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THE ROLE OF PERSONALIZATION IN BUSINESS PROMOTION

Student **Mikhailova Kristina Maksimovna,**
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Abstract. The article analyzes the importance of a personalized approach in business promotion. The author considers a method of promotion that will significantly improve the qualitative and quantitative results of advertising campaigns, as well as reduce the cost of promotion and increase the number of conversions to purchase.

Keywords: personalized approach, targeted advertising, contextual advertising, information and communication technologies, segmentation of the target audience, social networks.

РОЛЬ ПЕРСОНАЛИЗАЦИИ В ПРОДВИЖЕНИИ БИЗНЕСА

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Аннотация. В статье анализируется значение персонализированного подхода в продвижении бизнеса. Автор рассматривает способ продвижения, который поможет в значительной степени улучшить качественные и количественные результаты рекламных кампаний, а также снизить затраты на продвижение и увеличить количество конверсий в покупку.

Ключевые слова: персонализированный подход, таргетированная реклама, контекстная реклама, информационно-коммуникационные технологии, сегментация целевой аудитории, социальные сети.

Today information and communication technologies play a huge role in the development and promotion of business. In 2020, due to the pandemic, serious restrictions were imposed on business, which led to the inability of most companies to work offline. Entrepreneurs had to look for a way to resume work. And the only way to continue the activity was the transition to a digital environment. However there have already been companies in the Internet space that have managed to prove themselves among users. And the massive transition of business to the digital

environment has led to serious and quite fierce competition [1, p. 33]. The overabundance of information and advertising integrations on the Internet has greatly complicated the promotion of companies, as users have become more selective in responding to published content and advertising offers [2, p. 230-234]. Moreover, the abundance of advertisements has led to a negative attitude towards advertising campaigns.

Not so long ago it was not so difficult to advance on the Internet. It was enough for companies to create their own website or social media account, and launch contextual or targeted advertising to a wide audience. This method of promotion did not require additional research and segmentation of the target audience, however, it still worked, bringing subscribers and customers. However, this approach no longer brings the same results, and advertising campaigns launched for a wide audience are ineffective, and conversions are expensive.

The decrease in the effectiveness of promotion in the digital space has led to the emergence of a new personalized approach in advertising. Personalized offers are individual offers prepared by the business for each segment of the target audience. This approach is quite different from the traditional approach in advertising. In the traditional approach, the business first created trade offers, and only then looked for people who would be interested in the company's offers. This approach was quite expensive for entrepreneurs, since proposals created without taking into account the interests of potential customers did not evoke a response from the audience. Consequently, most users, having seen such an advertisement, simply passed by. In a personalized approach, the business proceeds from the needs and needs of customers. A personalized approach includes all kinds of studies of the behavior, needs and values of potential customers. Research, data collection and analysis allow companies to create individual and unique trading offers aimed at a specific user. This approach allows you to get new customers as profitably as possible and retain existing ones. Also, companies using personalized advertising earn more, since 80 % of consumers are more likely to buy from a company that creates customized advertising offers [3]. Personalization also reduces the cost of attracting new customers by 50 % and increases the payback of promotion by 10-30 % [4].

An important aspect in the formation of personalized advertising offers is the availability of user data. Without data, it is almost impossible to create a working personalized offer. To get user data, you should install a Yandex.Metrica or Google Analytics counter on the company's website. These counters record visits to the site, viewing depth, and time on the site. Data can also be taken from CRM systems. The necessary data can be obtained from the customers themselves, and in return offer some kind of bonus. A nice bonus can be a lead magnet or a discount on the purchase. At the stage of data collection, various surveys, questionnaires, in-depth interviews and a number of other studies should also be conducted. The highest efficiency is shown by an in-depth interview, which allows you to create a clear

psychological portrait of the client, identify his problems, fears and motives. After the data is collected, it is worth starting to analyze them.

First of all, quantitative and qualitative indicators obtained through research are evaluated, and then a deeper analysis is carried out to clarify the underlying causes and motives that guide the consumer. For a more accurate analysis, it is worth attracting sociologists or psychologists who will be able to form a deeper psychological portrait of various segments of the target audience. The information received should be systematized and proceed to the final stage – the formation of a unique trade offer, taking into account the collected and analyzed data [5, p. 169-173]. For each segment of the target audience, it is worth using different advertising layouts, texts and contextual or targeted advertising settings. Since the layout and text must fully respond to the consumer, advertising should focus on the needs of the target audience, as well as close the objections and fears of a particular segment [6, c. 153].

Personalized advertising does not irritate users. Competently configured contextual or targeted advertising, on the contrary, is perceived positively, as it is able to meet the needs of customers. Thus, if a person is engaged in repairing his apartment, he will be happy to advertise a sale in a hardware store. Such advertising not only solves the consumer's request, but also gives him the opportunity to save money. Consequently, the chance that he will buy building materials in this particular store increases significantly.

Personalization can be used in any advertising campaigns. However, the personalized approach shows the greatest effectiveness in digital promotion. Social networks and search engines store data about their users. They analyze a person's interests, behavior, place of residence, marital status, hobbies, how he reacts to advertisements and much more. Also, this data is constantly updated, allowing the business to show advertisements exactly when they will be relevant to a particular user. Thus, competent settings and a personalized approach will help to achieve the best results with minimal costs for promotion.

Even if the client has not bought, but has already visited the company's website, it is worth setting up retargeting. For example, retargeting can be configured for users who visited the site and even added an item to the cart, but did not pay. So advertising will haunt them and return them to the site until they make a purchase. Retargeting is a vivid example of personalization, since the user will see ads for exactly those products that he recently viewed on the site.

A personalized approach should be used not only in advertisements, but also in published content, newsletters and trade offers. Personalized content published in the company's blog is able to close the objections of a certain segment of the target audience, show the value of the product and solve the consumer's problem. You should publish content that affects all segments of the company's target audience.

However, one particular publication should be personalized and affect only one category of customers.

Personalized email and SMS newsletters significantly increase the conversion rate. Quite often, the buyer, leaving his data, automatically subscribes himself to the newsletter. But it is unlikely that he is interested in absolutely all the company's offers. For example, a girl who bought a dress in a store will not be interested in clothing offers for men. Most likely, after several such messages, she will simply cancel her subscription to the newsletter and it will be more difficult for the company to return it. Thus, the buyer will perceive frequent non-personalized mailings as spam, and his attitude towards the company will change for the worse. To prevent this from happening, you can make a welcome letter for the buyer, in which he will be able to choose the content, discounts and promotions that interest him. If the company's client sees offers that match his requests, he is more likely to take advantage of this offer and purchase the product. Since people pay attention to those messages that carry valuable information and benefits for them, and uninteresting offers are simply deleted. Often companies have to pay for mailing lists and each letter or message has its own cost. If the mailing list does not carry a personalized character, then the company will lose money on mailing lists for nothing. If the newsletter is personalized, then the payback of messages will be quite high.

Personalization of trade offers also increases their effectiveness. A good example of such personalization is the supermarket Crossroads. Perekrestok made it so that in order for the company's client to receive special offers, he needs to register on the website, choose the city of residence and the desired store. Based on this data, the company will show trading offers taking into account the interests and place of residence of users. The main task that the company set for itself was to create special offers in stores at the home of each individual buyer.

To summarize, there are four steps to prepare for the creation of a personalized offer:
– Collecting data about customers and potential customers:
– Audience segmentation;
– Creating a portrait of each consumer segment;
– Selection of tools for personalization.

It is worth collecting all kinds of data using special services and marketing research. This helps to identify the needs and needs of buyers. After data collection, the second step comes – audience segmentation. Segmentation involves dividing customers into groups according to certain criteria. The signs for segmentation should be chosen depending on the business. Next, you need to create portraits of clients. To do this, it is worth taking into account their habits, behavior, characteristics and interests. The final stage is the selection of tools for creating personalized offers. The tools can be the company's website, social networks, targeted advertising, contextual advertising and mailing lists.

When choosing personalization tools, age should also be taken into account, since the older generation responds better to mailings and perceives advertising on the Internet worse. Young people, on the contrary, perceive advertisements created with the help of targeted or contextual advertising better than mailing lists. Since mail and sms mailings will be perceived by most young people as spam. For effective promotion, it is important to take into account such features, otherwise it can negatively affect not only the promotion of the company, but also the level of consumer loyalty to it. Therefore, by paying due attention to the selection of personalization tools, the company will be able not only to reduce the cost of conversions and increase the effectiveness of promotion, but also to influence the loyalty of its customers.

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EAST ASIAN BORROWINGS IN THE ENGLISH LANGUAGE AS A RESULT OF SOCIOCULTURAL INTERACTION

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Abstract. The article presents the results of a linguoculturological study aimed at studying the emergence of East Asian borrowings in the English language and their influence on it on the example of Chinese, Japanese and Korean languages. Modern English explanatory dictionaries are analyzed, and borrowed words are classified according to the subject and methods of borrowing. This study examines the main historical events in the world that influenced the lexical composition of modern English.

Keywords: East Asian languages, borrowings, linguistics, assimilation, lexical structure.

ВОСТОЧНОАЗИАТСКИЕ ЗАИМСТВОВАНИЯ В АНГЛИЙСКОМ ЯЗЫКЕ КАК РЕЗУЛЬТАТ СОЦИОКУЛЬТУРНОГО ВЗАИМОДЕЙСТВИЯ

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Аннотация. В статье представлены результаты лингвокультурологического исследования, направленного на изучение появления восточноазиатских заимствований в английском языке, и их влияние на него на примере китайского, японского и корейского языков. Проанализированы современные английские толковые словари, а также классифицированы заимствованные слова в соответствии с тематикой и способами заимствования. В данном исследовании рассмотрены основные исторические события в мире, повлиявшие на лексический состав современного английского языка.

Ключевые слова: восточноазиатские языки, заимствования, лингвокультурология, ассимиляция, лексический состав.

Modern English has about 70 % of borrowings. This is caused by the active foreign policy of England throughout its history. Numerous wars and colonizations,

as well as the development of foreign economic and sociocultural relations, largely determined the lexical composition of the modern English language. In the most authoritative English explanatory dictionaries, one can find examples not only of borrowings from Western languages (their appearance is explained by the fact that these languages belong to the Indo-European family), but also from Eastern ones, that is rather unusual due to differences in culture, mentality and language structure. Borrowings from East Asian languages are only 15 % of all borrowings. According to the Oxford English Dictionary, Japanese comes first with 366 words, followed by Chinese with 259 words and then Korean with 11 words. This situation is conditioned by phonetic, graphic and grammatical features of the languages, as well as the relative isolation of the eastern countries at certain stages of their development. Delving into the historiography of China and England, one can find information that the first Chinese borrowings in English appeared more than a thousand years ago. Evidence can be found in the Oxford English Dictionary. In 888, the phonetically modified Chinese word "silk" 絲 (丝) sī on the well-known Silk Road "silk road" 絲綢之路 sīchóu zhī lù [1, p. 17].

However, a more massive penetration of Chinese words into Western civilization occurs much later. This process begins during the reign of the Ming Dynasty in the 17th century due to the beginning of trade exchanges with the West. Further spread occurred during the Qing Dynasty, especially after the Opium Wars and the forced opening of China by the West. At that time, traders, sailors, immigrants, colonists and settlers mainly contributed to the spread of Chinese lexical units. The main waves of mass penetration of borrowings were: the mass emigration of Chinese to Canada, the USA and the countries of Western Europe after the end of the Second World War and the formation of the PRC in 1949, the "policy of reform and openness to the outside world" and the subsequent sending of students, scientists and workers to internships abroad, as well as the return of Hong Kong and Macau back to mainland China. In addition to these events, we cannot underestimate the importance of the increasing influence of the media, Internet resources, advertising, business, and tourism [2, p. 129]. As it has been mentioned earlier, the number of Chinese loanwords is not large, the Oxford English Dictionary data contains only 259 words [3, 15]. Despite this fact, Chinese takes the second position in the number of borrowings among the oriental languages with hieroglyphic writing. However, studies show that the number of words actually used at the moment is much less – about 100. Many words are no longer considered borrowed and are actively used by English-speaking people, for example: "kowtow" 磕头 kē tóu "humiliate", "make to grovel", "gung ho" 工和 gōng hé "mindlessly enthusiastic and impatient, especially with regard to participation in combat actions or wars"; "guanxi" 关系 guānxì "a Chinese system of social networks and influential connections that facilitate business and other relationships" [4].

Let us consider in more detail the ways of borrowing Chinese words into English:

1. Phonetic borrowings – transliteration
2. Semantic borrowings – semantic translation
3. Parallel phonetic and semantic borrowings

4. Mixed borrowings.

Let us review these methods with specific examples:

1. "Confucius" 孔夫子 Kǒng fūzǐ "Confucius"; "ganbei" or "canpei" 干杯 gānbēi "dry glass", i. e. "to the bottom"; "ganbu" 干部 gànbù "frames"; "Kungfu" 功夫 gōngfū "Kungfu"; "mahjong" 麻将 májiàng "mahjong";

2. "acupuncture" 针灸 zhēnjiǔ "acupuncture"; "capitalist-roader" 走资派 zǒu zī pài "walking on the capitalist path"; "chinaware" 中国瓷器 zhōngguó cíqì "Chinese porcelain"; "chopsticks" 筷子 kuàizi "chopsticks"; "family planners" 计划生育工作者 jìhuà shēngyù gōngzuò zhě "family planning worker"; "fire-cracker" 爆竹 bàozhú "fireworks"; "silkworm" 蚕 cán "silkworm";

3. "bean curd" or "tofu" 豆腐 dòufu "bean curd" or "toufu";

4. In this method, there is a combination of a proper name and a semantic form of the phenomenon it defines ("Beijing opera" 京剧 Jīngjù "Beijing Opera"), a proper name and a phonetic form of borrowing for the object being defined ("longjing tea" 龙井 lóngjǐng "Longjing tea"), a proper name and a suffix ("Maoist" 毛泽东思想的追随者 Máo Zédōng sīxiǎng de zhuīsuí zhě "Maoists"), as well as duplication of phonetic borrowing by repeating the name of a similar object from the recipient language ("suona horn" 唢呐 suǒnà "Chinese oboe" "sona"). Classifying Chinese borrowings according to the semantic component, one can note the fact that these are mostly words that have no analogues in the English language. They can be divided into the following categories:

1. Clothing: "cheongsam" 長衫 zhǎng shān "long traditional Chinese dress"; "dudou" 肚兜 dùdōu "traditional Chinese apron";

2. Food: "Beijing duck" or "Peking duck" 北京烤鸭 běijīng kǎoyā "Peking duck"; "bok choy" [bɒk ˈtʃɔɪ] or [bäk ˈchoi] 白菜 báicài "Chinese cabbage";

3. Crockery: "china" 陶器 táoqì "clay/chinaware"; "chopsticks" 筷子 kuàizi "chopsticks"; "wok" 鑊 huò "pot with a convex uniformly rounded bottom";

4. Culture and art: "mandarin" 官话 guānhuà "Chinese state language"; "I Ching" 易经 yìjīng "Book of Changes";

5. Politics: "yamen" 衙门 yámén "government institutions"; "running dogs" 走狗 zǒugǒu "lackeys" and many others [5].

Thus, we can conclude that the percentage of borrowings from Chinese to English is extremely small, judging by the reasons mentioned above. Many Western researchers believe that a bright spread of this phenomenon (as in the previous two centuries) is not expected in the future, since all the necessary vocabulary from the events of past years has already been borrowed and actively used. However, Chinese linguists believe that the process of interpenetration of Chinese and English is only gaining momentum. Whether this point of view has a place to be or is it just theories that have a brightly propagandistic coloring, so far it is not possible to determine exactly.

