which "leads" to an increase in self-control in the educational process, the desire to know and find, and not to "get" the necessary part of the information.

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# PHILOLOGICAL SCIENCES

## RESEARCH IN THE FIELD OF NEUROLINGUISTICS IN AZERBAIJANI LINGUISTICS

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### Abstract

The article provides a detailed analysis of research in the field of neurolinguistics in Azerbaijani linguistics. It is noted that neurolinguistics is a very young field in Azerbaijani linguistics. However, quite successful research has already been conducted in the field of neurolinguistics in Azerbaijani linguistics. The article notes that neurolinguistics was first mentioned in Azerbaijani linguistics in the work "Introduction to Turkish-Tatar language" written by Turkologist Bekir Chobanzade in 1924. Thus, here we look at the chronology of research in the field of neurolinguistics in Azerbaijani linguistics. The research deals with scientific research in the field of neurolinguistics by Gulmira Sadiyeva, Heydar Eminli and other researchers in Azerbaijani linguistics. The study also looks at the history of neurolinguistics in world linguistics, its theoretical and methodological aspects. In particular, it is noted that neurolinguistics originated as a branch of psycholinguistics and later separated from it. The article also provides extensive information about the essence, functions, theoretical and methodological bases of neurolinguistics. The study also discusses aphasia and its types, one of the main objects of research in neurolinguistics, and the causes of aphasia.

**Keywords:** Azerbaijan, neurolinguistics, aphasia, psychology, consciousness, linguistics

One of the newest, least developed areas of modern world linguistics is neurolinguistics. The term neurolinguistics is derived from the ancient Greek words *neuro* "nerve" and Latin word *lingua* "language".

Neurolinguistics is a new field of science related to psychology and linguistics. This field of science studies the brain mechanisms of speech activity, changes in the speech process under the influence of brain damage (2, p.369). This field of linguistics also explores psycholinguistic problems. Neurolinguistics covers both psychology and medicine. In short, neurolinguistics includes and studies common issues in the fields of linguistics, psychology and medicine. In particular, the field of neurology of medicine is closely related to linguistics. One of the key terms in neurolinguistics is aphasia. The study of the problem of aphasia studies the psychological and linguistic aspects of defects in human speech as a result of certain injuries. Neurolinguistics is also a slightly more practical field. Aphasia is primarily related to the study of the causes of speech pathologies. The terms dynamic aphasia and semantic aphasia are used in linguistics in connection with this field.

Neurolinguistics is closely related to the fields of psycholinguistics and semiotics of linguistics. Understanding the concept of neuropsychology in this field of linguistics is also important.

Although the foundations of neurolinguistics were laid in the 19th century, the development of this field of linguistics is connected with the 20th century (7, p. 325). Specifically, neurolinguistics as an independent field of science was fully formed in the late twentieth century.

It is known that language is primarily related to thinking. There is a dialectical unity of language with consciousness formed in the cerebral hemispheres. Any brain injury leads to impaired consciousness. Impairment of consciousness results in speech defects.

It means that a perfect, universal system has been established in the human body. It is known that the human mind and the human body are controlled by the brain and spinal cord. It is located in special layers of the brain with a system of neurons that balance human speech. Neurolinguistics primarily studies the effects of local changes in the brain center on speech. Neurolinguistics scientifically proves that certain areas of the human brain directly carry out the realization of speech, control the mechanism of speech.

The scientific-theoretical bases of neurolinguistics in world linguistics are formed by B. de Courtenay, L.V Sherba, A.A Potebnya, A.A Shakhmatova, L.S Vygotsky, A.R Luria, A.A Leontyev, VA Bogoroditsky, R.O Jacobson, T.Q. That is, the common views of both linguists and psychologists led to the emergence of this field of linguistics. In particular, the emergence and development of cognitive psychology in science has given impetus to the development of neurolinguistics. Contributing to the development of psycholinguistics, A.R Luria expressed his subjective theoretical views on this field of linguistics in his works "Language and Consciousness" (14) and "The main problems of neurolinguistics" (13).

Linguists and psychologists, such as neurolinguistics and psycholinguistics, have limited views on the mechanism of language formation. Another difference between this field and psycholinguistics is that neurolinguistics is closely related to medicine. Usually, neurolinguistic research also comprehensively reflects the analysis of research in the field of psycholinguistics, structural linguistics, cognitive linguistics, paralinguistics. Neurolinguistics is based on the connection between speech and psychology, the brain and speech. At the heart of this linguistics is the interpretation of the neurophysiological aspects of speech. There is a direct

connection between neuropsychology and neurolinguistics.

