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CHEMISTRY

SYNTHESIS OF TRIMETHYLPHENOLS IN THE CATALYTIC ALKYLATION OF XYLENOL AND METHANOL AND APPLICATION IN THE PRODUCTION OF VITAMIN E (TOCOPHEROL)

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Abstract

In this article, the alkylation reactions of 2,6-, 2,5- and 2,3-dimethylphenols in the presence of methanol and CrCaY zeolite were investigated. The experiments were carried out at a temperature of 360°C and a volume flow rate of 0.82 st·¹. The results show that, regardless of the catalyst composition, the main conversion product of 2,6-dimethylphenol is 2,4,6-trimethylphenol. In the presence of CrCaY zeolite, 2,3,6-trimethylphenol is also formed with some selectivity. The potential application of trimethylphenols obtained in the alkylation process in the synthesis of tocopherol (vitamin E) is emphasized.

Keywords: 2,3,6 trimethylphenol, 2, 4, 6 trimethylphenol, xylenol, methanol, methylphenol, cresol, vitamin E (tocopherol), application of trimethylphenols.

Introduction:

As a result of the conducted studies, it was found that 2.3.6-trimethylphenol was synthesized with 83% selectivity in the process of alkylation of 2.5-dimethylphenol with methanol, and 90.0% selectivity from the reaction of 2.3-dimethylphenol with methanol. The 2.3.5 trimethylphenol derivative synthesized from the reaction of 3.5 xylenol with methanol was synthesized with 85.0% yield compared to the converted xylenol, and in 4 cases from 2.4-dimethylphenol, in addition to the main isomer of trimethylphenol, hydroxyl and methyl groups react and other isomers are possible to form. It is also interesting to study the composition of the alkylates synthesized in the reaction of 2.6 and 3.4-dimethylphenols with methanol in the presence of Pd,H-mordenite. The yield of 2.6-dimethylphenol with a molar ratio of 1:1 from the reaction with methanol relative to xylenol is assumed to be 94.5% [1].

The reaction of dimethylphenols with methanol was carried out by alkylation. A fixed bed catalyst was used for the reaction and the process was carried out in a stationary reactor. The process was carried out using PdCaY catalyst. Palladium was added to the zeolite in an amount of 0.6-3.1 mass % via an aqueous solution of [Pd(NH3)4]Cl2. After that, it was annealed at 450ºC for 2 hours in a dry air stream and kept in a hydrogen stream at 390ºC. This process was continued for about 1 hour, and a Chrom-5 device was used for analysis[2].

When performing the alkylation reaction with methanol using 2,6- and 3,5-dimethylphenols, using ferrite catalysts and recording the results, certain results can be obtained. The process was carried out using a stationary mode reactor and analyzed with a Chrom-5 device. Zinc ferrite oxide system was used as a catalyst. The concentration of Zn oxide and Fe (III) oxide together in the ternary system was 27.0 wt% and Al oxide was used as a carrier. 2,3,4,6 tetramethylphenol and 2,4,6- and 2,3,6- trimethylphenols were obtained as the main products from the reaction of methanol with 2, 6-dimethylphenol. A number of different phenol derivatives are obtained from 3,5-dimethylphenol, which reacts with methanol, including: 2,3,5- trimethylphenol, 3,4,5- trimethylphenol, 2,3,4,5- tetramethylphenol and 2,3,5,6- tetramethylphenols [3].

Below we show the results of the synthesis of 2,6-dimethylphenol using 2-methylphenol together with phenol and methanol. NiCaY zeolite was used as a catalyst. The study was carried out in the temperature range of 325-385ºC, and methanol was taken 2-4 times more than methanol. The volumetric flow rate of the liquid raw material when fed to the reactor was in the range of 0.7-1.1 st-¹. The following products were obtained from the alkylation reaction carried out with a nickel-containing faujasite catalyst: anisole, dimethyl ether, 2-methylphenol, 2,6-xylenol, 2,4,6-trimethylphenol derivative, 4-methylphenol,. Although the composition of the alkylates obtained does not change depending on the reaction medium, the yield and selectivity vary. The main products obtained from the process are 2,6-dimethylphenol and 2-methylphenol. Another practically important property is that the molar ratio of 2,6-dimethylphenol to 2-methylphenol in the obtained alkylates is not 1÷0.6 : 1÷0.9 [4].

Conducting the research process

In this article, the essence of the main chemical reactions of 2.6-, 2.5- and 2.3-dimethylphenols in the presence of methanol and CrCaY zeolite was investigated. The experiments were carried out at a temperature of 360ºC with a volume fraction of 0.82st·¹ and a molar ratio of dimethylphenol to methanol of 1:0.73÷1. From the analysis of the results given in Table 1, it can be seen that, regardless of the composition of the catalyst, the main transformation in the alkylation reaction of 2.6-dimethylphenol is the synthesis of 2.4.6 trimethylphenol by a sequential alkylation reaction. In the presence of chromium-containing CaY zeolite, the interaction of 2.6 dimethylphenol with methanol produces, along with 2.4.6-trimethylphenol, the 2.3.6-isomer with 11% selectivity, and the share of this isomer in the mixture with the 2.4.6-isomer is 3-6 times higher than in studies conducted with other catalysts. Also, in the presence of CrCaY zeolite, along with the 2.4.6 isomer, 2.4.5-trimethylphenol is synthesized in small amounts, to be precise, with a selectivity of 4%. It can

be concluded that the selectivity and yield of 2.4.6-trimethylphenol obtained from the reaction of 2.4-dimethylphenol with methanol are somewhat higher than those of the analogous trimethylphenol derivative obtained by the alkylation reaction of 2.6-xylenol with methanol. However, it is observed that the yield of the mixture of trimethylphenols formed from 2.4-dimethylphenol and methanol in the presence of CrCaY zeolite is somewhat lower compared to the case where 2.6-dimethylphenol is taken as the basis.Thus, the sequential conversion of 2.6- and 2.4-dimethylphenols synthesized from the reaction of 4-methylphenol and 2-methylphenol with methanol during the process results in the formation of 2.4.6-trimethylphenol. The presence of other isomers, as well as 2.3.6- and 2.4.5-trimethylphenols in the alkylates, albeit in small amounts, indicates that isomerization or partial alkylation in the meta-state occurs. Looking at the results, it can be seen that in all cases, regardless of the catalyst and the structure of the xylenol used, the main product is 2.3.6-trimethylphenol. We concluded that even though the selectivity of the process for the 2.3.6-isomer synthesized with the participation of CrCaY zeolite is 2.5-3.5% higher than that of 2.3-dimethylphenol, the yield of the intended trimethylphenol is 3.0-3.9% lower.

Table 1.

Indicator name	Catalyst: CrCaY
Calculated yields for converted 2,6-dimethylphenol,%	
2.4.6-trimethylphenol	82.8
2.3.6-trimethylphenol	10.7
Yield of a mixture of 2,4,6- and 2,3,6-trimethylphenols calculated from the starting 2,6-dimethylphenol	41.9
Calculated yields for converted 2,4-dimethylphenol,%	
2.4.6-trimethylphenol	87.0
2.4.5-trimethylphenol	3.0
Yield of the mixture of trimethylphenols calculated from the starting 2,4-dimethylphenol	42.1

The molar ratio of the mixture of 2.5- and 2.3-dimethylphenols taken in equal proportions is 1:1. This was calculated based on methanol. In the case of 1:0.75, the material balances of the synthesized catalysts were calculated and determined, and the main and by-products of the process and their outputs were calculated based on the chemical composition of the acylate. For the first time, the 2.5- and 2.3-xylenols in the xylenol mixture were calculated and compared and are given in Table 2**.**

Table 2.

Indicator name	Catalyst: CrCaY
	2,5-dimethylphenol-methanol
Yield of 2,3,6-trimethylphenol, calculated based on the reacted 2,5 dimethylphenol, %	85.5
The yield of 2,3,6-trimethylphenol, calculated from the starting 2,5-dimethylphenol,	35.5
	2,3-dimethylphenol-methanol
Yield of 2,3,6-trimethylphenol, calculated based on the reacted 2,3-dimethylphenol, %	82.0
Calculated based on starting 2,3-dimethylphenol Yield of 2.3.6-trimethylphenol, %	38.0

Use of 2,3,6 and 2, 4, 6-trimethylphenols in modern industries

Trimethylphenols are versatile organic compounds that are used in many sectors today and are expected to increase significantly in the future. However, taking into account the potential environmental and health effects of these trimethylphenols, the areas of use and the conditions of the production processes are always considered. Therefore, the development of more promising synthesis methods for methylphenols, including 2.4.6- and 2.3.6-trimethylphenols, which have become increasingly important recently, is a topical issue and is of particular interest to chemists. This is based on the alkylation reaction of dimethylphenols with methanol and the acquisition and use of catalysts with active, selective and high performance properties for this purpose can give impetus to a positive solution to the issue. The importance of the use of trimethylphenols in pharmaceutical and other industries increases the need to acquire these substances. 2,3,6 and 2,4,6 derivatives of trimethylphenol can be used as intermediates in the production of drug molecules. Several isomers of trimethylphenol are actively used for the synthesis of vitamin E (tocopherol). They are also used in the production of pharmaceuticals in agriculture. 2,3,6-2,4,6 trimethylphenols can be used as model compounds in studies in the fields of organic chemistry and biochemistry.

2,3,6-2,4,6 trimethylphenols are used as intermediates in chemical processes. They are especially important in the production of resins, plastics and some pharmaceutical products. Phenol derivatives have antioxidant properties. Therefore, 2,3,6-2,4,6 trimethylphenols are used as oxidation inhibitors. Research

on trimethylphenols continues to reveal new and, in particular, more effective areas of use for these compounds. It is intended to expand the use of trimethylphenols on smaller scales and for more specific tasks, especially by combining them with nanotechnology.

2,3,6-2,4,6 trimethylphenols are important components for health in the pharmaceutical and cosmetic industries. Some trimethylphenol derivatives are used for surface protection in the cosmetics and pharmaceutical industries. Trimethylphenol derivatives can also be used as odorants and flavors in the cosmetics and food industries. They improve water quality by preventing the growth of microbes in water purification processes. 2,3,6-2,4,6 trimethylphenols, due to their strong antioxidant properties, prevent the deterioration of materials such as plastics, rubbers and oils by extending their life. They prevent oxidation in food products and extend the shelf life of products by preserving their freshness.

Result 1. For the first time in this study, we obtained trimethylphenols, which have many advantages for industry, using CrCaY catalyst, one of the selective zeolites. In the presence of CrCaY zeolite, methanol and 2,6-dimethylphenol were reacted at 360ºC under conditions of volume fraction $0.82st^{-1}$ and molar ratio of dimethylphenol to methanol 1:0.73÷1. After the process was completed, 2,3,6- and 2,4,6-trimethylphenol derivatives were synthesized. The properties of the obtained substance are shown in Table 1.

Conclusion2. Consequently, the sequential conversion of 2,6- and 2,4-dimethylphenols synthesized from the reaction of 4-methylphenol and 2-methylphenol with methanol during the process leads to the formation of 2,4,6-trimethylphenol. The presence of other isomers in the alkylates, as well as the presence of 2,3,6- and 2,4,5-trimethylphenols, indicates that an isomerization or partial alkylation reaction occurs in the meta-state. The comparative results of the alkylation process of 2,3- and 2,5-dimethylphenols separately with methanol in the presence of CrCaY are shown above.

Result 3.2,3,6-2,4,6 trimethylphenols are used as one of the most important raw materials in many industries in modern times, and the demand for these phenol derivatives is increasing day by day. These substances are used as intermediates in chemical processes. They are especially important in the production of resins, plastics and some pharmaceutical products. Phenol derivatives have antioxidant properties. Isomers of trimethylphenol play a very important role in the synthesis of vitamin E (tocopherol). They are also widely used in the production of agricultural medicines. 2,3,6-2,4,6 trimethylphenols can be used as model compounds in studies in the fields of organic chemistry and biochemistry.

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ПРОБЛЕМА ЗАГРЯЗНЁННОСТИ КНИГОХРАНИЛИЩ ПЛЕСЕНЬЮ, РАЗЛИЧНЫМИ МИКРООРГАНИЗМАМИ И ПУТИ ИХ УСТРАНЕНИЯ

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THE PROBLEM OF MOLD IN LIBRARY STORAGES AND THE WAYS TO ELIMINATE IT

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Аннотация

Изучена возможность применения озона для очистки загрязнённых плесенью, вирусами, бактериями и различными другими микроорганизмами книг в хранилищах библиотек. Установлена оптимальная доза озона, которая очищает поверхность страниц от перечисленных факторов без видимых повреждений самой страницы.

С этой целью был изгатовлен лабораторный озонатор с компрессором (6 л/мин), производительностью 0,32 г/ час.

Установлено, что при использовании озонатора такого типа время очистки книг в хранилищах библиотек не должно превышать 60 минут**.**

Abstract

The possibility of cleaning processes of books contaminated with mold, viruses, bacteria and other microorganisms has been studied.

The optimal dose of ozone has been determined, which will clean the surface of the book page from mold, viruses, bacteria and other harmful microorganisms without damaging the surface of the book and its internal structure.

For this purpose, a laboratory ozonizer with a compressor (6 l/min) was prepared. The performance of which was 0.32 g/hour. It was determined that in the case of this type of ozonizer, the usable dose of ozone in book storages is 60 minutes.

Ключевые слова: Озонатор, компрессор, озон, книга, микроскоп, плесень, бактерии, микроорганизмы.

Keywords: Ozonizer, compressor, ozone, book, microscope, mold, bacteria, microorganisms.

Введение

Известно, что для защиты книг в хранилищах библиотек от различных повреждений, обязательным является соблюдение оптимальных условий. В частности относительная влажность в помещении не должна превышать 70-75%, а также всегда надо соблюдать чистоту, хорошее освещение и кондиционирование воздуха для достижения постоянной температуры[1]. При нарушении хоть одного из перечисленных условий, начинается образование плесени, вирусов, бактерий, и других вредных микроорганизмов, которые сильно повреждают книги. В настоящее время во многих известных и неизвестных книгохранилищах существует эта проблема и до сегодняшнего дня не найдено её решение.

С целью устранения происхождения плесени, применялось несколько методов для дезактивизации плесени, как например, обезвлаживание воздуха или замораживание книг. Однако, применение этих методов не дают до конца положительного эффекта, так как споры грибков плесени сохраняют жизнеспособность, а для художественных и стеклянных изделий замораживание не рекомендовано. Также прекратили применение радиации, так как облучение вместе со спорами грибков плесени повреждает бумагу. Существующий ещё один метод фумигации (обрабатывание газообразным оксидом этилена) возможен только с участием сертифицированных компаний.

В настоящее время исключительное внимание уделяется выявлению экологически безопасных методов. Одним из таких эффективных методов является озон, который обеспечивает дезинфекцию любых закрытых помещений. Как известно,[2-6] озон является лучшей возможностью для борьбы с вирусами, плесенью и бактериями(в 3000 раз эффективнее, чем хлор и остальные дезинфицирующие средства). Вместе с тем озон не образует вредных соединений, наоборот, быстро разлагается(15-60 мин.) с выделением кислорода, без всяких определенных условий.

Озон давно применяется для дезинфекции хранилищ сельскохозяйственной продукции, в холодильниках, для продления срока хранения, для обработки овощей и фруктов при перемещений их на большие расстояния [7].

Эксперимент

Целью исследования являлось определение возможности применения озона для очистки загрязнённых плесенью книг в книгохранилищах. Для этого обязательно было установить оптимальную дозу озона, которая при уничтожении плесени со страниц книг, не повреждала бы книги и внутреннюю структуру страниц. Перед началом эксперимента определялась концентрация озона и устанавливались оптимальные условия. Для получения озона использовался лабораторный озонатор, производительностью о,32 г/час(таблица 1) с компрессором (6 л/мин).

Таблица 1

Озонатор А, 1 компрессор, производительность 6 л/мин, напряжение (V)-150 в

№	Рабочий раствор (мл)	Объём раствора (мл)	Время работы озонатора (мин.)	Время продувания озона в растворе (мин.)	Количество расходованного на титрование раствора I_2-0,1 N (мл)	Производительность озонатора (г/час)
1	70мл буфера+10мл 0,1N $Na_2S_2O_3$+1г KI.	80	2	2	5.6	0.32
2		80	5	2	5.2	0.34
3		80	10	2	5.8	0.30
4		80	20	2	5.4	0.33
						Ср. 0.32

Для определения оптимальной дозы озона, страницы книг озонировались в течение 20, 40, 60, 90 и 120 минут и исследовались через микроскоп, увеличивая в 100 раз. При сравнении озонированных и неозонированных образцов (рис. 1,2), был сделан вывод, что ни поверхность, ни структура страниц не меняется после действия озона, включительно 60 мин. После 90 минут озонирования, наблюдалось частичное изменение поверхности страниц (рис. 3), а уже через 120 минут-почти полностью видоизменение (рис. 4).

Исходя из полученных данных, можно сделать вывод, что при применении озонатора производительностью 0,32 г/час, оптимальным временем озонирования является 60 минут.

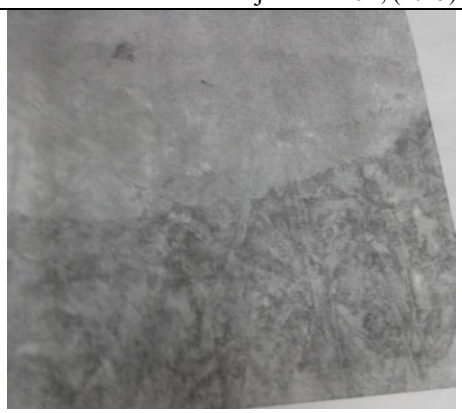

Рис.1. Исходное состояние листа старой книги

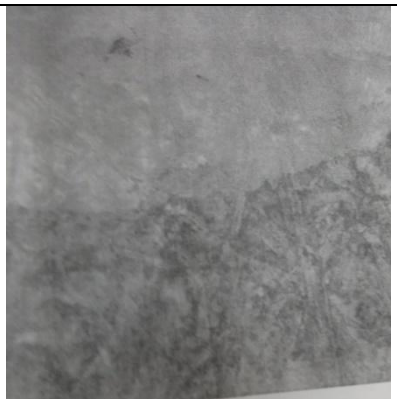

Рис.2. Состояние листа старой книги после 60 мин. обработки озоном

Рис.3. Состояние листа старой книги после 90 мин. обработки озоном

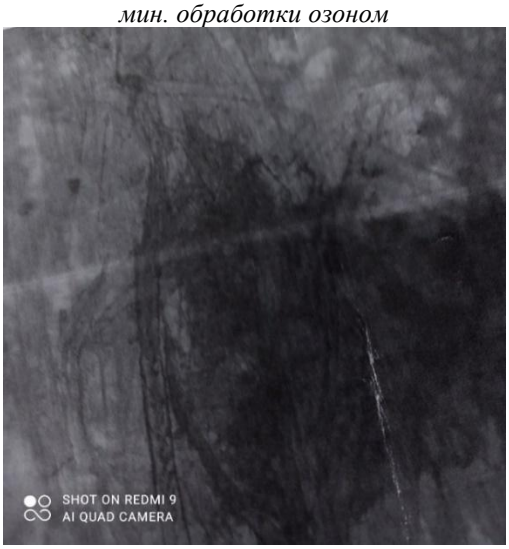

Рис. 4. Состояние листа старой книги после 120 мин. обработки озоном

Заключение

Было установлено применяемое оптимальное время озонирования (60 мин.) озонатором производительностью 0,32 г/час, в течение которого очищается поверхность страниц книг в книгохранилищах от плесени, вирусов, бактерий и др. миткроорганизмов, но не меняется поверхность и внутренняя структура листа. После 90-мин. озонирования замечено изменение поверхности листа книги и внутренней структуры, а после 120 мин. озонирования поверхность почти полностью поменялась и разрушилась внутренняя структура.

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COMPUTER SCIENCES

ОЦІНКА ВПЛИВУ ФАКТОРА СТАРІННЯ ІНФОРМАЦІЇ НА ЇЇ ДОСТОВІРНІСТЬ

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ASSESSMENT OF THE IMPACT OF THE INFORMATION AGING FACTOR ON IT CERTAINTY

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Анотація

Спосіб послідовного резервування дає змогу істотно знизити ймовірність хибної тривоги за «нульових» економічних витрат, однак застосування цього способу обмежується часом старіння інформації та кореляційними зв'язками випадкових самоусувних відмов техніки.

Розроблено математичну модель врахування впливу фактору старіння інформації на її достовірність у системах управління, а також ураховуються кореляційні зв'язки між послідовними введенням інформації. На основі статистичного моделювання (метод Монте-Карло) проведено аналіз відповідності теоретичних і практичних результатів з урахуванням фактору старіння інформації.

Спосіб послідовного інформаційного резервування легко реалізується на мікропроцесорних системах, які нині знаходять широке застосування.

Abstract

The method of sequential redundancy allows to significantly reduce the probability of false alarms at “zero” economic costs, but the application of this method is limited by the time of information aging and correlation links of random self-correcting failures of equipment.

The mathematical model of taking into account the influence of the factor of information aging on its reliability in control systems is developed, and correlation links between successive inputs of information are also taken into account. On the basis of statistical modeling (Monte Carlo method) the analysis of conformity of theoretical and practical results taking into account the factor of information aging is carried out.

The method of sequential information redundancy is easily realized on microprocessor systems, which are now widely used.

Ключові слова: інформаційне резервування, достовірність інформації, старіння інформації, інформаційна безпека, інформаційні технології.

Keywords: information reservation, information reliability, information aging, information security, information technology.

Послідовне інформаційне резервування забезпечує підвищення достовірності інформації без значних економічних затрат, але обмежуючим фактором тут являється фактор старіння інформації, який можливо оцінити за допомогою параметру t_c - часу старіння інформації.

Час t_c, являється випадковою величиною і залежить від конкретної ситуації. Наприклад, час старіння інформації про пожежу, пожежа в мотогондолі двигуна, "титанова пожежа", і т.д. Якщо пожежа відбувається в легкозаймистих середовищах, то час старіння буде дуже малим $t_c \to 0$, а якщо пожежа відбувається в важко-займистих середовищах, то час старіння може бути досить великим.

Таким чином, чим більший час старіння t_o тим більше можливо здійснити контрольних запитів джерел інформації і підвищити достовірність інформації.

Число запитів джерел інформації протягом допустимого $t_{сд}$ інформації, залежить також від допустимої частоти запитів (t_{DC}). Допустима частота запитів (t_{DC}) залежить від часу кореляції τ_k, випадкових завад в джерелах інформації, при замірюванні того чи іншого контрольованого параметру (температура середовища при пожежі, хімічний склад середовища і т.д.). При цьому випадковими перешкодами можна вважати випадкові апаратурні збої і самоусувні неполадки. Чим більший час кореляції Тк, тим рідше можна здійснювати контрольні запити джерел інформації. Іншими словами, якщо я джерело інформації запитувати циклічно, через проміжок часу що перевищує час кореляції і його випадкових перешкод, то дані запити в джерелах інформації будуть некорельовані і незалежні між собою. Таким чином, число послідовних запитів джерела інформації по суті обмежується двома факторами:

1. допустимий час старіння інформації $t_{СД}$
2. час кореляції випадкових завад джерел інформації $\tau_к$.

Для визначення інтервалу кореляції $\tau_К$ стаціонарного випадкового процесу вводиться поняття ефективної полоси частот $\Delta\omega_{еф}$ випадкової функції, яка визначається за її спектральною щільністю [1]:

$$s_{xx}, \Delta\omega_{еф} = 1 \Big/ (s_{xx}\max) \int_0^{\infty} s_{xx}(\omega) d\omega \quad (1)$$

де $S_{xx}max$ - найбільше значення спектральної щільності;

$\Delta\omega_{еф}$ - ефективна полоса частот.

Цей принцип може бути розповсюджений і на нестаціонарні процеси, для яких функція кореляції залежить від часу і які частіше зустрічаються на практиці. Для таких процесів вводиться поняття поточного інтервалу кореляції $\tau_к$(t), причому справедливе відношення:

$$\tau_K(t) = \frac{1}{2\Delta\omega_{еф}} \quad (2)$$

де $\Delta\omega_{еф}$(t) - ефективна полоса частот миттєвої спектральної щільності.

Застосовуються також поняття квазістаціонарних процесів, відповідних довільним нестандартним процесам, для яких інтервал кореляції $\tau_{к\,ср}$ не залежить від часу. Можливо використати також поняття кусочно-стаціонарних процесів, для яких інтервал кореляції Тк і буде регламентуватися дискретними значеннями на визначених відрізках часової осі.

Якщо допустити, що контрольні події (пожежа) як рідкісне явище має Пуасонівський розподіл, то при цьому час старіння інформації t_c, буде мати експоненціальне розподілу [2]. Тоді можна показати, що допустима кількість джерел інформації, як випадкова величина "m" має також експоненціальний розподіл "g(m)", що описується наступним виразом:

$$g(m) = \frac{t_{DC}}{\tau_K} \exp -(\tau_K / t_{DC}) \quad (3)$$

де $\tau_к$ - являється середнім часом кореляції випадкових перешкод;

t_{DC} - допустимий час старіння інформації;

m - число запитів m=1,2,3…

Формула (3) дозволяє врахувати вплив фактору старіння інформації на її достовірність.

Джерела інформації можливо уявити як симетричний канал зв'язку.

На передаючій стороні такого каналу передбачуються дві гіпотези: Н1 і Н2, які відповідно надають наявність або відсутність контрольованої події. На прийомній стороні є в наявності індикатори А і В, які відповідно показують наявність або відсутність контрольованої події з ймовірністю а • При цьому симетричний канал забезпечує однакові ймовірності помилкової тривоги b коли відповідно до гіпотези Н2 контрольованої події нема, а індикатор А показує його наявність) і ймовірність d невиявлення (коли згідно з гіпотезою Н1, контр подія є, а індикатор В показує її відсутність), тобто b=d=1-a.

Оскільки проводиться послідовний контроль статистично незалежних подій, то можливо застосувати Баєсівський метод і ймовірність $a_Б = P(H_1/B)$ наявності події згідно з гіпотезою Н1, коли це показує індикатор А, а також ймовірності помилкової тривоги $b_Б = P(H_2/2)$ і невиявлення $d_Б = P(H_1/B)$ можливо визначити згідно з наступними залежностями:

$$\left.\begin{aligned} a_Б &= \frac{\alpha \cdot a}{\alpha \cdot a + (1-\alpha)b} \\ d_Б &= \frac{\alpha \cdot d}{(1-\alpha)\cdot a + \alpha \cdot d} \\ b_Б &= \frac{(1-\alpha)\cdot b}{\alpha \cdot a + (1-\alpha)\cdot b} \end{aligned}\right\} \quad (4)$$

В формулах (4) через a позначена апріорна ймовірність гіпотези Н1 (наявність контрольованої події), а через 1-a - відповідно апріорну гіпотези Н2 (відсутність контрольованої події). Введемо позначення:

$$\beta = \frac{1-\alpha}{\alpha},\ \gamma = \frac{b}{a} = \frac{d}{a.} \quad (5)$$

Враховуючи (5) формули (4) будуть мати вигляд:

$$\left.\begin{aligned} a_Б &= 1/(1+\beta\gamma) \\ b_Б &= \beta\gamma/(1+\gamma) \\ d_Б &= \gamma/(\beta+\gamma) \end{aligned}\right\} \quad (6)$$

Як правило, апріорні ймовірності невідомі і тому можливо припустити що α=0.5, тобто β=1 [3]. Тоді формули (6) можна записати:

$$\left.\begin{aligned} a_Б &= 1/(1+\gamma) \\ b_Б &= \gamma/(1+\gamma) \\ d_Б &= \gamma/(1/\gamma) \end{aligned}\right\} \quad (7)$$

При послідовній повторній перевірці гіпотез апостеріорні ймовірності $a_Б$ і д використовуються як апріорні, і після к послідовних повторних перевірок із формули (7) з допомогою рекурентних перетворень легко одержати формули (8), визначаюси апостеріорні ймовірності достовірного прийому $a_Б(k)$, помилкової тривоги $b_Б(k)$ і невиявлення $d_Б(k)$ після к послідовних перевірок:

$$\left.\begin{aligned} a_Б(k) &= 1/(1+\gamma^k) \\ d_Б(k) &= \gamma^k/(1+\gamma^k) \\ b_Б(K) &= \gamma^k/(1/\gamma^k) \end{aligned}\right\} \quad (8)$$

Можливо показати, що ймовірність правильного виявлення контролюємої події при послідовному резервуванні $a_{бс}$, а також ймовірність помилкової тривоги $b_{бс}$ і невиявлення $d_{бс}$, з врахуванням фактору старіння, будуть визначатися наступними залежностями:

$$\left.\begin{aligned} a_{бс} &= a\text{б} * g(m) \\ b_{бс} &= b\text{б} * (1-g(m)) \\ d_{бс} &= d\text{б} * (1-g(m)) \end{aligned}\right\} \quad (9)$$

де $a_б, b_б, d_б$ - ймовірність правильного виявлення, помилкової тривоги і невиявлення, що визначаються без врахування фактору старіння інформації.

На основі отриманих залежностей побудований алгоритм апробації з допомогою статистичного моделювання [4], методом Монте-Карло, як це показано на рис.1. В відповідності з алгоритмом обчислення розроблена програма, результат роботи якої представлений на рис.2. На графіку (рис. 2) приведені оцінки ймовірності $a_{бс}$, $b_{бс}$, $d_{бс}$ які визначаються за формулою (9).

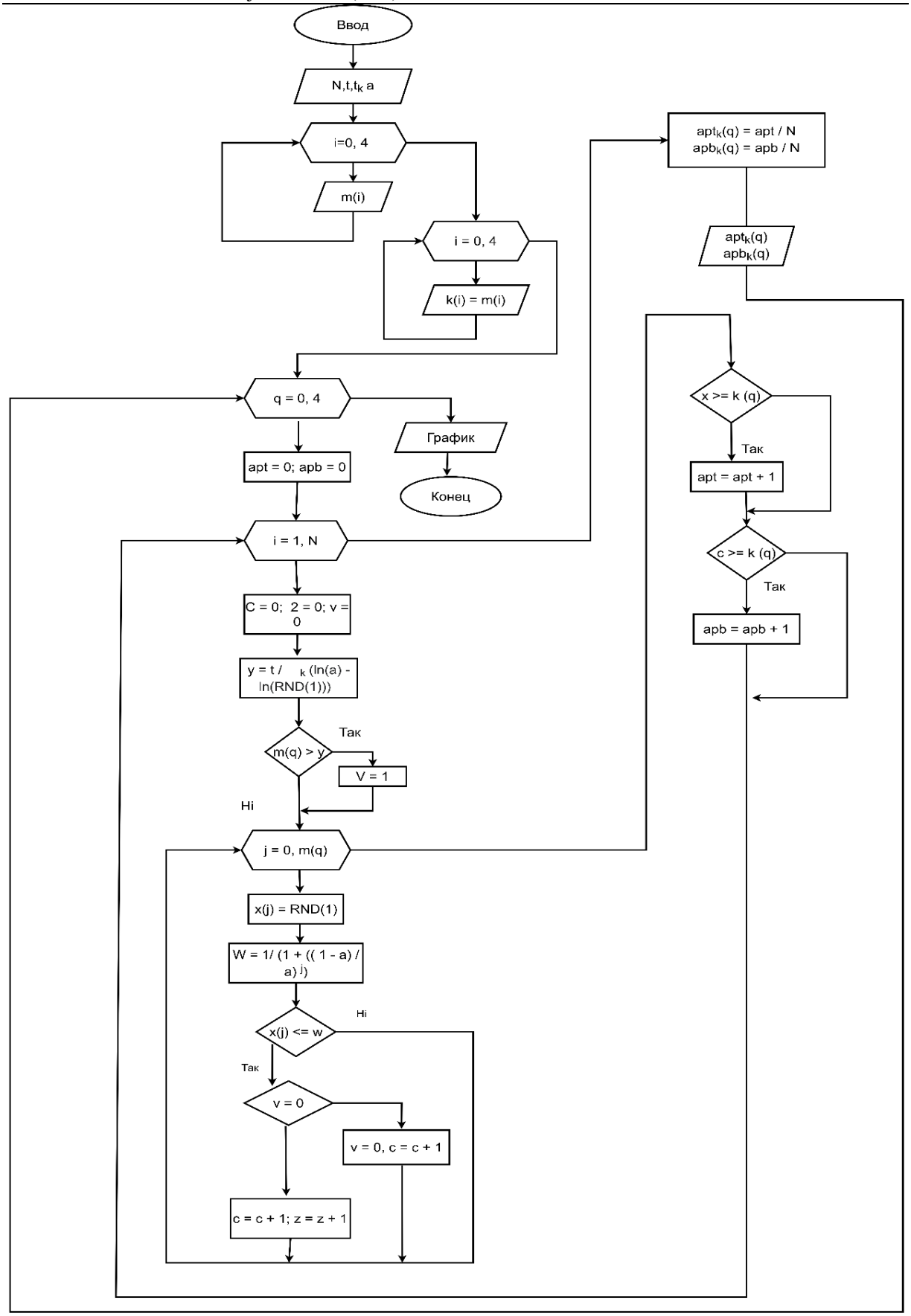

Рисунок 1. Алгоритм апробації за допомогою статистичного моделювання

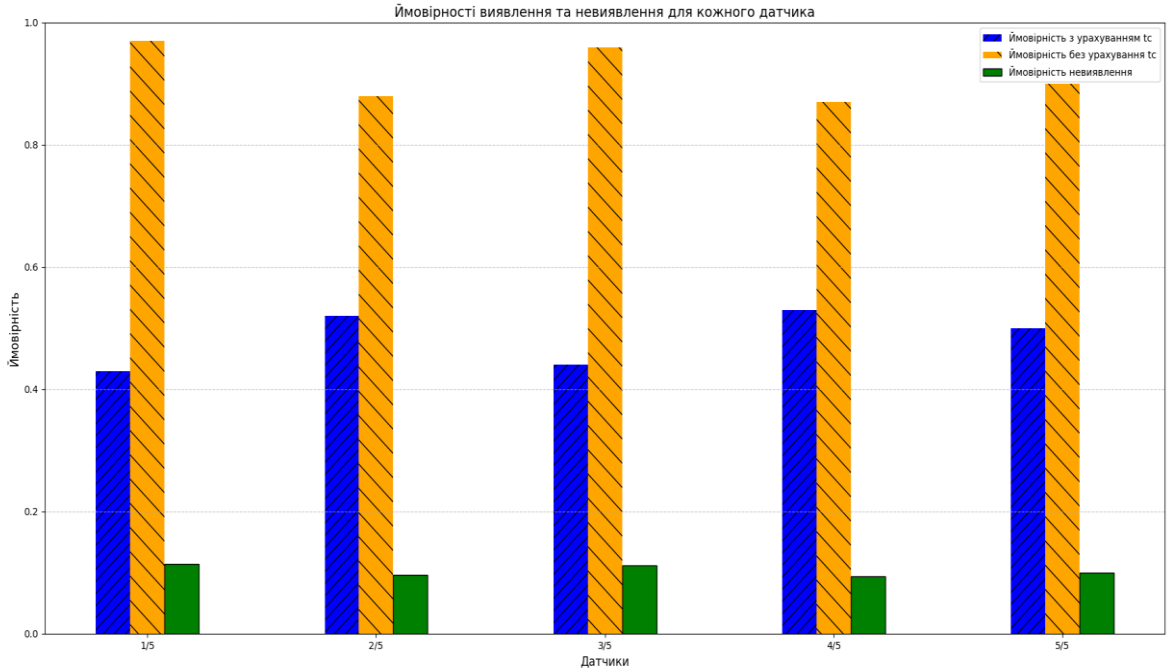

Рисунок 2. Результат роботи розробленої програми обчислення ймовірнісних характеристик виявлення контрольованої події

Висновок

Аналіз приведених на рис. 2 графіків показує:

1. З урахуванням фактору часу старіння інформації не завжди доцільно збільшувати кількість запитів джерел інформації, для підвищення її певності.
2. Якщо допустимий час старіння інформації не великий (титанова пожежа), а джерело інформації не надійне, то для підвищення певності інформації необхідно розширити паралельне резервування, тобто збільшити кількість джерел інформації.
3. Послідовне резервування забезпечує ефективне підвищення певності інформації, або достатньо великий час старіння інформації і надійності джерел інформації.

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ECONOMY

BREAKING BARRIERS HOW AZERBAIJANI BUSINESSES CAN THRIVE IN GLOBAL MARKETS

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Abstract

The purpose of the research - The purpose of the research is to analyze the situation of entrepreneurial subjects in Azerbaijan and their access to global markets.

Methodology of the research - In the research process, various local and foreign publications were analyzed and statistical data were refined.

Application importance of the research - The development of entrepreneurial subjects and their importance in the country's economy is a very important issue in terms of these companies' access to global markets.

Research findings - The development of global markets remains an ever-present issue in terms of its impact on overall economies. A package of proposals and other measures are always implemented in order for business entities of each country to have access to global markets.

Originality and scientific innovation of the research - Participation of companies in international competitions and delivery of products to more consumers is defined as the main goal. The field of activity of the main business entities in this direction in our republic is basically the oil sector.

Keywords: Global market, international relations, economic development, entrepreneurial subject.

Introduction

Globalization affects the whole world today. While companies that have adapted themselves to globalization are trying to benefit from the advantages of this globalization process, companies in local markets have also started to search for new foreign markets where they can sell and produce more. For this purpose, companies adopt some of the internationalization strategies in their marketing activities. There are three basic entry strategies that companies that want to enter a new foreign market can adopt. These are entry strategies for new markets through export, entry strategies through contracts by making product, service and brand usage agreements with partners in the market to be entered, and entry strategies through direct investment. Firms entering a foreign market encounter new cultures, different consumer habits, strong competition from competitors and new laws that must be followed in the relevant market. Companies that want to cope with all these differences offer their products to consumers in the relevant market by adapting them to market requirements. Such product strategies implemented in order to compete in the market should also be supported by marketing strategies that include pricing, distribution and promotion activities.

As the globalization process increases competition between businesses, businesses that want to get one step ahead in competition have started to better analyze the consumption habits of the markets, introduce new products to the market and produce new technologies that will reduce the cost of these new products. The development process of competition has caused very serious interactions and changes in commercial markets. In the ongoing evolution process, local markets, where local goods were previously bought and sold, are being replaced by a worldwide market where numerous and diverse products are available, purchases and sales can be made virtually, the personality structures of goods and businesses are also virtualized, and brand image is effective. With the globalization of markets, businesses have begun to encounter a market structure where many different cultures and consumption habits interact with each other. Globalization, which can also be defined as global integration, includes many phenomena including the end of polarization based on ideological distinctions and the increase in political relations, the integration of countries with each other, the rapprochement of very different languages, religions and beliefs, and the emergence of different consumer trends.1 Different authors have defined globalization in different ways. There are views that argue that globalization affects people's lives and that this effect spreads to the socio-cultural dimension of life as well as the economy. Accordingly, globalization, together with the digitalization created by communication and information technologies, is evaluated as a process that brings markets and societies that were previously very distant from each other in terms of both economic and political aspects closer together. In this context, distances no longer have any meaning. Those who evaluate the concept from a political perspective believe that the process is a process in which political borders lose their former importance, and nations and states form economic unions and have equal rights and conditions within these formations. The proponents of these views are of the opinion that the world has begun to transform into a single state due to the fact that political borders have lost their former importance and countries have begun to form unions with other countries, and that conflicts of interest are also losing their former importance thanks to the convergences in the socio-cultural field.

Globalization in today's information society includes the following issues. Thanks to the digitalization created by the developments in information and communication technologies, communication and interaction have become easier, and thanks to the networks created, the international distribution of many products that were previously regional has become easier. The

networks created thanks to information technologies and digitalization have brought markets that were previously very distant from each other, both economically and in terms of distance, closer together, and have changed the relationships of the business world with each other by saving time. These developments have reduced the costs of international circulation of products and production factors, facilitated access to financial markets in every part of the world, and in this direction forced businesses and financial actors to work at all hours of the day.

The formation of globalization due to technological developments can be explained as a compulsion of markets. According to views that include a neo-liberal market approach, the increase in production and technological acceleration forced markets to integrate with other markets, and nation states, under the compelling influence of markets, began to implement policies of liberalizing foreign trade and exchange controls from the mid-1970s onwards. The elimination of trade policies protecting the domestic market over time, the encouragement of international foreign trade, and liberalization practices in money markets are among the policies implemented on the path to globalization. Another idea regarding the formation of globalization links globalization to the dynamics and working principles of capitalism. These views, which can also be expressed as the Neo-Marxist approach, do not evaluate globalization as a newly formed structure. According to Neo-Marxist views, as globalization spreads on a world scale, capitalism will also grow stronger, develop, increase its influence, and even deepen to the same extent. Therefore, the main reason why globalization came to the fore in the late 20th century was the desire of the capitalist structure, which had problems with capital accumulation in commercial activities, to expand the markets in which it operated and then to strengthen the monopolistic structure in the markets. Those with the Neo-Marxist approach in the mentioned mindset argue that globalization essentially deepens the separation from the center to the periphery and increases the inequality in income distribution at the global level.

Economic globalization is evaluated in three different areas as commercial, financial and production globalization. Globalization in the field of trade involves the removal of obstacles in the international circulation of both goods and services between nation states.