The first borrowings from Japanese appeared in English at the beginning of the 16th century. However, a larger penetration of Japanese words into the Indo-European languages occurred only in the middle of the 19th century, when the isolation of Japan, which had been lasting more than 200 years, ended. In the second half of the 20th century, Japanese popular culture began to spread around the world, which led to the emergence of new borrowings.

As it has been mentioned earlier, among the oriental languages, Japanese ranks first in terms of the number of borrowings in English. However, their number is still much smaller than the number of borrowings from Western languages that have a similar writing system. This is explained by the presence of three writing systems (two syllabic alphabets: hiragana and katakana, as well as a system of kanji hieroglyphs) in the Japanese language [6, p. 169].

Assimilation of Japanese borrowings either occurs partially or does not occur at all. This is primarily due to differences in phonetics and grammar of the languages.

The following groups of borrowings from the Japanese language can be distinguished:

1. Art (traditional and modern): "anime" アニメ "Japanese animation", "bonsai" 盆栽 "art of growing a replica of a real (sometimes bonsai) tree in miniature", "ikebana" 生花 "traditional Japanese art of arranging cut flowers and shoots in special vessels, as well as the art of placing these compositions in the interior correctly", "kabuki" 歌舞伎 "traditional Japanese theater", "karaoke" カラオケ "entertainment consisting in non-professional singing with or without an electronic device, allowing you to sing to a pre-recorded music", "manga" まんが "Japanese comics".

2. Clothing: "kimono" 着物 "traditional Japanese clothing", "yukata" 浴衣 "light summer kimono".

3. Cooking: "bento" 弁当 "one-serve packaged food", "mochi" 餅 "Japanese rice dough, as well as cakes made from it", "sake" 酒 – "traditional Japanese alcoholic drink", "sushi" 鮨/鮓/寿司 "a dish of traditional Japanese cuisine made with vinegared rice and various seafood, among other ingredients."

4. Economics, business and politics: "kaizen" 改善 "Japanese philosophy or practice that focuses on the continuous improvement of production, development, supporting business processes and management, as well as all aspects of life", "karoshi" 過労死 "death by reworking", daimyo 大名 "the largest military feudal lords of medieval Japan", "shogun" 将軍 "military dictators who ruled Japan most of the time from 1192 until the Meiji Restoration".

5. Martial arts and weapons: "karate" 空手 "Japanese martial art, defense and attack system", "samurai" 侍 /士 "representative of the military feudal class of petty nobles".

Borrowings from the Korean language are few in number. This is primarily caused by the fact that Korea at different periods of its history was dependent on China and Japan. However, due to the abrupt increase in the popularity of Korean culture in recent years, we can talk about the beginning of a new wave of borrowings. However, many of them have not yet been included in modern English dictionaries [7, p. 102].

Korean borrowings can be combined into several large groups:

1. Economy and state: "chaebol" 재벌 "a conglomerate, which is a group of formally independent firms owned by certain families and under common administrative and financial control", "won" 원 "national currency of South and North Korea".

2. Martial arts: "hapkido" 합기도 "Korean martial art", "taekwondo" 태권도 "Korean martial art".

3. Cooking: "kimchi" 김치 "a dish of spicy pickled vegetables, primarily Chinese cabbage", "soju" 소주 "traditional Korean alcoholic beverage".

4. Clothes: "hanbok" 한복 "traditional Korean costume".

5. Modern popular culture: "manhwa" 만화 "Korean comics", "mukbang" 먹방 "a form of video blogging that broadcasts eating large amounts of food."

Thus, we can conclude that, despite a relatively small proportion of all borrowings in the English language, East Asian borrowings are certainly indispensable, as they denote unique cultural and historical phenomena and have no analogues in the English language.

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TOOL LIFE ANALYSIS DEPENDING ON CUTTING MODES

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Abstract. Vibration measurement is one of the most used indirect methods of monitoring the condition of the instrument. The characteristics of the vibration signal may be affected by the length of the departure. In order to achieve the best overall processing results, tool overhang should be maintained at a minimum level. Depending on the geometry of the surface to be processed, a longer tool reach may be required, in situations such as the internal turning process. This article analyzes the relationship between the departure of the instrument and the vibration provided.

Keywords: tool life, vibration, condition monitoring, cutting tool, lathe.

АНАЛИЗ СТОЙКОСТИ ИНСТРУМЕНТА В ЗАВИСИМОСТИ ОТ РЕЖИМОВ РЕЗКИ

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Аннотация. Измерение вибрации является одним из наиболее используемых косвенных методов контроля состояния инструмента. На характеристики сигнала вибрации может влиять длина вылета резца. Для достижения наилучших общих результатов обработки вылет инструмента должен поддерживаться на минимальном уровне. В зависимости от геометрии обрабатываемой поверхности может потребоваться более длинный вылет инструмента в таких ситуациях, как процесс внутренней токарной обработки. В данной статье приведен анализ отношения между вылетом инструмента и оказываемой вибрацией.

Ключевые слова: стойкость инструмента, вибрация, контроль состояния, режущий инструмент, токарный станок.

The processing of workpieces on lathes is accompanied by vibrations, which lead to inaccuracies in processing. Such inaccuracies can lead to a discrepancy between the dimensions of the product and the required value, strong surface roughness of the product (Figure 1), rapid wear of the cutting tool or its failure. To

combat the influence of vibrations on the processing process, vibration sensors are used [1, p. 247].
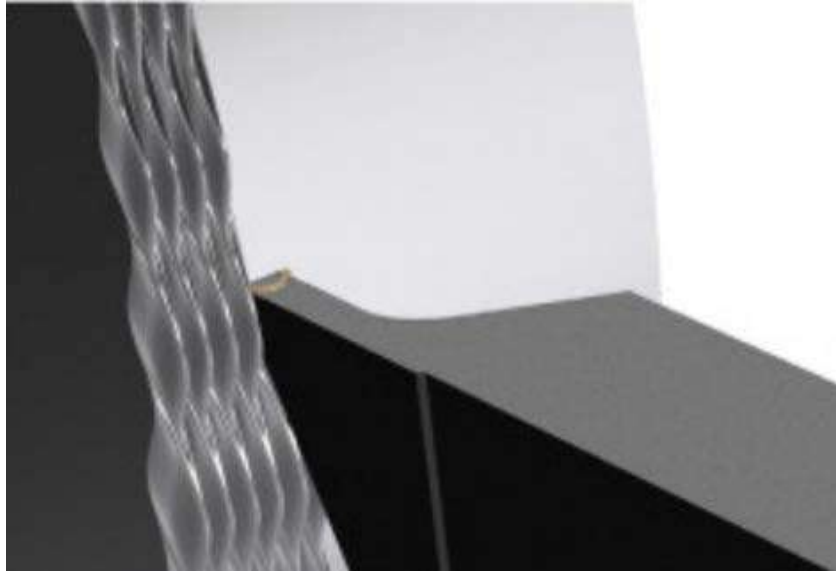
Figure 1. Influence of vibrations on the treated surface

There are several types of sensors and signal processing methods, such as optical vibrometer and piezoelectric vibrometer, to directly or indirectly detect tool wear or breakage and detect vibration during machining. An optical vibrometer is a device that usually contains a laser radiation source, an optical receiving circuit, and a signal processing electronic circuit. The laser and the receiving optical circuit are installed at the extreme line of the workpiece. When an object moves along the radiation axis, that is, when vibrations appear, a pulsating light is received by the receiver, these pulsations after processing provide information about the speed, direction and magnitude of vibrations. The piezoelectric vibrometer is based on the piezoelectric effect – the occurrence of a potential difference on a piezoelectric crystal during mechanical deformation. Inside the sensor there is an inert body, which is suspended from the body on elastic elements made of a piezoelectric material. When vibration occurs on the sensor, the elastic elements register vibrations of an inert body. A piezoelectric vibrometer is capable of determining the frequency and amplitude of vibration [2].

Vibration measurement is one of the indirect methods for monitoring tool condition. The process of metal cutting can entail three different types of mechanical vibrations that arise due to the lack of dynamic rigidity of one or more elements of the system as part of the machine tool, the workpiece chuck, the toolholder-cutter and the workpiece. These three types of vibrations are known as free vibrations, forced vibrations and self-oscillations. The nature of the vibration signal that occurs during the cutting of metal is such that it includes aspects of free, forced, periodic or random types of vibration. Several machining variables such as cutting speed, depth of cut, feed rate, workpiece material and cutting tool geometry have a significant impact on the machining process and vibration [3]. Tool overhang is also a machining parameter in the turning process that has a significant impact on metal cutting. Tool overhang is

defined as the distance the tool protrudes from the end of the tool holder. Overhang is a variable that can be used to tune the turning process and affects the characteristics of the vibration signal that is used to monitor the condition of the tool. Any change in the length of the overhang during processing must be accompanied by a change in the length of the overhang in the sensor signal processor.

Consider the types of vibrations of machine tools: free or temporary vibrations caused by impact, such as impulses transmitted to the machine structure or from the initial inclusion of cutting tools [4]; forced vibrations resulting from the action of periodic forces within the system, such as imbalance defects in machine components (such as gears, spindles and bearings) and vibration transmitted through the foundation from other mechanisms in the shop; self-excited vibrational oscillations, usually due to the dynamic instability of the cutting process (such as cutting with high tool engagement), are still not fully understood due to their complex nature, they are the most detrimental to any machining process. Free and forced vibrations can be easily identified and vibration sources can be removed, but rattle vibrations are more difficult to control. It is important to suppress machine structure vibrations, as their presence leads to poor surface quality, unacceptable inaccuracies, tool wear and machine damage. As a rule, vibration occurs due to insufficient rigidity of the tool in the direction of the tool holder or in the normal direction. Indeed, the most common cases presented in the literature are usually associated with operations in which the tool vibrates in the feed direction (type A vibrations). However, there is another type of vibration (vibration type B) where the cutting edge vibrates parallel to the cutting speed direction or a component in that direction. Type A vibration occurs for short overhangs, typically in the radial direction, while Type B vibration occurs for long tool overhangs.

Tool overhang should be kept to a minimum for best machining results, however longer tool overhang may be required depending on workpiece geometry and in situations such as internal turning. Long reach increases vibration. An increase in vibration of the cutting tool due to an increase in tool overhang will lead to an increase in the unevenness of the surface texture of the workpiece and a decrease in tool life and productivity of the turning process. The surface roughness of the workpiece is proportional to the acceleration of the cutting tool. The cutting tool can be considered as a cantilever beam [5, p. 90]. In cantilever beams, the deflection (Figure 2), which is calculated from the equation, is a function of the length of the overhang:

$$\delta = -\frac{F_c L^3}{3EI}.$$

Here Fc is the cutting force, L is the overhang of the tool, E is the modulus of elasticity, and I is the moment of inertia.
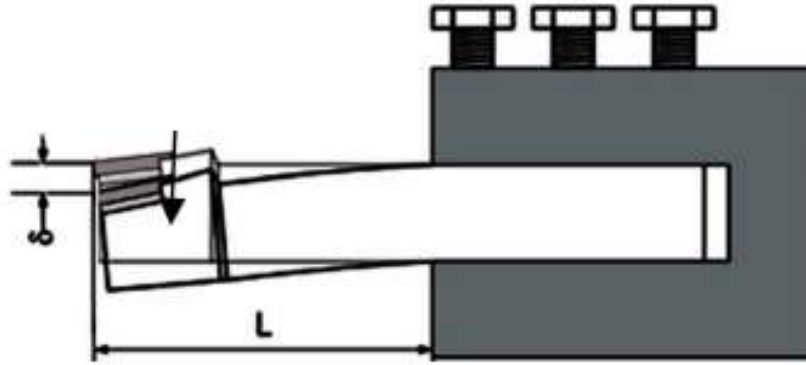
Figure 2. Deflection of the tool holder due to shear force

It can be seen from the Figure 2 that deflection is a function of the overhang length of the cantilever beams, so a small change in overhang length can significantly change the deflection and vibration propensity. The tool holder is also subjected to bending moment and torque. Since the cutting force is not applied along the axis of symmetry, the overhang length function cannot accurately represent the actual deflection. To determine tool tip displacement, the effects of bending moment and torque impulse are more accurately taken into account. While the modulus of elasticity can easily be derived from a function of the overhang length, the dynamic factor is the real key to more accurately determining holder deflection. In vibration due to the tangential mode of the tool, the stability of the system is determined by the modulus of elasticity, which differs markedly from its static value. For this reason, the dimensionless parameter v is used, which affects not only the dynamic characteristics of the system, but also the cutting geometry of the tool and has a decisive influence on the chip thickness. Indeed, this parameter is calculated from the modal stiffness κ and natural frequency ω_n of the system, the cutting factor κ_{cy}, the engagement of the cutting edge during machining b and the vibration frequency ω:

$$v = \frac{k}{k_{cy}b}\left[\left(\frac{\omega_c}{\omega_n}\right)^2 - 1\right].$$

While it is important to evaluate tool deflections due to increased tool overhang, it is also necessary to investigate how increased tool overhang affects vibration and cutting stability.