The first research work on neurolinguistics in the history of linguistics belongs to R.O Jacobson. In Russia, T.V Akhutina also has interesting research in this area (3). T. Akhutina explains the mechanism of speech formation in his work "Neurolinguistic analysis of dynamic aphasia" (9).

One of the main problems studied by neurolinguistics is aphasia. It is known that aphasia is a speech disorder. T.Q. Wiesel in his book "Variable forms of aphasia" identifies the following types of neuropsychological aphasia: motor aphasia, sensory aphasia, amnesic aphasia, semantic aphasia, dynamic aphasia. From the neurolinguistic point of view, he identifies the following types of aphasia: phonological-expressive aphasia, phonology-impressive aphasia, lexical (amnesic) aphasia, morphological aphasia, syntactic aphasia (14, p.2-3).

For the first time, the well-known Turkologist Bekir Chobanzadeh touched upon issues related to neurolinguistics in Azerbaijani linguistics in his book "Introduction to Turkish-Tatar Linguistics" written in 1924 under the title "Spirit of Voices". Bekir Chobanzadeh even mentioned the French physician P. Broca, who put forward ideas about the basic theoretical foundations of neurolinguistics. The Turkologist writes: "The motor and sensory centers of speech and monotheism are located in the left half of our palate. Since we are pleased with the definition of the point of loneliness on the palate by the French scientist Brock, this point is also called "point-Broca" or "center-Broca" (3, p.34). In that work, Bekir Chobanzadeh also touched upon the issue of aphasia, one of the main problems of neurolinguistics. In the same work, he writes about aphasia under the heading "Emotional Center": "Once again, we can not do what we want". In this case, the center of action is paralyzed. This is called paralysis of the center of motion (motor aphasia). On a small scale, this happens every day. We have an idea of something, but we can't find a word to indicate it, we say it's on the tip of my tongue. But we are not able to find our members who will produce this word and mobilize them. The reason for this is that some of the sounds of this word take their rightful place in our minds (3, p.40). It should be noted that the French scientist P. Brock, named by Bekir Chobanzadeh, was a person with exceptional services in the development of neurolinguistics. As a result of his scientific research in the late 19th century, he discovered the source of speech disorders. Even the term Brock's aphasia is used in neurolinguistics.

In modern times, speech therapy is known as a science that studies language defects in children. Speech therapy is also directly related to neurolinguistics. It means that in modern times, it is very difficult to eliminate language defects in children without a perfect knowledge of neurolinguistics.

In 1861, P. Broca observed a strange phenomenon in two patients: they understood everything, but could not speak in a state in which the movements of the lips, tongue and larynx were completely preserved. During the dissection of the corpses of these patients after their

death, P. Broca found an injury in one of their brain areas, namely in the area of the third wrinkle of the left hemisphere. Thus, P. Brock assumes that the general motor center of speech, the articulated center of speech, is connected with this area of the brain. This hypothesis was later confirmed by a number of observations. The real scientific explanation of this strange fact became possible only 75-80 years after Brock's discovery. In this form of aphasia, as P. Broca calls it, he imagines that a special type of memory is impaired, which refers not to words, but to the action necessary for their articulation. For more than a century, this area of the brain has been called the speech center, or Brock's center (8, pp. 11-12).

During the years of independence, dissertations in this direction were defended in Azerbaijani linguistics, monographs were published. Gulmira Sadiyeva's work "Aphasia: Neurolinguistic Research" (Baku: Elm, 1999, 91 p.) Is the first work dedicated to neurolinguistics in Azerbaijan. In this work, the history of the problem of aphasia, the violation of the syntagmatic and paradigmatic bases of speech during aphasia, the linguistic nature of speech disorders during aphasia are studied (13, p.4-88). This monograph is a book version of the author's doctoral dissertation. Currently, G. Sadiyeva continues her research in this field at 9 Eylul University in Izmir, Turkey. G.Sadiyeva comes to the conclusion that aphasia is a complex disorder of speech, which leads to one or another degree of violation of all levels of language. However, each form of aphasia is characterized by a gross violation of a specific level of language (while others are relatively intact) (13, p.70). The researcher analyzes the linguistic nature of speech disorders during aphasia from three aspects: 1) speech disorders at the phonetic level of language; 2) speech disorders at the lexical level of the language; 3) speech disorders at the grammatical level of the language (13, p.45-63). In this monograph, G.Sadiyeva clarified the issues of violation of syntagmatic and paradigmatic bases of speech during aphasia.