Financial globalization is the removal of various restrictions and obligations included in financial markets. Thus, the opening of domestic markets to international competition in the world, the elimination of physical boundaries separating national financial markets from each other all over the world, the reduction of exchange controls and the conversion of currencies will be ensured. By increasing the quality and quantity of international capital movements, the increase in the mobility of institutional investments such as investment funds in real and financial markets will be ensured. Developments in information technologies and communication have particularly affected financial markets, and in line with the developments that have occurred, new derivative products have been developed to manage the financial risks faced by capital owners and increase profitability, and alternative markets have begun to emerge in this way. Globalization in production is the transportation of all or part of companies' own production to markets beyond their own borders. When companies move their production across borders, they use methods such as contract manufacturing, direct capital investment, and participation in a company across borders. With the spread of production to the international arena and globalization, the importance of international companies and direct foreign capital investments has begun to increase, and significant liberalization and growth has been achieved in world trade by reducing restrictions on the international circulation of goods and services.

Literature review

Globalization, by its nature, affects individuals, institutions and organizations, states, consumers and businesses in different ways. The main characteristics of globalization are defined as rapid rate of change, increasing number and diversity of participants, increasing complexity and uncertainty. The basic characteristics of globalization, which shows its effect in various areas within the framework of its own dynamics, can be summarized as follows:

- The change and development of the relationships and communication of companies and countries with each other,
- The change in the internal organization of companies and the increase in the restructuring of organizations according to the developments,
- The formation of a more homogeneous structure in consumption habits and the dynamism of consumer trends,
- The spread of commercial activities from local to global scale and the adaptation of these commercial activities according to the generally accepted rules valid on a global scale,
- The fact that production activities are not concentrated in a single part of the world but spread over a wide geography,
- The increase in the intensity of direct foreign capital investments in countries,
- Strategic planning for the establishment of a common economic policy covering both companies and all actors at a supranational level all over the world, The spread of production factors to the entire geography of the world, the globalization of production and consumption,
- The increase in the integration of production factors with each other at the global level and the formation of a single homogeneous structure in every field,
- The change in the management style and strategies of companies, the development of managerial profiles in this direction undergoing change (Ürgün, Z., Duru, M. N., 2014).

Digital transformation is "an evolutionary process that utilizes digital capabilities and technologies to enhance business models, operational processes, and customer experiences to generate value" (Morakanyane et al. 2017, p. 9). Digital technology have transformed organizational operations and provided numerous

chances for digital innovations (Sedera and Lokuge 2017). Leong et al. (2017, p. 97) contend that "technology serves as both the instrument and the mechanism for the firm to not only endure but also prosper to the present day." The integration of pervasive digital technologies, including mobile devices and the Internet of Things (IoT), alongside the influence of social media, cloud computing, big data analytics, and artificial intelligence, catalyzes the digital transformation of organizations, enhancing their products, services, business processes, and business models (Lokuge et al. 2019;Vial 2019). Digital technologies exhibit prominent and unique attributes, including flexibility, transferability, edibility, decomposability, traceability, interoperability, availability, scalability, reliability, security, adaptability, and cost reduction, which provide numerous advantageous opportunities for organizations. Indeed, these disruptive technologies function as both operand and operant resources. Digital transformation involves "the creation of, and the consequent change in, market offerings, business processes, or models that result from the use of digital technology" (Nambisan et al. 2017, p. 224), and these changes must be effectively addressed. The success of companies like Amazon and Netflix, contrasted with the decline of traditional entities such as Blockbuster, exemplifies digital change. Wessel et al. assert that in digital transformation, "digital technology is central to redefining value propositions, resulting in the emergence of a new organizational identity," whereas Tan et al. (2020) argue that technologies enhance effective business processes via the digital transformation of the business ecosystem. Despite the abundant literature on digital transformation, there is a lack of a unified perspective on the process of digital transformation and its wider theoretical framework. Consequently, there is an opportunity in the literature to enhance the comprehension of digital transformation as an input-process-output model, elucidated by relevant theories, utilizing its comprehensive nomological framework. Gastaldi et al. (2018) conducted a comparable study in which they depicted digital transformation as a sequence of antecedents, processes, and consequences, however restricted to the healthcare industry. Lokuge and Duan (2021) demonstrate the prevalent utilization of terms such as digitization, digitalization, and digital transformation in both academic and industrial contexts. Furthermore, the concepts of digitization, digitalization, and digital transformation have engendered a level of uncertainty that necessitates clarification (Verhoef et al. 2021). Likewise, the research community will gain from a unified theoretical framework on digital change.

The dynamic capabilities view (DCV) as a strategic paradigm derives from previous theoretical frameworks, particularly the evolutionary perspective and the resource-based view. DCV transitions from an emphasis on operational capabilities processes and routines aimed at optimizing the utilization of current company resources to a focus on dynamic capabilities processes and routines geared towards strategic transformation involving the alteration of existing resources, such as market entry and the introduction of product or process innovations (Schilke et al., 2018). Unlike the capabilities/resources perspective, Dynamic Capabilities View (DCV) posits that scholars focus on business processes that result in evolving sources of competitive advantage, rather than on the processes of establishing and sustaining competitive advantage. This is particularly relevant in the context of environmental volatility, notably market or technological dynamics, which challenge the feasibility of upholding previous strategic assumptions. Dynamic capabilities consist of two independent processes: (1) identifying opportunities and dangers related to resource reconfiguration, and (2) mobilizing and reconfiguring organizational resources in response to these environmental changes. Consequently, environmental scanning techniques are regarded as a fundamental component of dynamic capabilities, albeit they facilitate sustained organizational success only when integrated with appropriate strategic modifications. Two primary schools are evident in the DCV heritage: (1) dynamic capabilities as intricate routines ingrained inside the business, and (2) dynamic capabilities as managerial competencies and specific decision-making processes. Both viewpoints converge on the concept that dynamic capabilities pertain to strategic modifications of corporate assets in response to an evolving environment. This assumption appears to align with recent proposals about the conceptualization of dynamic capabilities in marketing, namely dynamic marketing capabilities (DMCs) (Mitre˛ga, 2020). DMCs, as a distinct type of dynamic capabilities, are conceptually linked to alterations in marketing strategy informed by market knowledge and the systematic anticipating of market changes (Mitre˛ga, 2020). Nonetheless, akin to current studies on international marketing skills (Morgan et al., 2018), dynamic marketing capabilities (DMCs) in international markets need not be confined solely to processes specifically aimed at international marketing; rather, they may encompass generic DMCs utilized in international contexts. Thus, contingent upon the specific business and market context, there exist numerous methodologies for implementing DMCs in international marketing (e.g., in international NPD and international branding). Therefore, rather than a singular global, cross-functional DMC in international marketing, one might anticipate diverse specific iterations of DMCs, such as in the domains of international branding or international distribution channels.

Methodology

Table 1.

The share of micro, small and medium enterprises in the country's economy, in percentage

Indicators	2022				2023			
	Total	*of which*			*Total*	*of which*		
		Micro	*Small*	*Medium*		*Micro*	*Small*	*Medium*
*İn total value added by economy**	*13.9*	5.7	2.3	5.9	*18.0*	6.8	2.9	8.3
*non oil-gas sector**	*27.2*	11.5	4.5	11.2	*27.2*	11.3	4.6	11.3
In total number of employees of businesses	*41.8*	4.8	11.8	25.2	*44.0*	5.6	12.4	26.0
non oil-gas sector	*43.1*	5.0	12.2	25.9	*45.3*	5.8	12.8	26.7
In total investments directed to fixed capital by enterprises	*29.1*	8.8	9.8	10.5	*19.0*	2.4	6.4	10.2
non oil-gas sector	*22.8*	6.9	7.7	8.2	*15.8*	2.0	5.3	8.5
In total number of active enterprises	*99.7*	96.8	2.1	0.8	*99.7*	96.7	2.1	0.9

Source: https://www.stat.gov.az/source/entrepreneurship/

In 2023, the share of micro, small and medium enterprises (SMEs) in the economy of Azerbaijan showed an increase compared to 2022. The total value of entities increased from 13.9% to 18.0%, the share of micro-enterprises increased by 6.8%, and the share of medium-sized enterprises increased.

Table 2.

The number of operating micro, small and medium enterprises

Indicators	2023		
	Total	*of which*	
		Legal persons	*Individual ent.*
Total number of enterprises	*401,149*	47,794	353,355
The number of micro enterprises	*389,133*	35,778	353,355
The number of small businesses	*8,610*	8,610	-
The number of medium businesses	*3,406*	3,406	-

Source: https://www.stat.gov.az/source/entrepreneurship/

In 2023, a total of 401,149 micro, small and medium business entities operated in Azerbaijan. The vast majority of them were micro-enterprises with 389,133 units, 8,610 small business entities, and 3,406 medium-sized businesses.

Table 3.

Value of goods loaded, works performed, and services provided by micro, small and medium business entities by types of economic activity and ownership, thousand

Economic activity / ownership types	*Total*	2023		
		Micro	*Small*	*Medium*
Total for types of economic activity	*34,743,075.4*	12,366,194.8	5,778,422.7	16,598,457.9
Agriculture, forestry and fishing	*1,091,640.6*	246,779.2	195,187.0	649,674.4
Industry total	*7,617,953.1*	922,092.6	970,555.7	5,725,304.8
Manufacturing industry	*4,517,502.5*	835,880.2	839,529.7	2,842,092.6
Electricity, gas and steam production, distribution and supply	*889,011.0*	11,759.4	33,250.9	844,000.7
Construction	*4,500,863.8*	467,800.4	973,292.8	3,059,770.6
Trade; repair of transport means	*9,024,434.5*	5,135,470.9	1,508,160.2	2,380,803.4

Source: https://www.stat.gov.az/source/entrepreneurship/

In 2023, the total value of goods and services provided by micro, small and medium enterprises in Azerbaijan reached approximately 34.74 billion US dollars. . Agriculture, forestry and fisheries accounted for $1.09 billion, and the total industrial sector accounted for $7.62 billion. In particular, the manufacturing industry accounted for 4.52 billion US dollars, indicating high production potential.

Azerbaijani companies operating in the global arena

A subsidiary company "SOCAR Overseas Ltd" operates in the emirate of Dubai of the United Arab Emirates (UAE) with a participation share of SOCAR. "SOCAR Overseas" engages in the trade of crude oil and refined products within the framework of cooperation with SOCAR's Marketing and Operations Department (Azerbaijan) and "SOCAR Trading" company (Switzerland). The company, registered in the Dubai

International Financial Center, cooperates with third parties operating in various fields in a wide range.

The history of SOCAR Energy Holdings, a subsidiary of SOCAR in Switzerland, began on July 1, 2012, when SOCAR bought shares in Esso Switzerland from ExxonMobil. Starting from September of the same year, "Esso" gas stations in Switzerland were rebranded under the name "SOCAR". This logo, which is new in Europe, reflects the colors of the national flag of Azerbaijan and started promoting the company as a modern, loved and reliable brand in the international arena.

One of the main values of the company "SOCAR Energy Holdings" (hereinafter "SOCAR Switzerland") is to fulfill the expectations of customers, its main goal is to offer its customers high-quality energy products and, at the same time, to provide a high level of service. In addition, contributing to sustainable development has been recognized as one of the important goals.

In addition to wholesale and retail activities, "SOCAR Energy Georgia" also performs functions such as the construction and operation of gas stations, the supply of oil product terminals and vehicles, and the implementation of import operations. In order to carry out the listed activities, subsidiaries such as "SOCAR Georgia Gas", "SOCAR Georgia Petroleum" and "SOCAR Georgia Security" were created, which are legally fully owned by the company "SOCAR Energy Georgia".

SOCAR's first representative office in Europe was opened in 2007 in Romania, which is considered the gateway to Eastern Europe. The goal was to enter the region's energy market by delivering Azerbaijan's hydrocarbon reserves to Romania and, in general, to Eastern and Central European countries. On January 30, 2011, SOCAR started its business activities in Romania by establishing "SOCAR Petroleum SA" company. The purpose of establishing "SOCAR Petroleum SA" was to organize the purchase and sale of petroleum products in the country and to provide quality supply services in accordance with international standards.

"SOCAR RUS" LLC was established in 2013 in accordance with the legislation of the Russian Federation. Since 2016, the company has received accreditation at the St. Petersburg Stock Exchange to have the right to participate in stock market auctions of oil, petrochemical products and liquefied petroleum gas (LPG). In 2017, the Russian subsidiary of SOCAR, which has already become an active participant of the stock exchange, started selling low-density polyethylene (ASPE). So, since April 7 of that year, "SOCAR RUS" has been selling ASPE brand 15803-020 produced by "Azerikimya" Production Union. Since 2019, the company has started selling polypropylene and high-density polyethylene produced by "SOCAR Polymer" on the Russian market. The product is delivered to Russia by trucks, sea and railways.

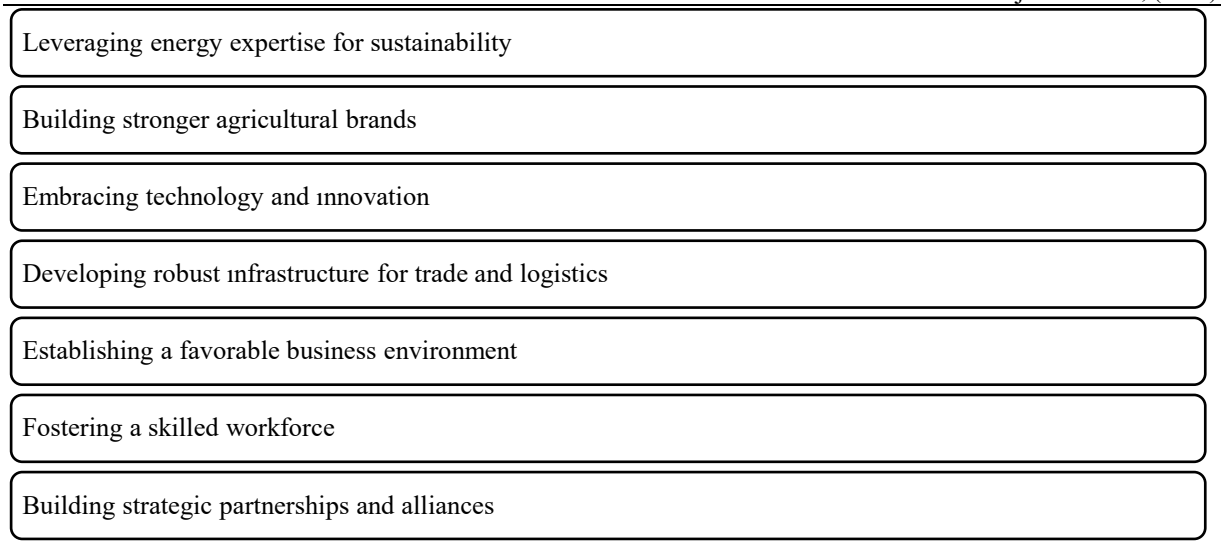
In 2008, SOCAR started its activities in the sister country by buying 51% of the shares of "Petkim", the first and only integrated petrochemical complex of Turkey. The scope of activity of the companies included in the "SOCAR Turkey" group includes the import, wholesale and retail sale of crude oil and natural gas, distribution of natural gas, production and sale of petrochemical products. Since 2008, "SOCAR Turkey" together with its business partners has invested a total of 17.6 billion US dollars in the Turkish economy.

The companies of the group "Petkim", "STAR Oil Refinery", "SOCAR Terminal", "SOCAR Depolama" and "Petkim RES" (Wind Power Station) are located in the Aliaga region of Izmir. "TANAP Pipeline", "Bursagaz", "Kayserigaz", "Enervis" and "SOCAR Enerji Ticaret" companies specialize in natural gas transportation and distribution. In addition, "SOCAR Ticaret", which is engaged in the operation of fuel stations, "Millenicom" and "SOCAR Fiber" from communication and telecommunication companies, as well as construction company "SCR Gayrimenkul" occupy an important place in the portfolio of "SOCAR Turkey".

Benefiting from the market potential of the post-Soviet countries, SOCAR opened its representative office in Ukraine in 2008 after Georgia. The goal is to humiliate the wholesale and retail sale of oil and gas products, as well as raw materials on the territory of a friendly country. In 2010, the company entered the country's wholesale market and started providing oil and gas products to local enterprises from various sectors. The company successfully operates in the territory of Ukraine in the framework of cooperation with SOCAR Ukraine Trading House, which imports gas to Ukraine (SOCAR.2024).

According to the official website of the International Space Technology Conference, STC is recognized as an important organization where commercial organizations from all over the world can meet with regional institutions and organizations to discuss the development of the space industry and establish long-term partnerships. STC 2023 was attended by 49 speakers, 21 sponsors and 303 delegates from 28 countries, and this event is fast becoming an annual meeting place for decision makers in the space industry of the Central Eurasian region (AzerTac. (2024)

“Our expedition commenced in 2012 in Baku, the vibrant epicenter of the Silk Road. Our fleet consists of 14 specialist Boeing 777F, 747-8F, and 747-400F aircraft based at Heydar Aliyev International Airport, enabling us to operate hundreds of trips worldwide each month. On April 28, 2021, we formalized a collaboration agreement with Boeing, signifying a pivotal moment as we committed to augmenting our fleet with five new 777 Freighters. The dedication to growth was emphasized on November 10, 2022, with the acquisition of two advanced 777-8 Freighters, alongside a contract with Airbus for two A350 Freighters dated June 28, 2022”. (Silk Way West Airlines).



Scheme 1. Access measures of Azerbaijani business entities to the foreign market
Source: It was developed by the author himself as a result of research.

Conclusion

The development of small and medium-sized entrepreneurship in Azerbaijan is of particular importance in terms of diversification of the economy, increasing its competitiveness, ensuring employment, meeting the demand for consumer goods at the expense of local resources, and ensuring economic development. Thus, looking at the special weight of SMEs in GDP and employment in developed countries, it can be concluded that the transformation of SMEs into the main driving factor in ensuring sustainable economic development in Azerbaijan is one of the main challenges ahead. In this direction, in our article, the modern state of entrepreneurship subtexts in Azerbaijan, the development of their basic infrastructures and other factors have been analyzed. Thus, attention has been paid to the formation of Azerbaijan's access to the global market. In addition, Azerbaijani companies in the global market, their fields of activity and the segments that business entities should do are mentioned.

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ПРИНЦИПЫ ОРГАНИЗАЦИИ ДЕЛОВЫХ ПЕРЕГОВОРОВ ВО ВНЕШНЕТОРГОВОЙ ДЕЯТЕЛЬНОСТИ ПРЕДПРИЯТИЙ

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Аннотация

В статье подчеркивается важность установления и расширения внешнеторговых отношений предприятий предпринимательской деятельности. Внешнеторговые связи для предприятий рассматриваются как одна из главных тенденций современности. Доводятся до сведения вопросы, подлежащие согласованию в ходе деловых переговоров с целью установления внешнеторговых отношений, правила протокола, важные факторы при выборе партнеров и условий контрактов, необходимость обеспечения соответствия контрактов национальным и международным законодательным актам. Разъясняются процедуры организации деловых встреч, ведения переговоров и заключения договоров при организации и расширении внешнеторговых связей.

Abstract

The article highlights the importance of establishing and expanding foreign trade relations between business enterprises. Foreign trade relations for enterprises are considered as one of the main trends of our time. The issues to be agreed upon during business negotiations in order to establish foreign trade relations, the rules of protocol, important factors in choosing partners and contract terms, and the need to ensure that contracts comply with national and international legislation are brought to the attention. The procedures for organizing business meetings, negotiating and concluding contracts in the organization and expansion of foreign trade relations are explained.

Ключевые слова: внешняя торговля, партнер, деловые переговоры, условия договора.

Keywords: foreign trade, partner, business negotiations, terms of contract.

Введение.

В современную эпоху интенсификация экономико-торговых отношений на глобальном уровне, рост открытости экономических систем стран, появление сильного частного сектора, развитие рыночных отношений и другие факторы создают необходимость интенсификации торговых отношений отечественных субъектов предпринимательства с зарубежными партнерами.

Как известно, внешняя торговля-это торговля между странами, состоящая из экспорта и импорта товаров и услуг. Развитие современных экономических систем напрямую зависит от расширения внешнеторговых отношений, постоянной интенсификации этих отношений. Поэтому установление и всестороннее развитие торговых отношений должно стать одним из основных направлений деятельности предприятий.

Обсуждение.

Внешнюю торговлю можно рассматривать как составную часть международных экономических отношений стран и предприятий. В целом внешняя торговля также играет важную роль в расширении международных экономических отношений страны и развитии национальной экономической системы. В частности, в условиях глобализации и стремительного развития технологий международные торговые отношения стали важным элементом и одной из главных движущих сил экономического прогресса и развития государств [2].

Внешнеторговая деятельность-это деятельность по осуществлению операций в сфере внешней торговли товарами, услугами, информацией и интеллектуальной собственностью. Основными формами внешнеторговой деятельности считаются экспорт, импорт, реэкспорт, реимпорт.

Внешняя торговля может осуществляться в форме экспорта и импорта продукции любого ассортимента и количества. Экспорт относится к вывозу продукции за границу с таможенной территории страны без обязательства по ее реэкспорту, тогда как импорт-это ввоз продукции на таможенную территорию страны без обязательства по ее реэкспорту [6].

Обычно внешнюю торговлю осуществляют предприятия, занимающиеся определенной предпринимательской деятельностью, доставляющие продукцию и услуги от производителей потребителям, удовлетворяющие потребности людей, одной из стратегических целей которых является получение доходов.

Экономическое содержание торговой деятельности в целом, включая внешнюю торговлю, проявляется в функциях предприятий [2, с. 72-73].

Предприятия, занимающиеся предпринимательской деятельностью, осуществляют множество операций с целью организации и осуществления внешней торговли. Эти операции осуществляются на основании множества документов и регламентируются определенными нормативными правовыми актами. Среди этих документов и нормативных правовых актов следует особо выделить национальные и международные договоры, применяемые в сфере внешнеторговой деятельности.

Международные торговые соглашения, играющие важную роль в формировании и развитии внешнеторговых отношений, основываются на определенных принципах. Эти принципы следующие:

-прозрачность торговых отношений;

-построение отношений на взаимовыгодной основе;

-обязательность исполнения торговых обязательств;

-способность выполнения обязательств;

-определение ответственности сторон;

-недопустимость дискриминации и злоупотреблений, независимо от того, к какой стране принадлежат предприятия;;

-обеспечение безопасности в торговых операциях.

Эти принципы, регулирующие торговые отношения, имеют важное значение для повышения эффективности торговых отношений сторон, обеспечения справедливой конкуренции, достижения устойчивости и стабильности экономического сотрудничества.

Внешнеторговые отношения подразумевают также принцип обеспечения покупателя товаром, а продавца-право на получение оплаты за эту продукцию. Итак, во внешней торговле отношения купли-продажи-это договор, который гарантирует продавцам передачу права собственности на продукцию указанному покупателю в обмен на определенную сумму денег. В этих контрактах отражаются количественные, качественные и другие показатели продукции, а также другая важная информация [4].

В содержании договора в основном отражаются:

- вид внешнеторговых операций;
- тип товаров и услуг;
- характер операции.

Структура договора включает в себя стороны договора, предмет договора, условия поставки продукции, количество и общую сумму продукции, условия приемки и другие необходимые разделы. В некоторых случаях отдельные разделы договора объединяются в зависимости от уровня отношений между партнерами [3].

В процессе подготовки и реализации внешнеторговых контрактов участники детально изучают характеристики партнера (надежность, аккуратность, ответственность, дисциплинированность и т. д.), а также имидж конкретных предприятий и учреждений, с которыми заключаются контракты. Изучение характеристик контрагента считается общепринятым и важным элементом внешнеторговой деятельности, на который обращают внимание все ее участники. В условиях резких и внезапных изменений, обусловленных влиянием глобальных условий, одним из важных условий для предприятий является необходимость с особой внимательностью и осторожностью подходить к выбору зарубежного предприятия в качестве партнера с целью долгосрочного сотрудничества.

После тщательного изучения зарубежного партнера проводятся переговоры между руководителями предприятия или фирмы с целью заключения торгового соглашения. Предметом переговоров в основном являются следующие вопросы:

-подготовка плана мероприятий по приему представителей и специалистов иностранного предприятия-партнера;

-уточнение условий контракта;

-составление проекта договора;

-проведение уточнений и составление протокола;

-подписание договора.

В процессе внешнеторговых операций ведутся переговоры с партнерами, потенциальными клиентами и поставщиками, транспортными, страховыми компаниями и другими субъектами в зависимости от предмета торговли.

Успешное завершение торговых переговоров и достижение взаимовыгодного соглашения для подписания договора обычно зависит от умения сторон вести переговоры, умения оценивать ситуацию, коммуникативных навыков партнеров, выбора правильного стиля стратегии и тактики делового общения и других факторов.

Конечной целью деловых переговоров является достижение соглашения о взаимовыгодном сотрудничестве. Для достижения полезного результата в деловых отношениях важно оценить психологические особенности делового партнера, правильно выбрать способ делового общения. Встречи и переговоры с деловыми партнерами составляют основу соглашения о подписании торгового соглашения. Протокол-это совокупность правил, норм и традиций поведения партнеров на официальных и неформальных встречах.

Существуют общеизвестные правила организации и планирования встреч и переговоров по заключению торговых соглашений. Обычно за некоторое время до заключения договора организуются деловые встречи для уточнения условий сотрудничества. Для этих встреч составляется специальная программа, в которую включаются следующие вопросы [5, с. 58]:

-анализ условий сотрудничества;

-формирование целей, задач и позиций в сотрудничестве;

-определение возможных путей организации сотрудничества;

-разработка предложений и аргументов в пользу эффективного сотрудничества;

-подготовка необходимых документов и материалов.

Процесс деловых переговоров, организуемых с целью заключения торговых соглашений, включает три этапа:

1.Уточнение интересов, перспективных направлений сотрудничества и взаимное согласование позиций;

2.Обоснование и уточнение позиций по обсуждениям, спорам, аргументам и другим показателям;

3.Определение принципов координации и регулирования сотрудничества.

Вопросы, рассматриваемые на этих этапах, могут быть реализованы в ходе переговоров, проводимых в разное время, и несколько вопросов могут быть согласованы и конкретизированы одновременно.

Встречи могут быть организованы в одной из стран, к которым принадлежат партнеры, или в любой третьей стране. Обычно деловая встреча планируется в соответствии с уровнем торговых отношений и предполагаемой программой деятельности. На деловых встречах общение партнеров может носить формальный и неформальный характер. На таких встречах наряду с переговорами о торговом сотрудничестве могут обсуждаться и другие вопросы, осуществляться ранзые мероприятия.

В ходе переговоров взаимное разъяснение и согласование ценностей, интересов, взглядов, концепций, поведения сторон в торговых отношениях очень важно с точки зрения их оценки как предприятий соответствующего характера. Во время деловых переговоров между предприятиями, в которых особенности и принципы направлений деятельности совпадают, легче достигается взаимопонимание, согласование содержания договора. Результаты деятельности таких партнеров также обычно отличаются своей эффективностью.

В любом случае деловые встречи организуются в рамках установленных правил протокола. Протокол встречи должен содержать следующие основные вопросы:

-место проведения встречи;

-время встречи;

-состав участников;

-тема деловой встречи;

-вопросы для обсуждения;

-подготовка документов к заключительному соглашению.

Целью организации деловых переговоров является формирование необходимой основы для согласования и перспективного сотрудничества в сфере торговли. Формирование этой основы требует переговоров по следующим направлениям.

Осуществление обмена интересной и важной для сторон информацией в процессе предварительных переговоров служит прояснению вариантов дальнейшего сотрудничества. Обмен информацией в ходе предварительных переговоров является одним из основных этапов подготовки к заключению внешнеторгового соглашения. В то же время этот процесс может продолжаться и в условиях сотрудничества между участниками.

Одной из основных целей предварительных переговоров является достижение сторонами соглашения. Наличие у партнеров необходимой информации, четко обозначенные позиции, способность разрешать возможные разногласия, которые могут возникнуть в ходе реализации договора, а также способность наладить нормальный механизм координации предстоящей деятельности создают основу для достижения соглашения.

Одним из важных вопросов является регулирование и координация деятельности в рамках торгового соглашения, а также организация контроля за процессами. При необходимости могут быть реализованы и дополнительные функции по контролю за исполнением совместных решений. Не исключена вероятность возникновения противоречий и конфликтов между соронами при исполнении обязанностей по внешнеторговому договору. Причиной возникновения таких случаев могут быть:

-наличие у сторон разных психологических характеристик;

-предпочтение сторон различным ценностям, системе отношений;

-ответственный подход к задачам и обязательствам;

-плохая стабильность в отношениях.

Следует иметь в виду и то, что иногда недостаточное обеспечение надлежащего уровня гармонии в торговых отношениях создает препятствия для адекватного исполнения обязательства одной из сторон по действующему соглашению. Следует иметь в виду, что иногда недостаточное обеспечение надлежащего уровня гармонии в торговых отношениях создает препятствия для адекватного исполнения обязательства одной из сторон по действующему соглашению. Причиной возникновения такой ситуации является наличие на этапе делового общения определенных расхождений во взглядах сторон на стратегию развития бизнеса и пути решения возможных недоразумений. Поэтому на деловых встречах необходимо разъяснять эти точки зрения на основе общих принципов и максимально гармонизировать позиции.

Существует два основных подхода к разрешению конфликтных ситуаций, возникающих в коммерческих отношениях:

1) сотрудничать для разрешения конфликтов;

2) идти на конфронтацию.

Естественно, что более выгодным подходом для сторон считается сотрудничество в преодолении конфликта и поиске взаимовыгодных решений.

Вступление в конфликт во внешнеторговых отношениях обычно приводит к тому, что стороны, пытаясь продемонстрировать свои силы и преимущества, создают препятствия для принятия взаимовыгодного решения.

Одним из способов разрешения конфликтов является достижение компромисса путем сотрудничества. В этом случае стороны стремятся получить максимальную выгоду при минимальных уступках.

Конфронтационный подход к решению проблем сопровождается применением различных методов давления, включая шантаж и угрозы, искажение информации. Такой подход обычно основывается на субъективных оценках сторон, их личностных особенностях, опыте сотрудничества во внешнеэкономических и торговых отношениях и других факторах. При выборе конфронтационного пути разрешения вопроса решение о его разрешении часто принимается в результате превосходства и упрямства одной из сторон и не обеспечивает полного устранения тех или иных разногласий.

В любом случае у предприятий должны быть инструменты и методы для разрешения недоразумений и предотвращения конфликтов. Один из лучших способов разрешения разногласий-перевести переговоры в неформальную обстановку.

Процесс коммуникации предприятий с целью заключения торгового договора в ходе различной внешнеэкономической деятельности включает следующие этапы:

-подготовка к процессу;
-ведение переговоров;
-анализ результатов переговоров;
-заключение договора;
-согласование условий торговли;
-выполнение функций по договору.

Важнейшим этапом коммуникационного процесса является предварительная подготовка, так как это первый шаг в процессе заключения и реализации внешнеторговых договоров. На этом этапе определяются стороны, с которыми будут проводиться деловые переговоры, и вопросы, которые необходимо решить. Выбор партнеров для установления торговых отношений осуществляется на основе имеющихся данных о предприятии и его руководителе, направлении деятельности, финансовом положении, конкурентоспособности, репутации, компаниях, с которыми он сотрудничает, перспективах сотрудничества, географии деятельности и других показателей. Чем полнее и всеобъемлющеее будет информация, собранная о выбранной компании, тем эффективнее будут торговые отношения. Так как, этот фактор считается важным для расширения сотрудничества в будущем, придания приоритета сотрудничеству в разрешении потенциальных конфликтов, планировании будущих мероприятий и решении других вопросов.

Помимо сбора информации о стороне, с которой устанавливаются торговые отношения, каждое предприятие должно донести до партнера информацию о себе. Информация, предоставляемая в это время, должна быть точной и исчерпывающей, не должно быть дополнительной необходимости для партнера получать искаженную информацию из других источников. Информация должна охватывать основные аспекты деятельности компании, ее важные достижения во внешней торговле, ключевые показатели развития, результаты сотрудничества с другими предприятиями, гарантии надежности в сотрудничестве и другие факторы. Информация также должна носить позитивный характер и убеждать партнера в серьезности его намерений начать деловые переговоры и надежности выполнения договорных обязательств.

Заключение.

Таким образом, для предприятий, занимающихся хозяйственной деятельностью, одной из важнейших задач является выход на зарубежные рынки, установление торговых отношений с предприятиями различных стран и развитие этих отношений. В условиях современной глобализации создание внешнеторговых экономических отношений становится необходимостью. Эти отношения регулируются национальными и международными нормативными правовыми актами и реализуются на основе договоров.

Особо следует отметить роль деловых встреч в процессе заключения контрактов, в установлении и развитии внешнеторговых связей. Определение и согласование ответственности, функций, обязательств сторон в процессе торговых отношений, определение принципов сотрудничества и решения других вопросов с целью разрешения конфликтов осуществляется непосредственно на деловых встречах. Следует иметь в виду, что такие встречи также организуются и проводятся на основе определенных норм и принципов. Проведение деловых встреч в соответствии с этими принципами с целью расширения и развития внешнеторговых связей позволяет сторонам достичь более эффективных результатов и успешно функционировать во внешней торговле.

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ИННОВАЦИИ КАК ИНСТРУМЕНТ КОНКУРЕНТНОГО ПРЕИМУЩЕСТВА В СТРАТЕГИЯХ РАЗВИТИЯ КОМПАНИЙ

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INNOVATION AS A TOOL OF COMPETITIVE ADVANTAGE IN THE COMPANIES' DEVELOPMENT STRATEGIES

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Аннотация

В статье анализируется роль инноваций как инструмента стратегического развития компаний и обеспечения их конкурентного преимущества. Исследуется влияние инновационной деятельности на рыночные позиции американских корпораций в условиях глобальной конкуренции. Изучаются подходы к внедрению инноваций, включая поддержку со стороны государства и стратегическое сотрудничество с малым бизнесом. Особое внимание уделено рискам и препятствиям, связанным с инновационной деятельностью, а также механизмам их преодоления. Подчеркивается значимость гибкости и адаптивности компаний для успешного использования инноваций. Делается вывод о том, что инвестиции в инновации укрепляют позиции компаний на мировом рынке и повышают их устойчивость к изменениям.

Abstract

The article analyzes the role of innovation as a tool for strategic development of companies and ensuring their competitive advantage. The influence of innovative activity on the market positions of American corporations in the context of global competition is investigated. Approaches to innovation are being studied, including government support and strategic cooperation with small businesses. Special attention is paid to the risks and obstacles associated with innovation, as well as mechanisms to overcome them. The importance of flexibility and adaptability of companies for the successful use of innovations is emphasized. It is concluded that investments in innovation strengthen the position of companies in the global market and increase their resilience to change.

Ключевые слова: инновации, конкурентное преимущество, стратегическое развитие, глобальная конкуренция, адаптивность.

Keywords: innovation, competitive advantage, strategic development, global competition, adaptability.

Introduction

In the context of globalization and increasing competition, innovation is becoming crucial for ensuring sustainable growth and a competitive advantage for companies. Today's dynamic market requires businesses to adapt quickly to changes, which is often impossible without the introduction of new technologies, approaches, and processes. In this regard, innovations enable companies not only to meet consumer needs more effectively but also to strengthen their positions in the long term. Innovation is of particular importance for companies in the United States, where the market is characterized by high competition and a constant need to update products and services.

Global market competition compels companies to pursue large-scale and unique innovations to stand out among numerous competitors. This approach is especially important for American companies that not only strive to maintain their positions domestically but also actively compete in the global arena. This research aims to analyze the theoretical foundations and strategic approaches to using innovation as a tool for competitive advantage, with an emphasis on American companies and global experience.

Main part. Theoretical foundations of innovation's role in the company's development strategies

A key aspect of innovative activity is its ability not only to create new products but also to transform business models, production processes, and management approaches significantly. There are several types of innovation, each contributing differently to business processes. **Product innovations** aim to improve or create new goods or services, enabling companies to meet emerging consumer needs. **Process innovations** involve enhancing production methods and can help reduce costs while improving efficiency.

On a global scale, innovation exerts a substantial impact on competitive advantage. According to classical competition theories developed by economists such as **Michael Porter**, competitive advantage arises when a company offers either a unique product or achieves efficiency that allows for lower prices while maintaining high quality. The introduction of innovations addresses both of these goals, enabling companies to secure a unique position in the market. Adam Smith's theory of perfect competition states that the basis of economic development is competition between so many participants that it would not allow control over output and prices. Smith found that competition is a boon to society because it leads to a more efficient allocation of resources and their use. According to the theory of John Bates, competition is the driving force of a market economy and contributes to the effective functioning of the market. It is based on the assumption

that there are many independent firms, each of which seeks to maximize its benefits through increased profits. Competition serves as a key driver of innovation, fostering unique market positions, efficiency, and resource optimization, which collectively contribute to economic development and the effective functioning of markets [1].

Innovation has become a critical driver of economic growth and sustainable development. Effective knowledge and innovation transfer positively impact economic performance and policy-making. Technology transfer operates on two interconnected levels: the micro-level, which involves the exchange of technologies within or between organizations within the same economy, and the macro-level, which pertains to international technology transfer or state-to-state exchanges. These levels are mutually dependent, as the macro-level establishes the conditions necessary for innovation at the micro-level, while micro-level activities generate the innovations essential for the broader economy. The transition to a digital economy has prompted the adoption of an ecosystem-based approach, moving beyond disproportionate analyses of technology transfer at separate levels. Governments must coordinate and identify the innovation potential of enterprises, scientific and technological resources, and innovation infrastructure [2].

Kazakhstan ranks 74th in the **Global Innovation Index**, which reflects its modest natural resource reserves and competitive position. The primary focus of the country's development lies in advancing high-tech production and technological innovation, as reliance on natural resources is constrained by their limited availability. Despite the challenges of quickly establishing an effective national innovation model and the difficulty of integrating science, business, and education, new innovative structures are forming in **Kazakhstan,** laying the groundwork for balanced development across all elements of the innovation system by 2050 [3].

According to statistics on the **most innovative countries**, **the United States** ranks third, behind only Sweden and Switzerland (table 1).

Table 1.

Top 10 Most Innovative Countries in the World [4]

Country	Rank	Description
Switzerland	1	Leader in innovation for 13 consecutive years; excels in research and development (R&D), patents, and technology development, with over two-thirds of R&D funding from the private sector.
Sweden	2	Consistently ranked in the top five, thanks to strong R&D investment and a robust innovation ecosystem.
United States	3	High-tech powerhouse, home to global tech leaders; strong in space tech, pharmaceuticals, and telecommunications, though impacted by challenges in higher education policies.

The United States actively engages in innovation across fields such as information technology, biotechnology, pharmaceuticals, and renewable energy. According to the **World Investment Report**, American companies invest significant funds in research and development (R&D), enabling them to maintain a high level of competitiveness. Notably, innovation has become a central component of strategies for large United States companies like **Apple, Google, and Tesla**. These corporations leverage innovation to differentiate their products, introduce new business models, and offer more personalized solutions for consumers. For example, in 2023, **Apple** invested around $27,5 billion in **R&D**. Approximately 5% to 20% of tech giants' R&D spending is directed toward «**frontier technologies**» such as the metaverse, autonomous vehicles, healthcare, space exploration, robotics, fintech, cryptocurrency, quantum technologies, and artificial intelligence [5].

A notable example is **Amazon**, which invests substantial funds annually in machine learning and automation research, enabling the company to lead in e-commerce and cloud computing. Amazon, the largest e-commerce brand and a key player in the cloud industry, has consistently led in research and development (R&D) spending. In fiscal 2023, Amazon's R&D expenses reached $85,6 billion, up from $73,2 billion in 2022, continuing a trend of rapid growth since 2015 [6].

Government support is also crucial for promoting innovation in the United States. For instance, the government offers companies tax incentives for innovation investments and provides grants to fund advanced research. These measures encourage active collaboration between businesses, scientific institutions, universities, and research centers, creating a unique ecosystem for innovation. **Government grant programs** have accelerated advancements in areas such as **artificial intelligence** and **biotechnology.** Additionally, the integration of **big data** analytics into research and development processes further enhances innovation by enabling more precise decision-making and fostering breakthroughs across various industries [7].

Partnerships with small businesses and startups are also essential components of the innovation strategies of major companies. Many American corporations, such as **Google and Microsoft**, **build partnerships with startups** to accelerate technological developments and expand their reach. Recent trends indicate that acquiring startups has become a common way for larger firms to rapidly adopt cutting-edge technologies and gain competitive advantages. Effective collaboration requires strategic planning, overcoming cultural differences, and establishing clear goals and performance metrics. It is important to monitor results and scale partnerships in alignment with resources and stakeholder interests.

Despite its benefits, innovation presents numerous challenges and risks. A primary constraint is the **high cost of innovation**, demanding considerable financial and human resources. Not all companies, especially small businesses, can afford sustained innovation. Large companies, despite their resources, also face **difficulties in managing innovation projects** effectively. Additionally, innovations come with risks linked to rapid market changes. Technological advancements can quickly render products and processes obsolete, requiring companies to stay flexible and adapt swiftly. Failed innovation projects may lead to significant losses or even bankruptcy. Companies like **Blockbuster** and **Kodak** exemplify how a lack of timely innovation and adaptation can result in the downfall of even large corporations [8].