There are several characteristics of the signals that have been extracted from the signals to monitor the condition of the tool. The most common characteristics are the statistics in the time domain, the amplitude of the dominant spectral peaks, the signal power in certain frequency bands, the energy in the frequency bands, the statistical characteristics of the power spectrum of the band, such as the average frequency, dispersion, frequency of the highest peak of the spectrum, short-time Fourier transform.

According to the results of the analysis, the peak, maximum-minimum and rms vibration signal levels increase with increasing tool overhang. The effects of vibration on the machining process are similar to working on a worn tool, so changing the

length of the shoulder during machining can mislead the decision-making process of the tool condition monitoring system. It can be concluded that the characteristics of the vibration signal in the tangential direction are strongly affected by the length of the protrusion. On the surface of the workpiece, the influence of vibrations resulting from an increase in tool overhang is clearly visible.

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PHILOSOPICAL ASPECTS OF COUNTERCULTURAL OPPOSITIONS IN "FEAR AND LOATHING IN LAS VEGAS" BY H. THOMPSON

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Abstract. This paper describes philosophical aspects of the American counterculture of the 1960-s and early 1970-s and offers an interpretation of the novel by H. Thompson as an embodiment of the youth protest of the time.

Keywords: counterculture, T. Roszak, gonzo journalism, consumer society, American dream.

ФИЛОСОФСКИЕ АСПЕКТЫ ОППОЗИЦИЙ КОНТРКУЛЬТУРЫ В РОМАНЕ Х. ТОМПСОНА «СТРАХ И ОТВРАЩЕНИЕ В ЛАС-ВЕГАСЕ»

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Аннотация. В статье рассматривается эволюция некоторых философских аспектов американской контркультуры 1950-60-х г., в частности, изменение представления об американской мечте, воплощенное Х. Томпсоном в анализируемом романе.

Ключевые слова: контркультура, Т. Рошак, гонзо-журналистика, общество потребления, американская мечта.

The expression "counter culture" was introduced into use by an American philosopher and academic T. Roszak to describe the trends that became widespread in the United States in the post-war decades. Young people who did not know the hardships of the Great Depression and did not want to put up with the unjust structure of society began to show discontent and criticize the puritan values of the 40s and 50s. The Beat movement, represented by William Burroughs, Jack Kerouac and Allen Ginsberg, offered young people an alternative in the form of diverse social

experimentation. "This was a generation raised on *MAD* magazine and Catcher in the Rye. They had been taught that their parents' way of life was laughingstock…By the late fifties, colder members of this generation in identity crisis had already decided that Beatnik poets and Greenwich Village folksingers were better role models than fathers who had sold their souls to General Motors or mothers who racked their brains all day to bake a better biscuit" [1, p. 24]. The counterculture movement included virtually every manifestation of mid-20th century independence, from communal hippies to the ever-roaming Hell's Angels motorcycle gang. Anyone who did not want to submit to the traditional values of capitalist America could be considered a part of counterculture of that time. "Permissiveness was not the cultural property of the young alone…Age-old repressions were being gleefully stripped away. Censorship was vanishing, and sexual shame, always among the main levels of social control, was rapidly going out of style" [1, p. 24].

Not only did the counterculture deny the institutions of pre-war America, but also offered its own. The central idea of that generation became self-discovery, and numerous ways of achieving it were offered. Many members of the movement showed an interest in spiritual practices (Buddhism, Native American religions), called for sexual liberation and alternative lifestyles, for example, in communes. And almost everyone experimented with hallucinogens, trying to "peek behind the doors of perception".

The end of the 60s and the beginning of the 70s can be considered as the peak of counterculture activity in the United States, when the movement seemed to have gained real political weight. However, when George McGovern, who was supported by the followers of the counterculture, lost to Richard Nixon in the 1972 presidential election, it became clear that the ideas of that movement were far from the interests of the common man.

It is difficult to determine the exact time of the definitive death of the counterculture. For some, it is still alive and thriving, having been reborn a hundred times and finding echoes in the current "society outcasts". But one thing could be said for certain – this is no longer the counterculture that once united Burroughs, Kerouac and Ginsberg.

The appearance of the movie "Up in smoke" in the American box office on September 15, 1978, can be considered as evidence that the counterculture has deteriorated and became a part of the mainstream society. This is a comedy about two hippies, the first truly mainstream Hollywood product based on the attributes of the counterculture and, as a result, mixing them with the social norm. Guy Debord described this process of transformation from the outstanding into the ordinary way back in 1969: "In thus gaining its independence, culture embarked on an imperialistic career of self-enrichment that ultimately led to the decline of that independence" [2, p. 107].

Over time, the counterculture became a trade item. If earlier attributes of the counterculture were condemned by society, now they have become a part of it. Companies have realized that rebellion is easy to sell, especially among young people who will do anything to look as unlike their parents as possible. "At first the culture of the young was nothing but merchandise: clothes, records, movies, cosmetics. The teenager was invented as a market. But the market dangerously intensified self-awareness in the adolescent years of life that most lend themselves to brooding introspection. A fateful development. Rebels who began without a cause might soon find more than enough to justify rebellion" [1, p. 20].

The novel *Fear and Loathing in Las Vegas* by Hunter S. Thompson was published a year before the 1972 election, which put an end to the disposition of political forces. It was written and published at the height of the counterculture era and the issues of that time are playing the key role in it.

By 1971, Thompson was already known as the father of "gonzo journalism", a subgenre distinguished by the reader's deep immersion in the journalist's experience. The main features of gonzo are visible from the first lines. The narrative is non-linear, sometimes retrospective, and time is perceived as an optional component of the narrative. Thompson's prose is emphatically subjective. The protagonist and narrator here are the same person, but this is an unreliable narrator, as he is under the influence of hallucinogens.

The seemingly chaotic selection of details that Thompson considers necessary to describe is worth mentioning. For example, throughout the novel, the author never gives a visual description of the main characters. The writer only mentions their ethnicity, one of them is white, and the other is Puerto Rican. But at the same time, he gives a detailed description of the phone: glistening pink phone [3, p. 2], the night wind hitting them in the face on the Strip – a bitter taste of the cool desert wind [3, p. 31], as well as random characters, such as parking attendants: two thugs wearing red-gold military overcoats [3, p.15]. Probably, this focus on details was intended to mimic the perception of a person under the influence of controlled substances.

Let's digest the full title of the novel: *Fear and Loathing in Las Vegas: A Savage Journey to the Heart of the American Dream.* Fear in the novel refers to the peak of "bad trip", a state when drugs provoke paranoia, fear and intrusive thoughts: "I hate to say this," said my attorney as we sat down at the Merry-Go-Round Bar on the second balcony, "but this place is getting to me. I think I'm getting the Fear" [3, p. 27].

Loathing is not directly mentioned in the text, but after each "bad trip" the protagonist has a period of disgust and loathing towards others, forcing him to dull it with drugs.

"The Heart of the American Dream" is mentioned many times as the ultimate goal of the main characters' visit to Las Vegas: "I want you to know that we're on our way to Las Vegas to find the American Dream" [3, p. 17]. The American Dream in

general is one of the central concepts of the novel. It serves both as an object of desire for the protagonist, as well as an object of ridicule and criticism. For example, describing a casino: "Still humping the American Dream, that vision of the Big Winner somehow emerging from the last-minute pre-dawn chaos of a stale Vegas casino" [3, p.2]. One might get the impression that the narrator himself does not know what he means by the American Dream and whether it is a virtue to strive for, or an unattainable mirage that clouds the minds of naive people. In one interview Hunter Thompson said: "American dream is to ride with the wind" [4, p. 14]. This motive is quite consistent with the main idea of the counterculture. It implies movement, primarily spiritual, which is often expressed by physical movement. Many of the Thompson's generation spent their lives on the road in search of something, perhaps the American Dream. The idea of constant movement is present in "Fear and Loathing": "Old elephants limp off to the hills to die; old Americans go out to the highway and drive themselves to death with huge cars" [3, p. 6].

Amongst the most interesting aspects of the counterculture is the diversity of its definitions. Thompson could hardly be described as an equal rights activist or a liberal rebel in the usual sense of the phrase. Raul Duke, the protagonist of the novel, does not pursue any higher goals and doesn't try to resist society. He has no illusions about his decisions, fully admitting that he leads a self-destructive lifestyle. The drugs he takes non-stop, are being described with overt disgust. "There is nothing in the world more helpless and irresponsible and depraved than a man in the depths of an ether binge" [3, p. 2].

The protagonist is, by times, blatantly racist by today's standards: "You Samoans are all the same," I told him. "You have no faith in the essential decency of the white man's culture" [3, p. 4]. It is only natural that both Raul Duke and Hunter Thompson are not only representatives of the counterculture, but also products of their era.

Even though the events in the book take place in 1971, a year before the final defeat of the freethinking left on the political arena, the narrative already contains a clear pessimism associated with the state of the country and society. For example, characterizing Dr. Gonzo being in a deranged state, the narrator scathingly remarks: "Just another ugly refugee from the Love Generation, some doom-struck gimp who couldn't handle the pressure" [3, p. 23]. Or, hearing a John Lennon song on the radio, the main characters sarcastically declare: "Power to the People—Right On!" John Lennon's political song, ten years too late. "That poor fool should have stayed where he was," said my attorney. "Punks like that just get in the way when they try to be serious" [3, p. 77]. Perhaps at that moment it became clear to everyone that the time of tremendous changes would not come.

The protagonist, Duke, often fondly recalls the 60s. "San Francisco in the middle sixties was a very special time and place to be a part of. Maybe it meant something. Maybe not, in the long run ... but no explanation, no mix of words or

music or memories can touch that sense of knowing that you were here and alive in that corner of time and the world. Whatever it meant ....” [3, p. 24]. Perhaps he sees the 60s as the last bastion of true freedom, which, little by little, slips away from him.” …every now and then the energy of a whole generation comes to a head in a long fine flash” [3, p. 24]. He extols the past decade, which speaks to his support for the counterculture, and his disdain for law enforcement proves he hasn't left the '60s behind yet. Duke is still deeply rooted in the countercultural lifestyle, which highlights both Duke's and Thompson's resistance to the ways of traditional American society.

However, despite his relation to the counterculture, Duke openly criticizes the supporters of the movement for naivety, citing that as the main reason for their failure. Duke repeatedly mentions Tim Leary, an American psychologist who openly advocated for the use of psychedelic drugs in the 1960s, arguing that the use of LSD and other hallucinogens would lead to a “consciousness expansion” and ultimately increase "peace and understanding." Duke states that there is a “fatal flaw” in Leary's theory – Leary did not take into account “the grim meat-hook realities that were lying in wait for all the people who took him seriously” [3, p. 66]. In other words, the representatives of the counterculture realized that peace and understanding does not really exist in American society. Duke openly admits the failure of the movement. “No doubt they all got what was coming to them. All those pathetically eager acid freaks who thought they could buy Peace and Understanding for three bucks a hit. But their failure is ours, too” [3, p. 67] says Duke. He believes that the failure of the movement was natural – instead of actively working on solving the problems of society, the counterculture hoped that society would fix itself.

Thompson uses both direct references to the events that led to the decline of the counterculture in America, such as the Hell's Angels attack on an anti-war march, and undertone imagery, such as the ether-soaked American flag used to get high – "I snatched the flag from his hands and soaked it in ether. This will make do” [3, p. 40].

According to Duke, the counterculture not only failed itself, but also created an additional problem: “...a generation of permanent cripples, failed seekers, who never understood the essential old-mystic fallacy of the Acid Culture: the desperate assumption that somebody-or at least some force-is tending that Light at the end of the tunnel” [3, p. 67]. Members of the counterculture naively pinned their hopes on some higher or wiser power.

This approach to the counterculture movement is truly unique, since Hunter Thompson does not seek to idealize or, vice versa, discredit it, but conveys nostalgia for an era gone [5, 6].

The epigraph to the novel is a quote by S. Johnson: “He who makes a beast of himself gets rid of the pain of being a man” [3, p. 1]. It perfectly describes the essence of the transformation of the protagonist, who, in an attempt to suppress his inner pain, takes mind-altering substances that turn him into a bestial creature.

The American dream, the transcendent path, the tearing of the veil of corporate influence – all these notions are a manifestation of one and the same phenomenon – the desire of man to feel like the center of the universe. The desire to feel special, not like everyone else, the only right in a crowd of wrongs. As Joseph Gabel, a French psychiatrist and philosopher puts it, "the abnormal need for representation here makes up for a torturing feeling of being on the edge of existence" [2, p. 72]. H. Thompson does not seek to persuade the reader, does not sell him an idea or blames him for a missed chance. He relays his experience and thoughts through the medium of his characters, showing them for what they are. With flaws, doubts and fears, making mistakes and wrong choices, but still pushing forward. The way that allows them to truly understands the American dream.

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INNOVATIONS IN THE SYSTEM OF ADDITIONAL PROFESSIONAL PEDAGOGICAL EDUCATION: CHALLENGES AND OPPORTUNITIES

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Abstract. The article considers digital technologies as innovations in the system of additional professional pedagogical education. The huge potential of the system of additional professional education to meet the needs of the pedagogical community is shown. The possibilities of Internet portals, distance learning technologies and e-learning for teacher training are considered. The conclusions about the relationship of the capabilities of the system of additional professional pedagogical education with the quality of Russian education are presented.

Keywords: additional professional pedagogical education, advanced training, digital technologies, professional competence of teachers, educational platform.