G. Sadiyeva wrote this work on the basis of real experiments. Thus, the scientist observed patients with aphasia for a long time and observed the psychological and neurological processes occurring in them. In his research, the violation of the linguistic levels of speech of Azerbaijani patients as a result of various forms of aphasia was investigated and analyzed.

Gulmira Sadiyeva notes that we group the seven forms of aphasia identified by AR Luria, as well as confirmed by our observations at the clinic and embodying all the existing variety of speech disorders in brain injuries as follows:

1. Violation of syntactic bases of speech:
  - 1) efferent aphasia
  - 2) dynamic aphasia
2. Violation of the paradigmatic bases of speech:
  - 3) sensory aphasia
  - 4) acoustic - amnesic aphasia
  - 5) semantic aphasia
  - 6) amnesic aphasia
3. Violation of syntagmatic and paradigmatic bases of speech
  - 7) afferent aphasia (8, p. 24).

G.Sadiyeva's work "Aphasia: neurolinguistic research" proves that new fields of linguistics are developing in Azerbaijan. Unlike traditional linguistics, in the era of globalization, the study of the multidisciplinary relationship of linguistics with defectology, medicine, psychology allows to obtain new information about the essence of language.

Abulfaz Rajabli's "Theoretical Linguistics" (Baku, Nurlan, 2003, 515 p.) Discusses the essence and main aspects of neurolinguistics under the title "Neurolinguistics". Abulfaz Rajabli notes that in order to turn the facts collected by psychologists and neurologists into a definite principle, linguistics must move from description to accurate analysis of basic language units, and the clinical description of speech disorders is followed by physiological and neuropsychological research (12, p.325-332).

Thus, during the period of independence, some research has been conducted in Azerbaijan in the field of neurolinguistics of linguistics. But, of course, this is just the beginning. There is a great need for more fundamental research in neurolinguistics. Because neurolinguistics is a practical field of direct linguistics, and any successful research in this field allows us to understand the essence of the process of a more realistic understanding of the mechanism of language and speech.

It should be noted that one of the main problems of modern Azerbaijani theoretical linguistics is the expansion of research in this area. Because the scientific results obtained in the field of neurolinguistics will lead to the development of neuropsychology, aphasiology, speech therapy, psycholinguistics.

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## SOME WORD-FORMING SUFFIXES IN THE MORPHOLOGICAL SYSTEM OF THE KADAR DIALECT OF THE DARGIN LANGUAGE

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### Abstract

This article is devoted to the description of some word-formation elements in the morphological system of the Kadar dialect of Dargin language. The author of this article describes some suffixes that are commonly used in the morphology of the Kadar dialect and compares them with those ones in literary Dargin language.

**Keywords:** Dargin language, Kadar dialect, morphological system, word-formation, suffixes.

E.I. Borisoglebskaya, V.P. Gurchenkova, A.E. Kurbyko noted that "in the process of the historical development of the language, its vocabulary is constantly replenished with new words. The main means of enriching the dictionary with new words is word-formation"[1: 54].

Therefore, studying word-formation, we trace the ways and means of replenishing the language or dialect with new lexical units. Word-formation usually involves word-formation elements (morphemes) that already exist in the language, which makes it possible to quickly and deeply reveal the meaning of any new or unknown words. In this regard, it is important to take

into account the morphology and problems of the morphological structure of the word.

According to M.-S.M. Musaev's point of view "word formation, which we are considering in this case in morphology, although for some specialists it appears either as a section of vocabulary or as an independent discipline, it is characterized by the following main ways: word-combination in the noun, adjective,numerals and in the verb, suffixation exclusively in the noun, adjective,numerals and prefixation only in the verb" [2: 89].



In the Kadar dialect, there are inherent formatives for the formation of parts of a speech: a noun, an adjective, a verb, adverbs, forms of participles, etc.

S.N. Abdullaev writes that "Dargin nouns are not rich in derivational suffixes, and most of those suffixes

that are present now seem to have turned to stone, become unproductive" [3: 85]. Nevertheless, the most productive suffixes of the nouns of the Dargin literary language are: *-ala*, *-chi*, *-ri*, *-la*, *likh*, *-agi* etc. And in the Kadar dialect some of them correspond to a zero indicator:

In the Kadar dialect	In the Dargin literary language
<i>kaĵ</i> «a talk»	<i>kaĵala</i>
<i>iza</i> «disease»	<i>izala</i>

In the Kadar dialect, there are inherent formatives for the formation of parts of speech: an adjective, a verb, forms of gerunds, adverbs, etc.