However, companies that successfully navigate these challenges by maintaining a consistent focus on innovation tend to secure a competitive edge. Investments in emerging technologies, such as generative AI, highlight how organizations can leverage innovation to create growth opportunities and address evolving market demands. Companies with sustained investment in innovation, such as those working with **generative AI (gen AI)**, have not only retained but increased job openings. Generative AI has emerged as a prominent trend, presenting new opportunities in robotics and immersive reality. In 2023, the number of vacancies in the technology sector decreased by 26%. Despite the decrease in offers in almost all directions, the number of vacancies in the direction of applied artificial intelligence even after the decline is about 600 thousand. Thus, companies see great potential in the development of AI as a leading innovation for success. This area is in second place, second only to software development (fig. 1).

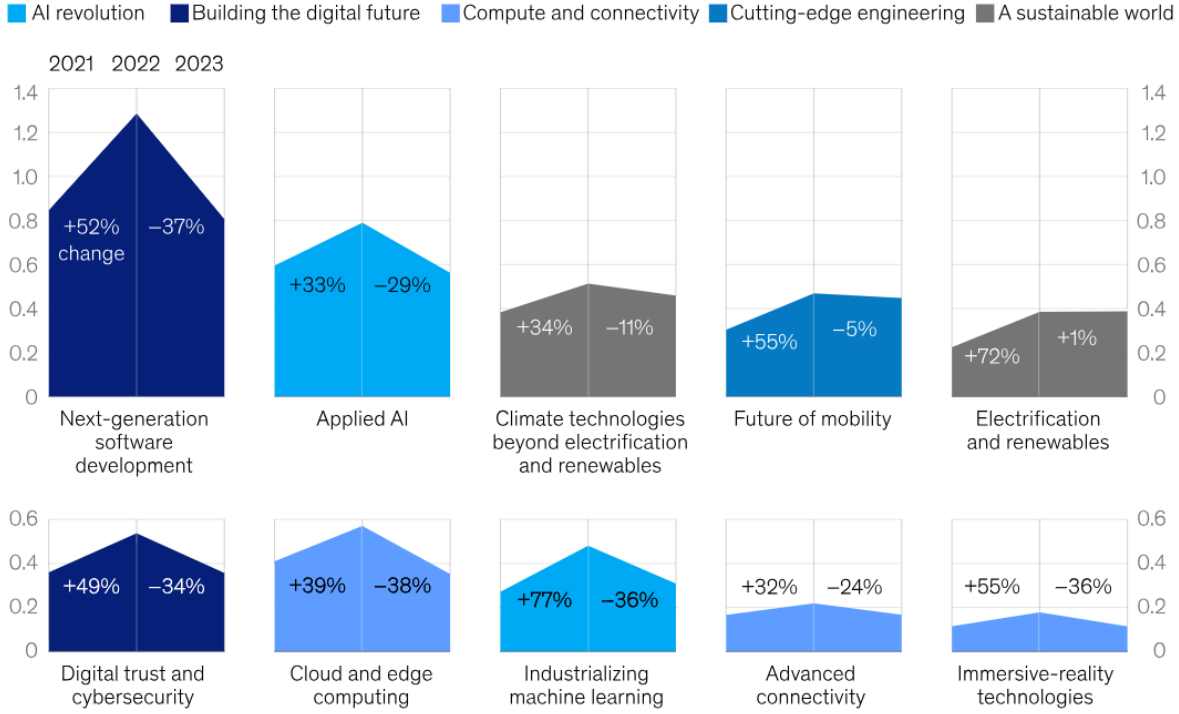

Figure 1. Tech trend job postings, millions. annual change, % [9]

The results of this McKinsey analysis reflect a current trend toward a shortage of personnel in highly specialized fields – despite the large number of vacancies, companies are facing staff shortages as about half of the candidates do not have the required qualifications and skills. However, the international competitive environment drives innovation and fosters the exchange of expertise between companies. In this context, American companies not only face the need to maintain their competitive positions but also to seek opportunities for collaboration and knowledge-sharing with foreign counterparts and to recruit valuable specialists from around the world.

Conclusion

Innovation is a crucial factor in achieving sustainable competitive advantage and an essential component of strategic development, especially in the context of global competition. The analysis shows that companies actively investing in innovation experience notable success in enhancing their market position and operational efficiency. In the United States, innovation is supported at the federal level, creating favorable conditions for the growth of high-tech and knowledge-intensive industries. Leading American corporations incorporate innovation into their business models, achieving a high level of adaptability and flexibility.

Nevertheless, innovation carries certain risks and demands substantial resources. Innovation-oriented strategies require continual updating and adaptation to market changes. Companies willing to invest in innovative processes and manage risks effectively gain a

stronger market position and increase their likelihood of long-term success.

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THE ROLE OF CRM SYSTEMS AND DIGITAL TECHNOLOGIES IN OPTIMIZING ORDER MANAGEMENT AND ENHANCING OPERATIONAL EFFICIENCY IN THE PACKAGING INDUSTRY

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Abstract
This article examines the importance of Customer Relationship Management (CRM) systems and digital technologies for the packaging industry. It explores their role in automating order management, demand forecasting, and improving operational efficiency. The integration of CRM with Enterprise Resource Planning (ERP), Manufacturing Execution System (MES), and Warehouse Management System (WMS) systems is analyzed, along with the impact of Logistics 4.0 technologies such as Internet of Things (IoT), big data, and artificial intelligence (AI) on logistics and customer service. Examples of successful implementations are discussed, highlighting their contribution to cost reduction, faster order processing, and improved customer satisfaction.
Keywords: CRM (Customer Relationship Management), packaging industry, digital technologies, order management, ERP (Enterprise Resource Planning), MES (Manufacturing Execution System).

Introduction

Modern packaging companies have to put up with a growing number of orders, a higher demand for customer service, and shorter delivery times. In this respect, tools like Customer Relationship Management (CRM) systems and digital technologies are becoming integral parts of strategic management. Such solutions speed up the processing of orders and optimize the interaction of different departments, which enhances the general efficiency of operations and reduces costs.

In this connection, new digital technologies are being elaborated on that allow making a real breakthrough in the performance of business processes. Their implementation into management practice of the packaging industry allows to significantly accelerate the processing of orders, provide more accurate forecasting of demand, and improve coordination between the departments involved in such an important area of work as the market.

This paper discusses the integration of CRM systems with digital technologies that enable optimizing order management in the packaging industry, raising the overall level of efficiency in operation and customer service.

Main part. CRM systems in the context of order management in the packaging industry

Order management in the packaging industry involves close coordination of all departments, from sales and production to logistics and the warehouse. CRM systems are pivotal in these processes because they centralize data collection and processing about customers and orders. This allows companies not only to track the status of an order online but also to anticipate fluctuations in customer demand, quickly making amendments to the production and logistics plans accordingly.

In regard to CRM systems, one important area of functionality involves order processing. With the integration of Enterprise Resource Planning (ERP) systems, for example, CRM can automatically submit customer ordering information to the production management and planning systems, thereby speeding up package-and-ship timelines. This decreases the latency between order receipt and processing, thereby minimizing the possibilities for erroneous data entry [1].

Moreover, the use of CRM systems provides an opportunity to highlight regularities in consumer preferences, enhancing demand forecasting. In this respect, it is crucial in the packaging industry, where demand is often influenced by seasonal changes or changes in market conditions; such forecasting is an important constituent for inventory management and excess products in warehouses. For example, CRM integrated with analytical tools helps to analyze orders and plan production according to seasonal changes and specific customer needs, reducing warehousing and transportation costs [2].

The technology allows automating not only order processing, but also the exchange of information between company departments. When an order is received in the system, the information is automatically transferred to other departments, such as production, logistics and warehouse. This significantly reduces the time for data processing and minimizes the number of errors that can occur due to the human factor. For example, the **Coca-Cola** integrated **Saleforce**, which significantly accelerated the processes associated with accepting and fulfilling orders. Support agents receive instant access to customer history, and the productivity of technical service departments increased by 30% [3].

Besides the optimization of internal processes, CRM systems are important for enhancing customer service. They enable tracking of order history, customer preferences, and wishes, which is a possibility to offer personalized offers and to respond in real-time to customers' needs. This is very important for packaging companies, as quite often customers will need special solutions for their products. CRM also helps in processing each order with individual customer requirements, which greatly enhances the level of satisfaction.

The effectiveness of CRM systems and digital technologies in the packaging industry is demonstrated through their impact on key business indicators. These systems automate routine processes, increase transparency of operations and improve customer interactions. In addition, thanks to integration with modern digital technologies such as Internet of Things (IoT), big data and artificial intelligence (AI), companies can adapt to changing market conditions with minimal costs (table 1).

Table 1.

The impact of CRM systems and digital technologies on companies [4-6]

Indicator	Before the implementation of CRM and digital technologies	After the implementation of CRM and digital technologies
Reducing customer service costs	High costs	Reduction by 15-20%
Customer satisfaction	Low	Increase by 30%
Performance	Average	Increase by 20-25%
Order fulfillment times	Long lasting	Reduction of lead times

In the packaging industry, as in any other industry, there are many factors that can impact order fulfillment (e.g. changes in legislation, economic fluctuations, or unpredictable changes in demand). CRM systems allow you to analyze historical data and build forecasts based on the insights gained, which helps a company better prepare for potential risks. For example, by using analytics in CRM systems, companies can predict in advance the increase in demand for packaging in a certain season and take steps to ensure the necessary stock, preventing product shortages and reduced customer service.

Integration of CRM with other corporate systems

To further improve order management in the packaging industry, an important step is to integrate CRM systems with other enterprise solutions such as **MES** (manufacturing execution system) and **WMS** (warehouse management system). This integration allows for the creation of a single information ecosystem in which all data on orders, stocks and production capacities are synchronized and available in real time, which contributes to increased flexibility and speed of decision-making.

One example of successful integration is **Korcomptenz**, which uses **Microsoft Dynamics 365** to improve its order management and packaging production processes. The implementation sped up key process steps by 50% and eliminated supply chain integration gaps [7]. Integrating CRM with ERP and WMS enables automatic tracking of order statuses, production capacity, and inventory levels. This helps avoid warehouse overloads or, conversely, material shortages, which is especially important in the packaging industry, where timely order fulfillment is critical.

The implementation of integrated systems increases the accuracy of data accounting and allows for a prompt response to changes in demand, minimizing the risk of human error. For example, using data from WMS and MES, managers can promptly receive information on the availability of goods in the warehouse and their condition, which helps to forecast production needs. This allows for advance planning of purchases and production, as well as optimization of logistics, reducing transportation and storage costs.

The **Logistics 4.0** concept, by integrating technologies such as the IoT, big data analytics and AI, helps to further improve the efficiency of these processes (fig. 1).

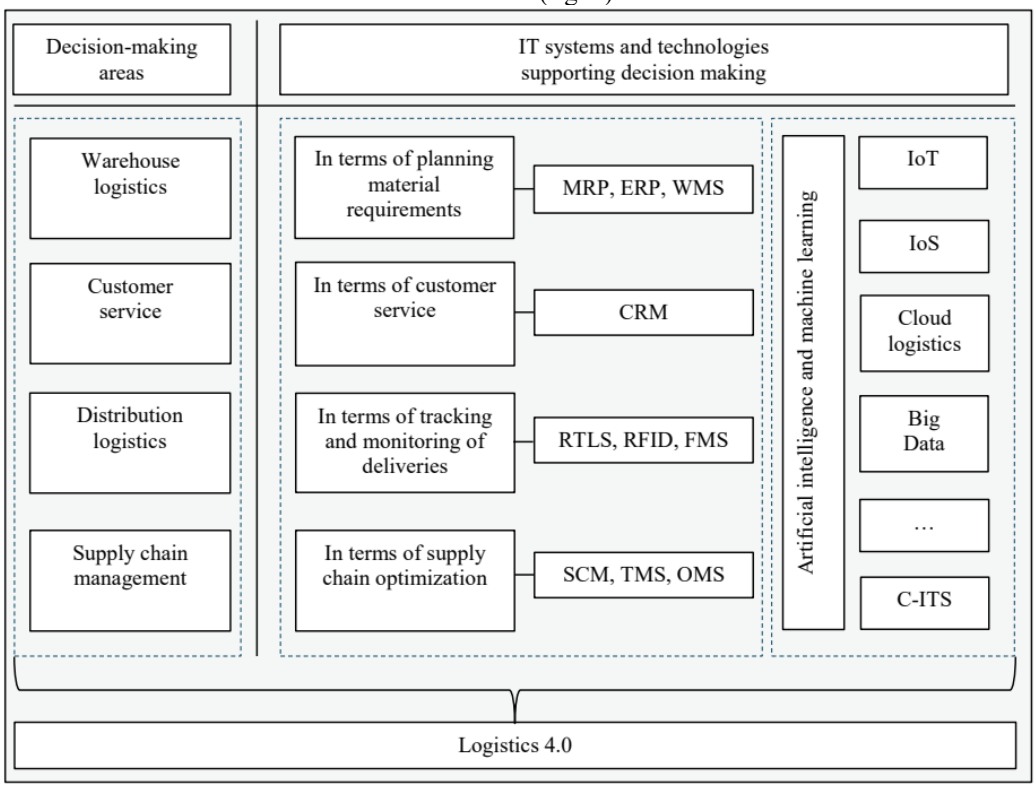

Figure 1. Information systems and technologies creating Logistics 4.0 [8]

Devices enabled by IoT transmit real-time information about the location of goods and the condition of equipment, significantly enhancing forecasting and inventory management. Machine learning and analytics platforms, in turn, help to more accurately predict customer needs, including based on historical data and seasonal trends, which leads to more flexible and effective planning.

Furthermore, analytical tools in CRM systems can provide deep analytics of sales and inventory, which helps improve planning and increase the efficiency of customer service. For example, forecasting peak periods of demand for packaging, such as holiday seasons or promotions, can help a company prepare for these peak loads in advance and avoid shortages or surpluses of products.

Integration of CRM with ERP, WMS and other systems within Logistics 4.0 also helps improve customer feedback by providing up-to-date information on the status of their orders and automating the processing of complaints and returns. Thanks to these innovations, companies gain additional competitive advantages by increasing process transparency and improving customer service, as well as reducing operating costs and improving production indicators.

Integration of analytics in CRM systems of the packaging industry

Analytics in CRM systems plays an important role in improving order management and personalizing customer service in the packaging industry. Modern CRM solutions not only help track ordered goods, but also analyze customer behavior, which allows personalizing offers and improving service quality.

The key goal of analytics is to segment customers based on their purchasing preferences and behavior. This helps to predict customer needs and offer them the most appropriate solutions. For example, data on seasonal fluctuations in demand for packaging materials can be used to accurately plan production and warehouse stocks, as well as to optimize delivery processes.

Demand forecasting is an integral part of this analytics. For example, in the packaging industry, where demand is often seasonal, analytics allow you to anticipate peak demand, such as during holiday seasons, and prepare for them. This prevents shortages or surpluses and helps maintain high levels of customer service.

Analytics also plays an important role in personalizing customer service. For example, if a customer regularly orders packaging for a certain type of product, the system can offer additional products or services that match their previous preferences, thus increasing satisfaction and loyalty [9]. Integrating CRM with analytics tools allows you to effectively respond to changes in customer requests in real time, improving customer engagement and increasing forecasting accuracy.

The use of analytics also has a positive impact on overall operational efficiency. For example, integrating CRM systems with ERP and WMS (warehouse management systems) improves coordination between different departments of the company. All data, from orders to inventory, is synchronized in real time, which helps make operational decisions and improve planning. This not only reduces costs, but also reduces the likelihood of errors, which is especially important in the packaging industry, where time and accuracy are critical.

Thus, analytics in CRM systems helps not only in demand forecasting, but also in improving customer interactions, creating long-term partnerships and stimulating business growth.

Conclusion

Such systems as CRM allow automating order processing and significantly raise the quality and speed. One of the key moments is integration with other systems such as ERP, MES, and WMS, because you get one flow of information and get rid of duplicate data that speeds up request processing.

Logistics 4.0 technologies, like IoT, Big Data, and AI, are the enablers for improving the accuracy of demand forecasting, route optimization, and customer service. These technologies not only contribute to cost reduction but also enhance customer interaction, leading to increased loyalty and competitiveness of the company.

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MOLECULAR PHYSIOLOGY AND GENETICS

METHOD OF TARGETED PREPARATION OF HARD DENTAL TISSUES USING DIGITAL TECHNOLOGIES

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Abstract

At the moment, the problem of human congenital pathology remains relevant. Hereditary changes also manifest themselves in the maxillofacial region, in particular expressed as a violation of the structure of dental tissues [4, 5]. Dentinogenesis imperfecta is one of the most well-known forms of hereditary anomalies of dentin formation. This disease occurs with a frequency of about 1:8000 people [1].

Keywords: dentinogenesis, root canal obstruction, digital technologies.

The clinical picture of dentinogenesis imperfecta is very characteristic. Teeth are of normal size and shape and erupt in the middle period. The color intensity varies - most often watery-gray with a pearlescent sheen or a brown tint. Soon after the tooth erupts, the enamel chips off, and its remains have sharp edges. Progressive wear of the enamel and a decrease in the height of the teeth and their volume are possible. Exposed dentin wears off quickly; it is 1.5 times softer than normal. Complaints of pain are usually not from hyperesthesia, but from trauma to the gums, due to abrasion of the crowns of the teeth or trauma to the tongue and lips from the sharp edges of the teeth. The specificity of the clinical manifestations of dentinogenesis imperfecta, in particular the obstruction of the root canals, necessitates a qualified dentist's approach to the treatment of this pathology. When treating patients with dentinogenesis imperfecta, significant difficulties are caused by the lack of the possibility of full endodontic intervention due to obliteration of the pulp chamber and root canals. Obliteration of the canals entails the need to artificially create a bed for the LCS. Due to the fact that the “blind” production of a canal for LCS is fraught with complications in the form of perforation of the tooth root, we proposed a method of tooth preparation using modern 3D modeling technology and the production of a 3D template.

The purpose of the study is to optimize the treatment of patients with dentinogenesis imperfecta.

Material and methods.

We made a phantom model with a tooth in which the root canals are impassable. The model is a complete removable laminar denture, in which the removed tooth 25 is installed in the artificial tooth. A silicone impression was taken from the previously made phantom model, and a plaster model was cast. The next step was to fabricate an x-ray template containing an embedded Lego brick and metal pellets needed as reference points to calibrate the CNC machine settings. An analogue for further actions was the method of using surgical templates for dental implantation obtained using computer planning [2], however, the orientation of the axis and depth of preparation in the MGUIDE computer program was carried out not in bone structures, as for dental implantation, but in the hard tissues of the tooth. The x-ray template was installed on the phantom model, and a computed tomography scan was performed with recording in DICOM format. The MGUIDE computer program was used to orient the axis of direction and depth of tooth preparation. The next step was to send information about the direction of the axis and the depth of preparation to the MIS center in order to obtain a program for a numerically controlled milling machine that positions the guide sleeve, which sets the axis and depth of tooth preparation. After installing the guide sleeve, the hard tissues of the tooth were prepared using an orthopedic template. The preparation was performed using a contra-angle handpiece and a custom-made steel bur with a stop, matching the length of the drills from the MGUIDE surgical kit, but having a cross-sectional diameter of 1 mm.

Results. We have developed a method for targeted preparation of hard dental tissues. After applying the orthopedic template, it was established that there was no radiological or visual perforation of the tooth root.

Conclusion.

The technique we have developed allows us to reduce the number of complications and increase the quality of treatment for patients with dentinogenesis imperfecta.

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PEDAGOGY

LEARNING ENGLISH IN INDUSTRY 5.0

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Abstract
Foreign language acquisition within Industry 5.0 emphasizes the implementation of every method and technique concerning the needs and demands of participants in the educational process, integrating AI to enhance creativity, critical thinking, and empathy in language education. Therefore, the role of English has evolved from a simple communication tool to an essential skill for using technology and robotics. This article examines the distinctive features of foreign language learning within the framework of Industry 5.0. It aims to investigate the evolution of industries from 1.0 to 5.0 and their influence on language learning, identify how teachers adapt their teaching methodologies to meet Industry 5.0 requirements, determine the role of English in preparing students for technological advancements, and explore the obstacles encountered by language learners in Industry 5.0.
Keywords: Industry 5.0, foreign language learning, AI, education, technological innovation, human-centered learning.

Introduction. Technology has continued to change rapidly and affect various areas of life, including, and perhaps even more significantly, the field of higher education. The Industry 5.0 concept is an evolution from the previous industrial revolutions centered around human-machine collaboration, customization, and sustainability. Within the current scientific community, Industry 5.0 is understood as one of the recent terms to describe the phenomenon, defined as a humanized vision of technological transformations, balancing the current and future needs of workers and society (Barata & Kayser, 2023). Compared with the previous industrial revolutions, Industry 5.0. focuses on the integration of human intelligence and artificial intelligence (AI) to provide more humanly coherent and effective interactions and outputs. Understanding the factors of the progress from Industry 1.0 to Industry 5.0 not only helps be conscious of the evolution of language learning along with the development of the technology itself. By examining the impact of each industrial revolution on the practice of teaching, instructors can gain a comprehensive cognizance of the current state of foreign language education and future trends in learning methodologies.

Analysis of recent research and publications. Recent research and publications have extensively explored the impact of Industry 5.0 on foreign language learning. Studies have highlighted the integration of AI and anthropologic approaches in education, emphasizing the need for personalized and adaptive learning environments. Researchers J. Barata & I. Kayser (2023), Rahman & Chandan (2025) have discussed the evolution of industrial revolutions and their influence on education, particularly focusing on the transition from Industry 4.0 to Industry 5.0, when the last one represents a sociotechnical transformation, emphasizing a human-centered approach to technological advancements, sustainability, and resource optimization [1; 2]. J. C. Meniado (2023) establishes the relationship between Industry 5.0 and Education 5.0. He claims that Digital Language Teaching 5.0, rooted in the pedagogical advancements of Industry 5.0, is anticipated to significantly reshape the field of English language education by addressing the educational challenges exacerbated by the COVID-19 pandemic. This paradigm shift raises critical inquiries regarding its implications for curriculum design, instructional methodologies, assessment frameworks, and the requisite competencies for language educators in a digitally driven, post-pandemic era [3].

R. Yosintha (2020) emphasizes the significance of digital literacy in Education 5.0 since even though students mostly have positive attitudes towards English language learning as well as towards Industry 5.0, they do not have the confidence to affirm that they have the instrumental competencies required by the tight competition of Industry 5.0, especially English mastery [4]. Candrasari, Puspandari & Meisarah (2024) admit that in the context of Industry 5.0, English as a foreign language is critical in equipping students with essential professional skills. The authors examine how innovative methodologies, such as virtual reality and gamified learning, enhance student engagement and readiness. By fostering critical thinking, collaboration, and adaptability, these approaches align education with Industry 5.0 demands. Emphasizing teacher`s professional development, strategic curricula, and industry-relevant

assessments, he highlights the transformative potential of innovation in teaching instruction [5].

Additionally, the development of AI-based language learning tools and their effectiveness in enhancing language acquisition has been a significant area of focus. These studies collectively underscore the necessity of balancing technological advancements with humanistic learning strategies to optimize language education in the context of Industry 5.0. Thus, Maharani & Mulyadi (2023) investigate the challenges of English learning in the Industrial Revolution 5.0, focusing on the use of the Quipper application. Their research aims to analyze how teachers implement Quipper in English instruction and identify challenges students and teachers face [6]. Sari (2020), meanwhile, explores English language learning using online platforms like YouTube, addressing challenges in teaching English conversation to university students. Through a qualitative approach, he highlights the role of digital media in fostering interest in English amid rapid technological advancements. The findings emphasize integrating English as a key element of education in the digital era [7].

Purpose. Despite the extensive research on the impact of Industry 5.0 on foreign language learning, several unresolved aspects remain. The first challenge is the difficulty of balancing technology and the human element in education. The primary challenge involves achieving an effective balance between technological integration and the human-centered aspects of education. This presents a substantial obstacle for students, as they must navigate the benefits of digital tools while maintaining essential interpersonal and cognitive skills. Secondly, the rapid pace of technological advancements challenges educators to continuously adapt their teaching methodologies to keep up with new tools and platforms. These challenges highlight the importance of developing comprehensive teaching strategies that integrate both technological and human-centered approaches to prepare learners for the demands of Industry 5.0. Therefore, this article is devoted to identifying the distinctive features of foreign language learning within the framework of Industry 5.0, focusing on how educators address the challenges faced by learners through the adaptation of teaching methods. By tracing the progression of foreign language education from Industry 1.0 to Industry 5.0, the paper also clarifies how students can prepare for the challenges of an AI-driven world.

The outline of the main research material. To understand the impact of Industry 5.0 on foreign language learning, it is essential to trace the evolution of previous industrial revolutions and their corresponding influence on education. Each stage of industrialization also introduced its own distinct changes in teaching practices, means of teaching, and the position of regard to learning languages in society.

1. Industry 1.0. The advent of Industry 1.0 was marked by the transition from manual labor to mechanization in the late 18th century. The invention of steam engines precipitated a paradigm shift in various industries, enabling mass production. Within the educational sector, the establishment of formal schooling systems occurred, though language learning remained conventional, emphasizing rote memorization and grammar translation. The connection between Industry 1.0 and language learning highlights the foundational role of formal education in developing language skills. However, the limited tools available during this period restricted the potential for dynamic language acquisition.

2. Industry 2.0. At the end of the 19th and beginning of the 20th century, the Second Industrial Revolution put various technologies (e.g., electricity or mass production employing assembly lines) on the market that altered the circumstances in which goods were produced. Developments in communication media, such as telephones and telegraphs, made acquiring languages easier due to more efficient, global, and consequently more interconnected communication across borders. This phase set the stage for English to grow as a global lingua franca, particularly in business and science. The increasing demand for international communication established English as a key language in various professional fields, a trend that continues to evolve in subsequent industrial revolutions.

3. Industry 3.0. Industry 3.0, which arose in the middle of the 20th century, is defined by the development of computers, automation, and digital technologies. Language learning changed due to the advent of audio-visual elements, language laboratories, and computer-assisted language learning (CALL). These tools made foreign language learning more interactive and accessible. The link between Industry 3.0 and language learning is significant because it marks the beginning of technology-driven education. English further solidified its role as the language of technology and globalization, making it essential for learners to acquire digital literacy alongside language skills.

4. Industry 4.0. Industry 4.0 is characterized by a digitalization flow, the Internet of Things (IoT), big data, and artificial intelligence. It brought significant changes to education, particularly language learning. Online platforms, mobile apps, and AI-powered language tools became widespread, making English learning more accessible and personalized. However, Industry 4.0 prioritizes automation and efficiency, which often reduces the human element in teaching. This disadvantage sets the stage for Industry 5.0, where human-AI collaboration aims to balance technological advancements with human creativity and personalization.

5. Industry 5.0. Unlike Industry 4.0, which focuses on automation, Industry 5.0 emphasizes human-centric innovation. It seeks to enhance human creativity and well-being by integrating AI into everyday tasks while maintaining a human touch. In language learning, this shift brings a renewed focus on the human aspect of teaching, ensuring that language education remains personalized and meaningful.

Table 1 shows differences between industries in terms of foreign language learning regarding the subsequent aspects: 1) teaching methods; 2) the role of the English language in every industry; 3) the tools used; 4) teachers' and students' roles; 5) focus of learning; 6) assessment methods; 7) cultural integration capacity; 8) accessibility for users; 9) challenges faced by participants; 10) learning outcomes.

Table 1.

Differences between industries in foreign language learning

Aspect	Industry 1.0	Industry 2.0	Industry 3.0	Industry 4.0	Industry 5.0
Teaching Methods	Traditional, rote learning	Formal schooling systems	Digital tools, CALL	Online platforms, AI tools	Human-AI collaboration
Role of English	Limited	Growing in business	Global language of tech	Dominant language online	Essential for AI & innovation
Tools Used	Textbooks, handwritten materials	Telephones, radio	Computers, language labs	Apps, virtual classrooms	Adaptive AI, VR, AR
Teacher's Role	Sole knowledge provider	Instructor and facilitator	Guide in using digital tools	Mentor in online environments	Coach for human-AI collaboration
Student's Role	Passive learner	More engaged, following instructions	Active participant in digital learning	Independent, self-directed learner	Collaborative creator with AI
Learning Focus	Memorization and grammar	Practical communication	Digital literacy alongside language	Personalized, self-paced learning	Creativity, critical thinking, empathy
Assessment Methods	Oral and written exams	Standardized tests	Computer-based testing	Continuous assessment via apps	Real-time feedback through AI
Cultural Integration	Limited	More exposure to global cultures	Multimedia resources	Virtual cultural exchanges	Immersive VR experiences
Accessibility	Restricted to formal institutions	Increased with public schooling	Wider access through computers	Global access via internet	Fully personalized access via AI
Challenges	Limited resources	Lack of cross-border communication	Digital divide	Over-reliance on automation	Balancing technology with human touch
Learning Outcomes	Basic literacy	Functional language use	Advanced proficiency	Lifelong learning mindset	Holistic human-AI skillset

The table shows a progression toward a more technology-integrated, personalized, and human-centered approach to language learning and demonstrates the following conclusions:

1. Teaching methodologies development reflects an ongoing movement from inflexible, traditional paradigms to more adaptive, technology-enabled, and human-oriented paradigms. Instructional methods have evolved from one-dimensional, teacher-driven approaches to adaptive, human-AI joint approaches. Industry 5.0 is harmonizing technology with a humanized approach to optimize learning to be adaptable and attractive.

2. The position of English has grown dramatically during the industrial revolutions, progressing from a matter of literacy to an essential, global competence in innovation and AI-based sectors. The importance of the English language has expanded as a simple instrument of communication and now as a must skill for using technology, artificial intelligence, and global innovation. It is not only personal and professional success but a requirement of Industry 5.0.

3. Tools to support language acquisition have changed from physical materials to robust AI-based systems. Language learning tools have progressed from simple, paper-based media to complex AI-driven systems. Industry 5.0 tools are aimed at personalization, immersion, and on-the-fly tailoring to the individuality of the learners.

4. The roles of teachers and students have transformed from hierarchical to collaborative. Their field of responsibility has shifted from passive knowledge transfer to active, collaborative learning. In Industry 5.0, students co-create knowledge with the help of AI, while teachers support human-AI interaction.

5. The focus of learning has expanded from basic literacy to fostering creativity, critical thinking, and empathy. The focus of language learning has shifted

from grammar-focused memorization to holistic skill development, including creativity, critical thinking, and empathy. Industry 5.0 emphasizes human-centered learning alongside AI-driven adaptability.

6. Assessment approaches have progressed from standardized assessments to real-time adaptive feedback. Evaluative methods have become more flexible and ongoing, moving away from once-and-for-all tests to AI-generated real-time feedback. Accordingly, Industry 5.0 guarantees that evaluation is individualized and adaptive to the learner's progress.

7. Cultural integration has grown with the increased availability of multimedia and immersive experiences. It has become a significant part of language learning, progressing from minimal exposure to immersive, virtual cultural experiences. Industry 5.0 prioritizes global cultural awareness and empathy.

8. Accessibility of education has improved dramatically, from formal institutions to personalized learning via AI. Accessibility has improved significantly over time, with Industry 5.0 offering fully personalized learning experiences through AI, making education more inclusive and adaptable to individual needs.

9. Problems have shifted from a lack of resources to the difficulty of balancing technology and the human element.

10. Learning objectives of Industry 5.0 are far greater than simple vocabulary acquisition. It presupposes a broad spectrum of technical, social, and emotional skills that help students prepare for the future, where human-AI interaction is significant.

These results highlight creativity, critical thinking, empathy, and ethical responsibility, preparing learners to tackle complex issues and contributing valuable ways to both technological and human-oriented innovations.

To prepare students for the demands of Industry 5.0, educators need to use new teaching approaches that balance technological tools with human interaction to prepare learners to develop and grow in a global, interconnected world. However, students often face interconnected challenges that shape their learning and communication skills during their learning. With the growth of technology's complexity, those barriers can simultaneously increase in Industry 5.0.

Thus, ***technological literacy*** is essential for effectively using language-learning apps and digital tools. However, adapting to ***AI technologies*** requires students to assess their capabilities and limitations in real-world scenarios critically. While AI can assist with tasks like translation, it often lacks the nuance needed for meaningful ***human interaction***. This makes maintaining interpersonal communication skills vital for mastering a language and building cultural understanding. At the same time, students must develop ***cultural sensitivity*** to navigate diverse settings and avoid miscommunication. AI tools, while helpful, often fail to grasp cultural nuances, making students' awareness and judgment crucial. ***Critical thinking and creativity*** are essential for bridging cultural and linguistic gaps that technology cannot fully address. These skills help students decide when to rely on technology and when to use traditional approaches or innovative solutions. Together, these challenges require a balance of teachers' technical proficiency, interpersonal skills, and cultural awareness to succeed in today's globalized world.

To address students' challenges, teachers must embrace new teaching strategies that balance technological advancements with human-centered approaches. Below, in Table 2, there are specific methods and tools teachers can use to overcome these challenges, with practical examples of how to implement them in language classrooms.

Table 2.

Teaching strategies to overcome the challenges of Industry 5.0 in foreign language learning

Challenge	Teaching Strategy	Description	Practical Example
Technological Literacy Gap	Developing Technological Literacy	Introduce structured lessons focused on digital tools that support language learning.	Assign weekly tasks where students must use a specific digital tool (e.g., Lingvist) and report progress during class discussions.
Lack of AI Collaboration Skills	Fostering AI Collaboration Skills	Implement collaborative projects where students use AI tools to enhance their language skills.	Assign writing tasks where students draft essays using AI tools (e.g., ChatGPT) and discuss AI feedback collaboratively in class.
Decreased Human Interaction	Enhancing Human Interaction	Organize real-time activities like role-playing, debates, and virtual cultural exchanges.	Organize a weekly virtual meet-up with students from different countries to discuss various topics in English.
Limited Cultural Awareness	Promoting Cultural Sensitivity	Use VR tools to simulate cultural immersion experiences and explore global contexts.	Create assignments where students prepare presentations on cultural customs of countries they explore through VR tools (e.g., Google Earth VR).
Lack of Critical Thinking Skills	Encouraging Critical Thinking and Creativity	Design tasks that require students to solve problems creatively and apply their language skills innovatively.	Ask students to create a language-learning app prototype using free tools like Thunkable, combining language learning with digital literacy.

1. Development of technological literacy. Teachers can introduce structured lessons focused on digital tools that support language learning. For instance, using AI-driven tools like Grammarly for writing improvement or Duolingo for vocabulary building can help students become familiar with adaptive learning systems. Teachers can conduct workshops to guide students through the functionalities of these platforms, ensuring they know how to customize their learning paths.

2. Fostering AI collaboration skills. Teachers can implement collaborative projects where students use AI tools to enhance their language skills. For example, teachers can assign tasks that require students to use speech recognition apps like ELSA Speak for pronunciation practice or ChatGPT for writing assistance.

3. Enhancing human interaction. To maintain interpersonal communication skills, teachers can organize activities that promote real-time interaction. Role-playing exercises, virtual cultural exchanges, and debate sessions encourage students to practice their language skills in human-centered settings.

4. Promoting cultural sensitivity. Teachers can integrate VR tools to simulate cultural immersion experiences. Google Earth VR or Engage VR can be used to visit different countries virtually, allowing students to explore cultural contexts in a safe, controlled environment.

5. Encouraging critical thinking and creativity. Teachers should design tasks that require students to solve problems creatively. Assignments such as creating digital presentations, writing blog posts, or developing language-learning apps help students apply their language skills innovatively.

By incorporating these strategies, teachers can help students overcome the challenges posed by Industry 5.0 and prepare them for a foreseeable future where human-AI collaboration is essential.

Conclusion. The language education space has changed with the rapid development of technology from Industry 1.0 to Industry 5.0. The evolution to Industry 5.0 brings fresh challenges that language users and methodologies are called upon to implement, not least the need to manage technological innovation and humanistic learning strategies. Although digital resources and AI-enabled platforms have transformed language teaching by bringing about individualized, flexible learning experiences, they also bring challenges, including decreased human interaction, insufficient cultural awareness, and deficient critical thinking skills.

To overcome these challenges, teachers should use novel teaching methods combined with technology and, at the same time, value human aspects like empathy, creativity, and cultural awareness. New technological literacy, teamwork with artificial intelligence technology, cultural sensitivity, and critical thinking are essential features to be included in the modern language structure in an Industry 5.0 world.

In the age of Industry 5.0, language education should pursue the development of effective learners, those with language proficiency ability, as well as computational intelligence (the ability to work with AI), critical thinking, innovative problem solving, and intercultural engagement. Educators who integrate technology and human interaction can enable their students to gain the holistic human-AI skillset needed to succeed in an ever-shifting, integrated world.

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USE OF EDTECH TOOLS IN UKRAINIAN UNIVERSITIES DURING THE PERIOD OF ADAPTATION TO NEW REALITIES

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Abstract

The article analyzes the experience of using educational technologies for teaching a foreign language in times of emergency, including the period of pandemic and military conflict. The study focuses on a review of the use of various tools, and platforms Moodle, a Learning Management System (LMS), in particular, for continuing education in blended format. The results of the analysis show that the platform successfully promotes several aspects of English language teaching, such as online material delivery, interactive exercises, assessment tools, and communication. Challenges and difficulties of using Moodle in new realities, such as server overload and the increased teacher work overload are also highlighted. Moodle has been considered and recommended as a trusted tool for supporting the educational process and guaranteeing its continuity in challenging situations.

Keywords: educational technology, Moodle, teaching a foreign language, educational process, blended learning.

Introduction

The educational environment in Ukraine has been severely affected by emergencies, such as ongoing problems related to the COVID-19 pandemic and armed aggression. These challenges required a shift from traditional face-to-face learning to non-standard learning where technology has become a vital factor in ensuring education continuity. To adapt to these circumstances, teachers are increasingly relying on various tools of educational technology (EdTech) to support the teaching of English. Educational technologies in modern realities are transformed in the context of Ukrainian universities. Using digital tools and resources has made it possible to create an even more innovative, immersive, and interactive language learning environment.

Research into the use of educational technologies in teaching has a long tradition. For decades, one of the most popular ideas in the scientific and methodological literature has been that technology can significantly improve the quality of learning. Innovative solutions such as the use of artificial intelligence in education are becoming increasingly popular. However, the main problems are that not all approaches are equally effective and teachers are not adequately trained to use the latest tools. There is still a lack of comprehensive studies that would combine analysis of pedagogical effectiveness, technological accessibility, and students' perception of such technologies. There are several issues and gaps in the research of educational technologies. These include an overarching analysis of the effectiveness of digital tools in improving learning outcomes, research into transdisciplinary methods, adaptive technologies, and long-term effects. Teaching methods need to be redefined as technology moves from being a source of knowledge to a mediator in education.

The research purpose

This article aims to present a review of educational technologies that are successfully used in the practice of teaching foreign language in Ukrainian universities during emergencies.

Literature review

Adaptation of Ukrainian higher education institutions to new realities, including the transition to distance and blended learning, requires the introduction and effective use of educational technologies.

Deep and comprehensive understanding of the theory and practice of distance learning, transactional distance learning theory and its application in teaching (Moore, 2013), principles and methods of distance course design (Salmon, 2002) and the role of learner autonomy in distance learning (Siemens, 2006) is a key aspect in the implementation and use of technology in higher education. Models and approaches to active student engagement through electronic activities are of great interest to Ukrainian educators (Altukhova et al., 2022).

The need for changes in approaches to teaching and research in the context of digitalization and the impact of technology on academic practice is due to the availability of open educational resources (OER) on access to knowledge (Weller, 2011), the changing role of the scientist in the digital age, the potential of social networks for academic communication (Mykytiuk et al., 2020).

Emphasis on the importance of adapting teaching methods to the digital age: the need to develop flexible curricula, the importance of using multimedia resources to improve student-teacher interactions (Qaddumi & Smith, 2024), the application of adaptive technologies to personalize learning (Bates, 2019), is especially relevant for Ukrainian universities in the period of change (Westerlund et al., 2023).

According to Terry Anderson, a professor at Athabasca University, to understand the characteristics of distance learning and ways to improve its effectiveness, a deep analysis of online education is needed - from the importance of interaction in online learning, models of a constructivist approach to online learning, to the use of technology to support pedagogical interactions.

Materials and Methods

The study was conducted in the academic year 2023-2024 at the Yaroslav Mudryi National Law University. The observation of the use of EdTech was made in the process of teaching applicants for higher education who attended the compulsory academic courses "Foreign Language" (Introduction to Legal English, Legal English, Academic English) online and offline.

For this study we examined various educational tools, in particular Moodle, to investigate the effectiveness of learning in terms of complex military environments.

The data was analyzed from different points of view such as convenience and efficiency on the one hand, and problems related to using educational tools on the other.

Results and Discussion

Since the pre-pandemic period, platforms like Zoom, Google Meet, and Microsoft Teams have become familiar with online lectures, group discussions, and interactive classes. These tools have helped recreate the dynamics of the physical audience, allowing students to interact with their teachers and colleagues in real-time, even from remote locations. Whereas in the present period, other sources already cover new digital technologies, such as virtual reality, augmented reality, game-like elements, Microsoft's Learning Tools, and Lifelong Learning Platforms, like Coursera (TOXIGON Infinite).

Let's turn to the analysis of the use of asynchronous platforms in this period of mixed learning in the process of teaching foreign language to students of Ukraine on the example of the Yaroslav Mudryi National Law University. These platforms have long proven themselves as reliable, along with synchronous learning. They allow students to access assignments, lecture materials, recorded podcasts, and sessions at their convenience, which is especially important for those students who face irregular schedules or communication problems. For example, students from conflict-affected regions can download materials during periods of stable internet connectivity and continue their education offline, thereby minimizing the risk of falling behind.