ИННОВАЦИИ В СИСТЕМЕ ДОПОЛНИТЕЛЬНОГО ПРОФЕССИОНАЛЬНОГО ПЕДАГОГИЧЕСКОГО ОБРАЗОВАНИЯ: ВЫЗОВЫ И ВОЗМОЖНОСТИ

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Аннотация. В статье рассматриваются цифровые технологии как инновации в системе дополнительного профессионального педагогического образования. Показан огромный потенциал системы дополнительного профессионального образования для удовлетворения потребностей

педагогического сообщества. Рассмотрены возможности интернет-порталов, дистанционных образовательных технологий и электронного обучения для повышения квалификации учителей. Представлены выводы о взаимосвязи возможностей системы дополнительного профессионального педагогического образования с качеством российского образования.

Ключевые слова: дополнительное профессиональное педагогическое образование, повышение квалификации, цифровые технологии, профессиональная компетентность педагогов, образовательная платформа.

In modern times, education is a key factor in preserving and developing the human potential necessary for social, economic, and political progress, transmission of cultural traditions, increasing labor productivity, and promoting scientific and technological development. As a social phenomenon and process, education, as part of society, encompasses virtually all changes taking place within it, including economic transformations driven by the implementation of digital technologies.

According to Article 2 of Federal Law No. 273-FZ of December 29, 2012 "On Education in the Russian Federation," "additional education is a form of education aimed at fully satisfying the educational needs of a person in intellectual, spiritual, moral, physical, and/or professional development, and does not involve increasing the level of education" [1].

The main task of additional education is to meet the constantly changing educational and cultural needs of people, as well as to develop the individual considering their abilities and needs. Additional education has tremendous potential in pedagogical terms, attracts people of different ages, and influences career choices and professional development. It allows for combining free time with various forms of educational activities, as well as addressing youth employment issues and preventing deviant behavior.

The implementation of digital technologies leads to significant changes in production and the labor market, which in turn affect the education system. The relevance of automation and intelligence of many production processes is growing. The changes taking place in economic and social life are so vast and rapid that they influence the development of additional education.

Additional education and additional professional education (APE) have similar goals - to satisfy the constantly changing educational, social, and cultural needs of people, to improve personal development and professional growth. However, APE is aimed at acquiring specific knowledge, skills, and abilities within certain professions and specializations. Unlike additional education, which can include various forms of learning and activities, APE is focused on improving qualifications and obtaining additional professional training. In this sense, additional professional education is an integral part of lifelong learning, which is necessary for development and professional growth in the modern world.

This approach represents a promising direction for the development of education, which is relevant not only in Russia but throughout the world. Continuing education allows for the use of various technologies and forms of learning at different levels of preparation and creates the opportunity for developing a flexible individual learning path. This ensures the implementation of the principle of "lifelong learning" to the highest degree [2].

One of the main focuses of continuing education programs today is developing the skills of students to open and apply existing knowledge, as well as shaping their own ideas about ways to solve professional tasks. With the new understanding of continuing education systems, the main mission of organizations and departments within this system is to create an open educational space that promotes self-realization and conscious self-determination for adult learners in accordance with their interests, needs, and educational objectives. The organizational space should be oriented towards creating the best conditions for achieving social success for students in an open, constantly changing world.

Providing quality education that meets professional standards and employer needs is the main goal of the modern continuing education system. To achieve this, organizations and departments within this system strive to attract highly professional teachers with a creative approach who are capable of using interactive teaching methods.

In Russia, the continuing education system has created all the conditions necessary for effective learning, including modern software, material and technical resources, and a comfortable learning environment. However, the main problem is not the acquisition of existing knowledge, but the creation, acquisition, and production of new knowledge that does not yet exist but is already necessary.

Additional professional pedagogical education plays an important role in modern socio-economic conditions, representing a separate type of educational activity aimed at promptly raising the professional level of pedagogical personnel and ensuring their compliance with "qualification requirements for changing professional activities and social environment".

The main goal of the modern system of additional pedagogical education is the renewal and increase of the professional competence of working teachers, so that they correspond to the new requirements and conditions of their activities. This is achieved based on modern regulatory acts, primarily on the basis of the Law on Education in the Russian Federation and federal state educational standards [3].

Significant issues related to the development of teaching staff include creating conditions for pedagogical workers to receive additional professional education at least once every three years in connection with changes in professional activities and social environment, and creating a system of incentives and support for those who strive for professional growth and development.

Professional development opportunities for teachers and obtaining additional professional education are possible through special programs organized by both government and private institutions. These programs aim to broaden the knowledge base and improve the qualifications of educators in various fields including digital technologies, innovation, psychology, leadership, and many other areas. It is important to note that having additional professional education can significantly improve the qualifications and competence of a teacher, which in turn positively impacts the quality of education received by students.

Professional development programs are divided into qualification improvement programs and professional retraining programs. Within the framework of professional retraining, citizens who do not have a pedagogical education learn the basic educational disciplines necessary for effective performance of the duties of a teacher. This allows a person with higher or secondary specialized education in another field to become a competent teacher.

Since the beginning of 2021, the Federal State Autonomous Educational Institution of Continuing Professional Education "Academy of the Ministry of Education of Russia" has become the main operator of qualification improvement programs for educational workers throughout Russia. It organizes training for teachers and educators on its educational platform on important directions of state policy in the field of education, including new federal state educational standards. This training is conducted in distance form and based on the use of distance learning technologies and e-learning.

Thanks to this approach, educational workers can undergo training from any point in the country in their free time from work. Moreover, in 2022 alone, 295 thousand educational workers registered for courses of the Federal State Autonomous Educational Institution of Continuing Professional Education "Academy of the Ministry of Education of Russia", which is an important practical result [4, p. 225].

To improve the quality of additional professional pedagogical education, the Ministry of Education of Russia has launched a project called the Federal Register of Educational Programs for Additional Professional Education, which currently includes over 1,200 programs for professional development. It's important to note that both public and private educational programs are included in the Register, thanks to the legal guarantees of cooperation between the public and private sectors established by federal legislation.

The successful example of cooperation can be seen through the "Edinyi Urok" portal, whose main goal is to improve the quality of education in Russia. The portal regularly publishes materials on various topics and also organizes master classes, webinars, and other educational events. Here, the pedagogical community can receive free training in the field of child information security as part of federal events.

Such training is organized with the support of the Ministry of Digital Development, Communications and Mass Media of the Russian Federation and the

Ministry of Education and Science of the Russian Federation. The effectiveness of this training is included in State reports in the field of education, where it can be seen that the number of students on the platform exceeds 1,421,000 users.

Overall, the " Edinyi Urok " portal is an important tool for supporting and developing education in Russia, allowing teachers and educators to improve their qualifications and acquire new knowledge and skills that they can use in their work with students.

Another successful example of professional education organization is the online portal "Ucheba.online", which is implemented with the support of the Ministry of Digital Development, Communications and Mass Media of the Russian Federation, the Ministry of Education of the Russian Federation, and ANO "APGI". In 2021, more than 353,557 people were trained in distance learning programs in the field of digital literacy using exclusively distance learning technologies.

The educational portal "Ucheba.online" provides a unique opportunity for those who want to improve their professional skills and gain new knowledge in the field of digital technology. It contains educational programs of different levels of complexity, from basic courses to advanced specialized programs.

One of the key principles of the portal's operation is flexibility and accessibility. Educational programs are designed for a wide audience and can be studied at any convenient time from anywhere in the world. The courses are available in distance learning format, which allows individuals to acquire new knowledge and improve their qualifications without leaving their homes or offices.

An important outcome of the "Ucheba.online" portal's work is a significant increase in the level of digital literacy among citizens of Russia, which is essential for the successful development of modern society and the economy. In addition, the successful implementation of this project is a vivid example of cooperation between public and private organizations in the field of education and human capital development.

Thus, the active use of digital technologies in the process of additional professional education of teachers significantly improves the quality of education in the Russian Federation [5].

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THE ROLE OF CARICATURE ILLUSTRATION IN VIETNAMESE JOURNALISM

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Abstract. Caricature is a visual genre closely associated with journalism. Caricature is a specific form of information, expressing messages in the language of pictures. This work analyzes and evaluates the role of caricature illustration in Vietnamese journalism.
Keywords: caricatures, illustrations, works, information, visual genre.

РОЛЬ КАРИКАТУРНОЙ ИЛЛЮСТРАЦИИ ВО ВЬЕТНАМСКОЙ ЖУРНАЛИСТИКЕ

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Аннотация. Карикатура является визуальным жанром, тесно связанным с журналистикой. Она представляет собой специфическую форму информации, выражающую сообщения на языке картинок. В данной работе проводится анализ и оценка роли карикатурной иллюстрации в журналистике Вьетнама.
Ключевые слова: карикатуры, иллюстрации, произведения, информация, визуальный жанр.

Caricature, a visual art form, has a strong relationship with journalism. Typically, researchers analyze caricature as an integral component of journalistic products, especially those in print media. Caricature is a unique form of communication that utilizes images to transmit messages. The images in caricature are condensed into symbols, making them simple for audiences to comprehend, remember, and follow. Beyond its fundamental role of disseminating information, caricature performs several specific and distinct functions, including management, supervision, and social criticism, as well as enlightenment and entertainment. Caricature is widely recognized as a journalistic genre in Western nations and the United States. In contrast, the media and fine arts industries in Vietnam have yet to fully appreciate the value, objectives, and impact of caricature. Theoretical

investigations have not yet established a conclusive classification for caricature as either a genre of journalism or painting [1].

The present investigation employs a range of techniques drawn from the humanities and social sciences, such as document analysis, survey administration, synthesis of existing research, statistical analysis, comparative assessment.

This study investigates the illustration role of caricature in the press. The author conducts an analysis of the Tuoi Tre Cuoi newspaper over a three-year period to illustrate this phenomenon. The selection of Tuoi Tre Cuoi as a case study is based on its prominence as a satirical semi-monthly publication in Vietnam, which features a wide variety of articles and caricatures.

The utilization of caricature as an information method results in several effects, including the expression of visually compelling information, influencing public perception and behavior, educating the public on knowledge and aesthetic perception, providing entertainment value to the public, expressing the national language through drawings, presenting a vivid historical picture that reflects social development, increasing the attractiveness of the content and form of newspapers [2].

The dominant mode of publishing caricatures in the media is through print products, wherein they are organized into discrete categories, labeled uniquely, and maintain a fixed position on the page. These depictions have the capacity to coalesce into a narrative or serve as an illustration for an article (Figure 1). In many instances, caricatures have been used to illustrate prose and satirical poetry skits. Illustrations are vital in capturing the reader's attention at the initial stage. A well-executed illustration has the ability to maintain the reader's interest and guide them towards the article. The position and size of the illustrations on the newspaper page play a crucial role in creating a more open page and providing resting points for the reader's eyes. Irrespective of whether the illustrations are hand-drawn or computer-generated, they have a significant impact on the page. In specific cases, caricatures are utilized in combination with editorials, commentary, and criticism to augment the article's seriousness. The content of the message that the artist conveys to the public through the figurative style has a profound impact on their awareness.

Journalism illustration can be perceived as a profession, which necessitates the same level of skill and dedication as any other professional occupation. However, as of yet, there are no specific educational institutions catering to press illustrators, despite the existence of numerous professional illustrators. Consequently, artists must self-train and refine their abilities. The primary role of an artist is to create autonomous works of art utilizing diverse painting techniques and materials such as lacquer and oil paint. However, when they accept illustration work for newspapers, they must acknowledge the limitations of the framework and respond to the demands of the content, which may not necessarily align with their preferences and style. Historically, illustrators often worked on small sheets of paper or cardboard and faced challenges with regard to meeting publishing deadlines. Despite these challenges,

many illustrators have demonstrated their ingenuity and left an indelible mark on the field of journalistic illustration.

Figure 1. An example of the use of caricatures as illustrations in an article on newspaper pages from Tuoi Tre Cuoi

Caricature illustrations are frequently employed in journalism to communicate information. However, it's essential to carefully weigh the size of the caricature printed on a newspaper page to prevent impeding the reader's perspective and

diminishing the conveyed information's value. Including the artist's name in the caricature is also necessary to guarantee the artwork's authenticity and the author's accountability.

Caricatures are frequently featured in various sections of the press, including the "Caricature" section of Saigon Giai Phong newspaper, the "Caricature Corner" of Tuoi Tre newspaper, the "Warriors' Club" of Quan Doi Nhan Dan Cuoi Tuan newspaper, the "Caricature" section of Dai Doan Ket newspaper, and the "Infinite Alliance" or "Caricature Corner" of Lao Dong newspaper. At present, Tuoi Tre newspaper stands out as the press agency that makes the most extensive use of caricatures, owing to the popularity of its Tuoi Tre Cuoi newspaper in both its print and online versions. This publication draws upon a substantial team of caricature artists hailing from all three regions of the country.

Tuoi Tre Cuoi is a semi-monthly publication known for its satirical and humorous content, offering readers nearly 30 columns and over 40 color pages. Notable columns include Caricature Club, Top 10, Jesse Laughs, Dog Fur Painting, Drawing "Vietnamese Smile", Clever Meanings, Doctor's Office, Comedy Fair, Smart Office Bag, Mixed Hotpot, Family.com, Imported Laughter, Many Faces of Life, Alo Hotline for Laughs, Hai Cu Neo's Convenience Store, Caricature Drawing Contest.