In the literary Dargin language, adjectives have the indicator *-si*, while in the Kadar dialect the indicator of this part of speech is *-ai*, *-il*, *-a*.

In the Kadar dialect	In the Dargin literary language
<i>'awaj</i> «oily»	<i>'awasi</i>
<i>žawgaĵ</i> «beautiful»	<i>žagasi</i>
<i>zu?il</i> «salty»	<i>zuq'isi</i>
<i>mir?il</i> «sweet»	<i>murisi</i>
<i>murxil</i> «deep»	<i>murxsi</i>
<i>c'aba</i> «dark»	<i>c'absi</i>
<i>c'aq'il</i> «loud»	<i>c'aqsi</i>

As for the verbal forms of the Kadar infinitive, they have formant *-es*, which is characteristic to the literary Dargin language, and *-as* which is characteristic to the Kadar dialect.

In the Kadar dialect	In the Dargin literary language
<i>birq'was</i> «to dig»	<i>burq'es</i>
<i>uk'as</i> «to talk»	<i>ik'es</i>
<i>ukas</i> «to eat»	<i>ukes</i>

Temporal participles have different suffixes than in the literary Dargin language (*-madajni*, *-kem*, *-araba*), which distinguish the Kadar participles from literary ones (*-?eli*, *-mad*, *-či*, *-erbi*).

In the Kadar dialect	In the Dargin literary language
<i>-madajni</i>	<i>-mad</i>
<i>ajzuwamadajni</i> «as soon as he got up»	<i>ajzurmad</i>
<i>bircibmadajni</i> «as soon as he washed»	<i>bircibmad</i>
<i>kebailemadajni</i> «as soon as he saw»	<i>čebaibmad</i>
<i>ukuwamadajni</i> «as soon as he ate»	<i>ukunmad</i>
<i>-kem</i>	<i>-či</i>
<i>barajkem</i> «till he does it»	<i>barajči</i>
<i>belk'ajkem</i> «till he writes»	<i>belk'ajči</i>
<i>usajkem</i> «till he falls asleep»	<i>usaajči</i>
<i>-araba</i>	<i>-erbi</i>
<i>baq'ilearaba</i> «after he heard»	<i>baq'ilierbi</i>
<i>bicilearaba</i> «after he sold»	<i>bicilierbi</i>
<i>kawšilearaba</i> «after he killed»	<i>kawšilierbi</i>

N.A. Vagizieva writes that «the study of the vocabulary of the language, and dialects is aimed at identifying the features that distinguish this type of language from its national literary version». [4: 236] Thus the author comes to a conclusion that the Kadar dialect is one of the unique dialects of Dargin language. The word-formation suffixes of Kadar dialect differ from those ones in Dargin literary language.

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# SOCIAL SCIENCIES

## HISTORICAL ENCAPSULATION MODEL IN THE CONTEXT OF COLLECTIVE MATRIX

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### Abstract

The article outlines the main vectors of the development of encapsulation models in the discourses of social cognition. The main characteristics of the Soviet model of encapsulation are given, the vectors of development are indicated in the context of the value orientations of the socialist society. The main reasons that influenced the change from one encapsulation model to another are shown, the contradictions that were formed as a result of radical transformations of Russian society are revealed. The article outlines the current trends in the formation of a new model of encapsulation in the logic of social, political ideologemes, as well as those socio-cultural markers that determine the modern characteristics of the Russian model of encapsulation.

The analysis of encapsulation models was based on the approaches of K. Renn. However, they are not limited only to individual intercultural interaction; they consider the interactions of social groups in a wider socio-political and geopolitical space.

**Keywords:** Encapsulation, cultural encapsulation, collective encapsulation matrix, types of encapsulation, socialization, de-encapsulation, individual encapsulation matrix

**Introduction.** In modern Russian society, among the most important social processes, on the one hand, the final destruction of the "mythologemes of the Soviet era" is observed, the processes of de-Sovietization are coming to an end, and on the other hand, the processes of transitivity, its "indefinite state" are coming to an end.