During the online learning period, as well as the transition to a mixed form, the question gradually arose of how to make English lessons interesting and interactive, for these teachers turned to tools such as Kahoot, Quizlet, and Mentimeter. These platforms are designed to engage students in learning through tests, surveys, and tasks while ensuring that students become more motivated. For example, vocabulary training can take place during a Kahoot game, where students compete to answer questions correctly. Quizlet allows students to create cards for memorizing and learning vocabulary, while Mentimeter can be used to conduct interactive surveys and provide feedback during live sessions. Group tools such as Google Docs and Padlet have also become important in the development and improvement of language skills. These platforms allow students to work together on written projects and provide an opportunity for feedback and collaborative collective improvement. The group of students can create a presentation or written assignment in Google Docs, which will allow them to improve their grammar and text coherence by working together in real time.

Specialized language applications and platforms such as Duolingo, Grammarly, and BBC Learning English were well known long ago but successfully became even more widely used during the pandemic and war. These resources provide personalized practice to students, especially those in affected regions or for temporarily displaced persons. Ukrainian universities have shown resilience in providing high-quality English language learning in challenging times by tackling new challenges and integrating various existing EdTech tools.

The Moodle platform, which has been successfully used during a pandemic and military conflict period as a blended learning format tool, has many features available to support various learning purposes.

Let's define the Moodle functions that support learning English. Moodle offers elements or tools that facilitate the implementation of all aspects of learning English. For example, multimedia files and reading materials can be published online (Bates, 2021), modules areas such as SCORM packages for interactive content delivery, tests, and assignments for students' learning. To improve your listening and reading skills, you can download multimedia in the form of videos, audio files, and texts. Tests and exercises related to grammar, vocabulary, and writing are the most common applications. Other plugins, such as H5P, provide highly interactive exercises from blanking to cards. BigBlueButton, working with Moodle, is a videoconferencing tool for real-time interaction that allows you to practice speaking. In addition, instant feedback is possible through the automatic rating system. Moodle enables you to track student progress and utilize this data to concentrate on areas that require improvement (Manalo, 2021).

The greatest value of Moodle for language teaching is, in our opinion, its flexibility and accessibility. Students can access materials anytime, anywhere thanks to its mobile-friendly design. This allows them to take into account different schedules and learning rates, which is noted by many scientists (Anderson, 2008; Bates, 2021; Moore, 2013).

Using real-time communication tools, participants can also work together on group projects.

Moodle has become a proven platform in the process of teaching English at Ukrainian universities during emergencies. As a Universal Learning Management System (LMS), it allows teachers to create structured courses adapted to the needs of students. In times of emergency, the adaptability of Moodle has proved invaluable, especially for teaching English. Teachers could develop and download vocabulary and grammar tests, interactive reading assignments, or essay assign-

ments that can be automatically graded. Moodle supports a tool like Turnitin, which is important for testing for artificial intelligence and anti-plagiarism.

Students in regions where internet access is limited can download course materials and complete assignments without constant connection with the offline accessibility features of Moodle during this time period. This flexibility ensures that students can continue to develop their English language skills regardless of the circumstances. In Ukrainian universities, Moodle has become a crucial tool that assists in overcoming the challenges of urgent learning.

Experience of using this tool in e-learning has shown that Moodle (platform) successfully adapted to the discipline «Foreign Language»: combined storage of electronic learning materials, and also provided the opportunity for interactive communication between teacher and student.

The main advantages of Moodle in the current realities in Ukrainian universities are: accessible and ergonomic interface; structure of electronic learning materials that are uploaded to Moodle and stored there, can be modified and constantly modified, depending on the needs of the training process, there is also the possibility to use additional modules for functional expansion. Moodle has a large variety of course elements and resources: Video conference BigBlueButton, Glossary, Quiz, Interactive content, Lecture, Feedback, Survey, Seminar, Test (various types), Forum, Chat, Hyperlink, Book, Folder, Comment, Page, File etc. are shown in Figure 1.

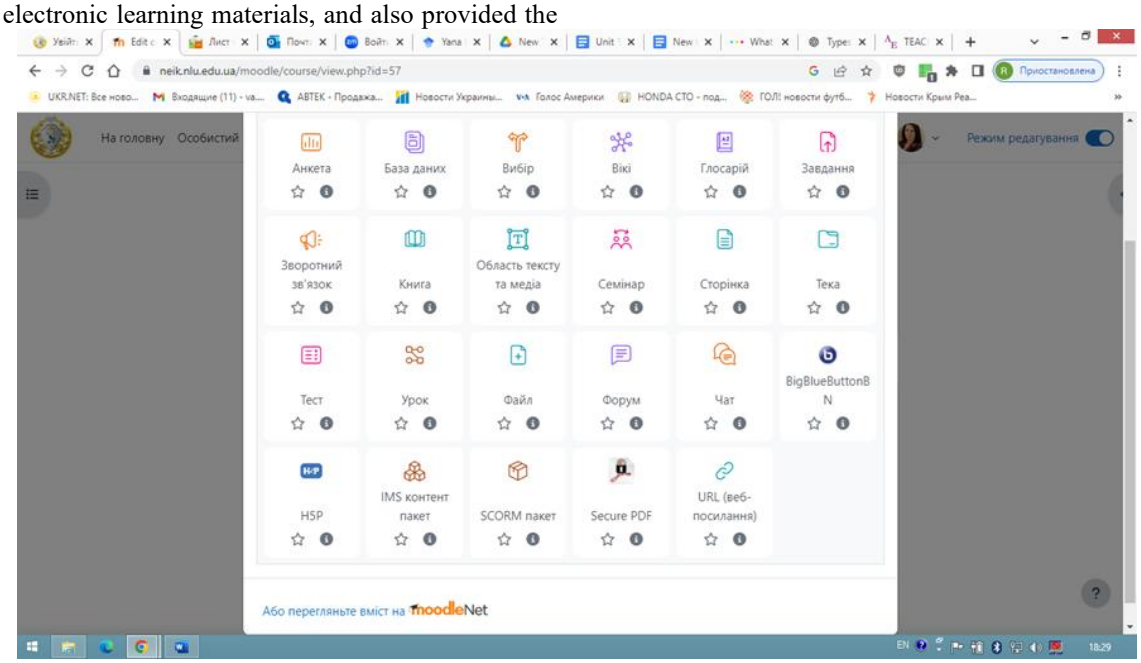

Figure 1. Moodle elements and resources.

Figures 2, 3 and 4 demonstrate different content of courses «Foreign Language» on Moodle using different resources and elements, depending on the specialty/specialization, curriculum and course of the applicants of higher education.

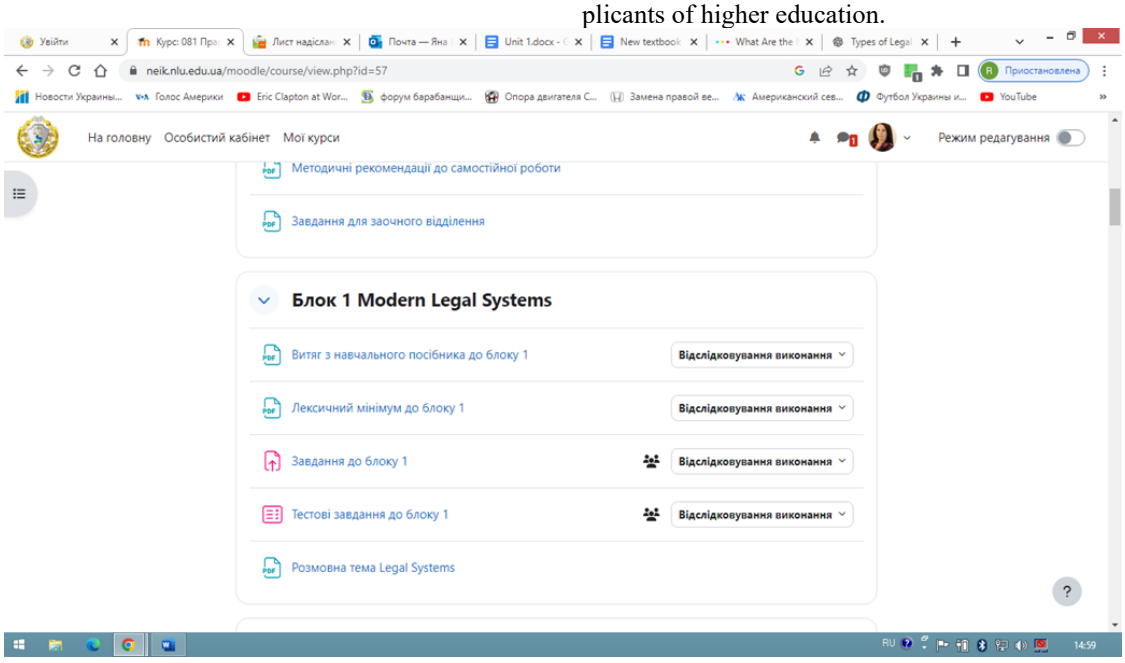

Figure 2. Lesson for first-year bachelor's students.

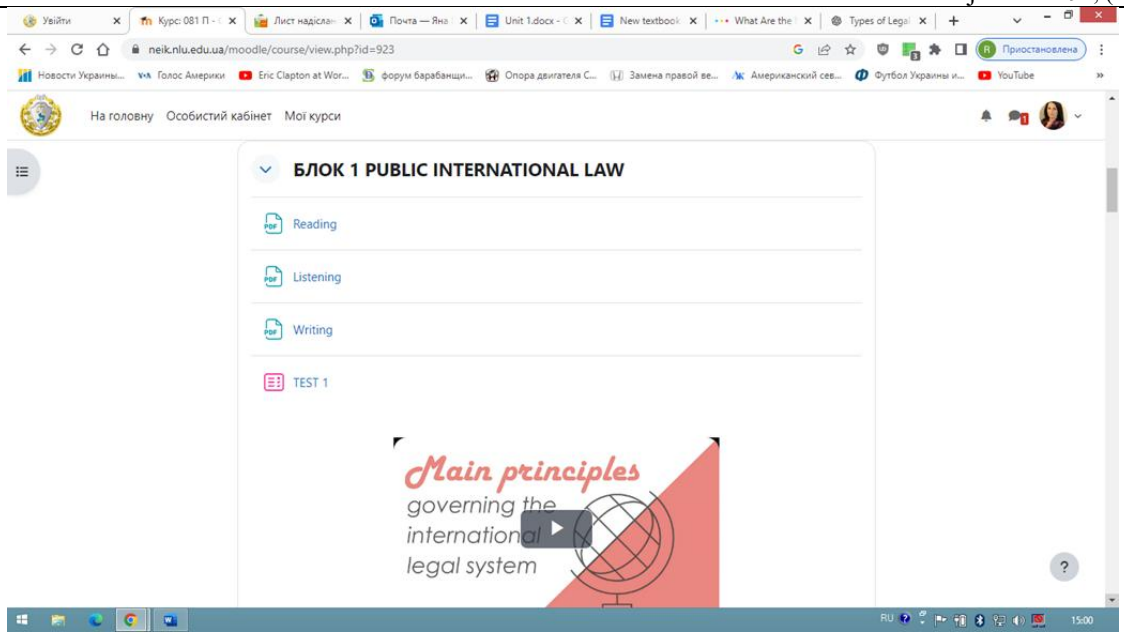

Figure 3. Lesson for second-year master's students.

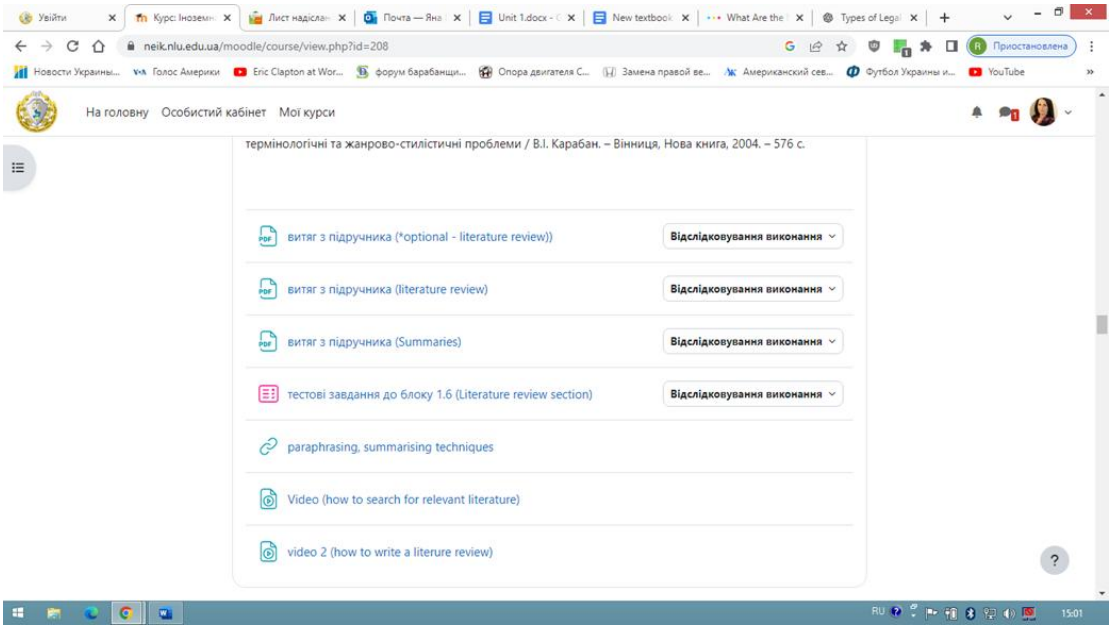

Figure 4. Lesson for postgraduate students.

We will also name the following as advantages of Moodle in teaching foreign languages: the ability to continuously monitor the activities of both the teacher and the student; the presence of an integrated editor; the ability to remotely assess students in automatic mode; the absence of spam; the ability to send messages, grades and comments to an email address; the ability to set deadlines for completing assignments, etc.

Let's look at Moodle's capabilities for assessing English language skills in more detail. Moodle is a universal platform for evaluating learning outcomes across different aspects of the language. Teachers can create multiple-choice tasks to test active vocabulary, grammar, or synonym recognition, fill-in-the-gaps exercises to practice vocabulary and sentence structure, and definition-matching questions. The test can include randomization features, ensuring that students receive different sets of questions, which is necessary to maintain academic integrity when working remotely.

Moodle is ideal for assessing writing skills. Students submit their work directly through Moodle, allowing the teacher to annotate the work using a PDF editor, and provide feedback using text comments. Huerta-Gomez-Merodio and Requena-García-Cruz (2024) discussed the impact of advanced plugins such as FastTest on streamlining the assessment process, allowing teachers to focus on providing meaningful feedback.

To assess listening skills, you can develop and upload tests based on attached audio or video recordings. To assess speaking skills, there are tools such as the audio recording plugin that allow you to assess pronunciation, fluency, and coherence. However, these features cannot demonstrate the authenticity and integrity of the task.

Moodle allows students to evaluate each other's work based on agreed criteria. Self-assessment functions encourage students to identify their strengths and

areas for improvement. According to some researchers, the integration of such tools into Moodle has led to more dynamic and interactive assessment methods (Huerta-Gomez-Merodio & Requena-Garcia-Cruz, 2024).

The Moodle gradebook can combine results, giving teachers a clear view of each student's performance. The grading scale and organization of categories make it possible to track and analyze student progress across different skills, such as speaking, writing, or grammar. This centralized view allows for targeted support to be provided to struggling students (Huerta-Gomez-Merodio & Requena-Garcia-Cruz, 2024).

The Moodle system has proven to be useful in that teachers can set up assignments so that they can be viewed by other students. Teachers can comment on students' work or upload their own comments. This feature is particularly useful for assessing written assignments such as essays, allowing suggestions for improving grammar, coherence and vocabulary. As mentioned, Moodle's gradebook feature brings all student performance data together in one place. Thus, individual progress can be analyzed and learning gaps identified, and methodological strategies changed and adjusted accordingly. It should be noted that with the recent trend towards large numbers of students in groups, working in Moodle helps ensure that no student is left without material or ungraded. In emergencies where continuous monitoring is difficult, Moodle's advanced assessment capabilities can be of great help.

In turn, it is possible to note a number of disadvantages of Moodle, as well as problems that arose in the process of distance teaching of English. During the period of mass e-learning, which was implemented during the COVID-19 pandemic, the Moodle platform proved to be a rather demanding product for the server and during high server loads it failed to work. It should also be noted that the teacher's workload in the e-learning format is much higher in terms of time costs, since it takes a lot of time to create high-quality and methodologically correct content, and also that distance learning requires high motivation from the student. And sometimes excessive reliance on digital tools can lead to less interaction during face-to-face sessions (Manalo, 2021).

The practice of introducing e-learning has shown that not all students are capable of self-discipline and self-organization; - there is a certain problem in proving the authenticity of the learning results. It is almost impossible for the teacher to determine that a student has done the task himself, whether it be a test or a written assignment.

In general, the experience of using the Moodle platform in the process of teaching and learning in the discipline "Foreign Language" at Yaroslav Mudryi National Law University can be characterized as positive. The use of this virtual educational platform in a blended learning format is an effective and promising tool for developing students' language competencies.

Conclusion

Educational technologies, and especially the Moodle platform, have proven to be important tools for teaching English at Ukrainian universities during the emergency. Its diverse functions for teaching, sharing, assessment, feedback, and monitoring have enabled teachers to cope with the challenges of the time and the problems associated with distance learning. The platform's many features support a holistic approach to education, from the ability to upload and store materials, testing and dynamic peer assessments to comprehensive analytics and accessibility features. By ensuring the continuity of education, the platform's capabilities have provided significant support to both teachers and students during this new time.

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МІЖПРЕДМЕТНІ ЗВ'ЯЗКИ ФІЗИКИ З ЕЛЕКТРОТЕХНІКОЮ Й ЕЛЕКТРОНІКОЮ ПІД ЧАС ПІДГОТОВКИ МАЙБУТНІХ ФІХІВЦІВ З ІНФОРМАЦІЙНОЇ БЕЗПЕКИ

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INTERSUBJECT CONNECTIONS OF PHYSICS WITH ELECTRICAL ENGINEERING AND ELECTRONICS DURING THE TRAINING OF FUTURE INFORMATION SECURITY SPECIALISTS

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Анотація

За результатами аналізу освітньо-професійних програм підготовки бакалаврів з інформаційної безпеки встановлено, що під час освітнього процесу враховуються хронологічні міжпредметні зв'язки фізики з електротехнікою й електронікою, які забезпечують узгоджене викладання зазначених навчальних дисциплін у часі. Під час аналізу програм з фізики та електротехніки й електроніки встановлено, що для успішного опанування здобувачами зазначених дисциплін необхідно також враховувати змістові міжпредметні зв'язки фізики з електротехнікою й електронікою, які забезпечують узгодження змісту вказаних навчальних дисциплін.

Abstract

According to the results of the analysis of educational and professional programs for the training of bachelors in information security, it was found that during the educational process, chronological intersubject connections between physics and electrical engineering and electronics are taken into account, which ensure the coordinated teaching of the specified academic disciplines over time. During the analysis of programs in physics and electrical engineering and electronics, it was found that for successful mastery of the specified disciplines by applicants, it is also necessary to take into account the content intersubject connections between physics and electrical engineering and electronics, which ensure the coordination of the content of the specified academic disciplines.

Ключові слова: міжпредметні зв'язки, фізика, електротехніка, електроніка, інформаційна безпека, інформаційні технології.

Keywords: intersubject connections, physics, electrical engineering, electronics, information security, information technologies.

Постановка проблеми в загальному вигляді. В умовах інтенсивного розвитку інформаційно-комунікаційних технологій та формування інформаційного суспільства важливого значення набуває процес підготовки кваліфікованих фахівців з аудиту, організації та управління інформаційною безпекою. Якість підготовки зазначених фахівців значною мірою залежить від рівня опанування ними фундаментальних і загальнотехнічних навчальних дисциплін.

Відомо, що фізика відноситься до циклу дисциплін природничо-наукової та математичної підготовки, що вивчаються студентами технічних спеціальностей закладів вищої освіти (ЗВО). Загальні й фахові компетентності, набуті під час вивчення фізики, сприяють формуванню наукового світогляду і наукового стилю мислення студентів та є основою для подальшого успішного опанування багатьох навчальних дисциплін, які входять до циклу професійної підготовки майбутніх фахівців з інформаційної безпеки. Однією з дисциплін професійної підготовки зазначених ІТ-фахівців, у процесі вивчення якої використовуються теоретичні знання, практичні навички та уміння з багатьох тем курсу фізики, є електротехніка й електроніка. У той же час, як фізика, так і електротехніка й електроніка є традиційно одними з найскладніших дисциплін для більшості студентів. Крім того, багато студентів не усвідомлюють у повній мірі значущості фізичної й електротехнічної підготовки для подальшого успішного опанування дисциплін професійної підготовки майбутніх фахівців з інформаційної безпеки. Останнє негативно впливає на мотивацію студентів до вивчення фізики та електротехніки й електроніки. Відповідно до цього, встановлення міжпредметних зв'язків фізики з електротехнікою й електронікою та їх реалізація під час освітнього процесу з метою підвищення ефективності підготовки майбутніх фахівців з інформаційної безпеки є актуальною науково-педагогічною задачею.

Аналіз останніх досліджень і публікацій. Проблемі встановлення міжпредметних зв'язків фізики з дисциплінами електротехнічної підготовки та іншими загальнотехнічними, математичними і природничими дисциплінами, а також їх реалізації в освітньому процесі присвячено значну кількість наукових робіт. Вказаним напрямком дослідження займалися Богданов І.Т., Гончаренко С.У., Дідик А.О., Дяденчук А.Ф., Ільніцька К.С., Касперський А.В., Кулик Л.О., Матвійчук О.В., Пастушенко С.М., Подласов С.О., Сергієнко В.П., Ткаченко А.В. та інші вчені. Зокрема, у роботі [3, с. 85] відзначено, що встановлення і реалізація міждисциплінарних зв'язків електротехніки й електроніки з фізикою, хімією, математикою, технічною механікою та матеріалознавством сприяє більш глибокому засвоєнню наукових понять, принципів і законів, формуванню наукового світогляду студентів, усуває дублювання і повторення під час вивчення зазначених дисциплін, створює сприятливі умови для формування фахових компетентностей майбутніх спеціалістів. У роботі [4, с. 217] відзначено, що врахування міжпредметних зв'язків фізики з дисциплінами електротехнічної підготовки сприяє формуванню більш якісних знань студентів та розвитку їх професійних здібностей. У роботі [2, с. 58] автори відзначають, що використання міжпредметних зв'язків під час освітнього процесу формує в учнів уміння критично мислити, аналізувати навчальний матеріал, що сприяє більш глибокому засвоєнню нового матеріалу з різних навчальних дисциплін.

Про важливість встановлення міжпредметних (міждисциплінарних) зв'язків та їх реалізації в освітньому процесі відзначається і в закордонній науково-педагогічній літературі. Зокрема, у роботі [11, с. 417] розглянуто міждисциплінарні зв'язки фізики з математикою, хімією, біологією та географією. Відзначено, що врахування міждисциплінарних зв'язків під час викладання фізики призводить до систематизації знань студентів та підвищення ефективності освітнього процесу. На думку авторів роботи [8, с. 37], міждисциплінарний підхід в освітньому процесі сприяє більш глибокому розумінню понять, процесів і явищ, які розглядаються в різних навчальних дисциплінах, тобто, призводить до узагальнення і систематизації знань студентів. У роботі [10] повідомлено про сумісні міждисциплінарні дослідження студентів факультету фізики Південно-Східного університету Індіани та факультету технологій електротехніки Університету Пердью. Результатом роботи була успішна розробка і створення студентами зазначених факультетів антени для виявлення природних сигналів із частотою нижчою 100 Гц.

Однак, незважаючи на значну кількість робіт, в яких досліджено міжпредметні зв'язки фізики з загальнотехнічними, математичними і природничими дисциплінами, проблема встановлення міжпредметних зв'язків фізики з електротехнікою й електронікою недостатньо вивчена і потребує подальшого більш глибокого дослідження.

Мета статті. Враховуючи вищезазначене, мета статті полягає у встановленні ролі міжпредметних зв'язків фізики з електротехнікою й електронікою та їх реалізації в освітньому процесі під час підготовки майбутніх фахівців з інформаційної безпеки.

Виклад основного матеріалу дослідження. За результатами аналізу науково-педагогічної літератури, присвяченої дослідженню міжпредметних зв'язків, зроблено висновок про те, що єдиного підходу до визначення та класифікації міжпредметних зв'язків не існує. Узагальнивши результати дослідження інших авторів, у роботі [5, с. 40] було запропоновано розглядати міжпредметні зв'язки як дидактичну категорію, що передбачає узгодження програм двох або більше навчальних дисциплін, взаємне використання і взаємозбагачення спільних для них знань, умінь і навичок, а також методів, форм і засобів навчання.

Аналіз освітньо-професійних програм, за якими готують бакалаврів з інформаційної безпеки в різних ЗВО, зокрема, в Національному технічному університеті України (НТУУ) «КПІ ім. Ігоря Сікорського», Національному університеті «Львівська політехніка» (НУ «ЛП»), Харківському національному університеті радіоелектроніки (ХНУРЕ), Ужгородському національному університеті

(УжНУ), Військовому інституті телекомунікацій та інформатизації (ВІТІ) ім. Героїв Крут, Національному транспортному університеті (НТУ), дозволяє зробити висновок, що навчальна дисципліна «Фізика» відноситься до обов'язкових дисциплін циклу природничо-наукової і математичної підготовки майбутніх фахівців з інформаційної безпеки. Навчальне навантаження з фізики майбутніх фахівців з інформаційної безпеки, що навчаються за спеціальністю 122 «Комп'ютерні науки» в НТУ та за спеціальністю 125 «Кібербезпека та захист інформації» в інших зазначених ЗВО представлено в табл. 1.

Таблиця 1

Навчальне навантаження з фізики та дисциплін електротехнічної підготовки фахівців з інформаційної безпеки в різних ЗВО

ЗВО, спеціальність, освітньо-професійна програма	Навчальна дисципліна	Кількість кредитів ЄКТС	Семестр вивчення	Форма підсумкового контролю
Національний технічний університет України «КПІ ім. Ігоря Сікорського», 125 «Кібербезпека та захист інформації», «Системи технічного захисту інформації»	Фізика	10	I, II	Залік, Екзамен
	Основи теорії кіл	7.5	III	Екзамен
	Теорія сигналів	4.5	IV	Екзамен
	Аналогова схемотехніка	4	V	Екзамен
	Цифрова схемотехніка	5	V	Екзамен
Національний університет «Львівська політехніка», 125 «Кібербезпека та захист інформації», «Кібербезпека»	Фізика	8	I, II	Екзамен
	Схемотехніка	8	III	Екзамен
Харківський національний університет радіоелектроніки, 125 «Кібербезпека та захист інформації», «Безпека інформаційних і комунікаційних систем»	Фізика	8	I, II	Залік, Екзамен
	Схемотехніка	4	III	Залік
	Електрорадіовимірювання	4	III	Залік
Ужгородський національний університет, 125 «Кібербезпека та захист інформації», «Безпека інформаційних і комунікаційних систем»	Фізика	16.5	I, II, III	Екзамен
	Основи теорії кіл	8	II, III	Залік, Екзамен
	Електроніка	5	IV	Залік
Військовий інститут телекомунікацій та інформатизації ім. Героїв Крут, 125 «Кібербезпека та захист інформації», «Кібербезпека в інформаційно-телекомунікаційних системах»	Фізика	6	I, II	Залік, Екзамен
	Комп'ютерна електроніка	3	III	Залік
Національний транспортний університет, 122 «Комп'ютерні науки», «Інформаційна безпека в комп'ютеризованих системах»	Фізика	4	III	Екзамен
	Електротехніка та електроніка	3	III	Екзамен
	Комп'ютерна схемотехніка та архітектура комп'ютерів	6	V, VI	Залік, Екзамен

Як видно з табл. 1, в більшості ЗВО курс фізики майбутніми фахівцями з інформаційної безпеки вивчається протягом першого і другого семестрів. Виняток становить курс фізики в УжНУ, який вивчається протягом трьох семестрів, та семестровий курс фізики в НТУ, що вивчається в третьому семестрі. При цьому кількість кредитів ЄКТС (1 кредит ЄКТС дорівнює 30 навчальних годин), що виділяються на вивчення фізики у вказаних ЗВО, різна – від 4 в НТУ до 16.5 в УжНУ. Таким чином, як видно з табл. 1, майбутнім фахівцям з інформаційної безпеки, що навчаються у зазначених ЗВО, викладається різний за обсягом годин курс фізики, що, у свою чергу, призводить до різного рівня підготовки з фізики в зазначених фахівців.

До дисциплін електротехнічної підготовки відносяться наступні: електротехніка й електроніка, основи теорії кіл, теорія сигналів, схемотехніка, архітектура комп'ютерів, електрорадіовимірювання тощо. Як видно з табл. 1, підбір дисциплін електротехнічної підготовки та їх навчальне навантаження для фахівців з інформаційної безпеки, що навчаються в зазначених ЗВО, суттєво відрізняється. Зокрема, в НТУУ «КПІ ім. Ігоря Сікорського» студенти вивчають основи теорії кіл, теорію сигналів, аналогову і цифрову схемотехніку, в НУ «ЛП» –

лише схемотехніку, в ХНУРЕ – схемотехніку та електрорадіовимірювання, в УжНУ – основи теорії кіл та електроніку, в ВІТІ ім. Героїв Крут – лише комп'ютерну електроніку, в НТУ – електротехніку й електроніку, комп'ютерну схемотехніку та архітектуру комп'ютерів. Таким чином, відмінність у виборі дисциплін електротехнічної підготовки для фахівців з інформаційної безпеки, що навчаються в зазначених ЗВО, пояснюється різними запланованими програмними компетентностями та програмними результатами навчання, яких повинні набути здобувачі вищої освіти під час навчання за тією чи іншою освітньо-професійною програмою.

З проведеного аналізу освітньо-професійних програм підготовки бакалаврів з інформаційної безпеки встановлено, що під час освітнього процесу в усіх зазначених ЗВО (див. табл. 1) враховуються хронологічні міжпредметні зв'язки фізики з дисциплінами електротехнічної підготовки майбутніх фахівців з інформаційної безпеки та інформаційних технологій. Хронологічні міжпредметні зв'язки забезпечують узгоджене у часі викладання зазначених навчальних дисциплін відповідно до потреб кожної з них. Так, фізику вивчають, як правило, протягом перших двох семестрів (як виняток в НТУ – протягом третього семестру), а дисципліни електротехнічної підготовки починають вивчати з другого курсу. Отже, студенти набувають відповідних загальних і фахових компетентностей з фізики перед вивченням дисциплін електротехнічної підготовки.

Розглянемо змістові (тематичні) міжпредметні зв'язки фізики з дисциплінами електротехнічної підготовки, що забезпечують узгодження змісту (розділів, тем тощо) зазначених навчальних дисциплін. Необхідно відзначити, що проблема встановлення змістових міжпредметних зв'язків фізики з дисциплінами електротехнічної підготовки майбутніх фахівців з інформаційної безпеки є значною за обсягом. Тому дану роботу присвячено встановленню змістових міжпредметних зв'язків фізики з електротехнікою й електронікою. Для цього проаналізовано програми відповідних навчальних дисциплін. Змістовий зв'язок фізики з електротехнікою й електронікою представлено у табл. 2.

Так, як видно з табл. 2, під час вивчення основних законів електричних кіл та їх застосування під час розрахунку кіл в електротехніці необхідно знати наступні теми з курсу фізики: закон Ома для однорідної ділянки кола, закон Ома для ділянки кола, що містить джерело струму, правила Кірхгофа, мати поняття про роботу і потужність електричного струму, знати закон Джоудя-Ленца. Під час визначення діючих та середніх значень змінних ЕРС, напруги та струму в електротехніці, необхідно знати такі поняття з курсу фізики, як сила струму, ЕРС, напруга та фізичні величини, що характеризують електромагнітні коливання. Під час розрахунку кіл змінного струму в електротехніці необхідно знати, що таке електричний опір, електроємність, індуктивність, послідовне і паралельне з'єднання конденсаторів та провідників зі струмом. Для вдалого вивчення будови, принципу роботи, призначення та різних режимів роботи трансформатору в електротехніці необхідно мати базові знання з таких тем курсу фізики, як магнітний потік, явище і закон електромагнітної індукції, правило Ленца, явище самоіндукції тощо.

Таблиця 2

Змістовий зв'язок фізики з електротехнікою й електронікою

Навчальні теми з електротехніки й електроніки	**Відповідні теми з курсу фізики**
Основні закони електричних кіл. Застосування законів Ома і Кірхгофа під час розрахунку кіл. Закон Джоуля-Ленца. Енергія та потужність в колі постійного струму	Закон Ома для однорідної ділянки кола. Закон Ома для ділянки кола, що містить джерело струму. Правила Кірхгофа. Робота і потужність струму. Закон Джоуля-Ленца
Діючі та середні значення змінних ЕРС, напруги та струму. Синусоїдальні ЕРС, напруга та струм, їх період, частота, циклічна частота, амплітуда, початкова фаза та зсув фаз	Сила струму. ЕРС. Напруга. Фізичні величини, що характеризують електромагнітні коливання (амплітуда, період, частота, циклічна частота, фаза коливань)
Розрахунок кола змінного струму під час послідовного з'єднання елементів R, L, C. Резонанс напруги. Розрахунок кола синусоїдального струму з паралельним з'єднанням R, L, C. Резонанс струму. Потужність змінного струму. Коефіцієнт потужності. Енергетичні процеси в колах змінного струму	Електричний опір провідника. Послідовне і паралельне з'єднання провідників зі струмом. Електроємність конденсатора. Послідовне і паралельне з'єднання конденсаторів. Індуктивність. Вимушені електромагнітні коливання. Явище резонансу
Призначення та будова трансформатора. Класифікація трансформаторів. Принцип дії однофазного трансформатора. Холостий хід трансформатора. Робота трансформатора під навантаженням. Витрати енергії та коефіцієнт корисної дії. Поняття про трифазний трансформатор	Магнітний потік. Досліди Фарадея. Явище електромагнітної індукції. Закон Фарадея для електромагнітної індукції. Правило Ленца. Індуктивність. Явище самоіндукції. Струми Фуко (вихрові струми). Будова і принцип роботи трансформатора
Класифікація електронних приладів. Пасивні та активні елементи. Електропровідність. Основні та неосновні носії заряду. Фізичні процеси в напівпровідниках. p-n перехід. Зміщення p-n переходу	Електропровідність газів, рідин. Електропровідність металів. Електропровідність напівпровідників. Основні та неосновні носії заряду в напівпровідниках. p-n перехід

Під час розгляду класифікації електронних приладів, явища електропровідності, вивчення p-n переходу в електроніці необхідно володіти наступними темами з курсу фізики: електропровідність газів, рідин, металів та напівпровідників, основні та неосновні носії заряду в напівпровідниках.

Таким чином, як видно з табл. 2, переважна більшість тем з розділів електрики і магнетизму курсу фізики безпосередньо використовується під час вивчення електротехніки й електроніки майбутніми фахівцями з інформаційної безпеки та інформаційних технологій. Взагалі, під час вивчення дисциплін електротехнічної підготовки фізична і математична освіта відіграє важливу роль, оскільки є базисом для вивчення електротехніки й електроніки та інших дисциплін електротехнічного спрямування [1, с. 32; 9, с. 43]. У свою чергу врахування хронологічних і змістових міжпредметних зв'язків фізики з електротехнікою й електронікою сприяє реалізації трьох основних складників освітнього процесу: мети навчання (навіщо вчити), змісту навчання (чому вчити) та принципів організації освітнього процесу (як навчати) під час підготовки майбутніх фахівців з інформаційної безпеки [6, с. 125; 7, с. 81].

Висновки. Таким чином, за результатами проведеного аналізу освітньо-професійних програм підготовки бакалаврів з інформаційної безпеки, що розроблені різними ЗВО, виявлено, що зазначеним здобувачам вищої освіти викладається різний за обсягом навчального навантаження курс фізики, що призводить до різного рівня підготовки з фізики у вказаних фахівців. Також виявлено відмінність у виборі дисциплін електротехнічної підготовки, що пояснюється різними запланованими програмними компетентностями та програмними результатами навчання, яких повинні набути майбутні фахівці з інформаційної безпеки під час навчання за тією чи іншою освітньо-професійною програмою.

За результатами аналізу освітньо-професійних програм підготовки бакалаврів з інформаційної безпеки, що розроблені різними ЗВО, встановлено, що під час освітнього процесу враховуються хронологічні міжпредметні зв'язки фізики з електротехнікою й електронікою, що забезпечують узгоджене викладання зазначених навчальних дисциплін у часі. За результатами аналізу програм з фізики та електротехніки й електроніки встановлено, що для успішного опанування електротехніки й електроніки необхідно враховувати змістові міжпредметні зв'язки фізики з електротехнікою й електронікою, що забезпечують узгодження змісту зазначених навчальних дисциплін. Зокрема, майбутнім фахівцям з інформаційної безпеки необхідно мати належний рівень знань, практичних умінь і навичок з таких розділів курсу фізики, як електрика і магнетизм та електромагнітні коливання і хвилі, що безпосередньо використовуються під час вивчення електротехніки й електроніки.

Наступну роботу планується присвятити встановленню ролі міжпредметних зв'язків фізики з теорією сигналів та їх реалізації в освітньому процесі під час підготовки майбутніх фахівців з інформаційної безпеки.

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ПРИНЦИПЫ УПРАВЛЕНИЯ ОБРАЗОВАТЕЛЬНЫМИ УЧРЕЖДЕНИЯМИ

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Аннотация

Когда управление школой основано на объективных законах, можно построить эту работу на научной основе и добиться высоких результатов. Законы о государственном управлении отражают законность, которая понимается и соблюдается на практике в этом процессе. Закономерности управления, общие, важные, устойчивые и повторяющиеся связи, объективно характерные для данного процесса - причина причины понятна. Эти законы открыты наукой и выражены в форме законов. Законы управления представляют собой компактную и логичную формулировку соответствующих закономерностей. Рассмотрим их вкратце. Все ступени и уровни управления школой базируются на единой основе — законодательстве, организационно-правовой базе. Единство в управлении выражается также в общности целей системы образования, функций и методов воспитания, кадров. Если субъекты и объекты управления взаимодействуют на основе индивидуальных потребностей, то эффект управленческой деятельности будет выше. С помощью этой правоуправленческой деятельности профессиональный уровень профессионализма управляемых субъектов на верхних ступенях выражается в ожидаемой пропорциональности. В этом случае возможно достижение более высокой мощности и затрат за счет профессионализма управляющих организаций и внедрения управляющих организаций.

Abstract

When school management is based on objective laws, it is possible to build this work on a scientific basis and achieve high results. Laws on public administration reflect the legality that is understood and observed in practice in this process. Management patterns, general, important, stable and recurring connections, objectively characteristic of a given process - the cause of the cause is clear. These laws are discovered by science and expressed in the form of laws. Management laws are a compact and logical formulation of the corresponding patterns. Let us consider them briefly. All stages and levels of school management are based on a single foundation - legislation, organizational and legal framework. Unity in management is also expressed in the commonality of the goals of the education system, functions and methods of education, personnel. If the subjects and objects of management interact on the basis of individual needs, the effect of management activity will be higher. With the help of this legal management activity, the professional level of professionalism of the managed entities at the upper levels is expressed in the expected proportionality. In this case, it is possible to achieve higher capacity and costs due to the professionalism of the managing organizations and the implementation of managing organizations.

Ключевые слова: управление, инновация, организация, синтез, функции, образование.

Keywords: management, innovation, organization, synthesis, functions, education.

В этой системе управления законодательством другие учреждения и участники системы выражаются в согласовании независимости в определенных державах. Чрезвычайно серьезная корректировка этапов в управлении, то есть чрезвычайно суровое урегулирование этапов, включенных в систему, может привести к определенной напряженности, инициативе и независимости, снизить ответственность и ответственность за низкие этапы. Если они предоставят некоторую свободу, в этом случае вся система будет эффективно работать на каждом уровне системы управления, а также подчиненных, в данном случае, в данном случае вся система значительно увеличивается для инициативы, творчества и результат творчества и работы.

Этот закон предусматривает соответствие между уровнем управления системой управления и уровнем выполнения управляемой системы. Если эти уровни не совпадают, система управления не может привести к необходимым уровням в управляющую систему (более низкие уровни управления). Исполнительная система (исполнительный объект) не может выполнить заказ и инструкции на требуемом уровне. В обоих случаях нарушение системы окажет негативное влияние на деятельность системы в целом. Другие законы и законы отмечены в существующей литературе: 5. Зависимость от уровня структурно-функциональных отношений между субъектами и объектами в системе в системе.

6. Теоретическая и практическая подготовка школьных лидеров уровня управления и т. Д. Законы руководства выражаются в соответствующих принципах и выполняются через них.