Tuoi Tre Cuoi is a satirical newspaper that offers a wide range of sections and special pages, featuring constantly updated and diverse content, such as news, reflections, satire, cartoons, satirical poems, humorous stories, funny pictures, and caricatures. The newspaper utilizes caricatures not only in specific sections like the Caricature Club, Comedy Fair, Mixed Hotpot, Imported Laughter, Many Faces of Life, Alo Hotline for Laughs and Caricature Drawing Contest, but also as illustrations and clarifications for literary works and journalism. The survey results on 3 random newspaper issues from 2020, 2021, and 2022 regarding the number of pages that used caricatures to illustrate literary works and journalism are presented in Figure 2.
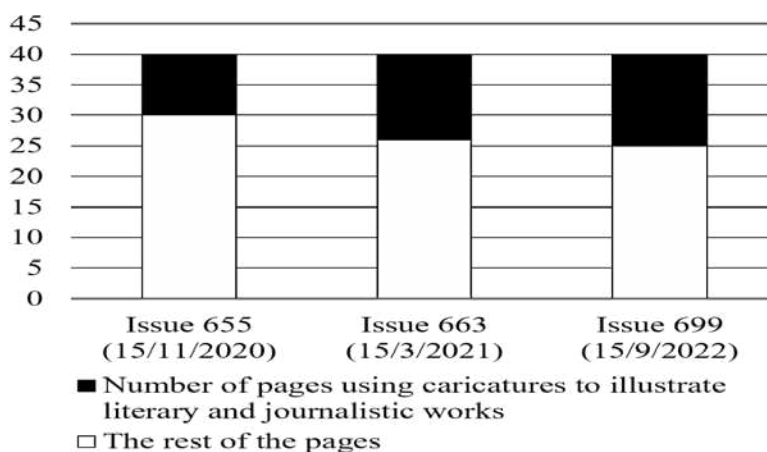
Figure 2. The number of pages using caricatures to illustrate literary works and journalism in 3 randomly selected issues from the latest 3 years of Tuoi Tre Cuoi

Among the total of 40 pages of each issue, the number of pages utilizing caricatures to illustrate articles are respectively: 16 (Issue 655, November 15, 2020), 14 (Issue 663, March 15, 2021), and 15 (Issue 699, September 15, 2022) [3, 4, 5]. These results reveal that the proportion of pages featuring caricatures is relatively consistent across the surveyed issues. Therefore, Tuoi Tre Cuoi newspaper employs caricature illustrations to keep readers engaged from beginning to end, by providing humor and entertainment throughout the pages, particularly through the frequent appearance of caricatures.

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CARICATURES IN VIETNAMESE JOURNALISM: FROM ILLUSTRATIONS TO INDEPENDENT WORKS

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Abstract. The utilization of caricatures has multiple effects, including effectively conveying information, educating the public on knowledge and aesthetic awareness, providing entertainment value, illustrating national identity through art, presenting a lively historical snapshot, reflecting social development, and enhancing the appeal of the content and format of newspapers. This study analyzes and evaluates the role of caricatures as independent works in Vietnamese journalism.

Keywords: caricatures, cartoons, drawing, newspaper, entertainment, social development.

КАРИКАТУРЫ ВО ВЬЕТНАМСКОЙ ЖУРНАЛИСТИКЕ: ОТ ИЛЛЮСТРАЦИИ К САМОСТОЯТЕЛЬНЫМ ПРОИЗВЕДЕНИЯМ

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Аннотация. Использование карикатур производит несколько эффектов, таких как яркая передача информации, повышение образования общественности, формирование эстетического вкуса, создание развлекательной ценности, изображение национальной идентичности через рисунок, представление живописной исторической картины, отражение социального развития и повышение привлекательности содержания и формы газет. В данной работе анализируется и оценивается роль карикатур как самостоятельных работ во вьетнамской журналистике.

Ключевые слова: карикатуры, рисунок, газета, развлечение, социальное развитие.

The present-day press is undergoing significant development in terms of its diverse types and genres, playing an increasingly vital role in society. With changing perspectives and trends in the press, readers are approaching and engaging with journalistic products differently than in the past. Nevertheless, caricatures continue to support various types of journalism as they accompany numerous newspaper editorial teams. Throughout the centuries of world journalism's evolution, caricatures have consistently held a distinctive position on newspapers' pages, regardless of the historical period. Due to their unique role and advantages, many newspapers dedicate substantial space and prominent positions for publishing caricature works.

There is a common misconception that caricature is interchangeable with illustration, primarily serving as a means of humor or satire for entertainment purposes. Consequently, there is a tendency to shy away from utilizing this medium, which can be sensitive and potentially troublesome. This approach leads to an imbalanced development, as the full potential, power, and value of caricature remains unrealized. In light of the current strong development of the press, it is crucial to assess and evaluate the effectiveness of conveying information through caricatures, both as an illustration and as an independent work.

This study aims to examine the role of caricature in the press, specifically its evolution from being an illustration to becoming an independent work. To illustrate this phenomenon, the author conducts a three-year analysis of Tuoi Tre Cuoi newspaper. This selection is based on the newspaper's prominence as a satirical semi-monthly publication in Vietnam, which features a diverse range of articles and caricatures.

Utilizing illustrations in journalism is an effective way to enhance and support the content of an article. However, to retain readers' interest, illustrations need to be innovative and provide additional information beyond the written content. It is also important to develop illustrations as independent and comprehensive information units, rather than just serving as supplementary elements to the main article.

Caricatures are a distinct type of illustration frequently employed in journalism to convey messages in a satirical and humorous manner. Nevertheless, in Vietnam, caricatures have yet to be clearly recognized as a form of journalism due to a lack of content, form, and creative approach. In order to be fully acknowledged as a form of journalism, caricatures must meet the fundamental requirements of journalistic work.

In entertainment and satirical press publications, caricatures can be effectively used on the cover and carefully selected to ensure quality. The quality of a good caricature is evaluated in terms of both its content and form, and is often created by talented and uniquely creative artists.

Tuoi Tre Cuoi is among the few newspapers in Vietnam that effectively fulfill the role and function of caricatures in journalism. Since its launch, Tuoi Tre Cuoi has effectively utilized caricatures and maximized their potential on its pages. Furthermore, Tuoi Tre Cuoi has allocated valuable space for caricatures, printing them in full color and occupying a significant portion of both front pages (cover 1 and cover 4) (Figure 1) [1]. This highlights how Tuoi Tre Cuoi has elevated the importance of caricatures in journalism, bringing value to readers and honoring the art of caricature.

Caricatures reflect various aspects of life, including international relations, politics, society, and the challenges faced during the process of human development. Unlike traditional art paintings, caricatures are closely linked to current events in politics and society, capturing a vivid depiction of social life. Timeliness is a crucial factor in the success of caricatures.

Figure 1. Cover 1 and cover 4 of Tuoi Tre Cuoi issue 678, dated November 1, 2021

In terms of information content, caricatures cover various topics in different fields, including politics, culture-society, economy, education, healthcare, and other areas. However, based on a survey conducted on Tuoi Tre Cuoi newspaper on the front pages of issues published over the past three years, the culture-society field has the highest proportion (56.3 % in 2020, 79.2 % in 2021, 45.8 % in 2022), followed by politics, economy, and education (Table). Due to the impact of Covid-19, the healthcare and economy sectors reflected in satirical cartoons tend to change in opposite directions.

Table – The reflected fields of caricatures were used as covers for Tuoi Tre Cuoi newspaper in 2020, 2021, and 2022

Year	Sectors (%)					
	Politics	Culture and Society	Economy	Education	Health	Others
2020	12.5	56.3	6.3	10.4	12.5	2.1
2021	4.2	79.2	6.3	4.2	6.3	0.0
2022	12.5	45.8	20.8	10.4	4.2	6.3

Caricatures not only provide entertainment but also have high informational value, reflecting diverse social, cultural, and political issues, and creating a space for creative expression for cartoonists. Moreover, focusing on cultural and social themes also reflects society's trend of paying more attention to issues related to life, culture, and human values. However, the categorization of caricature themes into broad topics is only relatively accurate. In reality, many caricatures created by cartoonists still have a mix of themes, making it difficult to clearly categorize them.

A prominent feature of caricatures is their humorous nature. Caricatures are a type of drawing that incorporates elements of mockery, criticism, and exaggeration of the object being portrayed [2]. Cartoonists use artistic elements such as images, emotions, and attitudes to create exaggerated and distorted characters, and combine them with materials, events, and reasoning to reflect and criticize current hot or

pressing social issues. A successful caricature requires the author's unique perspective, a sense of humor, and the ability to make the public laugh through their vision. Caricatures are not only a form of entertainment, but they also aim to criticize, attack and express the author's attitude towards issues worthy of praise.

Caricature is an art form that blends elements of editorial journalism and art, combining journalistic elements such as materials, events, reasoning, and rhetoric with artistic elements such as images, emotions, attitudes, and generalization to reflect and explain a problem. Both editorial journalism and caricature share common characteristics in that they aim to convey a message and reflect the author's opinion on a particular issue. However, caricature places a greater emphasis on using humor and satire to capture the public's attention [3].

In terms of form, caricatures can be classified into single-panel, multi-panel, portrait caricatures, and may or may not be accompanied by annotations, depending on the expressiveness of the artwork (Figure 2) [4, 5, 6]. In Vietnam today, most caricatures are displayed on products that include annotations, which serve to explain the content of the artwork or the dialogue of the characters. While there is a global trend towards wordless caricatures, it is difficult to create a successful one. Such a work requires an experienced and humorous artist to achieve the necessary level of expression.

Figure 2. Single-panel, multi-panel, portrait caricatures (from left to right)

The most popular technique used by caricature artists is the traditional method of hand-drawing, which involves using various pens and colors such as black and white, colored pencils, watercolors, and oil paints. This technique provides soft lines, exquisite details, and meticulousness in every stroke. However, printing and distribution depend on the quality of the paper and ink, which can cause original drawings to lose their color and reduce their effectiveness. With the advancement of science, technology, and especially information technology, the field of artistic creation has seen significant progress. Caricature artists now use specialized graphic software to create their works, resulting in faster drawing times, easier layout, richer lines and colors, and reduced costs, storage, and convenient publishing. However,

this method may reduce the uniqueness of the work, as the lines can become "stiff" and lack the naturalness and soul of the work. To create harmony between traditional and modern drawing styles, artists have started combining hand-drawing with computer graphics software. This method of combining the two techniques is a common trend in caricature art worldwide.

Caricature artworks typically have a straightforward structure, designed to convey a message to the viewer in a simple and effective manner. Artists often use unconventional techniques to highlight the absurdity of the events or phenomena they are criticizing. This style is not restricted by the conventions of classical art, allowing for unique and impactful works. Innovation is also highly valued in caricature, as it adds to the attraction and humor of the criticism. Artists employ various formal techniques, such as combining images, text, or symbols to subtly and creatively convey their message. Caricature works presented in innovative styles often have a strong influence on public opinion and can bring a sense of humor and relief to daily life.

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УДК 332.1

TRENDS IN ECONOMIC AND CROSS CULTURAL COOPERATION BETWEEN RUSSIA AND CHINA

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Abstract. This paper discussed recent trends in economic and cross-cultural cooperation between Russia and China. As a result of the analysis, the most successful areas of cooperation (trading, energy, scientific, technical, cultural and humanitarian) between the countries are reviewed and analyzed.

Keywords: economics, trading, cultural cooperation, international relationships, energy sphere, scientific sphere.

ТРЕНДЫ ЭКОНОМИЧЕСКОГО И КУЛЬТУРНОГО СОТРУДНИЧЕСТВА РОССИИ И КИТАЯ

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Аннотация. В работе рассматриваются тренды экономического и культурного сотрудничества между Россией и Китаем. В результате анализа рассматриваются и разбираются самые успешные сферы сотрудничества – торговая, энергетическая, научная, технологическая, культурная и гуманитарная.

Ключевые слова: экономика, торговля, культурное сотрудничество, международные отношения, энергетическая сфера, научная сфера.

In the modern world, the economies of countries are not individually self-sufficient. There are many resource constraints that can hinder the economic and social development of individual countries. Therefore, an important aspect of international relations is the economic and cultural cooperation of the countries. Today, relations between the Russian Federation and the PRC have a strategic nature. Russia's relations with China are aimed at achieving a balance of internal and external, short-term and long-term interests of both countries. Therefore, cooperation between countries should contribute to the most beneficial development of both economies. That is why today economic, trade and cultural relationships between Russia and China are crucial for both countries. In this regard, both Russia and China are actively increasing trade turnover. They are also the initiators of international integration. In this article I would like to adress some trends in economic and cross-cultural cooperation between China and Russia in recent years.

The history of relations between Russia and China dates back to 400 years ago. Today, China and Russia are developing relations of "comprehensive partnership and strategic interaction." At the same time, both countries interact in multilateral forms. Modern relationships between Russia and China cover a wide range of areas of cooperation: intensive contacts at the highest level, trading cooperation, economic and humanitarian connections, international partnerships including the UN Security Council, and regional organizations (SCO, BRICS). Considering the history of Russian-Chinese relations, it is worth noting some important dates:

- 1989 – official normalization of political relations between Russia (as part of the USSR) and China after the Cold War period.

- 1994 – declaration of "constructive partnership";

- 2001 – the long-term policy of strategic partnership between Russia and China was legitimized by signing the agreement "On Good Relations, Friendship and Cooperation" between the Russian Federation and the PRC [1].

- 2014 – contract in Shanghai between Gazprom and China National Oil Corporation CNPC for the supply of Russian gas to China along the Eastern Route was signed [2].

I would like to move on to the trends in economic cooperation. To begin with, China is highly integrated with the global economy. The share of GDP by PPP of China in 2021 was 27206 billion dollars while Russian share was only 4494. China's involvement in the global economy amounted to 18,56 %. On the other hand, Russians involvement is only 3,07 %. According to the data, Russian economy remains one of the most closed in the world and continues to maintain barriers preventing its participation in the world trade. In turn, China is taking active steps to integrate into the world economy.

Consequently, since 2021 we can see the growth of the trade turnover between Russia and China. It has grown by almost 29 % in three months. In the economic sphere, from 2010 to 2021, the volume of Russian–Chinese trade increased by more than 2 times (from 79 billion US dollars to 146.8 billion US dollars). China is also the main customer of domestic oil and gas. Currently, the main gas pipeline "Power of Siberia" (the "eastern" route) transports gas from the Chayandinsky field. In 2021, due to the energy shortage in the PRC, the State Energy Committee of China appealed to the Russian side with a request to increase energy exports. Taking into account the power of plants in the Russian Far East and the capacity of interstate transmission lines, an increase in the level of excess supplies was theoretically doable. As a result, according to TASS, since October 1st 2021, the Russian exporter has almost doubled the supplied volumes of energy, and the results of 2021, according to experts, have shown a 30 % increase compared to the previous period. [3] Thus, the increase in the supply of Russian energy to China and the reduction of excess capacity, to a certain extent, contributed to the further development of the Far Eastern electric power industry.