One of the vectors that allows us to observe changes in societal structures are "transition points", which are sociocultural encapsulation matrices. The concept of cultural encapsulation in the social sciences was proposed by the psychologist K. Renn. Cultural encapsulation is a psychological model of the individual's self-defense against the pressure of the surrounding foreign cultural environment. The scientist proposed a figurative model of a cocoon, a closed individual socio-cultural space that allows an individual to preserve his socio-cultural values and worldview, in situations of constant transformation of the contexts of his life: economic, political, social, cultural [2]. The scientist proposed a figurative model of a cocoon, a closed individual socio-cultural space that allows an individual to preserve his socio-cultural values and worldview, in situations of constant transformation of the contexts of his life: economic, political, social, cultural.

This topic finds its continuation in foreign studies and among other scientists [3]. Cultural encapsulation in most scientific publications is conceptualized in the discourses of the psychological sciences, and less sociological ones. In Russian social cognition, approaches to this problem are just beginning to take shape, and here we can single out the work of M.S. Kuropytnik [7]

We will consider sociocultural encapsulation as a purposeful, organized process of intercultural integration of various ethnic groups and peoples by the ruling

elites at a certain historical time in a controlled geopolitical space to achieve their political, social, cultural and economic goals. This process is formed and implemented within the framework of geocultural matrices that allow the current government to carry out socio-cultural integrative projects.

In this regard, one can observe how at the turn of the XX-XXI centuries in the Russian Federation, as a result of geopolitical and economic transformations, the deinstitutionalization of the Soviet encapsulation matrix took place, and today a new Russian model is being formed, the contours of the interpretation of which are only determined in domestic social cognition [5,6,8].

The peculiarities of the transition from the collective matrix of encapsulation, which is based on the "project of the Soviet world", to the Russian matrix of encapsulation, at the base of which is the "project of the Russian world" or "Russian civilization", indicate the peculiarity of the dynamics of the socio-cultural process of modern Russian society.

**Collective Encapsulation Matrix.** The project of the "Soviet world" by the Russian architects of universal equality and justice was built as a new socio-cultural reality of the unity and integration of various ethnic groups and cultures.

The project of the "Soviet world" was a kind of "cultural crucible", an innovative form of acculturation, in which the principle of "unity in diversity" was embodied, but in the context of Marxist approaches based on the ideas of internationalism embodied in the slogan: "Workers of all countries, unite!" to the peoples of a single geopolitical space.

This was the sociocultural goal and norm, for all its members, which, according to R. Merton, determine

the essential characteristics and typology of society, together with the system of control and ways to achieve these goals, which were simultaneously created by the new government.

The new goals of the ruling elites made it possible to differentiate the structure of social groups in society, dividing them into those who followed this vector of development and those for whom these value norms were unacceptable.

Social groups that adopted the Soviet principles of life, in joint "collaboration" with the authorities, created a new architecture of encapsulation, for which they received "new social statuses" and "socialized rewards".

Such groups can be conventionally called, in accordance with Western traditions, assimilation groups [4].

Those social groups that did not want to adhere to the proposed lifestyle became victims of the "socio-cultural crucible." Voluntary asceticism, "rejection of worldly life" in Soviet society, did not imply "peaceful withdrawal" into the forests to devote oneself to meditation, as was the case in ancient cultures. Bodies of state supervision and control as victims of socialization replenished the ranks of the free labor force, which created material values of the new state. Such groups can be defined as anomie or marginal groups.

It can be noted that in the future, with the destruction of the geopolitical space of the USSR in the 90s of the twentieth century, the new ethnic democratic states will implement polar scenarios of managing the life of society, either, they applied sanctions, or, instead of labor camps, forced those social groups to emigrate, did not accept the value norms of the new encapsulation model. The victimization of social groups that do not accept the values of the new encapsulation paradigm is one of its basic characteristics.

The vector of sociocultural landmarks and the system of ways to achieve the intended goals are dominants of the matrix of sociocultural encapsulation.

Socialist socio-cultural orientations in the new encapsulation matrix were aimed not at the domination and subordination of some ethnic groups to others, but at joint equal coexistence and co-development, based on the patterns of internationalism, ideologemes of public morality, and state values.

To implement this strategy, it was necessary to reformat public consciousness, change the social code of culture and the way of life of the population.

In this regard, two major institutions are excluded from the new social paradigm: the church and the family, which for millennia have reproduced the stereotypes of the nation's sociocultural behavior, formed the collective unconscious of peoples, reproduced traditional models of behavior and value attitudes on the basis of archetypes.

The strategy of the new model of encapsulation developed from oblivion of the collective unconscious to the formation of a new collective consciousness.