Принципы управления должны хорошо знать свои принципы и правильно использовать их для эффективной организации управления. Принципы (принцип «принцип» означает »- начало), которые отражают соответствующие законы, требования называются требованиями. Принципы управления являются основными требованиями, основанными на управленческой деятельности. Существующие принципы управления могут быть разделены на две группы: принципы государственной политики в области образования и принципов управления школой. Принципы государственной политики в области образования охватывают общие принципы системы образования. Это включает в себя демократ, гуманизм, равенство, национальность и секуляризм, качество, эффективность, непрерывность, единство и принципы целостности, наследования, либерализма и интеграции. Эти принципы основаны на всей системе образования, включая важные требования в управлении школой. Принцип демократизации управления школой проявляется во всех областях школьной жизни, общения и отношений, учебного процесса и контроля внутри школы. Охват этого принципа большой, проявления красочные: управление образованием на государственной и общественной основе; Уважение к правам и свободам учителей и учеников, расширение полномочий самоуправления; Объединенное лидерство и совместная сочетание; Увеличение автономии образовательных учреждений; применение стиля демократического лидерства; Учителя, родители и ученики участвуют в активном участии в школьной жизни и т. Д. Демократия не будет выглядеть как полная свобода, анархия, а также стиль управления административным и административным управлением. Он свобода в законах Способ, как утверждается, учитывает мнения образовательных и запросов. Демократизация школы сочетает в себе многие другие принципы управления. Вторая группа управления школой основана на общих принципах государственной политики в области образования, для улучшения и обновления их реализации, управления. Давайте кратко рассмотрим эти принципы.

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3. Принцип целеустремленности в контроле. Этот принцип означает, что школьное руководство целенаправленно, а также для достижения цели целей всех видов деятельности, сил и средств. Управление направлено на целенаправленный процесс: как и в каждой области, все начинается здесь и заканчивается его приобретением. Другие компоненты управления школой - содержание, инструменты и методы дела должны быть избраны с точки зрения цели цели и его реализации. Хорошо продуманная и запланированная цель дает правильное направление управлению, это помогает отойти от спонтанности и совпадения. Таким образом, управление школой с коллегиальными органами, цель школы за каждый конкретный период (например, в учебном году) должно должным образом определять себя и коллективную деятельность. Потому что, если сознательно всесторонне воспринимается и хорошо продумано, нет никаких действий: все виды действий регулируются в сознательных целях.

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7. Оптимистичный принцип. Этот принцип предусматривает достижение эффективного результата, выбирая наиболее подходящий (опти-

мальный) вариант для конкретных условий в управлении. Существуют два общих показателя оптимизации: а) для достижения высоких результатов в определенных условиях;

б) достичь этих результатов, тратя меньше времени, силы, денег и нервного напряжения. Если результаты, полученные в управлении, соответствуют этим показателям, в этом случае вы можете поговорить об оптимизации управления. В дополнение к принципам управления школой, в существующей литературе были выдвинуты другие принципы: оперативность, гибкость, принципы, ответственность, наследование, конечный результат, бетон, принципы распределения труда и т. Д. В некоторых источниках (Radchenko I.P) рассматривается как система управления принципами научной организации педагогики. Он сочетает в себе множество принципов, как универсальный принцип. Планирование таких принципов, создание благоприятных условий для работы, координация силы и функций, оптимизация, регулирование, контроль и бухгалтерский учет, стимуляция и т. Д. Принципы включены. Соответствие принципам, рассмотренным в управленческой деятельности, позволяет создавать управление на уровне современных требований и его функций.

3. Функции управления управлением (Latin Funetio - Исполнение, деятельность) - это тип управления, выполняемых в результате определенных результатов. Управление операциями (работ) понимается, что настройка стабильных, повторяющихся действий, необходимых для реализации функций управления. Важно правильно идентифицировать и реализовать соответствующую систему транзакций для реализации моих функций управления на требуемом уровне. Функции управления в системе образования очень разнообразны: каждый уровень управления имеет свои собственные функции.

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PHILOLOGY

КУЛЬТУРОМОВНИЙ ПІДХІД ДО ПІДГОТОВКИ ФАХІВЦІВ СФЕРИ ОБСЛУГОВУВАННЯ

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CULTURAL-LINGUISTIC APPROACH TO TRAINING SERVICE SPECIALISTS

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Анотація

У статті розглянуто питання культури мовлення сучасної молоді та необхідність дотримання норм мовленнєвої культури у спілкуванні. Досліджено взаємозв'язок високого рівня культури мовлення з розвитком духовності особистості. Визначено дидактичні засади підготовки майбутніх фахівців. Зазначено, що розвиток мовлення студентів у молодіжному середовищі тісно пов'язаний із соціокультурним простором. Проаналізовано ефективні методи удосконалення культури мовлення. Запропоновано шляхи подолання низької мовленнєвої культури.

Abstract

The article examines the issue of the speech culture of modern youth and the need to observe the norms of speech culture in communication. The relationship between a high level of speech culture and the development of a person's spirituality has been studied. The didactic principles of training future specialists have been defined. It is noted that the development of students' speech in the youth environment is closely related to the socio-cultural space. Effective methods of improving speech culture are analyzed. Ways to overcome low speech culture are proposed.

Ключові слова: культура мови, культура мовлення, мовленнєва компетентність, професійна діяльність.

Keywords: language culture, speech culture, speech competence, professional activity.

Вступ. В умовах суспільно-економічних змін, процесів глобалізації й розвитку інформаційного суспільства, мобільності ринку праці, зростання соціальної ролі особистості, орієнтації вищої освіти на посилення зв'язку змісту навчання з обраною професією особливого значення для розвитку культури мовлення майбутніх фахівців сфери обслуговування набуває вдосконалення змісту вищої освіти, спрямованого на забезпечення всебічної мовленнєвої компетентності особистості, здатної до різноаспектної комунікації в професійній діяльності.

У сучасному суспільстві зростають вимоги до якості освіти загалом і професійної зокрема, оскільки фахові кола потребують спеціалістів, здатних ефективно працювати в умовах зростання обсягів різноманітної інформації, прагнуть до професійного самовдосконалення і самореалізації, мають високий рівень культури мовлення.

Незважаючи на вагомість досліджуваних питань, **актуальність** теми статті визначається диференціацією змісту мовної освіти за основними розділами фахових дисциплін та напрямами підготовки у закладах вищої освіти, оптимізацією шляхів формування культури українського мовлення майбутніх фахівців сфери обслуговування.

Мета статті полягає в окресленні лінгводидактичних умов культуромовного підходу до підготовки фахівців сфери обслуговування. Якісна підготовка таких спеціалістів в умовах різновекторної інтеграції, створення єдиного освітнього й інформаційного простору актуалізує проблему формування культури українського мовлення майбутніх фахівців в умовах економічного закладу вищої освіти.

Закони України «Про освіту», «Про вищу освіту», «Державна національна програма «Освіта», Національна доктрина розвитку освіти України у XXI столітті, нормативні документи

МОН України з питань освіти, Болонська декларація «Про Європейський простір вищої освіти», Положення про апробацію та моніторингові дослідження навчальної літератури для загальноосвітніх навчальних закладів відкривають нові перспективи для реалізації інтелектуального й особистісного потенціалу майбутнього фахівця.

Аналіз досліджень і публікацій. У процесі студіювання наукових джерел з обраної проблеми дослідження з'ясовано, що у змістовому діапазоні культури духовного світу майбутніх фахівців сфери обслуговування особливе місце посідає культура мовлення, що передбачає досить високий рівень загальної культури людини, культури її мислення. Першочергове завдання методики вдосконалення мовленнєвої культури майбутнього фахівця – навчити дотримуватися норм літературної мови, удосконалювати сформовані навички спілкування українською мовою.

Останнім часом учені-лінгвісти, лінгводидакти спрямували свої зусилля на оновлення й пошук шляхів удосконалення культури мовлення з урахуванням особливостей дидактичного процесу в сучасних закладах вищої освіти.

Підвищенню рівня мовної і мовленнєвої культури присвячено праці вчених-лінгвістів та лінгводидактів: Н. Бабич, З. Бакум, І. Білодіда, А. Богуш, Н. Голуб, О. Горошкіної, Ж. Горіна, Н. Дикої, Р. Друженеко, М. Жовтобрюха, С. Карамана, О. Караман, А. Коваль, Л. Мацько, М. Пентилюк, М. Пилинського, О. Понаморіва, В. Русанівського, С. Єрмоленко та ін. Теореретичні основи культури мовлення у різні періоди розробляли такі вчені, як: В. Чернишов, С. Обнорський, Л. Щерба, В. Костомаров, Л. Скворцов, Б. Головін, Н. Шведова, О. Лаптєва та ін.

Психологічні акспекти цієї проблеми знайшли своє відображення у працях Л. Айдарової, Д. Богоявленського, Л. Виготського, М. Жинкіна, Д. Ельконіна, Г. Костюка, О. Лозової, О. Леонтьева та ін. Проблема формування мовленнєвих умінь і навичок суб'єктів навчального процесу знайшла відображення у працях М. Баранова, О. Біляєва, Є. Голобородько, О. Горошкіної, В. Мельничайка, Г. Михайловської, В. Онищука, Н. Пашківської, М. Пентилюк, О. Текучова. Аспект формування етики й естетики мовлення студіювався Н. Бабич, О. Семеног, М. Стельмаховичем, О. Хорошковською та ін., духовного розвитку особистості засобами рідної мови – Ф. Буслаєвим, Г. Ващенком, Б. Грінченком, М. Драгомановим, М. Костомаровим, І. Срезневським, В. Сухомлинським та ін.

Ми поділяємо думку більшості сучасних українських лінгводидактів, які стверджують, що досягти досконалого володіння мовою можна лише за умови модернізації змісту, форм, методів та прийомів навчання (М. Вашуленко, Т. Донченко, Н. Іваницька, О. Купалова, Т. Ладиженська, М. Львов, М. Пентилюк, С. Караман, О. Караман, Ж. Горіна, Н. Дика, Т. Окуневич, Р. Друженеко та ін.). У лінгвістичних і методичних студіях висвітлено окремі аспекти мовної підготовки майбутніх професійних фахівців (А. Грищенко, Т. Донченко, В. Кононенко, М. Наєнко, Г. Токмань, Г. Онкович, С. Єрмоленко, Н. Шумарова, Г. Шелехова, Н. Остапенко, Н. Голуб, І. Дроздова, С. Цінько).

Сьогодні визначено дидактичні засади підготовки майбутніх фахівців, з'ясовано лінгводидактичні основи розвитку комунікативних навичок (О. Біляєв, М. Пентилюк, В. Мельничайко. М. Вашуленко, С. Караман, І. Хом'як, Е. Палихата, О. Горошкіна); досліджено способи і шляхи формування лінгвістичних та прагмалінгвістичних умінь студентів (В. Русанівський, М. Плющ, Н. Тоцька, М. Муравицька, О. Пономарів, Л. Мацько, В. Мусієнко, Ф. Бацевич, О. Селіванова, Л. Паламар).

Виклад основного матеріалу. В останнє десятиріччя у вишах України, в тому числі й у Вінницькому торговельно-економічному інституті Державного торговельно-економічного університету, накопичено значний досвід щодо розроблення сучасних науково-методичних комплексів із нормативних дисциплін та курсів за вибором. Сучасні вимоги до підручника визначаються основними критеріями, які безпосередньо пов'язані з актуальними завданнями сучасної вищої освіти і корелюються із запитами інформаційного суспільства на творчо мислячу, активну особистість, мають відображатися і в сучасному навчально-методичному комплексі.

У Національній доктрині розвитку освіти України в XX столітті особливу увагу приділено гуманітарній підготовці майбутніх фахівців, які досконало володіють рідною мовою, вільно і комунікативно виправдано користуються мовними засобами під час сприймання, відтворення і створення власних висловлень у різних стилях і жанрах як в усній, так і писемній формах [6].

Отже, не претендуючи на вичерпність і безапеляційність висвітлених положень щодо феномену «культура мовлення», розглядаємо його як діалектичну, інтегровану єдність соціокультурного, психологічного і педагогічного аспектів, що мають ураховуватись у підготовці майбутнього фахівця будь-якої сфери професійної діяльності.

Слід зазначити, що розвиток мовлення студентів у поліетнічному середовищі тісно пов'язаний із соціокультурним простором, у якому вони перебувають, що мало сприяє формуванню культури усного мовлення. Як результат – низка відхилень від літературних норм. Наше дослідження показало, що словниковий запас студентів закладів вищої освіти, коледжів зокрема, містить діалектизми, жаргонізми.

Комп'ютеризація навчального процесу сприяє легкому пошуку необхідної інформації без використання літературних джерел, не формує вміння віднайти в ній основне, відкинути другорядне, усвідомити її зміст, сформувати уміння логічно і зв'язно вести розповідь. Однак у здобутій через соціальну мережу інформації трапляються помилки, що стосуються граматичних і лексикостилістичних норм, які сприймають студенти, навіть не проаналізувавши правильність і грамотність змісту отриманої інформації.

У результаті впливу цих чинників у майбутніх фахівців виникають труднощі у формулюванні вла-

сних думок, а відтак, – правильної передачі їх в усному чи писемному мовленні. Проблему співвідношення мови й мовлення у сучасному мовознавстві вважають чи не однією з найскладніших, оскільки трактування цих понять досить давно ототожнювались і на сучасному етапі критерії розмежування їх у лінгвістиці різні.

Як зазначено вище, у лінгвістиці досить довго не було єдності в тлумаченні понять «мова» й «мовлення». Необхідність уточнити зміст їх постала після того, як Фердинанд де Соссюр та І. Бодуен де Куртене [3] ввели в науковий обіг терміни «мова» – «мовлення» (фр. «langue» – «parole»). Ф. де Соссюр у праці «Курс загальної лінгвістики» [3] зазначає, що мова й мовлення – два різні об'єкти й говорить про необхідність функціонування двох наук – лінгвістики мови й лінгвістики мовлення. Науковець пише, що, розмежовуючи мову й мовлення, ми тим самим відділяємо: 1) соціальне від індивідуального; 2) суттєве від побічного й випадкового [3].

Мова – система знаків; мовлення – система сполучень мовних елементів у мовленнєвий матеріал – конкретна реалізація системи мови. Визначений ланцюжок вказує на взаємозв'язок мови й мовлення. І. Ющук поняття «мова» поєднує із культурним і національним життям та вважає мову формою національної свідомості. Учений подає таке визначення: «Мова в цілому – це неоднорідна система: у ній поєднуються взаємозалежні елементи різного характеру, які утворюють підсистеми, що перебувають у різних ієрархічних стосунках (наприклад, слова як частини мови входять водночас і в лексичну, і в граматичну системи) [10]». Крім того, дослідник вважає, що «…мова як людський феномен існує у двох тісно взаємозв'язаних психічних процесах: в уяві як набір мовних засобів і схем та в мовленні під час творення речень і тексту. Оскільки українське слово «мова» означає водночас і «набір мовних засобів», і «мовлення», то для розрізнення цих двох понять перший стан називатимемо мовними засобами, другий – мовленням [10]». Мовлення є явищем індивідуальним і тісно пов'язане з поняттям «культура мовлення».

За словами О. Біляєва, поняття «культура мови» й «культура мовлення» співвідносяться між собою так само, як «мова» і «мовлення», тобто як загальне й конкретне. Ученим розроблена лінгводидактика рідної мови [1]. Б. Головін під терміном «культура мовлення» розуміє рівень оволодіння системою якостей мовлення окремими носіями мови і виділяє два аспекти поняття «культури мовлення»:

1) сукупність і система комунікативних якостей мовлення; 2) вчення про сукупність і систему комунікативних якостей мовлення. У сучасній лінгвістиці й лінгводидактиці автори уживають вирази «культура мови» (Ганич Д., Олійник І., Єрмоленко С.) та «культура мовлення» (Бабич Н. Біляєв О., Мельничайко В., Пентилюк М.). Автори «Довідника з культури мови» (Єрмоленко С., Бибик С., Сологуб Н.) пропонують визначення поняття «культура мови» співвідносити з поняттям «культура слова». Найбільш прийнятним для нашого дослідження стало таке визначення поняття: «культура мовлення» – це володіння нормами усної і письмової літературної мови (орфоепія, наголос, слововживання, орфографія, морфологія, синтаксис), а також уміння використовувати виражальні можливості мови відповідно до мети висловлювання, комунікативної цілеспрямованості, умов спілкування. Низка лінгвістів (Литвин Л., Скворцов Л., Шкуратяна Н. та ін.) культуру мовлення пов'язують з мовленнєвою майстерністю індивідуума.

Акцентується увага на необхідності оволодіння на першому етапі нормами

літературного мовлення, на другому – мовленнєвою майстерністю, що полягає в умінні вибрати з паралельних варіантів найточніший у змістовому плані, стилістично доречний, виразний, доступний.

Серед ознак культури усного мовлення нами взято за основу такі:

правильність, точність, виразність, логічність, багатство, комунікативне спрямування. Оскільки мовлення завжди використовується з комунікативною метою, то до ознак культури мовлення ми відносимо: дотримання формул мовленнєвого етикету, толерантність, уміння шанобливо, ввічливо звертатися до співбесідника, зважити на його вік, стать тощо.

Найбільш ефективними формами роботи з удосконалення культури мовлення студентів (за результатами експерименту) Г. Берегова вважає такі:

- застосування інтерактивних імітаційних методів;

- включення в систему завдань і вправ методів редагування та перекладу з метою порівняння засобів української та російської мов;

- проведення нетрадиційних занять (лекції «Усне ділове спілкування», «Елементи ораторського мистецтва», «Публічний виступ» з елементами монологічного мовлення тощо);

- використання усних мовленнєвих вправ на всіх етапах навчання (конструктивного характеру, що включають лінгвістичний експеримент, синонімічні чи паронімічні заміни, розширення й згортання текстів, переклад, редагування, мікровисловлювання, мікродіалоги, бесіди та ін.);

- застосування на заняттях системи ділових ігор (ситуаційних та рольових). В. Михайлюк пропонує модульно-рейтингову систему навчання, в основі якої лежить комунікативно-діяльнісний підхід до формування професійної культури мовлення студентів. Дослідниця зосереджує увагу на роботі з текстом документа та використанні в ньому комунікативних одиниць різних мовних рівнів залежно від профільної галузі, але не торкається питання формування культури усного мовлення студентів [5].

Найбільш ефективними методами удосконалення культури мовлення Т. Окуневич вважає застосування: – технології модульного навчання з поділом на мінімодулі, у яких подано теоретичний матеріал, тренувальні, контрольні, тестові завдання і вправи, що сприяють осмисленню мовних норм та корекції усного мовлення; – імітаційних рольових і навчальних ігор (робота в мікрогрупах); – моделювання навчальних ситуацій з метою корекції вимови голосних і приголосних звуків та їх сполук, читання вголос, монологічні усні перекази, побудову усних

діалогів, прослуховування радіо- і телепередач, виступи перед аудиторією з повідомленням чи доповіддю, роботу з орфоепічним словником [4].

Варто зазначити, що у лінгводидактиці відсутні єдині погляди на класифікацію методів навчання. Системний підхід до проблеми методів навчання знаходимо у працях І. Лернера та М. Скаткіна. Спираючись на їхню концепцію, М. Успенський зробив спробу класифікувати методи і прийоми навчання мови й мовлення, де враховано не лише способи і характер навчальної діяльності, а й відповідність методів змісту й загальній меті навчання.

Висновок. Таким чином, ефективна підготовка фахівців сфери обслуговування, як і будь-якої професійної галузі, потребує інтеграції культурного підходу, яка сприяє формуванню високого рівня мовної культури та професійної комунікації. Мова – це ключовий інструмент комунікації, є основним засобом передачі інформації у професійній діяльності, забезпечуючи точність, зрозумілість та ефективність обміну думками.

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NIZAMI RESEARCH IN THE WORK OF CHRISTINE VAN RUYMBEKE

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Abstract

The main goal of the research work is to study Nizami Ganjavi, who has been studied in his native land for centuries and has become a school of thought, beyond the borders. Although the Nizami school has not lost its uniqueness over the centuries, on the contrary, it has grown and developed, reaching thousands of readers. This article also examines his re-study in the work of Christine van Ruymbeke, who worked at Cambridge and Oxford universities. The study of Nizami by an employee of Cambridge University, a prominent researcher, and the publication of the books he published together with other colleagues by important universities in the world is a fundamental achievement of the medieval writer.

The researcher, who shared her thoughts on Nizami with her colleagues through both online and face-to-face events, later published her research as a book based on these exchanges. The writer, who concluded that the main reason why Nizami's work reached such a wide audience was the predominance of real-life situations in her works, also noted this in her published materials. She notes that the positive influence of this path, which the prominent poet left behind as a rich legacy for his successors after him, on the creativity of his worthy successors is undeniable.

Keywords: Nizami's literary works, Cambridge, Ruymbeke, Hakim, masnavis.

Eastern literature has always attracted attention with its charm and has always been of interest to both readers and researchers. With the increase in socio-political relations and the development of integration, Nizami's work continued to gather its followers, and the field of research has reached a wide scope. Christine van Ruymbeke, who has had a special interest in Nizami's work since her student years, began to study several of his works. Nizami's influence is always evident in Ruymbeke's work, who worked at Oxford for some time and then began to work full-time at Cambridge University. The first research work was on "Botanical references within the framework of the monumental work of the 12th-century Persian poet Nizami of Ganja". Since then, the researcher, who has always paid attention to Nizami's work, has regularly studied his work. The researcher, who worked as an assistant on the Cambridge Shahnameh Project, has always been in harmony with oriental literature. She presented the work "Science and Poetry in the Middle Ages", which is part of the Cambridge University Oriental Press, published in December 2007. In the work, the researcher emphasizes that Nizami Ganjavi was one of the leading figures of Persian poetry living in Azerbaijan in the second half of the 12th century. Nizami emphasizes that he is famous for his five masnavis, collected to create the Khamsa (Five).

The poet's language is rich and elegant. His vocabulary includes verse vocabulary, expressions and allusions known at that time. This study examines all of Nizami's words referring to trees and their fruits. Then, the scientific content of these allusions is checked with the help of Arabic and Persian medieval scientific treatises from the 9th to the 17th centuries. It can be concluded that this study not only describes a better understanding of the depiction of nature in the work of the Persian-speaking poet, but also forms an idea of the breadth and depth of education of medieval poets and their readers.[1]

The writer, who is currently researching Haft Peykar, says that she will present it with her monograph titled "Murakkab Haft Peykar". Ruymbeke, who said that she saw him in the image of a young man of the Nizami era, also studied his collection of essays, and nine years later, in 2020, after a conference dedicated to the poet in 2018, hosted by the Nizami Ganjavi International Center in Baku (Azerbaijan), she co-edited a collection of essays written by Azerbaijani scholars, the current homeland of this great author. The first editing of the essays was after the Nizami conference organized for the Iranian Heritage Foundation in Cambridge in 2004 (Key to the Treasure of the Physician. Artistic and Humanistic Aspects of Nizami Ganjavi's Khamsa).

In 2020, they published a book titled "The Interpretation of Nizami's Cultural Heritage in the Contemporary Period" co-authored with their Azerbaijani colleague Rahilya Geybullayeva. We can say that this book fills a gap in the field of pre-modern Persian literature. Noting that this is the first scholarly publication in English about and around the poet Nizami Ganjavi by important Western and non-Western scholars, the author enriches this field with their knowledge and research interests. This book, which consists of articles by various authors following the conference "Nizami in Modern Interpretation" held in Baku in 2018, is a contribution to modern literature from the Nizami era. [4]

In 2011, together with Johann-Christoph Bürgel, Professor Emeritus of Islamic Studies at the University of Bern and recipient of several awards for his Nizami translations, he published a work entitled "The Key to the Treasure of the Judge" based on "The Artistic and Humanistic Aspects of Nizami Ganjavi's Khamsa", emphasizing the continuation of Nizami's legacy.

This "Key" to the Khamsa consists of thirteen essays by prominent scholars in the field of Persian studies, and five long poems, each written by Nizami, who was born in Ganja, focusing on various aspects of the Khamsa.

Nizami Ganjavi, who lived and created in the ancient land of Azerbaijan, is highlighted as a key individual among the medieval poets. The outstanding

poet, creating poetry, mysticism, poems and novels, influenced the entire Persian-speaking world from the Ottoman to the Mongol world (present-day Turkey, Azerbaijan, Georgia, Iran, Afghanistan, Uzbekistan, Tajikistan, Pakistan, India) and countless young poets. His successors were inspired by him and involuntarily tried to imitate him in their works. Nizami's influence on the creativity of such great poets as Hafiz, Rumi and Saadi is undeniable. The followers of the Nizami school have repeatedly expressed the influence of this rich heritage and described it in their own works. Of these, it is undeniable that Amir Khosrov Khamsa was written under the influence of Nizami's collection of the same name. The poet himself admits this with these lines in his poem "Khosrov and Shirin".

Nizami was the first to say every word.

He did not allow a pearl to remain unpolished.....[3. p16]

The poet's five masnavis cover various topics, and each of them has great fame. His literary heroes Khosrow and Shirin, Leyli and Majnun, and Alexander are considered to be among the literary gems of that period. After Nizami, these names were repeatedly emphasized, and works with the same names were written. Today, they have become names known throughout the Islamic world. The essays in this volume reflect important developments in the field of Nizami studies, focusing on topics such as mysticism, art history, comparative literature, science, and philosophy. They show how classical Greek knowledge is uniquely in harmony with the world of Nizami and Islamic culture.[2]

Christine van Ruymbeke states that the essays collected in this volume are the materials of the Nizami Ganjavi Workshop and expresses her and her colleagues' great enthusiasm and satisfaction in the emergence of this invaluable work. The work, created in September 2004 at the University of Cambridge (Great Britain) by Johann Christoph Bürgel and Christine van Ruymbeke, with the assistance and generous financial support of the Faculty of Asian and Middle Eastern Studies at Cambridge, is entitled "Artistic and Humanistic Aspects of Khamsa". Stating that the importance of Nizami in classical Persian literature and the richness of his work have not been sufficiently reflected in the context of the specific scholarly research they have inspired over the last two to three decades, the researcher notes that there are many aspects of Nizami's legacy that still cry out for further analysis or new discovery.

Eight hundred years after the poet's death, that is, after all the research that has been conducted to this day, such a thought is a clear indication of the richness of Nizami's treasure. Studying Nizami is a reward in itself, and, as with true geniuses, his appeal to connoisseurs knows no bounds. With such a comprehensive author, one cannot help but wonder: will we ever be able to obtain comprehensive information about Nizami? The present collection of essays, which does not aim at such a sensational and comprehensive exposure of the author who is the object of research, hopes only to modestly present the "Key to the Treasure of Hakims" by interpreting the first verse of the Khamsa. This research work is a great event for medieval literature in general, due to the relative rarity of research focused on the poet. The qualities it illuminates, the fascinating notes of other ways of approaching the poet, will undoubtedly rekindle interest in his work by opening new avenues of research. The work includes not only the authors' research, but also the research on Nizami by other researchers. For example, the first part is “Nizami’s World Order” by Johann Christoph Bürgel. It is then continued by Leyli Anvar under the title “Hidden Pearls of Wisdom: Desire and Initiative in Leyli Majnun”. As we approach the end, we see that “Nizami Ganjavi, Master of Words: Understanding Sakhun” by Kamran Talattof.

“Nizami has such a high opinion of the concept of sakhun, especially its poetic forms, that it becomes an independent, prominent theme in his work and a unifying motif that unites his poetry. Understanding the central role of sakhun in Nizami’s work allows us to better understand his use of many different themes, including scientific, philosophical, romantic, and religious motifs, and thus his literary representation.”

In her book, “The Interpretation of Nizami’s Cultural Heritage in the Contemporary Period” the researcher claims that this work fills a gap in the field of pre-modern Persian literature. This research work is the first scholarly publication in English about and around the poet Nizami Ganjavi by leading Western and non-Western scholars.

In conclusion, in the case of Nizami’s poems, this shows how different academic circles have interpreted medieval authors in terms of modern national identities and national cultures. The richness and usefulness of this volume is that contributions that come from this innovative position are placed alongside others that remain within the framework of traditional literary analysis and explore Nizami’s creative thoughts on man, society, women, or justice. The essence of both research works is the emphasis on the reality of Nizami's images and life situations.

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PHILOSOPHY

POSTMODERN ANTHROPOLOGY FROM THE PERSPECTIVE OF THE CONTEMPORARY RELATIONAL CRISIS

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Abstract

The article examines the problem of the crisis of relations, which is manifested in the apparent increase in violence around the world, from the point of view of the conceptual heritage of philosophical anthropology, in particular, the psychoanalytic theory of personality development and the poststructuralist criticism.

As we believe, these approaches allow us to formulate the above problem exactly in philosophical terms, i.e., in the terms of discovering the correlation between human involvement into the postindustrial production system and poststructuralist teaching about libidinal economy. For, according to poststructuralist vision, it is libidinal economy that enables us to suppress some aggressive strives by absorbing energy, substituting the gratification of primitive urges for an advanced system of the social awards.

Additionally, this paper testifies that when we are within the framework of psychoanalytic and postmodern anthropology, we can conclude: the answer to the question, where the huge amount of human destructive energy goes, which is not investing in production relations, lies in the sphere of interpersonal relationships.

Put it differently, we are forced to admit that the contemporary social system, namely its institutional structure, is faced with essential difficulties in the matter of regulating interpersonal relationships, since it appears to be powerless against the phenomenon of malignant violence.

Keywords: aggressiveness, abusive practices, destructive libido, malignant violence, libidinal economy, postmodern anthropology, transgressive behavior.

Main text of the article. It is known that by the end of 20th century, an interesting phenomenon in contemporary philosophical thought emerged, which identified itself as "philosophy of the surface". This trend is better known to be postmodern philosophy, which, as we believe, is of particular interest, precisely due to its specific anthropology. What exactly do we have in mind when we talk about a specific anthropology within the framework of postmodern philosophy?

Firstly, it refers to a large role of some findings in the development of postmodern knowledge about humans, namely, the psychoanalytic theory of individuals and key ideas by Fredrix Nietzsche regarding the relativity of personality mental structure. Secondly, the postmodern theory of human nature appeared to be the most critical of all that had ever existed.

The first assumption is the effect of evident striving to elucidate the fundamental structure of the human unconscious on the part of some postmodernists that completely corresponds to the major task of theoretical psychoanalysis. Furthermore, most of them were convinced of the decisive influence of the so-called *destructive libido* on the development of both the mental type of personality and the fundamental social institutions.

A vivid example of the fusion of postmodernism and psychoanalysis can be found in the so-called strategy of "schizo-analysis", developed by prominent representatives of the poststructuralist trend. But, despite of general concern with the conceptualizing and structuring of unconscious (the theory of "Schizoid Subject"), leading post-structuralist philosophers were no less engaged in the issue of superfluous violence or put it in postmodern term, in the issue of transgressive experience.

Furthermore, most of them were convinced of the validity of an idea on prime cruelty of humans, rather than having some doubts about this, *treating cruelty as a basic passion of humanity, an original (barbaric) way of extraction of the surplus value as well,* especially when alternative sources of gratification are basically impossible. There is talking, primarily, about the specific surplus value, deriving from human suffering or as Nietzsche claimed: "To see suffering does you good, to make suffering better still – that is a hard proposition… to which, by the way, even the apes might subscribe" [3, 42-43]. For this reason, Deleuze, for example, classified humanism as "a stranger piety", since, presumably, humanism, like the experience of moral feelings as such, is incapable of giving pleasure to the same extent as the pleasure in destruction, atrocity, ferocity towards the innocent, etc.

The weakness of transcendental arguments. In this regard, *postmodern anthropologies draw special attention to the possible elucidation of the genesis of Moral Subject, predicated on a rather founded criticism of transcendental ethic* as a philosophical teaching on the unconditional nature of the sense of duty, that is,

of such a structure that forces us to comply with the moral imperatives.

As far as the emergence of human morality is concerned, Nietzsche, for example, insisted on the decisive function of fear. In other words, it was this feeling that he considered to be the fundamental affective basis for designing the sense of duty.

This perspective on moral genesis has found additional substantiation in psychoanalysis, namely in the theory of Oedipus complex, which can be regarded as a kid's fear of being punished by his parents (that is the reason why there is always a latent hatred toward them), coexisting with a strong kid's attachment.

To put it differently, Freud believed that the further transformation of the Oedipus construct into a sense of duty was carried out both because of the fear of punishment and because of the fear of losing parental love. Thus, even though Freud focused his attention on attachment (affective values), in the matter of the moral development of the individual, he trusted more and relied on the feeling of fear.

But it is Kierkegaard who is known to be the first to pose the issue of the complexity of the correlation between affection and *the sense of duty*, emphasizing the impact of a certain constellation of human feelings, which contributes to the development of moral and religious consciousness: "The fortunate chance in life is that the two correspond, that my wish is my duty and *vice versa,* and the task of most men in life is precisely to remain within their duty and by their enthusiasm to transform it into their wish" [2,154]. But this perspective on the nature of very moral duty remains obscure, probably due to his specific concern with religious experience ("an absolute duty toward God"), rather than morality, which, as well-known, he was inclined to contrast with faith. For instance, in some places, Kierkegaard hesitates between *fear* ("constant tension" and trembling or terror) towards the Lord and *affection* in terms of the possible reason for the sense of duty. But in other ones, when reasoning about love itself, he writes about some *duty to love*, in relation to that the issue of grasping the nature of the above feelings becomes increasingly complex. For, apparently, the *duty to love* is merely a "concept", which is no less transcendental than Kant's "categorical imperative".

In contrast to the above transcendentalism, representatives of poststructuralist's discourse offer an extremely "gloomy" anthropology, where we can feel no less extreme impact of Nietzschean ideas. Similar to Nietzsche, they continue to expose the ethical in a person with the help of analyzing and referring to various technologies for designing a socially useful Subject, emphasizing their efficiency. Along with that, they mostly support his doctrine about humans as animals, captivated by their instincts and desires, namely by the social instincts of power and accumulation.

In addition, the developers of postmodern anthropology are questioning the universal nature of *empathy*, rejecting the theory of the original inability of humanity to libidinal aggressiveness, offered, for example, by Wilhelm Reich. According to them, the human mental structure is subject to historical transformation in terms of its tendency both towards evolution and involution, therefore the discussion about human nature seems to be unfounded. What do they mean?

At first glance, according to postmodernists every human individual is the effect of socialization, realized mostly because of a strong feeling of fear, primarily in terms of natural fear (self-preservative instinct). They often refer to both the fear of punishment established by the community and the social fear of losing social rank, esteem, respectability etc. If the repressive institutions, and along with them, the positive sanctions do not work, the "designing" of "docile Subjects" (Michle Foucault) in society seems problematic, therefore the increase of dangerous tendencies can be observed.

But postmodern thinkers also emphasize that the above social fear, as well as so-called *empathy* (compassion) are very relative tendencies that have an individual history. In other words, one person tends to be compassionate, another, *vice versa,* shows incredible atrocity. It is not a coincidence, in contemporary humanitarian studies much attention is paid to such "persons" as psychopaths, sociopaths and schizoids.

The aforementioned types of personality are characterized by *affective emasculation* in terms of their inclination to devalue their surroundings. They are completely indifferent to attachment and constructive relationships, aimed at establishing permanent social connections. We can say that they do not care less about any attachments on the part of others, "miserable whimpering about not being loved and understood" [1, 268], since they are incapable of experiencing any affection for people. That is the reason why, Parsons' "relational awards" are just words for them.

In addition, in many contemporary theories one can observe an unanimously shared belief in the decisive influence of institutions on personality development. The major issue of most of them is related to grasping to what extent the institutional mechanisms can exercise control over the human "passions", and what exactly they are? *In other words, to what extent is the desire for violence subject to the civilizational "bridling"?*

It is hardly possible to contest the postmodern assertion about the mediation of the civilizing process by elaboration of various mechanisms to struggle with destructive impulses, as well as the major role of "the bloody festival of punishment" (Michle Foucault) in the implementation of the social control over people. Perhaps the outstanding German sociologist, namely Norbert Elias was quite right, when he stated concerning evolution of the part of humanity in the direction of increasing the control over some feelings, emotions and passions. But, as for the human desire for "bloody spectacles", everything is not so simple.

2. "People of abuse" in the postmodern era. Indeed, in so-called advanced societies, the primitive ritual cruelty or bloody atrocity, the various barbarous institutional practices, have long lost their lawfully. In this context, it is very often said about the relative humanization of social relations, including the penitentiary system of many countries, primarily due to the development of industrial and financial capitalism (we can clearly refer to such prominent authors as the above Michle Foucault, Norbert Elias, Deni de Rougemont, etc.).

The fact remains that until societies had reached a high degree of material values development, they were hardly concerned with the extreme cruelty of their mores. Nevertheless, the same Elias rightly emphasized that even in the ancient period of human civilization, the so-called "noble beasts of prey" (Nietzsche) mutilated and killed with a particular cruelty those who could not pay off.

The idea of the extreme impact of industrial capitalism on the entire Western civilization, development of which allowed, so to speak, to "softening" essentially the sanctions by offering an alternative incentive facilities in the form of the system of awards for labor, the social esteems, approvals, etc., that is a "libidinal economy", seems to be entirely acceptable. And yet the numerous daily practices of violence in the context of these societies (harassment, bullying, abuse, etc.), that is, current relational crisis testifies that Elias's *saying about the opportunity of replacing the desire for violence with the desire for accumulation, for example, may encounter strong libidinal resistance.* For where do the variety of abusive practices come from, namely, physical or sexual abuse, violent or threatening behavior, controlling or coercive behavior, economic, psychological, emotional abuse, etc.?

It is not a coincidence that most of mentioned above cases belong to domestic violence, that is, to the practices of abuse in intimate relations, since apparently, the dependence of potential victims, including emotional one is frequently the most common reason for abusive behavior on the part of abuser (especially, when he holds sway).

Even if we admit the validity of so-called sublimation, we must conceive that it is never excessive in terms of that even with the most noble impulses there is always a shadow of disappointment or dissatisfaction with life, which can scarcely be dispelled in a constructive way.

Furthermore, the experience of *transgressive behavior* in relatively prosperous societies does not point in favor of the above-mentioned noble impulses. Presumably, violence in relationships under conditions of advanced societies can be classified as the most primitive way of extracting the 'surplus value" on the part of human majority, the kind of pleasure from the displeasure or suffering of those who are hurt. Annual increase of violence, related, for instance, to notorious domestic abuse, in particular, abusive behavior towards children and women testifies in favor of the above presupposition.

Take, for example, child abuse, which is known to be a more common experience in America and around the world. According to statistics for 2022 "*1 billion children globally are estimated to experience sexual violence"*. In general, the most widespread practices of violence towards children are related to four basic types of abuse: these are physical, sexual, emotional and neglect. But the fact remains that *most abusive cases toward children are victimized by a parent or legal guardian (76-77%), that is, they are closely associated with domestic violence* [5].

As for abusive relationships in German families, for example, it is known that in recent times "the number of victims of domestic violence has increased significantly over the past five years, reaching 256,276 in 2023 (2019: 214,481; an increase of 19.5%). In 2023, victims of intimate partner violence accounted for 65.5% (167,865 victims) of all domestic violence cases, while 34.5% (88,411 victims) were attributed to intrafamilial violence. (BKA, Domestic Violence Situation Report 2023, page 7). The current crime statistics analysis on intimate partner violence by the Federal Criminal Police Office (BKA, 2024) shows that a total of 167.865 people were victims of intimate partner violence in 2023. This is an increase of 9.1% compared to 2022. 132.966 (79,2%) victims were female and 34.899 (20,8%) male" [4].

Numerous manifestations of abusive practices only confirm the validity of postmodern assertion about its libidinal basis, that is, violence can become only one source of gratification for many people. Put it differently, striving for violence, supposedly, is mediated by strong affective impulses. When the abuser loses the opportunity for such perverted pleasure, he often resorts to an extreme form of destructiveness: "the risk of serious assault and death is highest for a woman after she leaves an abusive relationship. According to the Femicide Census, 38% of women killed by their expartner from 2009 to 2018 were killed within the first month of separation and 89% in the first year" [4].

That is the reason why for today the discussion in contemporary anthropology is more related to the matter of "malignant aggression" (Erich Fromm), rather than, what is a "primary" or, conversely, a "secondary" put it in philosophical terms in arising of human civilization – an economic function of exchange (Claude Levi-Strauss, J. Baudrillard) or an unavoidable institutional repression (Z. Freud, F. Nietzsche, F. Guattari).

Presumably, the libidinal destructive urge of humans as well as their instinctive feeling of fear, is unlikely subject to cultural correction. When such "drives" capture whole groups or masses of human individuals, they can turn into huge power with very fatal consequences. However, it is these human impulses that invest into the system of social relations, allowing them to exist and reproduce: "Even the most repressive and the most deadly forms of social reproduction are produced by desire within organization that is consequence of such production under various conditions…" [1, 38].

Postmodernists, who are mostly poststructuralists, point to the process of "blurring" of social roles (behavioral patterns), which takes place under conditions of postmodern society that is reflected in their grasping of the "libidinal economy". According to them, currently neither desire for work, that is Weber's "industriousness" or Marcuse's "libidinal labor", nor striving for recognition and status esteem, as Parsons believed, can form the motivation for work anymore. If we refer to the present production system, its libidinal basis is, largely, to the desire for "flows" and notorious "surplus value", profits. That is the reason why the current "stickering" (Michle Foucault) of individuals to work is carried out directly, released for the most part from any discipline and self-constraint.

It is obvious, the total weakness of the institutional system of social roles and behavioral standards in the

so-called advanced societies has led to the problem of increasing destructive tendencies that concerns every "collective", starting with family and ending with production. It is this proposition that laid the basis of postmodern criticism of structuralism in terms of denying the overestimation of the influence of ethical codes on social integration.