Let's see what has happened with Economic cooperation after sanctions in 2022. Russia needed to replace Western imports in its market, the supply of which has stopped due to foreign trade sanctions or informal boycotts. This was especially true for hi-tech goods and industrial equipment. They included electronics, equipment

for oil refining, various types of machine tools, machines and parts for them. Chinese industry is the most diversified among the countries which remained friendly to Russia and could potentially be a source of such supplies, and in the long term, a base for creating more complex value chains. Although China was not ready to take over the entire volume of released exports, its market now plays the key role [4]. As an example, the supply of microchips from China to Russia in the first five months of 2022 has more than doubled compared to the same period in the last year. Sales of Real Me smartphones increased to 1.1 million pieces. The Paco brand, which sells a line of mid-range smartphones under the Xiaomi brand, managed to increase sales by 16 %. The well-known Nokia, the rights of which are owned by the Chinese holding HMD Global, managed to increase sales by 40 % [5].

Key European companies in the agrochemicals market have significantly lost their share of participation in the Russian agricultural industry. They continue to work, but it is quite difficult for them due to various economic and political reasons. They are being replaced by Chinese suppliers. Supplies of substances and active substances for the production of agrochemicals, ingredients for vitamin supplements, top dressing and premixes for animal husbandry are being delivered from China [5].

But what about China's interests? China was also interested in developing economic relations with Russia. To begin with, the sanctions freed up significant market niches in the Russian market. Previously, they were difficult to occupy due to Russia's stable connections with Western partners. So, as we all saw, after sanctions happened an immediate liberation of the Russian market. Also, China's government understands that Russia can potentially play an important role in diversifying the sources of raw materials for the Chinese economy [6]. Thus, China took advantage of this situation and took a leading position as an exporter.

This model of cooperation between Russian and China is now called a strategic partnership, not an alliance. It aids to preserve stability in China–Russia relations, particularly in complex foreign and domestic conditions, and gives the full space for China–Russia cooperation. At the same time, each side preserves its own diplomatic space, and no one loses their independence. At the same time, China intends to develop China-Russia relations, even in the face of the current foreign and domestic challenges. Foundations have been laid for the further development of comprehensive cooperation with Russia in the political, economic, energy, scientific and technical, and humanitarian spheres.

Undoubtedly, the expansion of scientific and technical cooperation is one of the most significant elements of cooperation between Russia and China. In the context of Russian-Chinese economic cooperation, innovative projects in the field of STI – science, technology and innovation are carried out. The intensive growth of scientific and technological cooperation between Russia and China began in 2018. The most significant of agreements are: the 2018 agreement between Alibaba Group, Mail.ru Group, Megafon and the Russian Direct Investment Fund (RDIF) on the establishment of a joint venture AliExpress Russia, as well as the agreement of MTS and Vimpelcom with Huawei on the deployment of a 5G network in Russia The deepening of scientific and technological cooperation between the Russian Federation

and China, including the field of innovation can help Russia multiply its economic potential and bring economic dialogue to a new level [7].

Russia and China have been actively developing cooperation in the cultural and humanitarian sphere in recent years. After a temporary "freeze" of contacts caused by the COVID-19 pandemic, cooperation began to recover once more in 2021. The year 2021 was marked by a series of events in the cultural and humanitarian spheres. In particular, the following events were carried out:

– celebration of the 30th anniversary of the establishment of diplomatic relations between Russia and China;

– celebration the 20th anniversary of the signing document called "Good Neighborliness Friendship and Cooperation between the two Countries" The contract itself was extended for five years;

– celebration of the 20th anniversary of the establishment of the Shanghai Cooperation Organization;

– celebration the completion of the cross-years of scientific, technical and innovative cooperation. Cooperation between Russia and China in the cultural and humanitarian spheres is also very active. It is important to emphasize the results of this collaboration. The number of Russians who visited China increased from 2.37 million in 2010 to 4.16 million in 2021. Russian vice Minister of Education Denis Gribov stressed that the Russian language is gaining popularity in China: "Today in China, more than 40 thousand schoolchildren study Russian in more than 280 schools. In addition, 168 Chinese universities are teaching the specialty "Russian language". In 2022, the Center for Chinese Language and Culture was established at the "Interdome", and the International Institute of Arts, a structural unit of Shandong Pedagogical University, was opened at the Herzen Pedagogical University. In the 2022/23 academic year, more than 5,400 Chinese students are studying at pedagogical universities subordinated by the Ministry of Education of Russia," said the vice Minister of Education of Russia. Russia and China have agreed to develop further cooperation in the field of education [8].

All in all, the relations between two countries are currently at the highest level of development in history. Today, there is a serious potential of further promotion of practical cooperation in a wide range of areas from economics and politics to cultural and social spheres. In addition, there is a constant active cultural exchange, more and more young professionals are learning the languages of both countries, working in international companies. Many researchers and political scientists predict further close cooperation between Russia and China.

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ANALYSIS OF FEED DRIVES OF METAL-WORKING MACHINES AND THEIR DEVELOPMENT PROSPECTS

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Abstract. The article discusses the drives of the feed and the main movement, the requirements for them, as well as the prospects for development. The relevance of research into the issues of improving the dynamic characteristics of metal-cutting machine tools is substantiated. A comparative analysis of the requirements for the drives of the main movement and feed movement is given. It is proposed to use control systems with neural networks to improve the quality of the required tasks.

Keywords: feed drive, machine tool, dynamic characteristics, processing, neural networks.

АНАЛИЗ ПРИВОДОВ ПОДАЧ МЕТАЛЛООБРАБАТЫВАЮЩИХ СТАНКОВ И ИХ ПЕРСПЕКТИВЫ РАЗВИТИЯ

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Аннотация. В статье рассматриваются приводы подачи и главного движения, требования к ним, а также перспективы развития. Обоснована актуальность исследования вопросов улучшения динамических характеристик металлорежущих станков. Приведен сравнительный анализ требований к приводам главного движения и движения подач. Предлагается применение систем управления с нейронными сетями для улучшения качества выполнения требуемых задач.

Ключевые слова: привод подачи, станок, динамические характеристики, обработка, нейронные сети.

One of the main tasks in the machine-building industry is to improve the accuracy and quality of the machining process on metal-cutting machines. During machining, deformation of the machined surface occurs, which leads to vibrations and further fluctuations, which adversely affect the metalworking and dynamic characteristics machine.

Dynamic characteristics are the reactions of the system to any disturbances. The main dynamic characteristic is stability, which includes 2 indicators such as quality and accuracy. The stability of a machine can be viewed as the stability of a single system, which includes the machine itself, the workpiece, the tool for processing in interaction with work processes (drilling, cutting, stamping, etc.).

In metal-cutting machines for industrial purposes, there are 2 drives: the feed drive and the main movement drive.

The main movement is the movement that moves the tool while machining the part. Examples of the main movement are: in the turning group – the rotation of the workpiece; in milling, grinding, drilling – rotation of the tool (milling cutter, grinding wheel, drill). The main movement has more power and cutting force [1, p. 249].

Feed movement – the movement carried out by the working tool along the axes of the machine geometry. In this movement, the speed regulation is large and is set by the automatic control system during operation. In the article [2], in order to suppress these undesirable effects, the improvement of the dynamic characteristics of the longitudinal feed drive of a lathe is considered using a non-standard intensity generator (PI). The considered PG is connected to the input of the position loop of the automatic control system by the machine and allows you to set the angular acceleration, angular velocity, and the time during which the longitudinal feed drive will rotate at a given angular speed.

In addition to these two movements, there are auxiliary movements, such as: moving and fixing the workpiece, bringing the tool to the part, setting the machine for a given mode, etc.

In the study of increasing and improving the processing of parts, scientists made a great contribution: Sokolovsky A. P., Bushuev V. V., Levin A. S., Rivin E. I. and others. Despite all the scientific research in this area, there are still questions to study.

This article discusses the feed drive and the possibility of its improvement. The movement of feeds is the movement of the cutter (executive body) to the workpiece. The cutter is a tool with which processing is performed by rotational or translational movement, as well as with the possibility of feed movement in any direction. Depending on the purpose of the cutter, they can be of different geometric shapes, strength, composition. The speed and force of cutting provides a given slice thickness. Cutting thickness is the difference between machined and machined surfaces. During operation, the cutter has the ability to become dull due to various frictions, heating, pressure, so timely replacement or sharpening is required.

The wear resistance of a tool is determined by the operating time, conditions and its strength. For greater wear resistance, the methods of soldering hard-alloy plates, hardening, diamond spraying, and ultrasonic treatment are used.

There are two main types of feed drive: longitudinal and transverse. The feed drive ensures the movement of the cutter in the longitudinal or transverse direction to the workpiece surface. Figure shows that during processing, a force F is applied to the cutting edge of the cutter. This force can be broken down into its components:

$$F = \sqrt{F_z^2 + F_y^2 + F_x^2}$$

In the presented formula, F_z is the main component that determines the cutting force; F_y is the radial component; F_x is the axial component that acts in the feed direction.
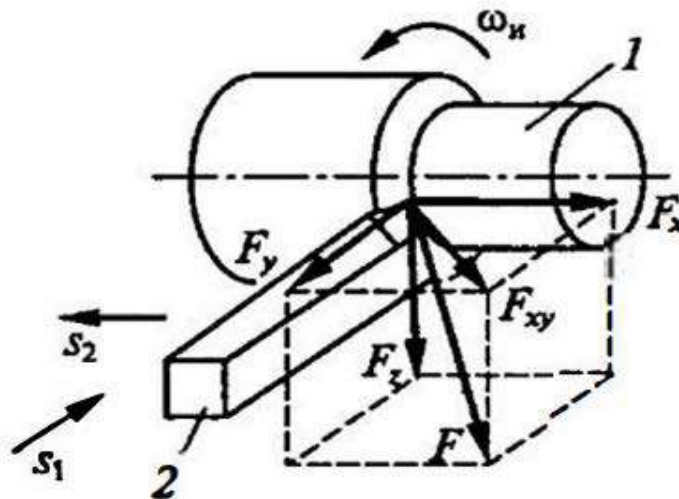
Figure. Forces arising during cutting

Similar formulas are used to calculate the forces F_x and F_y. Approximately, we can take $F_x = 0{,}4\ F_z$ and $F_y = 0{,}3\ F_z$.

First of all, precision machining of products with a large number of feed drives requires high and carefully selected characteristics. Moreover, each axis of the machine requires its own drive. For precise processing, there are manifestations of requirements for electric drives of machine tools [3, p. 11]. Table shows a comparative analysis of the safety of drives of main movement and feed movement.

Table – Technical requirements for the drives of the main movement and the feed movement

For a specific type of drive	
Main movement	Feed movement
- wide range of speed control - providing the required values of power, torque, cutting speed - high precision and smoothness - ensuring a rigid mechanical characteristic - other	- high positioning accuracy - high switching speed (switching on / off) - the ability to withstand large overloads - high rigidity - high torque - the minimum time for working out the driving influence with the aperiodic nature of the transient processes of acceleration and deceleration - no current surges when the load changes - smooth movement of the executive body - other

In addition to the presented technical requirements for certain types of movements, there are also general requirements for all machine drives. These include:

– high performance;
– wide range of tasks to be solved;
– significant margin of stability;
– easy to manage and maintain;
– high reliability and noise immunity;
– small weight and dimensions;
– low drive cost.

Compliance with all the listed requirements in one machine is impossible, so you need to proceed from the tasks and conditions.

One of the main drawbacks of the design of modern metalworking machines is the presence of a gearbox, which leads to a decrease in the accuracy of the machine due to the presence of gaps in the gear pair, thermal deformation of the MPU units, and increased vibrations. This negatively affects the quality of processing.

Therefore, stepless adjustable electric drives with or without a simple gearbox are promising [4, p. 3]. The stepless drive allows you to increase the productivity of processing by fine-tuning the optimal speed for cutting conditions, as well as its smooth regulation during the operation of the machine.

Due to the smaller weight and size indicators compared to IM with a squirrel-cage rotor and the constantly decreasing price, HP.

The use of PID controllers with standard settings in electric drive control systems in some cases does not provide the required indicators of the quality of the

drive transient process. In such cases, a promising direction in the development of electric drives for metalworking machine tools is the use, and in the future, the introduction of artificial neural networks in the form of neuroregulators in all areas of production. In the article [5], the synthesis of a neural controller with the prediction NN Predictive Controller was carried out for the possibility of controlling the speed. A neural network is a mathematical model that is capable of analysis and, subsequently, of learning. Learning occurs both thanks to a person and on the basis of previously obtained results, that is, in other words, with the help of experience. For a better understanding, we can draw an analogy with the human brain. The computer processes the data and learns from its own mistakes, due to which the parameters we need improve.

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AUTONOMOUS VESSELS: CHALLENGES AND EXPECTATIONS

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Abstract. This paper provides information on the current situation in the sphere of autonomous shipping. Descriptions of autonomy categories are provided. The main trends and problems of autonomous shipping are described and analyzed. As a result of this analysis, predictions concerning further introduction of automation to the shipping industry are made.

Keywords: blue-water shipping, inland navigation, unmanned vessels, human and machine interaction, safety at sea, autonomous navigation.

АВТОНОМНЫЕ СУДА: ПРОБЛЕМЫ И ОЖИДАНИЯ

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Аннотация. В работе собрана информация по текущей ситуации в сфере автономного судоходства, приведены описания категорий автоматизации. Описаны и проанализированы основные тенденции и проблемы автономного судоходства. Как результат анализа сделаны прогнозы о дальнейшем внедрении автоматизации в судоходную отрасль.

Ключевые слова: морское судоходство, речное судоходство, беспилотные суда, взаимодействие машина-человек, безопасность на море, автономная навигация.

Automation is invading all spheres of our life, including transportation. The autopilot technology in aviation, for example, has been developing since early 20th century [1, p. 468], and today, it is gradually becoming more common to ride an unmanned subway train or learn about driver-less land transport.

The automatic steering technology on vessels was already widely spread in the 1980s, but today the automation development has reached a new stage. Shipping that supplies over 90 % of the world's trading [2] requires a constantly increasing number of qualified sailors. This leads to augmenting the crew salaries as well as a decrease in their average qualification. At the same time, according to certain experts, the crew salaries constitute up to 20 % of the vessel cost during the 20-year operation period

[3], while the expenses of keeping the sailors on board can reach 30-40 % of the ship operation costs [2]. By integrating the technologies of autonomous operation into shipping, the vessel owners seek for higher safety and lower salary costs which is achieved by minimizing the possible human errors and decreasing the number of crew, respectively.