In the matrix of Soviet encapsulation, a process of replacement took place, from the institution of the Church, which became inaccessible to the mass con-

sciousness, to party, Soviet and public ideological institutions that brought new rituals, hoaxes, rituals, and initiation into the collective life of Soviet people.

All forms of family education and training are being replaced by collective methods of organizing human life, a system of social education, technologies of political Soviet socialization aimed at collectivizing mass consciousness.

"Collectivization" of consciousness presupposed a consistent and phased organization, in accordance with the age development of the individual, the processes of total political socialization of a person from "birth to grave" through such forms of collective organization as: Octobrist star, pioneer detachment, Komsomol organization, party cell and trade union organization, for non-partisan population groups.

These were the guidelines of the "Soviet crucible" of interethnic integration throughout the USSR.

After the Second World War, one can observe how the Soviet matrix of sociocultural encapsulation is spread by the ruling elites not only to the West, to the countries of the socialist community, but also to the East, Asia, Africa and Latin America.

The forerunner of multiculturalism, the collective encapsulation of the Soviet type, has exerted its influence on the processes of interethnic interaction at various geographic latitudes for more than 70 years.

In essence, this was a new form of colonization of social consciousness based on the Marxist ideologemes of equality, social justice and the rights of the man of labor, as a demiurge of all material and collective values.

Colonization as a form of cultural expansion is a characteristic phenomenon for world history. According to the French researcher A. Goldhammer, culture France "colonized the consciousness of the world", becoming the center of civilization in the nineteenth century, and in the twentieth century Hollywood began to occupy this place in world civilization [1].

At the beginning of the XXI century, cultural expansion in the processes of intercultural communication belongs to the Internet, as a new form of encapsulation. The Internet, which conquered the entire world space, ensured the implementation of socialist principles, if not justice, then freedom and equality, not only "in a single country", but also "in a single apartment" on almost all continents of the world.

The ways to achieve the set goals must be considered in the logic of diachronic and synchronic approaches.

The chronotope of the matrix was constructed by the ruling elites on the basis of two main discourses: the discourse of common destiny, of all nations and nationalities, diachronic vectors of construction, "there and then," and the discourse of common social everyday life, a synchronous vector of modeling, "here and now".

The myth of "the common fate of fraternal peoples" was created in a single logic of event description. The collective mythologeme of the social world of the "fraternal peoples" fit into the logic of the Marxist paradigm of displaying history, where such phenomena as exploitation, inequality, oppression and the uprising of

the oppressed were a kind of "common pages" of a single historical process of various ethnic groups in Soviet society.

The discourses of cross-cultural everyday life were associated with common historical events, that joint new social experience that was acquired under the conditions of the Soviet state. Civil and Great Patriotic War, collectivization and development of virgin lands, work on the "peaceful atom" and participation in construction projects of the five-year plan. The discourses of cross-cultural Soviet everyday life were subordinated to collective matrices of unity, ignoring all ethnic individual scenarios of the life of individual nations and nationalities.

Collective sociocultural encapsulation was reproduced in everyday life throughout the country through the system of education and culture, economy and politics, the military sphere and the economic system.

Educational, intellectual and cultural migration from national regions, territories and republics was of an organized nature, based on centralized management of the population. The government regulated ethno-national processes, controlled ethno-national freedoms and needs in the context of state interests and basic Soviet ideology.

Nation and nationality could have "self-representation", the formulated "knowledge about themselves" only indirectly, through the state union apparatus of management and control, only through the institutions of national party and cultural elites.

The collective matrix of encapsulation formed new approaches to cross-cultural competence, it was formed on the basis of a single language of intercultural communication, which was Russian, while the state policy of preserving and developing national languages was implemented. The policy of cross-cultural bilingualism was the norm of social life.

The manifestations of ethnicism and ethnic intergroup aggression in this period were regulated through repressive forms of state intervention, all ethno-national manifestations of individual identity were under police supervision.

**Conclusion.** Thus, approaches to the analysis of the sociocultural dynamics of society can be approached from the standpoint of describing a single encapsulation matrix, which allows you to analyze various models of social relationships in a single logic of analysis.

The encapsulation model helps to identify the mechanisms of acquiring and forming the identity of various ethnic groups in the context of their geocultural and geopolitical dimensions, to see the peculiarities of the dynamics of changes in social transformations within one ethnocultural society.

Encapsulation models made it possible, in the context of historical dynamics, to see the prevailing characteristics of Soviet society, and the emerging features of the new Russian society.

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