Conclusion. So, instincts and other impulses of humankind are the most widespread topics for postmodern anthropological studies throughout the 20th century, there is an increasing concern about their classification, substantiation of their libidinal basis. Much attention is paid to the correlation between very hatred and the desire for violence with an emphasis on the essential difference between them in the sense that the latter does not always originate from hatred. Nevertheless, it does not mean that these passions are not able to combine between themselves, "designing" completely destructive individuals. Along with that, such individuals can be involved, and they are involved in the system of social relations due to the possibility of only partial reintegration of their libido into production activities.

As postmodernists rightly state, destructive impulses are not totally antisocial in terms of the social system being incapable of extracting from them any use or "profit", rather *vice versa*: destructive tendencies can also perform positive social functions. These are, supposed to be very strong impulses, and along with that, no less intensive productive resource, which can be invested into the established system of relations, based on the notorious "pecking order", maintaining its existence ostensibly from the inside.

Presumably for this reason, ever Herbert Marcuse, for example, believed in the libidinal basis of both economic and political institutions, since it is these fundamental departments of social life that can turn into objects, which absorb libidinal energy, enabling them to reproduce themselves again and again: the "libidinal flows" or impulses in the forms of the desire for power or dominance, accumulation, etc. that are more effective mechanisms for operation of the social system, rather than some conventional codes or the system of social recognition.

But it would be wrong to reduce even contemporary societies to a political-economic basis alone, devaluating or overlooking the sphere of personal relationships, which for the majority of "living human individuals" is still relevant to such an extent that it requires a sufficiently high level of moral and mental development. Presumably, this moral development is promoted at the expense of the close interdependence of individuals. For if individuals are not personally attached or concerned with each other, rather conversely, there is only a clash of "two freedoms", as Sartre claimed, then a dangerous tendency, therefore relational crisis can only intensify, leading humanity to the triumph of violence and self-destruction.

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PHYSICS

DEMAND FOR SCIENTIFIC RESEARCH OF ASTROPHYSICAL PORTALS [1]

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Abstract

The article claims that the version of the special theory of relativity studied in all physics textbooks is incorrect and sets out the main provisions of its corrected version. And from the relativistic formulas of the corrected version of SRT it follows that in nature, in addition to our visible universe, there are mutually invisible universes and anti-universes that are connected to each other by a large number of portals. At the same time, the entrances to the portals are supposedly the so-called anomalous zones, which people avoid visiting, since it is very difficult to get out of them. However, scientific research of portals by unmanned robotic complexes is possible and necessary. Such scientific research will allow solving a number of very important scientific problems - proving the existence of mutually invisible universes adjacent to our visible universe, explaining the Fermi paradox, proving the possibility of traveling not only in the space of the hidden Multiverse, but also in time, etc.

Keywords: imaginary numbers; special theory of relativity, invisible universes and antiuniverses, hidden Multiverse, Hyperverse, portals, anomal zones.

1. The version of SRT taught in all physics textbooks is incorrect

Although Albert Einstein became famous as the author of the special and general theories of relativity, who was nominated for the Nobel Prize 66 times, he received it in 1921 not for the theory of relativity, but for the study of the photoelectric effect. And he never received the Nobel Prize for the special theory of relativity (SRT) because SRT had no experimental confirmation. In other words, SRT was actually called a theory incorrectly, since it was only a hypothesis. And therefore, according to the Nobel Committee, sooner or later it could be experimentally refuted.

And the Nobel Committee turned out to be right - now it has already been experimentally refuted.

First, in 1934, it was refuted by the discovery of Cherenkov radiation [1], which was created by the movement of electrically charged particles in a transparent medium with a refractive index n > 1 at a speed exceeding the phase velocity of light in this medium. For this discovery, P.A. Cherenkov, I.E. Tamm and I.M. Frank even received the Nobel Prize in 1958. But the SRT was then corrected and survived.

Then, in 2011, the OPERA collaboration tried to disprove it at the Large Hadron Collider, expecting to receive the Nobel Prize for this. And they even published a message about their success [2]. But six months later, in 2012, at the same Large Hadron Collider, the ICARUS collaboration found an error in the OPERA experiment and disproved it [3].

And in the 21st century, the generally accepted version of SRT has already been confidently refuted by the existence of radio technology, the existence of tsunamis, the existence of pianos and other musical instruments, and even the existence of suspended swings on playgrounds, as well as many other experiments [4]-[15]. But throughout the 20th century, relativistic physicists could not figure this out. And even now, the authors of physics textbooks do not understand this. And therefore, these textbooks still present the incorrect version of SRT created in the 20th century [16]-[45], according to which relativistic formulas have the form (see Fig. 1a, b, c)

$$\boldsymbol{m = m_0 \,/\, \sqrt{1 - (\frac{v}{c})]^2}} \qquad (1)$$

$$\boldsymbol{\Delta t = \Delta t_0 \sqrt{1 - (\frac{v}{c})^{\,2}}} \qquad (2)$$

$$\boldsymbol{l = l_0 \sqrt{1 - (\frac{v}{c})]^2}} \qquad (3)$$

in which m_0 – rest mass of a moving body;

m – relativistic mass of a moving body;

Δt_0 – rest time of a moving body;

Δt – relativistic time of a moving body;

l_0 – rest length of a moving body;

l – relativistic length of a moving body;

v – speed of motion of a body;

c – speed of light.

And these formulas in textbooks are explainable only in the range of subluminal speeds $v < c$, in which the quantities m, Δt and l take on values measured by real numbers. But in the range of superluminal speeds $v > c$, these quantities m, Δt and l already take on values measured by imaginary numbers discovered by Scipione Del Ferro, Niccolo Fontana Tartaglia, Gerolamo Cardano, Lodovico Ferrari and Rafael Bombelli [46] 400 years before the creation of the SRT, the physical meaning of which, however, was not explained by them. But, perhaps, even earlier than them, imaginary numbers were discovered by Paolo Valmes [47], who was burned alive at the stake for this by the sentence of the inquisitor Thomas de Torquemada. The creators of

[1] *This is reprint of the article "Antonov A. A. Astrophysical portals ares sources of new knowledge. German International Journal of Modern Science. № 95.*

the SRT also could not explain this. And the physical meaning of imaginary numbers in physics textbooks has not been explained to this day.

Moreover, the graph of the function *m(v)* in the range of speeds $v > c$ (see Fig. 1a) corresponds to a physically unstable process, which cannot exist in nature at all. Therefore, all formulas (1)-(3) are completely incorrect. But since such a theory, which even its authors could not explain, was of no use to anyone, a postulate was introduced into it, called the principle of not exceeding the speed of light, the meaning of which is clear from its name. And the SRT was preserved, since it claimed that in nature processes confirming the physical reality of imaginary numbers allegedly do not exist. And in the 20th century, no one objected to this. And therefore, despite the above-mentioned experiments refuting the SRT, it is sometimes even claimed that Albert Einstein understood that nothing in the Universe can move faster than the speed of light. And that the speed of light is not just a number, but a physical limit. The same as, for example, absolute zero at a temperature of minus 273.15 degrees Celsius.

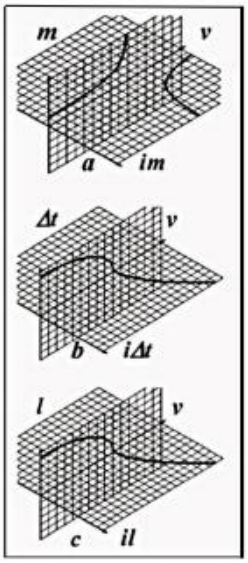

Fig. 1. Graphs of functions $m(v)$, $\Delta t(v)$ *and* $l(v)$ *corresponding to the existing versions of the SRT in the subluminal* $v < c$ *and superluminal* $v > c$ *ranges*

But the version of SRT that is still studied in all physics textbooks is incorrect [16]-[45], because:

• the relativistic formulas obtained in it are incorrect;

• the relativistic formulas obtained in it were incorrectly explained using the incorrect principle of not exceeding the speed of light;

• from these incorrect relativistic formulas, incorrect conclusions were made about the physical unreality of imaginary numbers and about the existence in nature of our only visible universe, in which everything is measured only by real numbers.

2. Corrected version of SRT

But not all scientists share the opinion set out in the version of SRT given in physics textbooks that, in accordance with the principle of not exceeding the speed of light, imaginary numbers are physically unreal and that in nature there is only one visible universe, ours, since both of these statements are refuted experimentally.

And the relativistic formulas of the corrected version of SRT have the form [48]-[56]

$$m(q,r,s) = \frac{m_0 i_1^q i_2^r i_3^s}{\sqrt{1-[v/c-(q+r+s)]^2}} \quad (4)$$

$$\Delta t(q,r,s) = \Delta t_0 i_1^q i_2^r i_3^s \sqrt{1-[v/c-(q+r+s)]^2} \quad (5)$$

$$l(q,r,s) = l_0 i_1^q i_2^r i_3^s \sqrt{1-[v/c-(q+r+s)]^2} \quad (6)$$

in which q(v)=⌊v/c⌋ is the “floor” function of discrete mathematics of the argument

v/c, which is the fourth spatial dimension (Fig. 2);

r(v)=⌊v/c⌋ is the “floor” function of discrete mathematics of the argument v/c, which is the fifth spatial dimension (Fig. 2);

s(v)=⌊v/c⌋ is the “floor” function of discrete mathematics of the argument v/c, which is the sixth spatial dimension (Fig. 2).

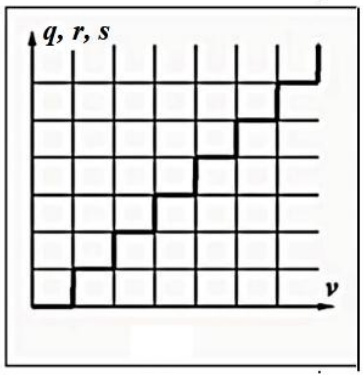

Fig. 2.
Graphs of functions q(v), r(v), s(v), illustrating the meaning of the "floor" function of discrete mathematics

That is, our Multiverse is six-dimensional – each universe has three dimensions *x, y, z* and three more dimensions *q, r. s* have coordinates of these universes in the Multiverse (Fig. 3) – and is described by quaternions $\boldsymbol{f_{q,r,s}(x,y,z) + i_1 q + +i_2 r + i_3 s}$, the number of which is equal to the number of universes in the Multiverse. This is exactly what Lisa Randall predicted: "We could be living in a three-dimensional pocket of higher dimensional space."

In this case, the three imaginary units i_1, i_2, i_3 in quaternions are related by the relations

$$i_1^2 = i_2^2 = i_3^2 = -1 \quad (7)$$

$$i_1 i_2 i_3 = i_2 i_3 i_1 = i_3 i_1 i_2 = -1 \quad (8)$$

$$i_1 i_3 i_2 = i_2 i_1 i_3 = i_3 i_2 i_1 = 1 \quad (9)$$

In the mathematics of hypercomplex numbers, the function $i_1^q\ i_2^r\ i_3^s$ can be calculated only for integer values *q, r, s,* but can take both positive and negative values and both real and imaginary values. But we have already proven that imaginary numbers are physically real and therefore we must also explain them. Therefore, let us now consider the values $m(v)$, $\Delta t(v)$ and $l(v)$ of the quantities , and in the range of velocities $v > c$ for successive values of the argument *q + r + s* equal to *0, 1, 2, 3, 4, 5,* … Then for our visible universe with coordinates *q=0,* r=0, s=0,

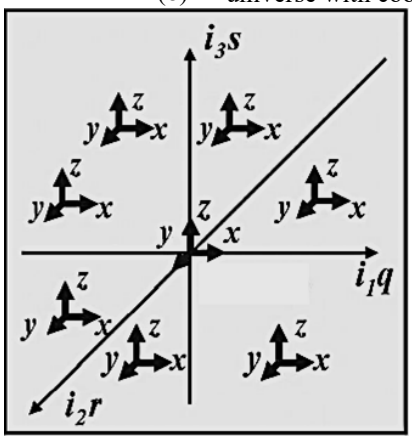

Fig. 3. Six-dimensional space of the hidden Multiverse, where q, r, s are the coordinates of invisible parallel universes, and x, y, z are the coordinates of the matter content in each parallel universe

i.e. located at the origin, we obtain $i_1^q\ i_2^r\ i_3^s$ =1. For definiteness, we will call it the tardyon universe. For the value *q + r + s=1* in the range of velocities $v > c$, we obtain $i_1^q\ i_2^r\ i_3^s$ =+*i*. This situation corresponds to the invisible universe, since it is located beyond the event horizon. For definiteness, we will call it the tachyon universe. For the value *q + r + s=2* in the velocity range $v > c$ we get $i_1^q\ i_2^r\ i_3^s = -1$. This situation also corresponds to an invisible universe, since it is located beyond the event horizon. We will call it a tardyon antiuniverse. For the value *q + r + s=3* in the velocity range $v > c$ we get $i_1^q\ i_2^r\ i_3^s = -i$. This situation also corresponds to an invisible universe, since it is also located beyond the event horizon. We will call it a tachyon antiuniverse. For the value *q + r + s=4* in the velocity range $v > c$ we get $i_1^q\ i_2^r\ i_3^s = +1$. This situation also corresponds to an invisible tardyon universe (but a different one), since it is also located beyond the event horizon. For the value *q + r + s=5* in the velocity range $v > c$ we get $i_1^q\ i_2^r\ i_3^s = +i$. This situation also corresponds to an invisible tachyon universe (but a different one), since it is also located beyond the event horizon. Thus, all universes except ours are invisible. Therefore, we will call our Multiverse hidden. And the hidden Multiverse has a helical structure.

An example of a possible structure of the hidden Multiverse is shown in Fig. 4. As can be seen, in such a structure of the hidden Multiverse, it is possible to move to the tardion antiuniverse from the tardion universe and to the tardion universe from the tardion antiuniverse in different ways, but not arbitrarily, but only in such a way, in which the value will successively take the values +1, $+\dot{i}_1 \oplus +\dot{i}_2 \oplus +\dot{i}_3$, -1, $-\dot{i}_1 \oplus -\dot{i}_2 \oplus -\dot{i}_3$, +1, … etc., where $\oplus$ is the symbol of the logical operation of discrete mathematics 'exclusive OR'. In this case, different trajectories of movement from one universe (or antiuniverse) to another can differ only due to substitution of some tachyon universes from $\dot{i}_1, \dot{i}_2, \dot{i}_3$ with others and some tachyon antiuniverses from $\dot{i}_1, \dot{i}_2, \dot{i}_3$ with others. Consequently, the tachyon universes $\dot{i}_1, \dot{i}_2, \dot{i}_3$ in the hidden Multiverse are located parallel to each other. The tachyon antiuniverses $\dot{i}_1, \dot{i}_2, \dot{i}_3$ for the same reasons are also placed parallel to each other. And therefore, in the hidden Multiverse, when moving from any tardyon universe to a tardyon antiuniverse and then to another tardyon universe, parallel universes and antiuniverses must alternate in the following sequence – 'tardyon universe', 'one of the tachyon universes', 'tardyon antiuniverse', 'one of the tachyon antiuniverses', 'tardyon universe', 'one of the tachyon universes', etc.

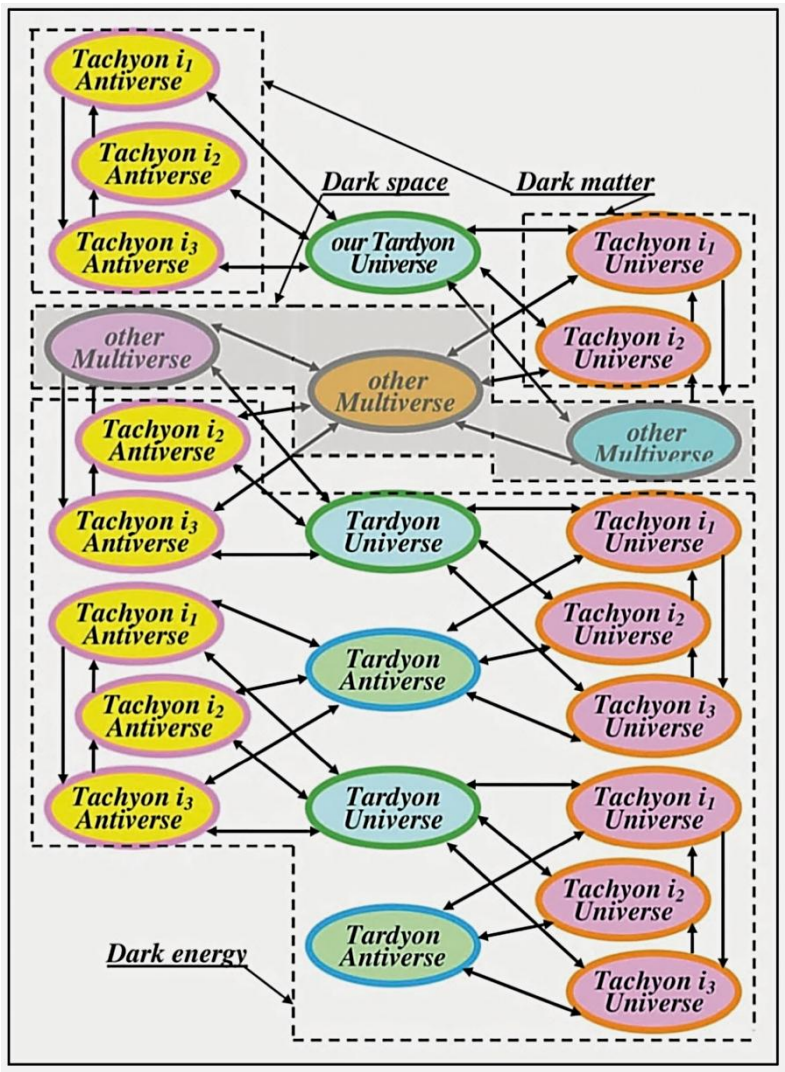

Fig. 4. Possible quaternion structure of the hidden Multiverse containing twenty-two parallel universes, including six invisible universes adjacent to our visible universe

Moreover, naturally, the movement from our tardion universe to the tardion antiuniverse through some tachyon universe - for example, $\dot{i}_1$ - does not necessarily have to proceed further through the tachyon antiuniverse $\dot{i}_1$. It can proceed further through tachyon antiuniverses $\dot{i}_2$ and $\dot{i}_3$. The same reservation applies to the situa-tion if the movement from the tardion universe to the tardion antiuniverse begins through tachyon universes $\dot{i}_2$ or $\dot{i}_3$.

All these transitions are shown in Fig. 4. Moreover, since all such hidden Multiverses correspond to its open screw structures, united through the corres-ponding portals with other Multiverses, then all together they form the Hyper-universe. In this case, the invisible universes adjacent to our visible universe give rise to the phenomenon of dark matter, the remaining invisible universes of the hidden Multiverse give rise to the phenomenon of dark energy, and the invisible universes located outside the hidden Multiverse give rise to the phenomenon of dark space.

3. Portals research

Numerous universes actually existing in space - if they exist - forming a hidden Multiverse, drift and touch, slightly immersing themselves in each other. And these zones of mutual immersion of neighboring universes, through which it is possible to pass from one universe to another, are called portals [57], [58]. And portals exist (and this still needs to be experimentally proven - see below) only if there exist at least two parallel universes, between which the portals are located.

The entrances and exits to portals are called anomalous zones [59]-[62], since incomprehensible phenomena occur in them. In particular, people disappear in them, since the paths from the entrance to the exit in portals are invisible labyrinths, from which it is almost impossible to escape. Because of this, people avoid visiting anomalous zones. And there are more than two hundred thousand anomalous zones on Earth.

But portals are of great scientific interest. And they can be studied without visiting, using unmanned vehicles.

3.1.How to see invisible universes?

The question of whether mutually invisible universes and portals between them exist in nature is fundamental. The answer to it determines whether the version of SRT presented in textbooks is correct or not. But since scientists, despite long theoretical debates, have not yet come to a consensus, the truth can be revealed by an experiment. Moreover, it is quite simple and clear.

And for this, it is not at all necessary to visit other universes. It is enough to at least look at them. As in order to be convinced that in addition to the room visible to us, in which we are now, there is a neighboring invisible room, it is enough to look from the corridor connecting these rooms into the neighboring room. The corridors connecting neighboring universes are portals [57], [58].

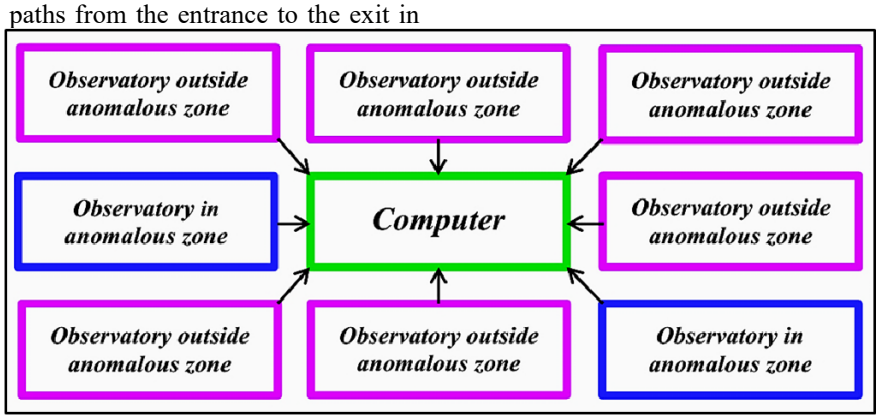

Fig. 5. Scheme of an astronomical experiment to detect invisible universes

And in order to be convinced, while in the portals, that you are no longer in our universe, but on the way to the neighboring universe, you need to look from the portal through a telescope at the starry sky and see other constellations on it [63]-[68]. This is a very reliable experiment, since you can't draw constellations in the sky.

3.2.The Arrow of Time

Here are some quotes on this topic.

"Time is the most frequently used word in English and the third most frequently used word in Russian. It is in every other language, too, because synchronizing actions in time is as important as coordinating them in space. Without knowing the exact time, it is impossible to organize your life and plan it in advance. If in ancient times you could rely on natural cycles and an internal sense of time, then in our days you need to constantly have a watch or a phone with you. Time is the most important of the abstract concepts that we pronounce every day. Every thinking person has thought about the problem of time at least once in their life, and a huge amount of philosophical and scientific literature has been written on this topic. However, no one will say for sure what time is. Or prove that time is irreversible. Or maybe it only seems that way to us?" [70]

Here is what Stephen Hawking writes: *"We can see a cup fall off a table and break into pieces, but we never see the cup put back together from those pieces and return to the table. The increase in disorder, or entropy, makes it possible to distinguish the past from the future and thus gives time a definite direction."*

This phenomenon, known as the arrow of time, is one of the most amazing mysteries of physics. And the name "arrow of time" for this phenomenon was proposed at the beginning of the 20th century by the British physicist Sir Arthur Stanley Eddington.

And it would seem that one cannot argue with such statements.

3.3.Anti-time

But we will nevertheless try to show that the concept of the arrow of time, used in the generally recognized incorrect version of the SRT, is refutable in its corrected version. To do this, let us return to Fig. 4. And note something unusual in it. A hypothetical journey along the structural diagram of the hidden Multiverse shown in the figure is, according to formulas (4)-(6), a journey not only in space, but also in time. Since the

transition from our visible tardion universe to one of the neighboring tachyon universes or antiuniverses is accompanied by their movement not only in space, but also in time, since time in them is different.

And this can be proven using various routes of such movements. Let us cite one of the simplest. Let us assume that we moved through a portal from our visible tardion universe - using for this purpose some anomalous zone on the surface of the Earth - in a short time (for example, one day) to one of the neighboring tachyon universes or antiuniverses. And at the same time, naturally, we disappeared from the sight of our colleagues who saw us off at the edge of the anomalous zone. But we did not disappear anywhere in this neighboring tachyon universe or antiuniverse and carried out some research on it for a couple of months. Then, having carried out the planned research, we again in a short time (for example, one more day) through the same portal safely returned to Earth. And since on Earth, relative to the neighboring invisible tachyon universe or antiuniverse, time flows (into the future or into the past) in a direction perpendicular to earthly time, then on Earth it seems to have stopped. Therefore, it seemed to our colleagues who met us on Earth that we had been absent not for two months, but only for two days. But we showed our unshaven beards for two months and thus proved that we had ended up in the past, since our colleagues who saw us off had moved into the future for two months. And in this past, we were beardless two months ago.

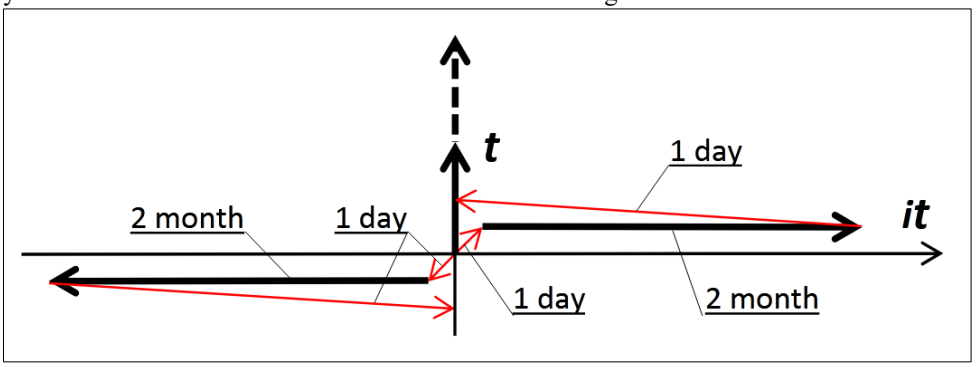

*Fig. 6. The vertical solid arrow **t** is the real time axis (in our visible tardyon universe). Horizontal thin arrow **it** is the axis of imaginary time (in the neighboring invisible tachyon universe and antiverse). Vertical dotted arrow - coordinate of the scientists' position 2 months after they, being at the beginning of the coordinates, sent two expeditions through the portals to the tachyon universe and the antiverse. Big horizontal arrows correspond to stay of scientists in tachyon universe and antiverse. And red arrows show transitions through portals.*

Of course, we won't be able to contradict Stephen Hawking with such an experiment and see the process of restoring a broken cup from its fragments. But the fictional travelers from our visible tardion universe to neighboring invisible tachion universes or anti-universes and back, nevertheless made a journey through time. And due to this, having returned to the past, they nevertheless turned the arrow of time by 180°.

And for those who are not convinced by this hypothetical experiment, below it is explained how to make it really physically feasible.

3.4 Geophysical research of portals

Oddly enough, geophysical studies of portals [71]-[80] can be much more productive in space exploration than astronomical studies of the visible starry sky. Indeed, astronomical observations allow us to study only our visible universe. And geophysical studies of portals, which are transitions to neighboring invisible universes, allow us to study invisible universes neighboring our visible universe. Moreover, as can be seen from Fig. 4, they allow us to study invisible universes, even those located outside the hidden Multiverse. They also allow, since there are more than two hundred thousand anomalous zones on Earth that are supposedly entrances to portals, having studied the portals, to perform the most detailed classification of invisible universes antiuniverses neighboring our visible universe. And to identify, and then even study some characteristics of invisible universes and atheuniverses, even those located outside the boundaries of the hidden Multiverse. Which will allow us to understand why they are not part of the hidden Multiverse. And it is possible that several other Multiverses neighboring our hidden Multiverse will be discovered.

And with all this, geophysical research of space is much cheaper than astronomical research.

Moreover, geophysical research of portals will allow attempts to create time machines [81], with the help of which the research described in the previous section 4.3 can be transformed from hypothetical into real astrophysical ones.

3.5. Fermi paradox

The Fermi paradox is a statement of a seemingly paradoxical situation in which, on the one hand, it is known that there are many stellar systems in space suitable for life, but on the other hand, despite all the efforts of scientists, no signs of life have been found in this space. And it would seem very strange [82]-[84].

But in fact, there is nothing strange about it [85]-[97]. After all, what are we looking for? What signs of life do we expect to see? The same as now on Earth? For the same radio stations to work as on Earth, which, when transmitting signals, spend most of their energy on transmitting signals to nowhere due to an imperfect radiation pattern? For the inhabitants of supercivilizations to detonate atomic and hydrogen bombs? And so on.

But first of all, these are all defects of our imperfect civilization, which supercivilizations got rid of long ago. And therefore they are invisible. And secondly, why not assume that we do not see their ships in

space also because they have different logistics as a result of using their super knowledge. Even on Earth, on the way to work in large cities, people now often use the subway. And therefore, such their movement from space is also invisible.

And then their activity can be proven by comparing two texts:

1. "Our contemporaries – ***people of the Earth*** – begin their working day, leaving ***their homes***, by visiting the nearest ***metro station "A".*** Then, invisible from space, they ***travel in the tunnel "Aa"*** underground to the transfer point ***"ab" on our planet Earth.*** After that, they travel through another ***underground tunnel "bB"*** to another ***underground station "B",*** leaving which they rise to the ***surface of the Earth*** in the place they need."

2. "Our contemporaries – ***inhabitants of supercivilizations*** – begin their working day, leaving ***their invisible home built using superstealth technology***, by visiting the nearest ***anomalous zone "A".*** Then, invisible from space, they ***move through the portal "Aa***" to the transfer point ***"ab" in the neighboring universe.*** After which, through ***another portal "bB",*** they move to another ***neighboring universe "B"*** and exit the portal in the ***anomalous zone*** in the place they need.

As you can see, the same thing happens in both situations – invisible movement in space, with the replacement of terms of our civilization currently existing on Earth with similar terms in supercivilizations:

• "people of the Earth" with "inhabitants of supercivilizations";

• "housing" with "invisible housing built using superstealth technology";

• "metro station "A" with "anomalous zone "A";

• "riding in tunnel "Aa" with "moving through portal "Aa";

• "ab" on our planet Earth" with "ab" in the neighboring universe";

• "underground tunnel "bB" with "portal "bB";

• "underground station "B"" with "neighboring universe "B";

• "the surface of the Earth" with "in the anomalous zone".

That is, in order for the movement of inhabitants of supercivilizations in space to become invisible, it is only necessary that they move between universes through portals, and that planets in star systems serve as transfer stations from one portal to another. And therefore, this circumstance will need to be taken into account during geophysical studies of portals.

And the Fermi paradox must be recognized as yet another proof of the existence of portals and mutually invisible parallel universes, and, consequently, the incorrectness of the version of SRT studied in all physics textbooks.

4. Conclusion.

Thus, the article experimentally proves and theoretically explains that the version of SRT, created in the 20th century, which is still studied in all physics textbooks, is incorrect, because:

• the relativistic formulas obtained in it are incorrect;

• these formulas are incorrectly explained using an incorrect postulate called the principle of not exceeding the speed of light;

• incorrect conclusions are made from these formulas about the physical unreality of imaginary numbers and the existence in nature of our only visible universe, in which everything is measured only by real numbers.

But in the corrected version of SRT, from the relativistic formulas obtained in it, it follows that in nature, in addition to our visible universe, there are many other mutually invisible universes and anti-universes. And they, drifting in space, touch each other, even slightly plunging into each other and forming transition zones called portals. Moreover, through portals, neighboring universes and anti-universes exchange their material contents according to the law of communicating vessels.

However, people avoid visiting portals, as they are invisible labyrinths. Therefore, if you accidentally get into them, it is almost impossible to get out of them. At the same time, portals are of significant scientific interest, as as a result of their astro-geophysical research, unlike astronomical research, they allow us to prove the existence of neighboring invisible universes and anti-universes and to obtain some information about them that cannot be obtained otherwise. They also allow us to carry out other interesting research - to prove the possibility of traveling in the Multiverse not only in space, but also in time and thereby prove the existence of anti-time, etc.

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TIME TRAVELS ARE ALREADY POSSIBLE FOR PEOPLE ON EARTH[1]

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Abstract

The article argues that the version of the special theory of relativity (SRT), which is generally recognised and studied in all physics textbooks, is incorrect. Therefore the author has created the corrected version of SRT, from which relativistic formulas and new scientific knowledge received after creation of incorrect version of SRT it followed that in the nature there is not only our visible universe, but besides it there are many other mutually invisible universes and antiuniverses. And besides existing in universes of matter, space and time, in antiuniverses there exist antimatter, anti-space and anti-time. And the existence of anti-time makes travelling not only in space but also in time possible. And the article explains how it can be done now.

Keywords: imaginary numbers; special theory of relativity, invisible universes and anti-universes, hidden Multiverse, portals, anomal zones.

1. Introduction

The 20th century in physics turned out to be rich in new interesting scientific ideas. But many of them, even called theories, have not yet received experimental confirmation. For example, one of the most prominent and currently studied in all physics textbooks is the special theory of relativity (SRT) [1]-[3], which was nominated 66 times for the Nobel Prize, nevertheless, due to the lack of experimental confirmation, it has not received it.

And from the very beginning, the generally accepted version of SRT was criticised by Oliver Heaviside, Nikola Tesla, Nobel Prize winner Albert Abraham Michelson, Nobel Prize winner Wilhelm Frederick Ostwald, Nobel Prize winner Joseph John Thomson, Nobel Prize winner Svante August Arrhenius, Nobel Prize winner Philipp Eduard Anton von Lenard, Nobel Prize winner Alvar Gulstrand, Nobel Prize winner Wilhelm Carl Werner Otto Fritz Wien, Nobel Prize winner Walter Hermann Nernst, Nobel Prize winner Ernest Rutherford, Nobel Prize winner Johannes Stark, Nobel Prize winner Frederick Soddy, Nobel Prize winner Percy Williams Bridgman, Nobel Prize winner Edwin Mattison Macmillan, Nobel Prize winner Hideki Yukawa, Nobel Prize winner Hannes Olof Jösta Alven and many other distinguished scientists.

And in the XXI century this wrong version of STO was even by the above-mentioned arguments experimentally refuted [4]-[37] in the most indisputable way. However being unable to object, the authors of existing physics textbooks simply ignored these refutations and the incorrect version of SRT still continues to be taught even in the most prestigious universities in all countries.

All modern science is in a similar state. In the 21st century Jean de Climont in his books [34]-[37] writes about 9671 scientists who refuted the currently recognised scientific truths in all sciences. But the trouble is not that one or another infidelity has been discovered in the modern sciences. The author of the concept of 'open society' Sir Karl Raimund Popper, a member of the Royal Society of London, wrote [38]: *"...the struggle of opinions in scientific theories is inevitable and is a necessary condition for the development of science".* From which he made, at first glance paradoxical, but in fact correct conclusion that the most valuable results of scientific research are precisely the refutations of generally recognised theories, because they allow them to develop. And this is inevitable. There is no doubt that all scientific knowledge in a thousand years, much less in a million or a billion years, will be quite different. Therefore, we should not naively assume that we have already learnt everything and hinder the research of colleagues who propose new ideas.

2. The version of the special theory of relativity taught in all physics textbooks is incorrect

So what are the refutations of the generally recognised version of SRT obtained during the last century? They are the following:

- the relativistic formulas obtained in this SRT are incorrect;
- the relativistic formulas received in this SRT are incorrectly explained with use of incorrect principle of non-exceeding of speed of light;
- from relativistic formulas of this SRT wrong conclusions about physical unreality of imaginary numbers and existence in the nature of our only visible universe are made.

And these conclusions are available for experimental verification. Indeed, the relativistic formulae

$$\boldsymbol{m(v) = m_0 \,/\, \sqrt{1 - (\frac{v}{c})]^2}} \quad (1)$$

$$\boldsymbol{\Delta t(v) = \Delta t_0 \sqrt{1 - (\frac{v}{c})^{\,2}}} \quad (2)$$

$$\boldsymbol{l(v) = l_0 \sqrt{1 - (\frac{v}{c})]^2}} \quad (3)$$

[1]*This is reprint of the article "Time travels are already possible for people on Earth" that it is a reprint of the attached article "Antonov A. A. 2025. Time travels for people on Earth are already possible. European Journal of Applied Sciences, Services for Science and Education. UK. 13(1). 163-180. DOI:10.14738/aivp.131.18239"*

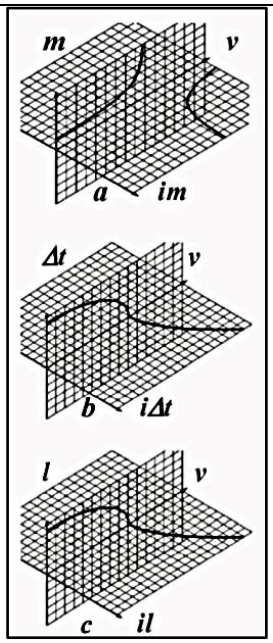

Fig. 1. Graphs of functions $m(v)$, $\Delta t(v)$ *and* $l(v)$ *corresponding to the existing versions of the STR in the subluminal* $v < c$ *and superluminal* $v > c$ *ranges*

where m_0 is the rest mass of a moving body;
m - relativistic mass of a moving body;
Δt_0 - rest time of a moving body;
Δt - relativistic time of a moving body;
l_0 - rest length of a moving body;
l - relativistic length of a moving body;
v is the velocity of the moving body;
c - speed of light;

are explainable (see Fig. 1a,b,c) only in the range of pre-light velocities *v<c,* in which the values m, and l take values measured by real numbers. And in the range of superluminal velocities ***v>c*** these quantities m, and l already take values measured by imaginary numbers discovered 500 years ago [39],[40], but still unexplained. After all, what is, for example, 10 grams, 20 seconds and 30 metres, everyone can explain, but what is 10***i*** grams, 20***i*** seconds and 30***i*** metres, where $\boldsymbol{i} = \sqrt{-1}$, is not explained in any textbook. Moreover, the graph in Fig. 1a in the range of velocities ***v>c*** corresponds to a physically unstable process, which cannot exist in nature at all.

And since such a theory, the formulas of which even its creators could not explain, would be of no use to anyone, a postulate called the principle of not exceeding the speed of light was introduced into it. From this postulate it followed that imaginary numbers are physically unreal. Therefore, it was concluded that there was no need to explain them.

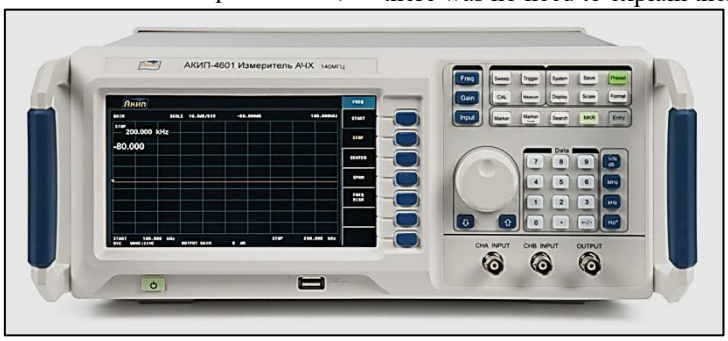

Fig. 2. In any radio engineering laboratory there are devices called frequency characteristic meters, which by their very existence prove the physical reality of imaginary and complex frequencies, and consequently, of any imaginary and complex numbers.

But there are other sciences besides physics. And in the theory of linear electric circuits used in radio engineering, electrical engineering and computer technology, according to Ohm's law as interpreted by Charles Proteus Steinmetz [41], there are imaginary resistances of capacitors and inductors (also called inductance coils), which are measured by devices available in any radio engineering laboratory (Fig. 2). This proves [42]-[53] that imaginary numbers are physically real[3] and

[3] *Since you can only measure what actually physically exists.*

the principle of non-exceeding the speed of light is incorrect. And therefore relativistic formulas (1)-(3) are incorrect[4].

3. Corrected version of the special theory of relativity

But even from the uncorrected relativistic formulas (1)-(3) follows an important conclusion, which the authors of SRT have overlooked and by their principle of non-exceeding of the speed of light have made this conclusion impossible – the velocity ***v*** in these formulas is an additional, besides length, width and height, spatial dimension.

Therefore in the corrected version of SRT the corrected relativistic formulas [54[-[61] are received

$$m(q,r,s)=\frac{m_0 i_1^q i_2^r i_3^s}{\sqrt{1-[{}^{v}\!/_{c}-(q+r+s)]^2}} \quad (4)$$

$$\Delta t(q,r,s)=\Delta t_0 i_1^q i_2^r i_3^s \sqrt{1-[{}^{v}\!/_{c}-(q+r+s)]^2} \quad (5)$$

$$l(q,r,s)=l_0 i_1^q i_2^r i_3^s \sqrt{1-[{}^{v}\!/_{c}-(q+r+s)]^2} \quad (6)$$

where $\boldsymbol{q(v)=\lfloor v_q/c \rfloor}$ – is the "floor" function of discrete mathematics from the argument ***v/c***, which is the fourth spatial dimension (Fig. 3);

$\boldsymbol{r(v)=\lfloor v_r/c \rfloor}$ – is the "floor" function of discrete maths from the argument ***v/c***, being the fifth spatial dimension (Fig. 3);

$\boldsymbol{s(v)=\lfloor v_s/c \rfloor}$ – is the "floor" function of discrete maths from the argument ***v/c***, being the sixth spatial dimension (Fig. 3);

$\boldsymbol{v_q, v_r\, v_s}$ – projections of the velocity vector v on orthogonal coordinates ***q, r, s*** (see Fig. 4).