Russia is currently one of the world leaders in raising the level of automation on sea vessels. This process in our country is directed towards implementing the innovative technologies straight into operation, while abroad, just individual projects are created [4].

Back in 2020, the Russian Maritime Register of Shipping (RS) was one of the first classification societies to issue regulations for classification of maritime autonomous and remotely controlled surface ships (MASS) [5]. According to these regulations, all remotely or autonomously controlled surface vessels can be classified into five categories listed in Table.

Table – autonomy categories

MC	Manual control	person on board
MC_{DC}	Manual control with decision support	person on board
RC_{MC}	Remote control with manual control override capability	person on board
RC	Remote control	no person on board
AC	Autonomous control	no person on board

A sea vessel can be designed or modernized for a combination of these categories. For example, the symbol AC-MC means the vessel is totally autonomous in the open sea but needs to be manually controlled in port or in complicated conditions. The vessels of RC and AC categories are to be equipped with a navigation bridge on board, although in normal conditions they operate with no crew [5].

The main problem in the sphere of vessel automation is implementing these technologies into navigation. Engine rooms and cargo systems that do not require constant human presence and control have become common practice for most of the new vessels constructed. For example, the automation categories of the machinery compartment are as following [6, sec. 2.2.6]:

1. AUT1 – the automation extent is sufficient for the machinery installation operation with unattended machinery spaces and the main machinery control room;
2. AUT2 – the automation extent is sufficient for the machinery installation operation by one operator at the main machinery control room with unattended machinery spaces;
3. AUT3 – the automation extent is sufficient for the machinery installation operation of a ship with the main machinery power output not more than 2250 kW with unattended machinery spaces and the main machinery control room;
4. AUT1-C, AUT2-C or AUT3-C – automation is based on computers or programmable logic controllers;

5. AUT1-ICS, AUT2-ICS or AUT3-ICS – automation is made with the use of a computerized integrated monitoring and control system.

Still, up to nowadays, navigation has been requiring a set of skills too vast to be processed by an electronic system. Moreover, the requirements considering ship handling and interaction with other vessels are not always defined exactly. This is suitable for a human whose decisions are based on judging and personal experience, but unacceptable for a computer program that requires strictly defined and comparable information to act.

However, in 2021, a document converting the navigation regulations into machine code was issued, and the first vessels were equipped with automation systems: the arctic shuttle tanker *Mikhail Ulyanov* (IMO No. 9333670), the bulk carrier *Pola Anfisa* (IMO No. 9851115) and the hopper barge *Rabochaya* (IMO No. 9838371). Another control post of the *Rabochaya* was installed on the mechanical dredger *Redut* [7], therefore permitting remote management of the barge. It is remarkable that the equipment installation as well as the RS approval were made without pausing the operation process of the vessels. Despite the fact that some of the vessels' systems were far from being modern, the ship operating devices were successfully unified into an electronic network that allowed controlling them from a single gadget. This way, the listed vessels became possible to be both remotely and manually controlled, as well as perform in a fully autonomous mode along a pre-programmed route [8].

While autonomous, the vessels identified potential hazards and obstructions, and proposed the possible solutions to ensure keeping clear. These solutions were filtered and approved by the captain in charge [8].

As the experiment demonstrated, vessels of various purposes can be upgraded for one of the autonomy categories listed in Table 1. The technological progress in this sphere can therefore be expected to ensure a sufficient level of complexity and flexibility of the navigation system for implementing it into commercial shipping.

According to the RS regulations [5], a vessel of any autonomy category has to be monitored from a local or remote control centre (RCC). The RCC has to be staffed with crew being able to ensure safe round-the-clock operation of the vessel. The work of the personnel is therefore organized in shifts, similar to the ones on board. The structure of the RCC is at least as following:
– master (similar to the master of a ship with crew);
– operator (watch officer) with a qualification no lower than chief mate;
– mechanical engineer (similar to chief engineer or electro-mechanical engineer);
– operator (watch officer) with a qualification no lower than second engineer;
– communications engineer (analogue of electronic engineer on board);
– doctor (in case of the RCC isolated location, if necessary);
– supporting personnel ensuring operation of the RCC and its equipment.

Therefore, the RCC structure is very similar to the crew on board, but lacking deck ratings and junior officers.

All of the RCC staff members need to have qualification certificates identical to the ones for the crew on board, as well as additional training certificates for MASS operation [5].

The facts mentioned above demonstrate that operation of MASS is already possible both technically and legally, although – yet – in limited areas and conditions. However, some of the aspects are still to be dealt with.

First of all, the actions in a critical situation of a vessel with no crew on board are uncertain. Apart from heavy weather that requires fine steering skills, a vessel may face pirates, a fire, or a full blackout [9]. In the first two cases the RCC team is able to take actions in order to prevent the loss of the vessel; however, not being on site is probably going to affect the efficiency of their decisions. A blackout leaves the vessel totally uncontrolled, neither from inside nor outside. The consequences of this accident may become catastrophic, especially if it happens on a busy fairway or in rough waters.

Navigation in ice conditions is currently considered to be possible only by on board crew. Choosing the optimal way in ice is never defined strictly and therefore cannot be processed by an automatic electronic system. Consequently, navigation in high and low latitudes will stay "traditional" for much longer. This problem is particularly relevant for Russia: as the development of the Northern Sea Route is in progress, the cargo turnover increases, and so does the number of vessels. However, increasing the level of autonomy by implementing decision support and data managing technologies can help optimize the routes in icy waters.

An unusual solution was presented by *Aker Arctic*, a Finnish design bureau specializing in ice-going vessels [10]. In 2018, the *Saimaa* detachable bow was built. This is an icebreaking self-propelled bow that can be connected to the pusher tugboat *Calypso* and operated remotely from the tug [11].
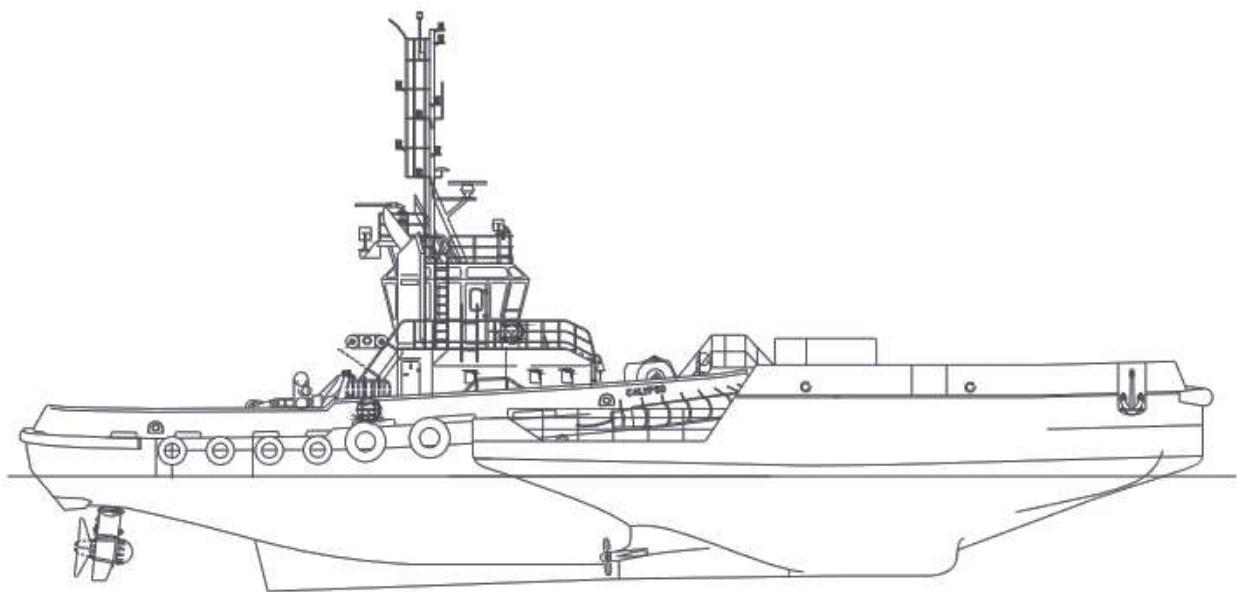
Figure. The *Calypso* tug with the *Saimaa* bow attached [12]

The combination of the *Calypso* and the *Saimaa* fulfilled the 7-knot speed requirement in a 150-cm-thick unconsolidated channel, as well as reached the speed of 6,5 kn in 50-cm-thick ice [13]. Although the detachable bow was designed for lake

ice conditions, the concept can be utilized as a prototype for possible new designs, including seagoing vessels.

The insurances of unmanned vessels may become another factor complicating their introduction into shipping. Considering the uncertainities related to emergency situations and the responsibility for them, the insurance companies are considered likely to demand higher insurance prices or even refuse to insure unmanned vessels [14]. In this case the insurance prices may exceed the cost of crew salaries and therefore an unmanned vessel would not be cheaper than one with crew. This, factor, however, can be expected to come to nothing with the development of automation systems.

Efficient communication between the autonomous vessel and the crews of surrounding vessels is also yet to be specified. The least complicated and most common case when this communication is necessary is entering and leaving port and navigating through narrow waters. These operations require good coordination with tugs or pilot vessels. The solution to this issue could be transferring the ship handling into manual mode each time communication is certain to be necessary. In this case, the demand for experienced pilots can be expected to increase, as a certain part of the functions that are currently the captains' responsibility will be overtaken by them. Another way to ensure safety in narrow waters is installing additional beacons readable by the autonomous vessel's positioning systems that would help to increase the approach accuracy.

Communication becomes crucial in emergency situations that require participation of an autonomous vessel. According to the Merchant Shipping code of the Russian Federation [15], the captain of a vessel is bound to render assistance to any person in distress at sea if he can do it without serious danger to his vessel and the people onboard of his vessel. For breaching this duty, the captain is liable to be prosecuted in accordance with the Criminal Code of the Russian Federation. It is uncertain how assistance is supposed to be provided by an autonomous vessel as well as how the communication between the autonomous vessel and the other vessels involved in the rescue operation is to be organized.

Russia's another important aspect is inland navigation. It can be characterized by a sometimes very challenging combination of current and riverbed configuration, as well as long trains of barges towed and pushed by tugs. Due to these aspects integrating autonomy technologies into river navigating is not considered feasible [16]. However, up to the point when the electronic system helps making decisions without making them autonomously, its installation can be considered useful.

The list of RCC staff (see above) demonstrates that an autonomous vessel is to be operated by highly qualified officers with extensive experience in navigation. This can be obtained only by progressing through the career starting from the lowest ranks. Therefore, a certain percent of vessels will never, even in the long run, become totally autonomous and continue to serve as training ships operating at the same time as fully-fledged transport vessels. In the situation when autonomous shipping becomes cheaper than operating vessels with crew, the ship owners will avoid the "training" vessels. To compensate this issue, authorities need to consider either

maintaining a government-owned fleet of vessels with crew, or obliging ship owners to do it.

Considering the aspects of integrating autonomy systems into shipping, the development of the sphere can be predicted. The most common category of autonomy in the nearest future shall be MC_{DC} (manual control with decision support) as it can significantly improve safety. This step would mean decreasing the number of crew by transferring vessel handling to officers only. The vessels of RC_{MC} automation category may become common for certain purposes, such as towage or dredging, as it can be beneficial to operate a number of auxiliary vessels from the head one.

The RC and AC categories would be implemented together with further development and testing of the autonomy technologies. Simultaneously, the legal sphere as well as other associated spheres will be brought into compliance with the technological aspect. Thus, autonomous sea transportation will gradually become more common.

The future of autonomous sea shipping will mean considerable changes in the crews not only by function but also by vessel type: the former cargo ship operators will step over to tug vessels, special purpose vessels, ice navigation, and piloting.

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УДК 82.09

THE ROLE OF WOMAN IN A MAN'S DECAY
IN FRANCIS SCOTT FITZGERALD'S NOVEL "TENDER IS THE NIGHT"

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Abstract. This critical study attempts to trace the connection between the female characters and the fall of the main male character in F. Scott Fitzgerald's "Tender is the Night" – both physical and spiritual. Targeted primarily at women, the novel is supposedly aimed at presenting females of the Jazz Age in a more appealing manner. Despite the shift from female flat characters, "Tender is the Night" builds its women, though round and complex, to become the reason for Dick Diver's decay.

Keywords: "Tender is the Night", feminist criticism, women of Jazz Age, F. Scott Fitzgerald, women's representation, modernism.

РОЛЬ ЖЕНЩИНЫ В ПАДЕНИИ ГЕРОЯ РОМАНА
ФРЭНСИСА СКОТТА ФИЦДЖЕРАЛЬДА «НОЧЬ НЕЖНА»

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Аннотация. В данном критическом исследовании автор пытается проследить роль героинь «Ночь нежна» Фрэнсиса Скотта Фицджеральда в падении – как физическом, так и духовном – его главного героя. Нацеленный, в первую очередь, на женскую аудиторию роман предположительно пытается построить новый образ женщины эпохи Века джаза: она противостоит силе патриархата. Однако «Ночь нежна» не справляется с поставленной задачей и создает женский персонаж, хоть и, вопреки традиции большей части классической литературы, не плоский, который становится причиной угасания Дика Дайвера.

Ключевые слова: «Ночь нежна», феминистская критика, женщины Века джаза, Фрэнсис Скотт Фицджеральд, репрезентация женщин, модернизм.

The Jazz Age was accompanied by the revolution in women's freedom. The 19th Amendment marked the beginning of political female independence. Women's

hair, dress and, as judged by still conservatively inclined men, morals became shockingly shorter. They started to shape American society and consumer culture. Yet, though it was a starting point of women's liberation, they were still wives and mothers with all entailed responsibilities and limits. The same revolution with no change in female representation happened in literature. When one would expect the new novels after the year of 1922 – which is perceived as a watershed moment in modernist literary history – to reach a new view of women, in reality, these products of the new age proved to follow the patterns of their predecessors with "the archetypal role of woman as love goddess or mother imago" [1, p. 63].