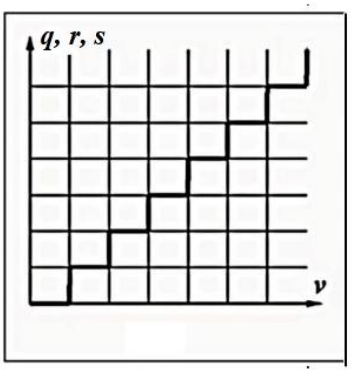

Fig 3. Graphs of functions q(v), r(v), s(v) illustrating the meaning of the "floor" function of discrete mathematics

From them it follows that we live in a Multiverse [62]-[77],which is six-dimensional – three dimensions ***x, y, z*** has each universe and three more dimensions ***q, r. s*** are coordinates of universes in the Multiverse (Fig. 4) – and is described by quaternions $\boldsymbol{f_{q,r,s}(x,y,z)+i_1 q+i_2 r+i_3 s}$, the number of which is equal to the number of universes in the Multiverse. This is exactly what Lisa Randall predicted: *"We could be living in a three-dimensional pocket of higher dimensional space."*

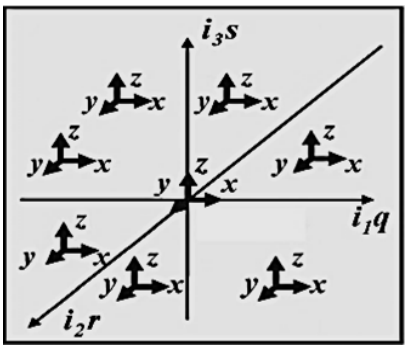

*Fig. 4. Six-dimensional space of the hidden Multiverse, where **q, r, s** are the coordinates of invisible parallel universes, and **x, y, z** are the coordinates of the matter content in each parallel universe*

[4] *Since the derivation of correct relativistic formulas due to absence in the 20th century of necessary experimental and theoretical knowledge simply was not completed.*

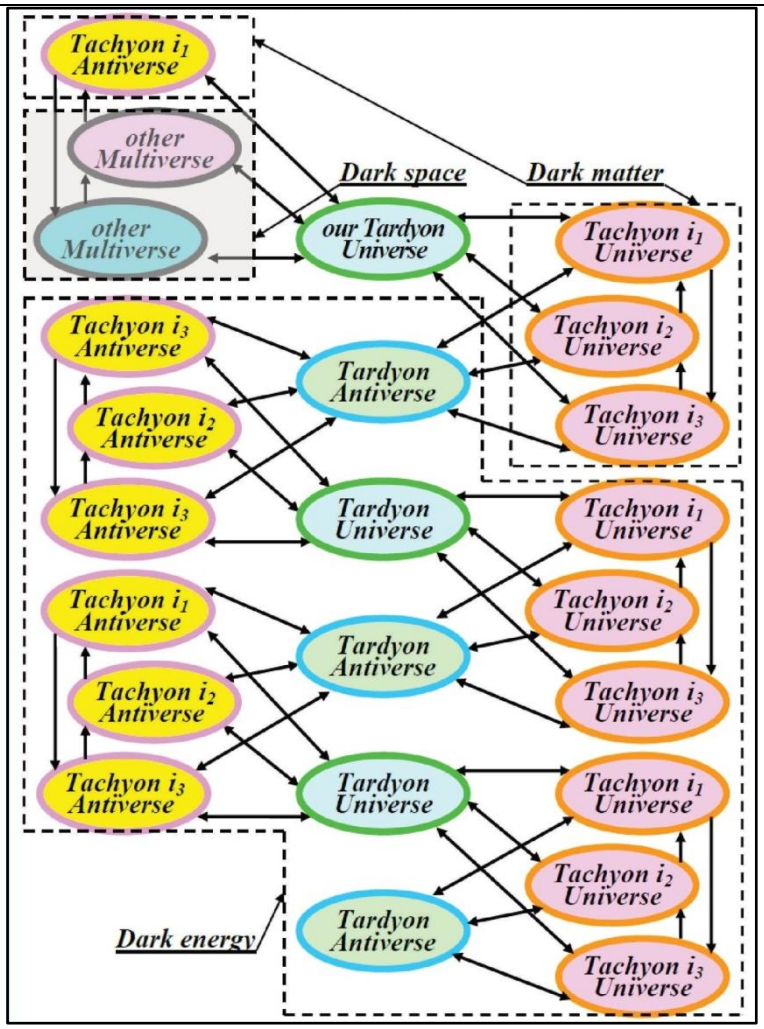

Fig. 5. Possible version of the quaternion structure of the hidden Multiverse

$$i_1^2 = i_2^2 = i_3^2 = -1 \tag{7}$$

$$i_1 i_2 i_3 = i_2 i_3 i_1 = i_3 i_1 i_2 = -1 \tag{8}$$

$$i_1 i_3 i_2 = i_2 i_1 i_3 = i_3 i_2 i_1 = 1 \tag{9}$$

In the mathematics of hypercomplex numbers, the function $i_1^q\ i_2^r\ i_3^s$ can be calculated only for integer values[5] ***q, r, s,*** but can take both positive and negative values, as well as both real and imaginary values. But we have already proven that imaginary numbers are physically real. Therefore, we must also explain them. Therefore, let us now consider the values of the quantities $m(v)$, $\Delta t(v)$ and $l(v)$, and in the range of velocities $\boldsymbol{v > c}$ for successive values of the argument ***q + r + s*** equal to ***0, 1, 2, 3, 4, 5,*** … Then for our visible universe with coordinates ***q = 0, r = 0, s = 0,*** i.e. located at we get $i_1^q\ i_2^r\ i_3^s$ **= –1.** This situation also corresponds to an invisible universe, since it is located beyond the event horizon. We will call it a tardyon[6] antiuniverse. For the value ***q + r + s=3*** in the velocity range $\boldsymbol{v > c}$ we get $i_1^q\ i_2^r\ i_3^s$ **= – *i*.** This situation corresponds to an invisible universe, since it is also located beyond the event horizon. We will call it a tachyon[7] antiuniverse. For the value ***q + r + s=4*** in the velocity range $\boldsymbol{v > c}$ we get $i_1^q\ i_2^r\ i_3^s$ = +1. This situation corresponds to an invisible tardyon universe (but a different one), since it is also located beyond the event horizon. For the value ***q + r + s=5*** in the velocity range $\boldsymbol{v > c}$ we get $i_1^q\ i_2^r\ i_3^s$ = +*i*. This situation corresponds to an invisible tachyon universe (but a different one), since it is also located beyond the event horizon. Thus, all universes are mutually invisible. Therefore, we will call our Multiverse hidden. And to make sure that invisible universes and antiuniverses neighbouring our visible universe exist, one can try to see them [79]-[84] from portals, the entrances to which are probably more than two hundred

[5] *And for non-integer values of the argument the author obtained [78] the formula* $i^q = \cos(q\pi/2) + i\sin(q\pi/2)$. *It, in particular, will be needed in mathematical processing of experimental data of geophysical investigations of portals*

[6] *The term tardyon-universe was proposed by Isaac Asimov in short story "Take a match".*

[7] *The term tachyon-universe was proposed by Isaac Asimov in short story "Take a match".*

thousand so-called anomalous zones [85]-[88] existing on Earth. People avoid visiting them - and rightly so – as the portals are invisible labyrinths, once in which it is almost impossible to get out of them. These portals are analogous to a corridor in your flat, from which you can look into the next room and see something in it. And to make sure that you really see something about the neighbouring universe in the portal, you should look at the starry sky through a telescope and see that the constellations on it are at least a little bit different from those outside the portals.

In other words, it is necessary to do an experiment similar to the famous experiment of Sir Arthur Stanley Eddington in 1919 [89] by which he confirmed the prediction of the general theory of relativity about the deflection of light rays in the Sun's gravitational field.

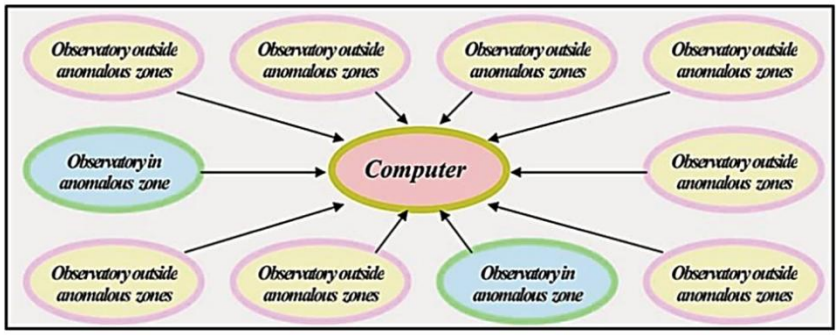

Fig. 6. Scheme of an astronomical experiment to detect invisible universes

And we're in luck. Since there are many anomalous zones on Earth, some of them may already host astronomical observatories, through whose telescope one can see these traces of the invisible out-of-portal neighbouring universe or antiuniverse. Such, for example, is the Main Astronomical Observatory of the National Academy of Sciences of Ukraine, which is located in the Goloseevsky forest 12 km from the centre of the capital of Ukraine, Kiev. But since in the anomalous zone, i.e. at the very edge of the portal, the differences of the constellations observed by neighbouring observatories located in anomalous zone and outside the anomalous zone are very small and may be not visible to the naked eye, it is necessary to compare the observations of these observatories on the computer (Fig.6). And if these differences turn out to be too small, the telescope will have to be moved deeper into the portal. After all, Sir Arthur Stanley Eddington moved the telescope much further away – from England to the island of Principe in the Atlantic Ocean in order to perform his famous experiment.

4. Time Travels

As is easy to notice, in Fig. 5 half of the universes of the hidden Multiverse are called antiuniverses in order to draw the readers' attention to the fact that they are cosmic antipodes of other universes. For them, the quantities $m(v)$, $\Delta t(v)$, $l(v)$ in formulas (4)-(6) differ only in sign. That is, the concepts of matter, time and space in the universes correspond to the concepts of antimatter, anti-time and anti-space in the antiuniverses [90]-[93]. But, as on Earth, inhabitants-antipode in space do not notice this difference, since the same physical, chemical, biological and other natural scientific laws operate in the universes and antiuniverses.

And when observed from Earth, in all universes and anti-universes, as they move away from our visible universe, not only the distance increases, but also time (like in time zones on Earth). Moreover, in universes it becomes greater than on Earth, and in anti-universes it becomes less than on Earth. And this circumstance makes time travel really possible both in the past and in the future.

Here are a couple of quotes that explain the current state of understanding of this problem. *"Time is the most frequently used word in the English language and the third most frequently used word in Russian. It is in every other language, too, because synchronizing actions in time is just as important as coordinating them in space. Without knowing the exact time, it is impossible to organize your life and plan it in advance. If in ancient times you could rely on natural cycles and an internal sense of time, then in our days you need to constantly have a watch or a phone with you. Time is the most important of the abstract concepts that we pronounce every day. Every thinking person has thought about the problem of time at least once in his life, and a huge amount of philosophical and scientific literature has been written on this topic. Nevertheless, no one can say for sure what time is."* [94]

Here is what Stephen William Hawking writes about this: "In everyday life, there is a huge difference between moving forward and backward in time. Imagine that a cup of water falls from a table and breaks into pieces. If you film this fall, then when you watch the film, it will immediately become clear whether the film is running forward or backward. If it is running backward, then we will see how the fragments lying on the floor suddenly come together and, having formed a whole cup, jump onto the table. And you will be able to say that the film was running backward, because in everyday life this does not happen. Otherwise, the faience factories would have to be closed" [95].

This phenomenon, known as the arrow of time, is one of the most amazing problems in physics. And the name "arrow of time" was proposed by the British physicist Sir Arthur Stanley Eddington at the beginning of the 20th century [96]. And all our life experience, it would seem, confirms this opinion.

The corrected version of the STR, in which the new concept of 'anti-time' has appeared, allows this life experience to be corrected. Indeed, if we assume that one day travel through the vastness of the hidden Multiverse will become possible for people on Earth, then time travel [97] will also become possible, both in the past and in the future. Let us show this.

But first, let us explain what we need to learn to do for this. And the main thing we need to learn is to master portals [98], [99], i.e. understand what they are and learn to navigate in them. Just as people once learned to navigate with a compass in the boundless expanses of the seas and oceans. Or even in the forest, in the desert, in the mountains, in any unfamiliar area. Even in labyrinths. So, a portal is an unfamiliar area that has become an invisible labyrinth for people. Portals are transitions from one universe to another, which turn these universes into communicating vessels. Therefore, at the entrance and exit of portals, according to the law of communicating vessels, the habitat should be almost the same – the same air, the same water, the same vegetation and animals[8]. Only the area is unfamiliar. But in order not to get lost in the portals and find the way back, you can use, as in mythology, the 'thread of Ariadne'. Or, in order not to risk ourselves, we can send unmanned vehicles to explore the portals, which people have now learned to make very well. It is also not difficult to create something like a radio compass, taking into account that as you dive into the portals, the electromagnetic field intensity from earthly radio stations should decrease. And on the way back, it should increase. Having got through the portal to some other planet, in order to move further in the hidden Multiverse, you will need to use unmanned aerial vehicles to search for anomalous zones on it, which are entrances to portals that lead to other neighboring universes. And so on. But all these problems are quite solvable.

And now we will show that the concept of the 'arrow of time' in the corrected version of STR is already partially refutable, since although we will not restore the cup mentioned by Hawking, we will be able to move into the past and future time. For this, we will use Fig. 7 and 8. In them, the positive branch of the vertical coordinate axis corresponds to time ***t***, measured in tardyon (including our visible tardyon) universes by positive real numbers, and its negative branch corresponds to negative time ***t*** in tardyon antiuniverses. Similarly, the positive branch of the horizontal coordinate axis corresponds to positive imaginary time[9] ***it***, measured in tachyon universes by positive imaginary numbers, and its negative branch corresponds to negative time it in tachyon antiuniverses. On the vertical axis of real time ***t*** and on the horizontal axis of imaginary time ***it***, thick black arrows show our comparatively long-term activity in tardyon and tachyon universes and anti-universes. And thin красными и синими стрелками показаны red and blue arrows show transitions through portals (staying in which is short-lived) between neighboring universes and antiuniverses.

Then we will consider the simplest options for traveling to the future and the past, since they would be very useful to us. Indeed, traveling to the future would allow us to refuse to continue all types of our unsuccessful activities and make them much more effective. But after such a search for the most effective option for activity, it will be necessary to return to the original state in order to start doing something differently and to do this. Traveling to the past would also be useful if, despite the search for an acceptable option for subsequent activity, it still turned out to be bad. Then it would be necessary, again having returned to the past, to somehow correct it. Therefore, having received the opportunity to travel through time, people could make their lives much more successful and happier. And since such searches for happiness are often a rather intimate activity, it would obviously be useful to begin them with the transition from our tardyon universe through the necessary portal to one of the neighboring tachyon universes or antiuniverses, since our activity in them is not visible from our tardyon universe due to the fact that time in them flows in mutually perpendicular directions[10]. And we will have to move to the tachyon universe if we are interested in something in the future. And we will have to move to the tachyon antiuniverse if we need to do something in the past.

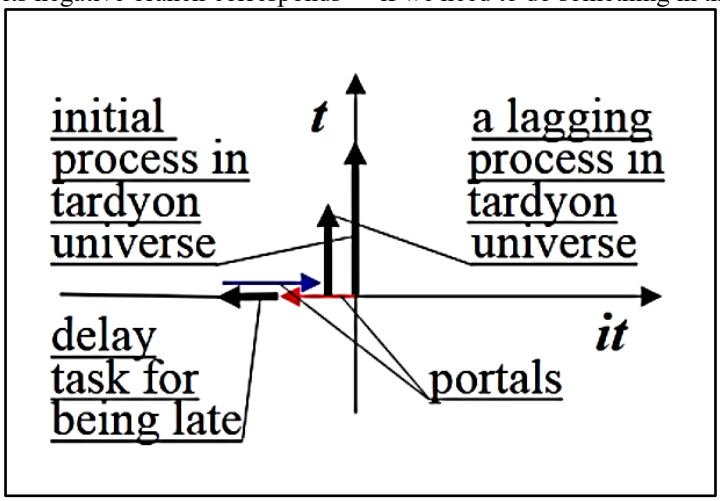

Fig. 7. Possible route of travel to the past time

[8] And if at least one portal on Earth ended in open space, then there would have been no air, no water, no anything else on Earth, like on the Moon or Mars.

[9] Despite the fact that the physical reality of imaginary numbers is denied in the generally accepted version of SRT, the term 'imaginary time' is used in modern physics. For example, in [95] Hawking writes: "Attempts to unify gravity with quantum mechanics have led to the concept of imaginary time".

[10] On the essence of imaginary time, Hawking holds the same opinion: "Imaginary time is a new dimension at right angles to ordinary real time" [95].

And Fig. 7 shows one of such simplest routes of travelling to the past time by successive travelling through portals through universes and antiuniverses of the hidden Multiverse. As it can be seen, this journey starts from the origin of coordinates, where in our visible tardyon universe there are conditionally two groups of researchers who spend the same biological time on the same duration of activity. And one of these groups of researchers through the portal (shown by the thin red arrow), moves to the tachyon antiuniverses and stays in it for some time (corresponding to the required lag time on the axis of imaginary time it, shown by the thick black arrow). All this time it is invisible from our tardyon universe, since imaginary time it is perpendicular to real time ***t***. Then it returns to our tardyon universe through the same or another portal (shown by the thin blue arrow) and completes the same work in the same time as the second group of scientists remaining in the tardyon universe. The duration of the activities of both groups in our tardyon universe is shown by thick black arrows of different lengths, which would both have to be on the actual time axis ***t***. But to make the figure more understandable, we have conventionally placed the short thick arrow next to the long thick arrow. And as a result, both groups of researchers, having spent the same amount of time on their identical activity, will nevertheless finish it in our tardyon universe at different times. Thus, the effect of delay was obtained due to the travel into the past time of one group of scientists relative to the other. Naturally, the same result can be obtained using other routes of travel through the Multiverse.

Fig. 8 shows another version of the time travel route, which differs from that shown in Fig. 7 in that this travel is carried out into the future. As in the previous case, it begins with the movement of the first group of researchers from the origin of coordinates, but in the opposite direction - through the portal shown by the thin red arrow into one of the (see Fig. 5) neighboring tachyon universes i_1. Then this group of researchers spends some time, corresponding to a given interval of advance time, in the tachyon universe i_1 and through another portal (shown by the thin blue arrow) moves to the next tachyon universe i_2, in the same dimension *v*. And from it through the third portal (shown by the thin red arrow) moves to the third tachyon universe i_3 in the same dimension ***v***.

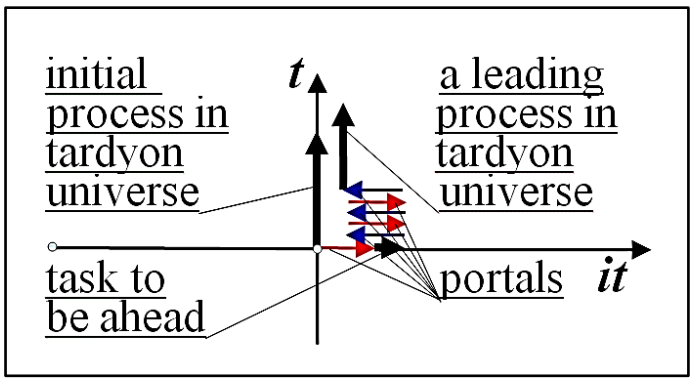

Fig. 8. Possible route of travel to the future time

And finally, from this third tachyon universe i_3, with a triple time advance (obtained due to successive visits to three tachyon universes) returns to our tardyon universe via the portal shown by the thin blue arrow. But with some lead over the second group of researchers, who were in our tardyonta universe all the time. And therefore, when both groups, having spent their equal biological time on their activity, finish it, it will turn out that they finish it at different times. And such a result can be interpreted as follows: the group of researchers who traveled through the hidden Multiverse, was ahead in time of the group of researchers who did not leave our tardyon universe, i.e., they traveled into the future. The same effect, naturally, can be obtained using other time travel routes.

5. Conclusions

So, in the article by the analysis of numerous existing in the nature and created by people processes it is experimentally proved and theoretically explained that the version of SRT studied in all textbooks of physics is incorrect, as in it:

- relativistic formulae obtained by its authors are incorrect and incorrectly explained;
- the postulated principle of non-exceeding of the speed of light, used by the authors of this version of SRT because of inability to explain and correct the relativistic formulas received by them, is incorrect;
- the conclusions about physical unreality of imaginary numbers and about existence in the nature of our visible universe, in which everything existing is measured only by real numbers, made from the received by them incorrect relativistic formulas, are incorrect.

Therefore physicists, forced according to the incorrect version of SRT to search for explanations of all physical problems in our only visible universe, could not explain much. They could not explain dark matter and dark energy, they could not discover dark space, they could not solve the problem of baryonic asymmetry and many other problems. For the same reason physicists still cannot explain the physical phenomenon of time and why it is unidirectional. They even created a special term for this concept 'time arrow'. But they are not sure that this term is irrefutable.

And the article refutes this term. For this purpose the corrected version of SRT was used, in which:

- the physical reality of imaginary numbers is experimentally proven and theoretically explained;
- by the experimentally proved principle of physical reality of imaginary numbers the principle of non-exceeding the speed of light was refuted and thus it was proved that the speed v gives rise to three additional spatial dimensions;
- it was found out that there exists in Nature a six-dimensional Multiverse containing about twenty mutually invisible three-dimensional universes and antiuniverses, whose position in the Multiverse space is determined by three additional dimensions.

It is explained that antimatter in the Multiverse is located in the antiuniverses, which are antipodes of other universes. In the same antiuniverses there are an anti-time, which is opposite to time of other universes. Examples of use of this anti-time are given, allowing already now to move both in the past and in the future time. And the existence of anti-time corrects the understanding of the phenomenon 'arrow of time'.

But anomalous zones in different countries on Earth may have different service advantages and disadvantages. Therefore, different countries may use different portals and different time travelling routes using them. And it will allow to get more valuable information about portals. Astro-geophysical researches of portals [99]-[115] made as a result of such time-travelling in our hidden Multiverse will allow to create time machines imitating on the Earth stay of people in portals. And this will significantly increase the effectiveness of scientific research and the corresponding accelerated intellectual and economic development of our entire human civilisation.

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POLITICAL SCIENCES

PLANNING AND IMPLEMENTATION OF PUBLIC POLICIES: AN ANALYSIS OF THE STRATEGIC VISION OF THE MINISTRY OF INTERIOR OF TURKEY

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Abstract
This study aims to examine the processes of planning and implementing public policies within the framework of the Republic of Turkey Ministry of Interior's Strategic Plan for 2019–2023. Accordingly, the 2019–2023 Strategic Plan constitutes a significant document that defines the Ministry's strategy for fulfilling these responsibilities. The plan outlines a set of objectives to enhance the performance of the Ministry of Interior, improve efficiency, and ensure the safety and well-being of citizens. In this research, the SWOT analysis method was employed to analyze the strengths, weaknesses, opportunities, and threats within the framework of the Ministry's strategic objectives. Key areas such as border management, counter-terrorism, road safety, and security pathways were highlighted, and the effectiveness of practices in these areas as well as the challenges encountered were examined in detail. According to the findings of the study, projects supported by European Union funds and national resources significantly contribute to strengthening border security and surveillance capacity. The implementation of modern technological systems presents opportunities in terms of counter-terrorism and border security, while the high costs and time-intensive nature of these processes pose challenges in practice. Additionally, the potential adverse impacts of global and regional developments on Turkey's border security and public order may threaten the achievement of strategic objectives. The study concludes that strengthening financial resources, enhancing personnel capacity, improving inter-agency coordination, and making monitoring and evaluation mechanisms more effective are essential for the successful implementation of the Ministry of Interior's strategic plan. Lastly, it is recommended that financial resources be strengthened, personnel capacity be increased, and inter-agency coordination be improved to ensure the effective implementation of the Ministry's strategic plan. Furthermore, the activation of monitoring and evaluation mechanisms is of critical importance to prevent deviations that may occur during the planning processes.
Keywords: Turkey, Ministry of Interior, Strategic Plan, SWOT Analysis.

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Introduction

The effectiveness of modern states is measured by the quality of the services they provide to their citizens and the extent to which these services align with societal expectations. In this context, the planning and implementation of public policies have become key indicators of a state's governance capacity. Public policies encompass the managerial methods and practices developed to address current societal issues, enhance social welfare, and set strategic goals for the future.

In Turkey, although the planning and implementation of public policies are undertaken by various governmental institutions, the role of the Ministry of Interior in this process is particularly noteworthy. The Ministry shapes the state's approach to its citizens by implementing its strategic vision in areas such as public order, security, local governance, and social solidarity. In this regard, analyzing the strategic vision of the Ministry of Interior provides a significant framework for understanding the dimensions of planning and implementing public policies.

This study aims to analyze the strategic vision of Turkey's Ministry of Interior to gain deeper insights into the processes of planning and implementing public policies. It will discuss the extent to which this vision aligns with societal priorities, institutional objectives, and implementation strategies within the framework of current policies. Moreover, it seeks to provide critical insights into the fundamental factors that must be considered for the effective implementation of public policies. The core focus of this examination will be on the impact of components such as strategic planning, institutional coordination, and monitoring and evaluation on the effectiveness of public policies.

Finally, the study aims to serve as a guiding resource for researchers, managers, and decision-makers working in the fields of public policy and strategic management.

Strategic Planning

Strategic planning is a process undertaken to identify an organization's long-term goals and determine the necessary steps to achieve these goals. It involves developing strategies and plans to achieve optimal results by leveraging the organization's resources and capabilities [1,2].

The Importance of Strategic Planning: Strategic planning is vital for the future of an organization. This process helps outline the steps required to achieve or-

ganizational goals and ensures their realization. Additionally, strategic planning assists organizations in utilizing resources effectively and addressing future uncertainties [3]. The strategic planning process typically involves the following steps:

Analysis: The internal and external environments of the organization must be analyzed. Internal analysis involves evaluating the organization's resources and capabilities, while external analysis assesses economic, social, political, and technological factors that may influence the organization [4].

Goal Setting: Long-term goals of the organization must be identified. These goals should reflect the organization's vision, mission, and values [5].

Strategy Development: Strategies needed to achieve organizational goals must be determined. These strategies should be designed to deliver optimal outcomes by utilizing the organization's resources and capabilities [6].

Planning: Steps necessary for implementing the strategies must be planned. This includes addressing aspects such as timelines, budgets, resource allocation, and coordination with other organizational operations [7].

Implementation: The required steps for executing the plans must be undertaken. This involves utilizing organizational resources, human resources, and technologies to bring the strategies to fruition [8].

Monitoring and Evaluation: The final stage of the strategic planning process involves monitoring and evaluating organizational performance. This stage measures the organization's progress towards its goals, assesses the effectiveness of strategies, and introduces corrective measures when necessary [9,10].

Key Elements for the Success of Strategic Planning: The success of strategic planning depends on the following factors [11].

Leadership: The success of strategic planning hinges on the determination and leadership skills of the organization's leadership [12].

Resources: The organization must have the necessary resources for the strategic planning process [13].

Capacity: The strategic planning process should align with the organization's capacity, including its size, expertise, and operational capabilities [14].

Alignment with Goals: The strategic planning process must align with the organization's goals, reflecting its vision, mission, and values [15].

Strategic planning helps organizations determine the steps necessary to achieve their future goals. This process aids in the effective use of resources and in addressing future uncertainties. To successfully complete the strategic planning process, organizations must consider leadership, resources, capacity, and alignment with their goals [16,17].

The Ministry of Interior plays a critical role in ensuring internal security, public order, and the well-being of citizens in Turkey. Thus, the strategic plan defining the Ministry's approach to fulfilling these responsibilities is a crucial document. The plan outlines a series of objectives to enhance the performance of the Ministry of Interior, improve efficiency, and ensure the safety and well-being of citizens [18].

Maintaining public order and ensuring security: This objective aims to preserve public order and safeguard citizens' safety by enhancing the operational capabilities of the police, gendarmerie, and coast guard units, modernizing security measures, and improving efforts to combat crime and terrorism [19].

Ensuring Internal Security: This goal targets activities such as combating terrorist organizations, addressing smuggling and organized crime, enhancing border security, and managing refugees to ensure internal security [20].

Providing Better Services to Citizens: This goal seeks to improve service quality by modernizing police departments, utilizing technology in delivering security services, and establishing an effective communication strategy to meet citizens' needs for safety and peace [21].

Enhancing Organizational Efficiency: This goal focuses on improving the performance of the Ministry of Interior and its affiliated institutions, streamlining internal processes, strengthening human resources management, and ensuring the efficient use of resources [22].

The Ministry of Interior's 2019–2023 Strategic Plan serves as a significant roadmap for ensuring Turkey's internal security and public peace. The plan demonstrates the Ministry's commitment to achieving its objectives, delivering better services, and enhancing internal efficiency [23]. While pursuing these goals, the Ministry will engage more actively with the public, considering citizens' views and suggestions in planning and decision-making processes [24].

Ministry of Interior 2019–2023 Strategic Plan

• "*In the field of border management, collaboration and coordination with relevant institutions, EU member states, and neighboring countries will be enhanced.*

• *Projects financed by European Union funds and national resources will strengthen control and surveillance capacities at land and sea borders, as well as at border gates. Training activities targeting stakeholders will be increased.*

• *A modern and technological border security system will be established at land and sea borders. These systems are expected to make significant contributions to the country's counter-terrorism efforts, the prevention of smuggling, the reduction of irregular migrant crossings, and the enhancement of border security.*

• *Security roads prioritized by the Governorships as designated by the Ministry will be addressed.*

• *The construction of security roads will be carried out by Metropolitan Investment Monitoring and Coordination Boards (YIKOB) in metropolitan cities and by Provincial Special Administrations in other provinces.*

• *Inter-agency cooperation will be increased within the scope of coordinating and monitoring security roads*" [23].

Findings

• "*The capacity of personnel from relevant institutions operating at border gates, border lines, and areas beyond borders must be enhanced in line with evolving situations and regulations concerning integrated border management and practices. Global and regional*

developments pose risks and threats to Turkey's borders, given the country's geopolitical location.

• *In the context of counter-terrorism, the maintenance, repair, and enhancement of damaged roads used by security units—responsible for ensuring the safety, security, and public order of citizens living in rural areas—must be undertaken. Furthermore, new roads that meet technical standards need to be constructed, and traffic safety must be improved in regions affected by topographic and climatic conditions"* [23].

Requirements

• "*To ensure the effective implementation of integrated border management, the technical, practical, and regulatory capacities of personnel serving in the field of border management must be developed.*

• *Physical security measures at borders are required to combat terrorism, prevent smuggling, curb irregular migrant crossings, and ensure border security.*

• *Adequate funding is needed to ensure the timely completion of security roads"* [23].

The implementation of this plan is of vital importance for realizing the strategic vision of the Ministry of Interior and safeguarding Turkey's internal security. Therefore, the Ministry must act with the cooperation and participation of all its employees, stakeholders, and citizens to ensure the successful execution of the plan. Additionally, it is crucial to identify, monitor, and measure priorities aligned with strategic goals to minimize potential issues during the implementation process [25].

Method

This study aims to examine the planning and implementation dimensions of public policies within the framework of the 2019-2023 Strategic Plan of the Republic of Turkey Ministry of Interior. To understand the effectiveness of the Ministry's strategic vision, SWOT analysis techniques were employed.

Research Design

The research was designed as a document-based study, adopting the content analysis method. The 2019-2023 Strategic Plan document available on the official website of the Ministry of Interior, along with other related official documents, served as the primary data source. These documents were evaluated using the SWOT analysis method (Strengths, Weaknesses, Opportunities, and Threats) in alignment with the purpose of the study [26].

Data Collection

The data utilized in the study were obtained from the following sources:

Strategic Plan Document: The 2019–2023 Strategic Plan document of the Ministry of Interior constituted the primary data source for the study.

Official Reports and Publications: Other official documents and activity reports published by the Ministry were reviewed.

SWOT Analysis Data: Open data accessible from public sources and literature on strategic objectives were utilized during the analysis process.

Data Analysis

The collected data were analyzed within the framework of the strategic objectives of the Ministry of Interior through the following steps:

SWOT Analysis: The strengths and weaknesses of the Ministry, as well as environmental opportunities and threats, were evaluated. Document-based data were thoroughly examined for this analysis.

Conceptual Framework: Strategic planning theories and approaches were compared with the goals and strategies defined by the Ministry.

Evaluation of Strategic Practices: Factors influencing the success of the strategic plan's implementation (e.g., resource allocation, stakeholder participation, and monitoring and evaluation mechanisms) were analyzed.

Comparative Analysis: The Ministry's strategic plan was compared with the strategic plans of other public institutions with similar objectives and with examples of international best practices.

Ethical Principles

All data used in this study were obtained from open sources, and no access to private information was involved. The research was conducted in compliance with scientific ethical principles.

With this methodological approach, the study examines the effects of the Ministry of Interior's strategic plan on the effective planning and implementation of public policies and provides significant insights regarding this plan.

Findings

Table 1.

SWOT Analysis of the Ministry of Interior's 2019–2023 Strategic Plan

	Strengths	Weaknesses	Opportunities	Threats
Strategic Plan	-Developing "cooperation and coordination with EU member states and neighboring countries in border management" provides a significant opportunity for border security. - Projects financed by European Union funds and national resources aim to strengthen "control and surveillance capacities at land and sea borders." - Establishing a modern and technological border security system at land and sea borders offers significant opportunities for counter-terrorism, preventing smuggling, and enhancing border security.	-"Security road construction works will be carried out by YİKOB in metropolitan cities and by Provincial Special Administrations in other provinces." Therefore, there may be uncertainties regarding financing and management. - The establishment of modern technological systems for border security can be costly.	-Increasing training activities for stakeholders can enhance awareness regarding border management. - Enhancing inter-agency cooperation for the coordination and monitoring of security roads can lead to more effective border management. - The implementation of a modern technological border security system could enable Turkey to play a more effective role in counter-terrorism, preventing smuggling, and securing borders.	-Lack of cooperation and coordination in border management could pose a threat to border security. - Financial and management problems related to security road construction could hinder timely completion, weakening border security.

According to Table 1, the strengths include the enhanced cooperation and coordination with EU member states and neighboring countries in border management, which provides a strategic advantage for border security. Additionally, projects financed by EU funds and national resources aim to strengthen control and surveillance capacities at land and sea borders. Establishing a modern technological border security system creates significant opportunities for counter-terrorism, smuggling prevention, and overall border security. The weaknesses highlight uncertainties and high costs associated with certain implementations. For instance, security road construction is managed by Investment Monitoring and Coordination Boards (YİKOB) in metropolitan cities and by Provincial Special Administrations in other provinces. However, the lack of clarity regarding financing and management in these processes poses challenges. Moreover, the installation of modern technological systems for border security can be financially burdensome. Opportunities emphasize the importance of increasing training activities for stakeholders to raise awareness about border management. Enhancing inter-agency cooperation for the coordination and monitoring of security roads presents a significant opportunity for more effective border management. Furthermore, implementing modern technological border security systems could enable Turkey to play a more active role in counter-terrorism, smuggling prevention, and border security. Threats include the potential lack of cooperation and coordination in border management, which could pose a significant risk to security. Additionally, financial and management issues related to security road construction may delay project completion and weaken border security.

Table 2.

SWOT Analysis of the Ministry of Interior's 2019–2023 Findings

	Strengths	Weaknesses	Opportunities	Threats
Findings	-Developing the capacities of relevant institution personnel working at border gates, borderlines, and hinterlands regarding integrated border management and practices provides a significant advantage for Turkey's border security. - Security units ensuring the safety, public order, and security of rural residents play an effective role in counter-terrorism. - Improving the quality of newly constructed roads and maintaining and repairing existing ones in accordance with technical standards offers a significant opportunity to enhance Turkey's road safety.	-Enhancing the capacities of relevant institution personnel may involve high time and cost requirements. - Financial uncertainties may arise regarding projects aimed at improving the quality and maintenance of roads built to technical standards.	-In light of global and regional developments, Turkey has the potential to play a more effective role in border security. - Security units ensuring the safety, public order, and security of rural residents could be further empowered to play a more effective role in counter-terrorism. - Constructing new roads and upgrading existing ones to meet technical standards could lead to significant advancements in road safety in Turkey.	-Global and regional developments regarding border security may pose a threat to Turkey's border security. - Financial uncertainties in road construction projects and the improvement of existing infrastructure may hinder their timely and effective completion.

According to Table 2, the strengths include the development of the capacities of relevant personnel working at border gates, borderlines, and hinterlands concerning integrated border management and practices, which offers a substantial advantage for border security. Furthermore, security units play a critical role in counter-terrorism by ensuring safety, public order, and security in rural areas. Additionally, constructing new roads and improving existing ones according to technical standards significantly enhances Turkey's capacity in road safety. The weaknesses highlight challenges, such as the time and cost associated with enhancing personnel capacities and uncertainties regarding the financing of infrastructure projects. Improving the capacities of relevant institutions can impose a significant financial and temporal burden. Similarly, uncertainties in funding for new road construction and maintenance projects can limit the effectiveness of these efforts. The opportunities emphasize Turkey's potential to play a more active role in border security and counter-terrorism in the context of global and regional developments. The current capabilities of security units operating in rural areas can be further strengthened through additional capacity building. Moreover, constructing and upgrading roads to meet technical standards offers significant progress in road safety. The threats include the risk posed by global and regional developments that may negatively impact Turkey's border security. Additionally, financial uncertainties in projects for road construction and infrastructure improvement could delay or obstruct the timely and effective completion of these initiatives.

Table 3.

SWOT Analysis of the Ministry of Interior's 2019–2023 Needs

	Strengths	Weaknesses	Opportunities	Threats
Needs	-Ensuring the effective implementation of integrated border management provides a significant advantage for Turkey's border security. - Implementing physical border security measures is essential for playing an effective role in counter-terrorism, smuggling prevention, and border security.	- "Enhancing the technical, practical, and regulatory capacities of relevant institution personnel" may involve high costs and time requirements. - Failure to allocate the necessary funds for timely completion of security roads could lead to uncertainties in the implementation of road construction projects.	-Integrated border management could enable Turkey to play a more active role in counter-terrorism, smuggling prevention, and border security. - Physical border security measures could enhance Turkey's border protection capacity, strengthening national security and supporting regional stability.	-The inability to allocate sufficient financial and time resources for enhancing personnel capacities may reduce the effectiveness of these processes. - Budgetary constraints in security road projects could delay their completion, jeopardizing border security.

According to Table 3, the strengths include the effective implementation of integrated border management, which provides a crucial advantage for Turkey's border security. Additionally, implementing physical border security measures is vital for enabling effective efforts in counter-terrorism, smuggling prevention, and border security. The weaknesses highlight the high costs and time requirements associated with enhancing the technical, practical, and regulatory capacities of relevant institution personnel. Furthermore, the failure to allocate adequate funds for the timely completion of security road projects could create uncertainties in project management and completion processes. The opportunities suggest that adopting integrated border management practices could enable Turkey to take on a more active role in counter-terrorism, smuggling prevention, and border security. Implementing physical border security measures can enhance border protection capacity, bolstering national security and contributing to regional stability. The threats include the risk of reduced effectiveness due to insufficient financial and time resources allocated for enhancing personnel capacities. Additionally, insufficient funding for security road projects could delay their completion, posing risks to border security.

Table 4.

SWOT Analysis of Border Management

	Strengths	Weaknesses
Opportunities	-Global and regional developments may enable Turkey to play a more active role in border security.	-Capacity development may require significant time and financial resources.
Threats	-Global and regional developments may pose a threat to Turkey's border security.	-Uncertainties may arise, particularly regarding financing.

As shown in Table 4, border management is a critical issue for Turkey's security. This analysis highlights key opportunities, such as enhancing cooperation and coordination with EU member states and neighboring countries, strengthening control and surveillance capacities at border gates, and establishing border security systems, which offer significant advantages for Turkey's border management. However, the development of capacity may require considerable time and financial resources. Additionally, global and regional developments could pose threats to Turkey's border security, while uncertainties in funding are also considered a potential risk. Therefore, when planning its border

management efforts, the Ministry of Interior must consider these strengths, opportunities, weaknesses, and threats to ensure an effective and comprehensive strategy.

Table 5.

SWOT Analysis of Counter-Terrorism

	Strengths	Weaknesses
Opportunities	- Security units ensuring the safety, public order, and security of rural residents could be equipped with the necessary capabilities to play a more active role in counter-terrorism.	-Capacity development may require significant time and financial resources.
Threats	- Global and regional developments in counter-terrorism may pose a threat to Turkey's efforts in this area.	-Uncertainties regarding financing could arise.

As shown in Table 5, counter-terrorism is critical for maintaining safety, public order, and security across the country. This analysis identifies opportunities, such as the potential for security units ensuring the safety and public order of rural residents to play a more active role in counter-terrorism with the necessary resources and capabilities. However, capacity development may require substantial time and financial resources, representing a significant weakness. In addition, global and regional developments in counter-terrorism could pose threats to Turkey's efforts in this domain, while uncertainties regarding financing are also identified as a potential threat. Therefore, when planning its counter-terrorism efforts, the Ministry of Interior must consider these strengths, opportunities, weaknesses, and threats to develop a robust and comprehensive strategy.

Table 6.

SWOT Analysis of Road Safety

	Strengths	Weaknesses
Opportunities	-The construction of new roads and the improvement of existing roads to meet technical standards provide a significant opportunity for enhancing road safety in Turkey.	-Capacity development may require significant time and financial resources.
Threats	-Uncertainties regarding financing could arise.	---

As shown in Table 6, road safety is crucial for reducing traffic accidents and ensuring smooth traffic flow nationwide. This analysis identifies opportunities such as the construction of new roads and the enhancement of existing roads to meet technical standards, which represent a significant opportunity to improve Turkey's road safety. However, the development of capacity may involve substantial time and financial resources, posing a major weakness. Additionally, uncertainties in financing are considered a threat that could hinder progress in road safety initiatives. Therefore, when planning its road safety efforts, the Ministry of Interior must consider these strengths, opportunities, weaknesses, and threats to create an effective and sustainable strategy.

Table 7.

Security Roads SWOT Analysis

	Strengths	Weaknesses
Opportunities	-Prioritizing security roads as determined by the governorships, enhancing coordination, and implementing security road construction projects provide significant opportunities for improving Turkey's security roads.	-Capacity development may require substantial time and financial resources.
Threats	-Uncertainties regarding financing could arise.	---

As shown in Table 7, security roads are vital for maintaining safety, public order, and security across the country. This analysis identifies opportunities such as prioritizing security roads determined by governorships, enhancing coordination, and implementing road construction projects, which provide significant benefits for Turkey's security infrastructure. However, weaknesses include the high time and cost requirements associated with capacity development. Additionally, uncertainties regarding financing pose a threat to the successful implementation of security road projects. Therefore, when planning initiatives for security roads, the Ministry of Interior must consider these strengths, opportunities, weaknesses, and threats to ensure effective and well-coordinated strategies.

Table 8.

Physical Border Security Measures SWOT Analysis

	Strengths	Weaknesses
Opportunities	-Implementing physical border security measures is essential for playing an effective role in counter-terrorism, smuggling prevention, and border security.	-Capacity development may require significant time and financial resources.
Threats	-Global and regional developments may pose a threat to Turkey's border security.	-Uncertainties regarding financing could arise.

As shown in Table 8, physical border security measures are crucial for maintaining safety, public order, and security across the country. This analysis highlights that implementing these measures provides a significant opportunity for counter-terrorism, preventing smuggling, deterring irregular migration, and ensuring border security. However, capacity development could involve high costs and significant time requirements, representing a notable weakness. Additionally, global and regional developments may pose threats to Turkey's border security, while uncertainties related to financing are also identified as a critical threat. Therefore, when planning efforts regarding physical border security measures, the Ministry of Interior must carefully consider these strengths, opportunities, weaknesses, and threats to devise effective and sustainable strategies.

Table 9.

Integrated Border Management SWOT Analysis

	Strengths	Weaknesses
Opportunities	-Enhancing the capacities of personnel from relevant institutions involved in border management, increasing training activities in line with evolving situations and regulations regarding integrated border management and practices, offers significant opportunities for Turkey's integrated border management.	-Capacity development may require substantial time and financial resources.
Threats	-Global and regional developments may pose a threat to Turkey's border security.	-Uncertainties regarding financing could arise.

As shown in Table 9, integrated border management is a critical issue for Turkey's security. This analysis highlights that enhancing the capacities of personnel from relevant institutions and increasing training activities aligned with evolving situations and regulations regarding integrated border management provide significant opportunities for improving Turkey's border management capabilities. However, capacity development could involve significant time and financial resources, presenting a major weakness. Additionally, global and regional developments may pose threats to Turkey's border security, while uncertainties regarding financing are also identified as a critical threat. Therefore, when planning efforts related to integrated border management, the Ministry of Interior must carefully consider these strengths, opportunities, weaknesses, and threats to develop an effective and comprehensive strategy.

Conclusion

This study examined the processes of planning and implementing public policies within the framework of the Republic of Turkey Ministry of Interior's 2019–2023 Strategic Plan. Core responsibilities of the Ministry, including internal security, maintaining public order, and ensuring the well-being of citizens, constitute the main pillars of the strategic plan. The findings obtained through SWOT analysis reveal the strengths, opportunities, weaknesses, and threats associated with the Ministry's strategic vision.

According to the research findings: Border Management: The establishment of modern technological border security systems creates significant opportunities for counter-terrorism and preventing smuggling. However, capacity development processes pose challenges in terms of time and cost. Counter-Terrorism: The safety of rural residents can be supported by enhancing the capacities of security units. Nevertheless, global and regional threats present risks to these efforts. Road Safety: Constructing new roads and improving existing infrastructure provide solutions for traffic safety, but financial uncertainties may delay the completion of projects. Security Roads: Security road projects prioritized by governorships can be effectively completed through enhanced inter-agency cooperation. Projects financed by European Union funds and national resources contribute significantly to strengthening control and surveillance capacities at land and sea borders. Moreover, the establishment of modern border security systems and the improvement of security roads offer significant progress potential in areas such as counter-terrorism and border security. However, timely allocation of financial resources is essential to ensure the completion of these projects.

Despite the opportunities, the weaknesses and threats encountered during implementation are noteworthy. Financial issues and high costs associated with capacity development processes pose significant barriers to achieving strategic goals. Additionally, delays in completing border management and security road projects may create risks for both local and national security. Global and regional security dynamics represent another critical threat influencing Turkey's strategic vision. Recommendations for Effective Implementation

To ensure the effective implementation of the strategic plan, the following recommendations are proposed:

Strengthening Financial Resources: The sustainable use of EU funds and national budgets should be ensured to guarantee the continuity of projects.

Capacity Development Activities: Training programs should enhance the technical, practical, and regulatory skills of personnel working in areas such as border management and security roads. Modern technologies should be utilized in this process.

Enhancing Inter-Agency Coordination: Stronger collaboration mechanisms should be established among public institutions to achieve strategic objectives.

Activating Monitoring and Evaluation Mechanisms: The implementation process of the strategic plan should be regularly monitored, and swift solutions should be developed for potential deviations.

In conclusion, the Ministry of Interior's 2019–2023 Strategic Plan plays a critical role in ensuring Turkey's internal security and enhancing citizens' well-being. Successful implementation of the plan requires effective leadership, resource allocation, and inter-agency collaboration. Collaboration among all stakeholders and continuous review of planning processes are essential for realizing Turkey's vision for internal security.

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CONTEMPORARY TRENDS AND THE ROLE OF MIGRATION POLICIES IN SHAPING GEORGIAN MIGRATION TO THE U.S.

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Abstract

The current migration patterns of Georgians to the United States are examined in this article, with special attention paid to the growing use of illegal migrant routes through Mexico. It looks at the socioeconomic elements that drive these changes as well as how U.S. immigration policy affect them. The consequences of stricter immigration rules, the difficulties faced by Georgian migrants, and the changing role of U.S. policies in influencing these patterns are all highlighted by talking about the trajectory of Georgian migration. In order to facilitate migrant integration and better control migration flows, the essay also makes policy proposals.

Keywords: Georgian migration, U.S. immigration policies, illegal migration, migration trends, economic factors, diaspora.

Introduction

Over the past century, Georgian migration to the US has changed dramatically, moving from early 20th-century political migration to more recent economic migration in the post-Soviet era. In pursuit of greater economic possibilities in the United States, an increasing number of Georgians have chosen to migrate illegally in recent years, especially through Mexico. Although Georgia's economic instability is the main cause of this tendency, U.S. immigration laws have a significant influence on how migratory patterns are shaped. This article looks at how Georgian migration trends have been impacted by stricter immigration regulations as well as more general socioeconomic issues. Additionally, it talks about the difficulties these migrants encounter and the necessity of changing policies to take into account both economic incentives and the intricate reality of illegal migration (Makharadze, 2011).

Problem Definition

Historical, political, and economic issues all play a part in Georgians' migration to the United States. Georgia has experienced severe economic instability since the fall of the Soviet Union, which has caused many of its residents to look for better prospects overseas. The third wave of Georgian migration, which started in the 1990s, is mostly economic in character, whereas the first two waves were motivated by political repression and then Soviet domination. A notable rise in illegal migration is another feature of this wave; many Georgians choose to enter the country illegally through Mexico rather than through the more established legal migration routes. Due to Georgia's challenging socioeconomic circumstances and the United States' stringent immigration laws, many migrants have turned to these risky and frequently exploitative ways.

The Shift towards Illegal Migration through Mexico

The manner in which Georgians immigrate to the US has changed noticeably in recent years. Many Georgians have resorted to illegal migration routes, mostly through Mexico, as a result of tighter border enforcement and visa requirements. These migrants frequently attempt to enter the United States without the required paperwork or illegally cross the border between the United States and Mexico in search of asylum. Even if economic hardship is still the primary driver of this migration, there are many obstacles to overcome while migrating illegally through Mexico, such as the high expense, the possibility of exploitation, and the physical risk of crossing several borders. This change in migration trends is a reflection of Georgian migrants' mounting dissatisfaction with the increasingly difficult access to legal pathways to the United States (Narimanashvili, 2022).

Impact of U.S. Immigration Policies

Georgian migration patterns have been significantly impacted by U.S. immigration regulations. The use of illicit routes has increased as a result of tighter border controls, more stringent visa requirements, and harsher consequences for illegal immigration. Although the goal of these laws is to regulate the migration flow, many Georgians have unintentionally been encouraged to use riskier and unlawful ways to enter the United States. Many Georgians find illegal migration to be an alluring, although dangerous, option due to the growing demand for undocumented labor in specific industries, like as the construction and service sectors. This section looks at how these regulations directly affect Georgian migration trends as well as the wider ramifications for both migrants and U.S. immigration enforcement (Wertsman, 2022).

Socio-Economic Motivations for Migration

Economic factors remain the main driver of Georgian migration to the United States. Georgia saw a sharp drop in living conditions after gaining independence in 1991, as seen by high unemployment rates, inflation, and a dearth of job prospects, especially for young people and highly qualified professionals. Many Georgians were driven by these economic circumstances to look for better life outside, especially in the United States, where greater incomes and the prospect of upward mobility appeared more achievable. However, many Georgians have turned to unlawful entry methods, such as crossing the border between the United States and Mexico, as a result of the legal restrictions on migration. This section will examine how Georgia's economic suffering and the tight U.S. immigration regulations have contributed to the country's migration toward illicit channels (World Bank, 2021).

The Humanitarian and Legal Challenges of Illegal Migration

There are serious legal and humanitarian issues with Georgians migrating illegally to the United States. As they traverse numerous countries and depend on smugglers and other middlemen to lead them through hazardous areas, migrants frequently face grave hazards. Poor living circumstances, violence, and exploitation are commonplace for these migrants. Undocumented migrants also encounter legal obstacles when they arrive in the United States, which hinders their ability to obtain essential protections and services like social services, work, and healthcare. Their ability to assimilate into society is made more difficult by their ongoing fear of expulsion. The human consequences of illegal migration will be covered in this section, along with the psychological and physical toll it takes on migrants and the legal issues they face once entering the United States (Gagnon, 2012).

Conclusion

Both migrants and their families have benefited economically from Georgia's migration to the US, but there have also been substantial social, legal, and humanitarian repercussions. The trend in unauthorized migration via Mexico is a reflection of growing dissatisfaction with the tight and unapproachable U.S. immigration laws. It is crucial to create more accommodating immigration laws that consider the financial circumstances Georgian migrants confront in order to overcome these obstacles. These policies ought to provide protections for undocumented migrants, easier access to legal migration channels, and more assistance for individuals trying to assimilate into American society. Policymakers can develop more efficient methods to control migratory flows and enhance the lives of migrants by comprehending the larger background of Georgian migration and how American policies have influenced these patterns.

Future Scope

The long-term effects of illegal movement on the lives of Georgian migrants and their families should be investigated in future studies. Furthermore, research on the efficacy of the United States' present immigration laws and any changes would offer important information on how to enhance migration management. Developing more extensive support networks for migrants would also benefit from additional research into the social, cultural, and psychological effects of migration, especially for families left behind.

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SOCIOLOGY

THE STUDY OF THE TOURISM POTENTIAL OF WESTERN AZERBAIJAN

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Abstract

This paper examines the historical, cultural, and natural resources of Western Azerbaijan and analyzes their potential for tourism development. The region, rich in a diverse range of historical monuments, cultural heritage, and natural landscapes, offers great promise for tourism. The study focuses on understanding the value of these resources and the role they can play in promoting sustainable tourism and economic growth.

The historical landmarks of Western Azerbaijan, such as ancient cities, fortresses, religious sites, and architectural masterpieces, provide a deep connection to the past and showcase the unique cultural heritage of the region. These sites not only reflect the rich history of the area but also present significant opportunities for cultural tourism. The ancient cities, once vibrant centers of civilization, hold fascinating stories that can captivate visitors. The region's fortresses and religious sites, some dating back thousands of years, offer invaluable insight into the diverse cultures and traditions that have shaped the area.

Moreover, the natural beauty of Western Azerbaijan, characterized by its picturesque mountains, rivers, forests, and unique biodiversity, offers vast potential for eco-tourism, adventure tourism, and nature-based activities. The diverse ecosystems, from lush forests to highland meadows, are a haven for wildlife and outdoor enthusiasts alike. The region's natural resources, including pristine lakes and rivers, provide opportunities for water sports, hiking, and eco-friendly tourism experiences. The combination of stunning landscapes and ecological diversity makes it an ideal destination for those seeking both relaxation and adventure.

The paper emphasizes the importance of preserving these historical, cultural, and natural assets while developing tourism infrastructure. Sustainable tourism practices are essential to ensure that tourism development does not compromise the integrity of these valuable resources. The study also provides recommendations for promoting the region as a key tourist destination, increasing its visibility on the international tourism map.

In conclusion, the research suggests that Western Azerbaijan has a strong potential to become a leading tourism hub by leveraging its historical, cultural, and natural assets. Proper management and sustainable practices will ensure that tourism benefits both the local communities and the preservation of the region's unique heritage.

Keywords: Western Azerbaijan, tourism potential, cultural heritage, resources, heritage preservation, tourism management

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INTRODUCTION

West Azerbaijan, as a region with a rich culture and historical heritage, integrates ancient monuments, unique architectural examples, folklore, and traditions. This region is also recognized for its biological and zoological beauty. All of these factors contribute to the increasing tourism potential of West Azerbaijan. The connection between cultural-historical resources and tourism brings the study of the region's role in tourism to the forefront, rendering the topic of the article particularly relevant.

Figure 1. Tatev temple (IX-X century)
https://westaz.org/az/qerbi-azerbaycan/abideler?page=5

The objects of the article is the cultural-historical and natural resources located within the region of West Azerbaijan. Its subject is the discussion of the role of these resources in both local and international tourism.

The scientific novelty of the research lies in understanding the unity between the cultural and natural resources of West Azerbaijan and tourism, as well as addressing the challenges within this field.

The main goal of the article is to explore potential solutions to the problems faced by the region's tourism sector.

The primary scientific foundation of the article is based on books and online resources from both local and international researchers.

1. TOURISM POTENTIAL RESOURCES OF WEST AZERBAIJAN

West Azerbaijan encompasses numerous cultural and natural resources that are valuable for the tourism sector. Each of these resources is of significant importance to both the local and international tourism industries. In this section, we will analyze these resources by dividing them into two categories:

✓ Cultural-historical resources: Tangible and intangible;

✓ Natural Resources

1.1. Cultural-Historical Resources

The culture of West Azerbaijan dates back to ancient times. Since the early stages of the formation of culture, the region has witnessed the emergence of a variety of cultural-historical resources. These resources reflect both tangible and intangible cultural heritage. Each of them is a manifestation of the cultural evolution of the region, expressing the intellectual mindset of its population. Tangible resources can be categorized as follows:

➢ Historical monuments: castles, mosques, shrines, tombs, temples, mausoleums, sarcophagi, religious buildings, madrasas, bridges, caravanserais, Albanian churches, and others;

➢ Archaeological findings: ethnographic-archaeological sites, funerary monuments, tomb sculptures, ancient tools, precious objects, etc.

Intangible cultural heritage examples reflect the cultural mindset and worldview of the local population. These examples can be categorized as follows:

- Folklore examples;
- Ashiq art;
- Customs and traditions;
- Dances;
- Musical art;
- Culinary culture, etc. [Alakbarli, 2021; Aliyev, 2023; Nazarova, 2024, p.1002-1007].

Intangible resources express the daily life of the local population. As these examples demonstrate, the domestic culture of the population was incredibly rich and diverse.

Countless examples could be provided for the aforementioned categories. Unfortunately, many of these cultural treasures have either been eradicated, destroyed, burned, or reduced to ruins. This is the result of the ruthless military conflict. The indigenous population of West Azerbaijan has suffered both material and spiritual atrocities, and numerous murders have been perpetrated by Armenian terrorists.

1.2. Natural Resources

The natural resources of West Azerbaijan are exceptionally rich. Before discussing these resources, it is essential to first consider the general environment of the region. The terrain, climate, and geographical features of the area have created favorable conditions for the diversification of its natural resources. West Azerbaijan is located in the subtropical zone, surrounded by high mountainous areas. The climate is divided into six distinct zones, each with varying characteristics. The mountainous regions are generally cold, while the summer months are relatively mild.

The landscape of the region is also diverse. The territory includes various types of soils such as desert, chestnut, brown, takyr, clayey brown, and others.

The natural resources of West Azerbaijan can be categorized into:

- Land relief;
- Forest cover;
- Biodiversity;
- Fauna;
- Hydrological network and more.

[https://anl.az/el/emb/Qerbi_Azerbaycan/cografiya.htm; Nazarova 2024, p.67-70].

These categories highlight the diversity of the region's natural resources. Unfortunately, the military operations, occupation, and the appropriation processes by terrorists have led to the degradation and destruction of these invaluable resources.

2. THE IMPORTANCE OF CULTURAL-HISTORICAL AND NATURAL RESOURCES IN THE TOURISM OF WESTERN AZERBAIJAN

Tourism is one of the main tools that facilitates the expansion of cultural exchanges between countries and creates a foundation for economic and social development. It is a well-known fact that the advancement of the tourism sector leads to the global recognition of the country's culture, its economic growth, and the improvement of the social welfare of the local population.

Sustainable development in the tourism sector significantly impacts every type of tourism, and its principles refer to social-cultural, economic, and ecological aspects. To ensure the continuity of this process, it is essential to constantly monitor these three issues:

- Social-Cultural: Preserving existing cultural heritage and traditional values, promoting intercultural exchange, and ensuring tolerance;
- Economic: Providing socio-economic benefits to the involved parties, creating a stable employment system, and contributing to poverty reduction by generating income;
- Ecological: Protecting natural resources, biodiversity, and wildlife [https://www.unwto.org/sustainable-development]

So, tourism subject attracts the attention of many researchers, who develop various theories, conduct studies, and make proposals regarding the field. The conducted research shows that the types of tourism are generally as follows:

- relaxing;
- relaxing and health care;
- visiting;
- transit;
- reduced distance;
- professional [Cornelia and Turtureanu, 2008, p.92 -94].

2.1. The Importance of Cultural-Historical and Natural Resources in the Tourism of Western Azerbaijan

Based on this, let us focus on the tourism potential of Western Azerbaijan. From the information mentioned above, it is clear that the region has a highly favorable environment for tourism. The cultural-historical and natural resources of the area play a special role in its tourism. These can be categorized as follows:

- Cultural Tourism – The region is home to numerous architectural examples and archaeological sites that prove its ancient history. Additionally, its ancient cities may attract tourists. In this regard, the cultural heritage of the region can significantly influence tourism.
- Nature Tourism – The region's geological and hydrogeological environment, as well as the diversity of its flora and fauna, could serve as the main source for the development of ecotourism. It is well known that tourism is often for relaxation, and many people seek peaceful and scenic locations to unwind. The Western Azerbaijan region is highly favorable in this aspect.
- Religious Tourism – The existing religious monuments and sacred sites in the region may attract pilgrims from different religions. This makes the region's religious landmarks an important area for tourism.
- Winter Tourism – The high mountains and climate conditions of the region can create favorable conditions for the development of winter tourism.
- Culinary Tourism – The cuisine of Western Azerbaijan is rich and unique. The global recognition of the region's dishes is a relevant issue. This could lead to the development of culinary tourism in the area, and more.

The information above shows that the cultural heritage resources of Western Azerbaijan could play an important role in various types of tourism. Other types of tourism can also be added to this list. The region's climate, clean air, and cultural assets are of great importance for tourism development.

2.2. Factors Hindering the Development of Tourism in Western Azerbaijan

Despite the rich cultural heritage of Western Azerbaijan, its development in the tourism sector is a rather difficult issue. The most important thing is that this area was once a region that reflected the national culture of Azerbaijan. Currently, the Republic of Armenia operates in the region (İsayeva, 2024, p.212-215). Some of the factors hindering the tourism sector in Western Azerbaijan are:

– Lack of Access to Historical and Cultural Sites: Many of Western Azerbaijan's historical and cultural landmarks, including ancient cities, fortresses, and religious monuments, are located in areas affected by the occupation. This restricts access to these valuable sites for research, preservation, and tourism development;

– Destruction and Neglect of Heritage Sites: The occupation has led to the destruction, neglect, and deterioration of several cultural heritage sites and historical monuments. Without proper maintenance, these sites lose their potential as tourist attractions and cultural assets, which further impacts the development of tourism;

– Security Concerns: The unresolved conflict in the region has resulted in safety concerns for potential tourists. Travelers may be reluctant to visit due to fears of instability, making the region less competitive compared to other peaceful and secure tourist destinations;

– International Isolation: Due to the political situation, Western Azerbaijan is isolated in the international tourism market. Many international tour opera-

tors and organizations avoid promoting the region, further limiting its visibility and accessibility for global tourists;

– Environmental Degradation: The occupation has led to environmental damage in some areas. The degradation of the environment reduces the appeal of eco-tourism and nature-based activities;

– Cultural and Social Displacement: The displacement of the local population and the loss of traditional cultural practices during the occupation has disrupted the social fabric of the region. The absence of local communities in some areas makes it difficult to showcase authentic cultural experiences for tourists.

In summary, the occupation of Western Azerbaijan has created multiple barriers to tourism development, including political instability, destruction of heritage sites, limited infrastructure, and economic constraints. These factors have prevented the region from realizing its full tourism potential. However, with peace and stability, efforts to overcome these challenges can pave the way for the sustainable growth of tourism in the future.

CONCLUSION

The tourism potential of Western Azerbaijan, characterized by its rich historical, cultural, and natural resources, holds tremendous promise for the region's economic and social development. However, the area's prior occupation has severely hindered the full realization of this potential. Despite these challenges, the region's unique cultural heritage, ancient landmarks, and stunning natural landscapes remain a source of immense value, not only for the local population but also for the wider tourism industry.

Historical sites such as ancient cities, fortresses, and religious monuments offer a deep connection to the past, making the region a potential hotspot for cultural tourism. Similarly, the breathtaking natural landscapes, including mountains, rivers, and forests, have the capacity to attract eco-tourists, adventurers, and nature lovers from around the world. The region's biodiversity and unspoiled environments are assets that could significantly contribute to sustainable tourism development.

In conclusion, the future of Western Azerbaijan's tourism industry remains promising. In the future, projects to be implemented in this field will not only improve the living standards of the local population but also strengthen Western Azerbaijan's position in global tourism. In this regard, the proper use of the region's cultural-historical and natural resources is crucial for both economic development and the preservation of the region's culture. With careful planning, international cooperation, and peace-building efforts, the region can one day fully unlock its tourism potential, benefiting not only the local communities but also the global tourism sector as a whole.

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STATE AND LAW

CERTAIN ELEMENTS OF THE MECHANISM FOR REALIZATION OF HUMAN RIGHTS IN PLACES OF DETENTION OF THE STATE BORDER SERVICE OF UKRAINE

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Abstract
This article is devoted to the issue of the mechanism for realization of human rights in places of detention of the State Border Guard Service of Ukraine. The author establishes that the rights of persons held in places of detention traditionally remain at high risk of violations. The closure of such institutions, limited public access, dependence of prisoners on the administration, lack of an adequate mechanism for monitoring the observance of rights - all this creates an environment where systemic abuses are possible, including inadequate conditions of detention, ill-treatment, and arbitrariness of officials. The author concludes that Ukraine, striving for membership in the European Union, should adapt its national legal system to the highest standards of human rights protection, which involves improving legislation, strengthening control and prevention mechanisms, and empowering human rights institutions such as the Ombudsman, public monitoring commissions, and international organizations. The author provides his own definition of the concept of the mechanism for the realization of human rights, in particular, it is an integral system of legal means, institutional elements and socio- legal factors that ensure the actual implementation of human rights and freedoms in public relations. It includes legal acts, law enforcement procedures, activities of public authorities, international legal guarantees, as well as social and economic conditions necessary for the effective implementation of and protection of human rights. This view is based on a combination of regulatory and protective mechanisms that ensure not only the possibility of exercising rights but also their protection in case of violation. It also takes into account the role of law enforcement entities - both the holders of rights themselves and state and non-state institutions that facilitate their implementation. Currently, there are two types of migrant detention facilities under the jurisdiction of the SBGS: temporary detention centers and special facilities. In addition to these facilities, the places of detention under the control of the SBGS also include minibuses for the transportation of offenders, where persons can be temporarily detained during transportation. Areas for transit passengers at international airports, where persons who are denied entry or awaiting a decision on their legal status may be held. Recommendations are made to improve certain mechanisms for the realization of human rights in places of detention of the SBGS.

Keywords: realization of human rights, places of detention, State Border Guard Service of Ukraine, temporary detention centers, special premises.

Statement of the problem. The study of human rights, especially the mechanisms for their realization in places of detention, is not only relevant but also vital in the current context. Ukraine is experiencing difficult challenges caused by armed aggression, reform of law enforcement and penitentiary systems, and integration into the European legal space, which requires a rethinking of approaches to ensuring human rights, including those of vulnerable groups. The rights of persons held in places of detention traditionally remain at high risk of violations. The closure of such institutions, limited public access, dependence of prisoners on the administration, lack of a proper mechanism for monitoring the observance of rights

- all this creates an environment where systemic abuses are possible, including inadequate conditions of detention, ill-treatment, and arbitrariness of officials. In the context of armed conflict, these problems are exacerbated even more, as prisoners of war, civilian hostages, and persons illegally detained in the temporarily occupied territories are added to the category of persons deprived of their liberty. The issue of their protection, documentation of violations, and international legal response is of paramount importance to the state. At the same time, Ukraine, striving for membership in the European Union, must adapt its national legal system to the highest standards of human rights protection, which involves improving legislation, strengthening control and prevention mechanisms, and empowering human rights institutions such as the Ombudsman, public monitoring commissions, and international organizations. Particular attention should be paid to the effectiveness of national remedies, as even the existence of a developed international monitoring system, such as the European Court of Human Rights, cannot replace effective domestic mechanisms. Prevention of torture, ensuring the right to proper treatment, access to legal aid and fair trial are key aspects that determine the level of democratic maturity of a state. In the context of global changes, growing authoritarian tendencies in the world, migration crises, international armed conflicts and hybrid threats, the issue of human rights protection in places of detention is becoming an indicator of the civilization of the state, its ability to adhere to the rule of law, and guarantee the rights of even those under the control of state authorities. That is why this area of research is not just relevant, it is crucial for the future of Ukraine's legal system and its place in the international community

Analysis of recent research. Scientific research

devoted to defining the essence of the concept of "place of detention" has not yet received a comprehensive and integrated study in Ukrainian legal science. At the same time, in the works of such scholars as A. I. Bogatyryova, I. G. Bogatyryova, O. M. Bandurka, V. V. Kovalenko, O. M. Dzhuzha, O. G. Kolb, M. S. Puzyrev, I. M. Kopotun, V. M. Trubnikov, M. O. Struchkov, I. V. Shmarov, A. Kh. Stepaniuk, S. I. Khalimon, I. S. Yakovets and others, highlight certain aspects of this issue, in particular, issues related to the legal status of places of detention and their correlation with the category of places of detention. In addition, the issue of ensuring human and civil rights and freedoms remains in the focus of attention of contemporary Ukrainian scholars. In particular, a significant contribution to its research was made by such scholars as V. B. Averyanov, O. F. Andriyko, V. M. Beschastnyi, O. V. Zaychuk, AP. Zayets, S. Husarev, A. Kolodiy, V. Kopeychykov, M. Kozyubra, R. Kalyuzhny, V. Kurylo, N. Onishchenko, P. Onopenko, V. Pohorilko, V. Petkov, P. Rabinovych, Y. Shemshuchenko and others. Their scientific works cover various aspects of this topic, including theoretical and legal foundations, constitutional guarantees, mechanisms for the realization and protection of human rights in Ukraine.

Summary of the main material. The term "mechanism" has several meanings. In the literal sense, it is a system of moving elements designed to transmit or convert motion. In a figurative sense, a mechanism means the internal structure and system of functioning of a certain phenomenon or process [1].

In the context of jurisprudence, a mechanism means the internal structure of a legal phenomenon, which includes interconnected elements that form a system. The legal doctrine widely uses the concepts of "mechanism of realization of law", "mechanism of ensuring human rights", "mechanism of fulfillment of constitutional duties", etc. An important aspect of the study is to clarify the essence and features of these mechanisms [2, P. 13-19].

According to M.D. Hnatiuk, the mechanism of implementation of law is a specific subsystem of legal regulation, which includes regulatory and protective means that ensure the implementation of legal norms in the actual behavior of subjects [3, P. 5, 10]. O.F. Skakun interprets the socio-legal mechanism for ensuring human rights and freedoms as a system of means and factors that create conditions for the realization of these rights [4, P. 207].

Y.M. Todika defines the mechanism of implementation of constitutional norms as a set of legal and institutional elements that ensure practical implementation of constitutional provisions [5, P. 339]. At the same time, there is literature, the authors of which consider the mechanism of rights realization through the prism of guarantees. Thus, the guarantees of human and civil rights and freedoms constitute a set of legal norms, organizational mechanisms and procedures enshrined in the Constitution and laws of Ukraine, which ensure effective realization, protection and defense of individual rights. In the constitutional and legal dimension, they are divided into regulatory and organizational guarantees. Regulatory and legal guarantees include a set of legal norms that define the procedure for the realization of rights and freedoms, mechanisms for their protection and liability for their violation. They cover constitutional principles, legal obligations of the state to citizens and the system of legal liability. Organizational and legal guarantees cover the activities of state bodies, local self-government, courts, political parties, public organizations, mass media, as well as international human rights institutions aimed at creating conditions for the full exercise of citizens' rights and freedoms [6]. O.F. Melnychuk considers the mechanism of realization of the human right to education as a complex of general social and legal means, including the activities of authorized persons, regulations, legal facts and guarantees of implementation [7, P. 27].

Taking into account the views of legal scholars on the understanding of the mechanism of human rights realization, we believe that the mechanism of human rights realization is an integral system of legal means, institutional elements and socio-legal factors that ensure the actual implementation of human rights and freedoms in public relations. It includes legal acts, law enforcement procedures, activities of public authorities, international legal guarantees, as well as social and economic conditions necessary for the effective exercise and protection of human rights. This view is based on a combination of regulatory and protective mechanisms that ensure not only the possibility of realizing rights but also their protection in case of violation. It also takes into account the role of law enforcement actors - both the holders of rights themselves and the state and non-state institutions that facilitate their implementation.

We consider it necessary, within the framework of this study, to consider certain components of the mechanism for the realization of human rights in places of detention, on the example of temporary detention centers and special premises of the State Border Guard Service of Ukraine.

In a democratic state governed by the rule of law, ensuring national security and territorial integrity is inextricably linked to the observance of human rights and freedoms. The State Border Guard Service of Ukraine (SBGS) performs a key function - protecting the state border - which necessitates certain restrictions on human rights, including the right to liberty and security of person. Such restrictions are lawful and justified if they comply with the principles of proportionality, legality and necessity in a democratic society. They are provided for by both national legislation (the Constitution of Ukraine, laws regulating border control) and international standards, in particular the European Convention on Human Rights. In particular, according to the current legislation, border guards have the right to detain persons who have violated the state border regime, to check documents and apply coercive measures in cases specified by law [8]. At the same time, such actions should be aimed exclusively at achieving the legitimate goal of ensuring the security of the state and citizens, countering illegal migration, smuggling and other threats. Thus, the activities of the State Border Guard Service combine law enforcement and human rights,

which is a necessary component of the rule of law.

The State Border Guard Service of Ukraine (SBGS) is authorized to carry out administrative detention of persons in accordance with the applicable law. This applies, in particular, to foreigners and stateless persons who have illegally crossed the state border of Ukraine and in respect of whom a decision has been made to transfer them to the competent authorities of a neighboring state. The duration of detention is determined by law and is limited to the time required to complete the relevant procedures. Persons detained under the administrative procedure must be held in specially equipped premises that meet the established standards. Currently, there are two types of migrant detention facilities under the jurisdiction of the SBGS: temporary detention centers - designed to accommodate persons who have illegally crossed the state border or violated the regime of stay in Ukraine until the issue of their return or expulsion is resolved. Special premises - used for temporary accommodation of detainees until they are transferred to the relevant competent authorities. In addition to these facilities, the places of detention under the control of the SBGS also include minibuses for the transportation of offenders, where persons may be temporarily detained during transportation. Areas for transit passengers at international airports, where persons who are denied entry or awaiting a decision on their legal status may be held [9, P. 122-125]. The functioning of such institutions is regulated by national legislation and must comply with international human rights standards, including guarantees of proper treatment of detainees and respect for their rights.

The regulatory and legal component of the mechanism for the realization of human rights in the above-mentioned places of detention is the current legislation of Ukraine, of which the Constitution of Ukraine has the highest legal force. The provisions of the Constitution of Ukraine that lay down fundamental legal guarantees for the realization of human and civil rights and freedoms include the following:

- Immutability of fundamental rights - no amendments to the Constitution may provide for their abolition or restriction.
- The duty of the state to respect and protect human rights.
- Direct effect of constitutional provisions that enshrine rights and freedoms.
- Legal liability for violations of citizens' rights for both authorities and officials.
- The right to self-defense by all legal means.
- Guarantees of legal assistance and judicial protection.
- Democratic principles of justice and ensuring humane treatment of detainees.
- Functioning of special bodies, in particular the Constitutional Court, to protect rights.
- Other guarantees arising from the democratic system of government and the state's socio-economic policy. These mechanisms form the legal basis for the realization and protection of human rights in Ukraine, ensuring stability and the rule of law [10].

Among the existing legal guarantees of human rights protection, the most important is judicial protection. The Constitution of Ukraine (part 3 of Article 8) guarantees everyone the right to go to court to protect their constitutional rights and freedoms directly on the basis of the Basic Law [10]. Citizens may appeal in court against decisions, actions or omissions of state authorities, local self-government bodies, as well as officials and employees. Since Ukraine's independence, the judicial system has undergone significant positive changes. Key laws regulating the judicial system and court proceedings, in particular, have been adopted and updated: Law of Ukraine "On the Judiciary and Status of Judges" (2016); Law of Ukraine "On Access to Court Decisions" (2005); Law of Ukraine "On the Execution of Judgments and Application of the Case Law of the European Court of Human Rights" (2006); Civil Procedure Code of Ukraine (2004); Criminal Procedure Code of Ukraine (2012); and other legal acts. Despite these reforms, judicial protection of human rights in Ukraine faces a number of problems, including: low level of public confidence in the judicial system due to delays in trials, lack of transparency of procedures and inconsistency of court decisions; corruption risks in the judicial system that undermine the efficiency and objectivity of legal proceedings; insufficient use by Ukrainian courts of the case law of the European Court of Human Rights (ECHR), which limits the effectiveness of legal protection and harmonization of national legislation with European standards [11, P. 31]. Improvement of the situation requires further reforms aimed at strengthening the independence of judges, ensuring proper financing of the judicial system, raising the legal culture of the population and more active implementation of ECHR judgments in judicial practice.

An important element of the national mechanism for the realization of human rights in places of detention of the SBGS is the work of the Ukrainian Parliament Commissioner for Human Rights, which operates within the framework of the National Preventive Mechanism.

The Ukrainian Parliament Commissioner for Human Rights plays a key role in monitoring the observance of human rights, especially in places of detention. His right to freely visit such institutions provides an effective mechanism for monitoring the conditions of detention, compliance with the law and protection of their rights.

Given the wide range of places subject to inspection, the Commissioner's activities are aimed not only at combating violations of the rights of detained or convicted persons, but also at protecting the rights of children, persons with disabilities, the elderly and other vulnerable groups. This ensures transparency of the activities of state bodies and promotes the implementation of European human rights standards in Ukraine. The Ukrainian Parliament Commissioner for Human Rights has broad powers to protect human and civil rights and freedoms. In accordance with the procedure established by law, he/she has the right to apply to the court in the interests of persons who, due

to their physical condition, underage, old age, incapacity or limited capacity, are unable to protect their rights and freedoms on their own. The Commissioner may participate in court proceedings initiated by his/her claims, applications or petitions, as well as enter into court proceedings at any stage of their consideration if they are initiated by other persons. In addition, he has the right to initiate a review of court decisions regardless of his participation in the proceedings. Such powers ensure effective control over the observance of human rights and freedoms in Ukraine and contribute to the formation of a state governed by the rule of law, where judicial protection of every citizen is guaranteed [12].

Given the importance of this element of the mechanism, we believe it needs to be improved. In order to improve the activities of the Ukrainian Parliament Commissioner for Human Rights within the mechanism for the realization of human rights in places of detention, comprehensive changes should be introduced to improve the effectiveness of monitoring, ensure the independence of the institution and strengthen the mechanisms for responding to human rights violations. First, the institutional capacity of the Ombudsperson should be expanded by creating specialized units focusing on different categories of places of detention, including penitentiary institutions, pre-trial detention centers, special facilities for migrants, psychiatric institutions and children's boarding schools. This will allow for a more in-depth analysis of the conditions of detention and identification of systemic problems. Secondly, it is necessary to strengthen the independence of monitoring visits by expanding the access of civil society organizations to inspect places of detention together with representatives of the Ombudsperson. Such a mechanism will help to increase transparency and reduce the risks of inaccurate coverage of the real situation. Thirdly, it is necessary to enshrine in law the mandatory implementation of the Commissioner's recommendations by state and local authorities. Currently, such recommendations are mostly advisory in nature, which often leads to their ignoring. The introduction of enforcement mechanisms, for example, by imposing administrative liability for failure to comply with the Commissioner's instructions, will help to have a real impact on the situation in places of detention. Fifthly, an important aspect is to strengthen the protection of whistleblowers of human rights violations in places of detention, including staff of institutions and detainees themselves. The introduction of anonymous complaint mechanisms with a guarantee of protection from harassment will be an important step in this direction. In general, effective reform of the mechanism of realization of human rights in places of detention is possible only with a comprehensive approach that combines strengthening the powers of the Ombudsperson, improving legislative regulation and ensuring real impact on the human rights protection processes.

The European Convention for the Protection of Human Rights and Fundamental Freedoms and the case law of the European Court of Human Rights play a key role in the mechanism of realization of human rights in places of detention of the SBGS. The application of the provisions of the European Convention on Human Rights and the case law of the European Court of Human Rights is of great importance for Ukraine, its authorities and citizens. Since the country has chosen the path of European integration, is seeking to join the European Union, is strengthening its international authority and reinforcing the principles of the rule of law both domestically and internationally, this requires strict compliance with the ECHR and the implementation of the ECtHR judgments. In this context, it is important to determine the place of the ECHR in the national legal order. According to Article 9 of the Constitution of Ukraine, international treaties ratified by the Verkhovna Rada of Ukraine are part of national legislation [10]. As the Verkhovna Rada of Ukraine ratified the "Convention for the Protection of Human Rights and Fundamental Freedoms of 1950 and its Protocols", the provisions of the ECHR became part of national legislation [13]. In addition, according to Article 19 of the Law of Ukraine "On International Treaties of Ukraine", international treaties ratified by the Verkhovna Rada are part of national legislation and are applied in the same way as domestic law [14]. It is important to note that if an international treaty ratified by Ukraine provides for different rules than national legislation, the rules of the international treaty shall apply, which gives it greater legal force [14].

ECHR case law is also important for the national legal system. According to Article 17 of the Law of Ukraine "On the Execution of Judgments and Application of the Case Law of the European Court of Human Rights", courts are obliged to apply the ECHR case law as a source of law when deciding cases related to the ECHR [15]. Article 5 of this law also provides that central executive authorities shall monitor compliance with administrative practice that is consistent with the ECHR and the case law of the ECtHR [15]. Also, Article 32 of the ECHR states that the jurisdiction of the ECtHR extends to all questions of interpretation and application of the ECHR and its protocols submitted for examination under Articles 33, 34, 46 and 47 [16]. The problematic issue with the effectiveness of this element is, of course, that the very fact of applying to the ECtHR indicates human rights violations, including in places of detention [17]. In addition, a significant part of the ECHR judgments are not implemented by Ukraine, which indicates systemic gaps in the protection of human rights in places of detention [18].

Conclusions. Having carried out this study, we have come to the conclusion that the mechanism for the realization of human rights in places of detention, in particular in the context of the activities of the State Border Guard Service of Ukraine (SBGS), is extremely important for ensuring the dignity and rights of all persons under state control. The effective realization of human rights in such conditions guarantees compliance with the standards set forth in international agreements, in particular the European Convention on Human Rights, and ensures the prevention of violations of the rights of detainees. The importance of such a mechanism lies in the fact that it contributes to maintaining the rule of law, strengthening trust in public authorities and ensuring Ukraine's international

image as a state governed by the rule of law. Taking human rights into account in places of detention is also an important component of reforming Ukraine's legal system to meet European standards and facilitate integration into the European community. Of course, we have analyzed only certain elements of the mechanism for realizing human rights in places of detention of the SBGS, but this made it possible to talk about the imperfection of such mechanisms and pointed to the need to improve them.

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