Fitzgerald was a commercially oriented writer who learned soon enough that his audience was primarily women [2, p. 31]. Conscious of the fact that The Great Gatsby lacked strong female characters who would appeal to the majority of the female audience, the novelist set a goal to compensate for it in Tender is the Night's heroines. Nevertheless, it is argued, especially by the predominant number of male critics, who, in fact, solely focused on Dick's character, that Fitzgerald never reached the transition between the flatness and strength of his female characters. This paper discusses this statement and tries to understand whether Fitzgerald's last novel's heroines contributed to the moral decay of its main male character.

In Fitzgerald's Tender is the Night, it is clear that the only thing sought and cherished in female characters – representatives of the real women of the 20s and 30s – is beauty and youth: "I like her. She's attractive" [3, p, 186]. At times it seems that it is the primal, if not the only, reason Dick, a promising psychiatrist, married Nicole for: "I'm half in love with her – the question of marrying her has passed through my mind" [3, p. 188]. Another important female character, Rosemary who, as the reader learns later, became a turning point in Dick's life and catalysed his and Nicole's divorce, gathers all those features that once attracted Dick in his wife: a very young, sometimes even too childish and naive actress whose beauty even was noticed and praised by Nicole herself.

Not only are the women of "Tender is the Night" all about physical appearance, but they are also devoid of voice. Though Nicole is perceived by others – especially by Rosemary for whom Dick's wife is practically a role model and who not once confesses her love for them both – as a brilliant young woman whose opinion is as important as Dick's, she is portrayed to be voiceless: "This was because she knew few words and believed in none, and in the world, she was rather silent, contributing just her share of urbane humor with a precision that approached meagreness" [3, p. 37]. It is hard to believe that a woman with such opportunities and background would have no opinion only because she was schizophrenic unless it was a man by her side who was not secure with the opinions of his wife. In the moments of hysteria, Nicole could try to set her boundaries: "It's you!' she cried,' – it's you come to intrude on the only privacy I have in the world…" [3, p. 149]. Thus, from this episode, it is clear that she was restrained both mentally and physically.

Apart from being shadowed by the avant-garde of the 20th century – artists (Abe North), doctors (Dick and Dr. Gregory) and philosophers (Albert McKisco), –

women here are the ones to be saved, both literally and figuratively. The grand saver of these "damsels in distress" is Dr. Diver or Mr. Diver, a man and a doctor in one person. Sometimes it is really hard to catch whether it is a husband or a psychiatrist in front of the reader. One minute he is Mr. Diver, or simply Dick, the other – he is trying to cure his patients being Dr. Diver. The most obvious example is his marriage to Nicole: "That's what he was educated for" [3, p. 401]. The true reason for these two to be together is a very controversial one. At some point, there is nothing left but to believe in the love between Dick and Nicole. Then, there are moments of vagueness like when Dick keeps silent to the question of whether he truly loves Nicole or the direct implications that the marriage was just an attempt to cure a patient: "The case was finished. Doctor Diver was at liberty" [3, p. 387].

The naivety with which Rosemary perceives reality at the beginning of the novel allows the reader to see the relationship between Dick and Nicole as clear as it was: "She had thought however that it was a rather cooled relation, and actually rather like the love of herself and her mother. When people have so much for outsiders didn't it indicate a lack of inner intensity?" [3, p. 100-101]. It was not the kind of love one presumes when talking about marriage. It was the love of a carer and one who that care was taken of, the love between a doctor and his patient. One could have mistaken it for something else as they played the roles of husband and wife in front of their audience. As Nicole once noticed, "Oh, we're such actors – you and I" [3, p. 140].

As mentioned above, Rosemary attracted Dick because of her beauty and youth. But it was not that simple after all. Having idolised Nicole, a Hollywood actress did not realise that she had already met the criteria: "He seemed kind and charming – his voice promised that he would take care of her and that a little later he would open up whole new worlds for her, …" [3, p. 24]. Perhaps, it had something to do with Dick's desire or rather a professional interest to be kind and good and save other people, especially young and beautiful yet fragile women.

The reader is once and again brought to the darkness that Nicole introduced in Dick's life. It is her own words "I think it's my fault – I've ruined you" [3, p. 344] that speak against herself and in favor of a patriarchal reading of the novel. But should one believe this considering the fact that it was a male author who put those words in a female character's mouth?

If we forget for a moment about two key female characters – Nicole and Rosemary, it is not the first time that Dick's failure is attributed to the fault of women in his life. In the beginning, the reader learns that Dr. Diver is a bright psychiatrist who works on scientific papers and aspires to become a good, if not the best, practitioner. Despite the great start, when it becomes clear that the work does not bring as much meaning to his life as it used to, Dick confesses: "… I got to be a psychiatrist because there was a girl at St Hilda's in Oxford that went to the same lectures" [3, p. 185]. The question here is whether Dick really wanted to become a doctor or it was a spur-of-the-moment decision inspired by a pretty girl. Once again, there is always a girl to put one's blame on.

For the sake of justice, the words that once compromised Dick's wife's role in his life were confronted later on by Nicole herself: "You're a coward! You've made a failure of your life, and you want to blame it on me" [3, p. 386]. It took the whole of three books for Fitzgerald to restore Nicole's respect regarding Dick's collapse. Though there is no guarantee that this one-sentence reproach would abolish the evidence against Dick's schizophrenic wife that has been built up to a point.

This is the moment where the controversy emerges. On the one hand, Tender is the Night's woman is fragile, beautiful, and voiceless. But then, she can stand up for herself. Sometimes only in the state of madness, which is again evidence of the practice of silencing female characters who gain voice only in a critical situation and that critical moment can be later on used against the credibility of their arguments. Still, Nicole has a certain power which, unsurprisingly, makes Dick afraid of where this marriage is to bring him. Dick was not only insecure about Nicole's money, but it was also her desire to "own him" and "to stand still forever" that scared him and "encouraged any slackness on his part" [3, p. 226].

Another fear that Dick grew to have in his marriage to Nicole is that they "had become one and equal, not opposite and complementary; she was Dick too, the drought in the marrow of his bones" [3, p. 251]. She consumed him entirely: "He had lost himself – he could not tell the hour when, or the day or the week, the month or the year" [3, p. 264-265]. The mere idea of Nicole dying, in other words, him dying, made Dick literally physically sick.

Thus, as time passed, there was no other girl to save. Dick wanted to be saved himself. At this point, it is impossible to state that Nicole is a flat character in the story. As Toril Moi puts it, women are "the necessary frontier between man and chaos, but because of their very marginality they will also always seem to recede into and merge with the chaos of the outside" [4, p. 127]. In other words, women, from a phallocentric point of view, are usually portrayed as something evil, those who bring chaos into the male characters' lives and are chaos themselves. "It is this position which has enabled male culture sometimes to vilify women as representing darkness and chaos, to view them as Lilith or the Whore of Babylon, and sometimes to elevate them as the representatives of a higher and purer nature, to venerate them as Virgins and Mothers of God." [ibid.] So, had Nicole been presented only as a naive beautiful girl and not the chaos that was partly because of her trauma, it would have been possible to assert that she was just a plot device. No human being is a completely morally perfect person hence Tender's main female character does not go as a catalyst for the main male character's development (in this case, decay).

Nevertheless, it is the direction of Nicole's character development from a "damsel in distress" to a wife who betrayed her husband and marred his life with her own problems that raises questions. One may even start doubting her mental problems, for Doctor Gregory's wife Katherine once mentioned: "I think Nicole is less sick than anyone thinks – she only cherishes her illness as an instrument of power" [3, p. 312]. And here again, one may notice how a male-written text tries to vilify a woman who has some kind of power and attempts to submerge men around

into the darkness she comes from. Curiously, it is done through the words of another woman, which is yet another thing to think about.

Undoubtedly, Tender is the Night's women are anything but flat characters. They represent their age: beautiful and stylish, smart and individualistic, and certainly they have their issues. Fitzgerald did achieve his goal of creating strong female characters to whom many women of the 30s could relate. However, it does not undermine the fact that the big villain in the story also is a woman. It was neither Rosemary nor Nicole in particular who was a starting point in Dick's moral and physical regress. It was, as in many other male-written novels, a woman in general who made a simple man suffer.

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FEMVERTIZING AS THE BRANDS' GENDER POLICY
ON THE EXAMPLE OF NIKE ADVERTISING CAMPAIGN

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Abstract. In Russia, in recent years, there has been a change in the public agenda regarding feminism, which has had an impact on the advertising sphere. Currently, there is a phenomenon of "femvertising", that is, the use of feminist ideas in advertising. This article examines the case of such advertising from the Nike brand called "What are our girls made of".

Keywords: marketing, gender issues, gender stereotypes, femvertising, feminist agenda.

ФЕМИНИЗАЦИЯ КАК ЧАСТЬ ГЕНДЕРНОЙ ПОЛИТИКИ БРЕНДОВ
НА ПРИМЕРЕ РЕКЛАМНОЙ КАМПАНИИ NIKE

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Аннотация. В России за последние годы произошло изменение в общественной повестке относительно феминизма, что оказало влияние на сферу рекламы. В настоящее время наблюдается явление «фемвертайзинга», то есть использование феминистских идей в рекламе. В данной статье исследуется кейс такой рекламы от бренда Nike под названием «Из чего же сделаны наши девчонки».

Ключевые слова: маркетинг, гендерные проблемы, гендерные стереотипы, фемвертайзинг, феминистическая повестка.

Nowadays commercials are essential part of every company's policy. Therefore, we can see advertisement more than just often – whether on TV, new media, or cinemas. Modern advertising though not only promotes the brand, but also presents specific values and ideas, relevant for both the society and company itself.

That's a ground reason why companies often bring up topical social issues in their campaigns. Gender equality and gender-based stereotypes are one of them.

One of their most recent campaigns was dedicated to the promotion of gender equality and gender stereotypes breaking. This campaign "What our girls are made of?" became widespread and popular. It's video commercial was aimed at a common stereotype, presented in the famous Soviet song and poem by S.Y. Marshak. It states that girls metaphorically consist of """flowers and bells, handkerchiefs and wool balls, riddles, and marmalades", "candies and cakes, pins, needles, ribbons". And boys, on the opposite, are made of "springs and pictures, from glass and blotters", "from ridicule, threats, from crocodile tears". In this poem the distinction between male and female roles can be clearly seen. And that forms certain ideas about "proper" gender behaviour: boys must be strong, brave, dexterous, mischievous, athletic, and girls vice versa must be sophisticated, carefree, concentrated on household chores only [1].

Nike decided to break this gender stereotype by showing that girls can also be resolute, persistent, and strong. In this commercial the original melody was used, but the lyrics were changed. Instead of using the initial words (e. g. girls are made of "…flowers and glances" and etc.) advertiser used the following text: "…made of iron, of aspirations, of dedication and fights, of perseverance and grace, of courage and clenched fists .... of the will that's stronger than flint ...". These lines are hardly compatible with the established opinion about "proper" gender behavior.

For the first time the concept of "gender" as a social phenomenon was used by R. Stoller. He noted that the meaning of gender lies in the denial of biological predetermination [2].

The differentiation of gender roles has always existed due to historical development. Men, being naturally stronger, used to hunt and were responsible for the safety of the tribe while women were responsible for reproducing the family and caring for offspring, watching the fire ("hearth"), which also helped to survive. With the society development women's role as a "hearth keeper" fully settled. It turned into less access to education, the inability to work due to its absence and the need to care for children; also, it imposed manual labour at home, without which it would be impossible to support the life of an individual family and society as a whole. As the technology has developed, the importance of physical strength became less important, same is true for the manual house maintenance. Gradually, intellectual work became the primary importance for the society. Thus, biological traits became of less matter. Nevertheless, gender stereotyping has become so firmly established in public consciousness that certain patterns and gender discrimination still exist. Famous sociologist R. Connell noted some examples of gender inequality such as unequal salary, gender division of labor, violence against women, etc. She also stated that all of these phenomena are derivatives of the gender order, i. e., they are socially conditioned [3].

According to statistics, women in Russia earn 30% less than men do, the proportion of women on the boards of directors of Russian companies is 8.4%, and

the average number of women in state bodies of supreme power in the country is 20.5%. In the world ranking of gender inequality (based on different access to resources for men and women), Russia ranks 81st out of 156 annotated countries. These facts illustrate the existence of gender inequality in Russian society. According to the Levada Center (recognized as a foreign agent in the Russian Federation), Russians have "gender portraits" that affect their opinion about the "proper "behavior of men and women. Among the most valuable qualities in men respondents name "intelligence", "ability to earn money" and "decency", and for women - "thriftiness", "good appearance", "caring nature" and "fidelity". These perceptions are formed into stereotypes that turn into inequality based on the belief that men are smarter and more inclined to career achievements than women are.

At the same time, multiple studies have proven that there is no difference between men and women in the emotional spectrum and intelligence, which would be biologically determined. However, gender stereotypes make people "hostages" of their roles.

S. de Beauvoir in her work "The Second Sex" systematized, historically substantiated and fixed all existing and contemporary gender stereotypes [4]. She noted that the main stereotypes refer to marriage and the obligatory birth of children. She represented marriage as a thing destructive for women, because in a marriage woman is in a subordinate position to her husband. She concluded that girls are made to follow certain gender conceptions that have been formed historically and prescribe a rigid framework for women behavior.

In her research B. Fridan noted that the concept of "ideal" femininity was invented by men to justify the roles of mother and housewife that they expect from women [5].

Referring to these works some research as well as followers of feminist movements claim that the concept of "femininity" is aimed at making women "convenient" for patriarchal society and excluding them from socio-political discourse. Therefore, feminists insist on the need to eliminate gender stereotypes and ideas.

There's a vast background of stereotypical image of women in advertising. And still most of them can be found in modern commercials. At the moment, the following images prevail [6]:

1. Woman as a sexual object. In this case parts of woman's body are used in advertising materials, which, according to the plan of marketers, should attract male consumers.

2. Woman as a "silly" who cannot exist without a man. In this case, she asks a large number of questions that only a male representative knows the answer to. Or for example she cannot cope with some situation, most often a "male" one (park a car, plan a budget, etc.);

3. Woman as an "exemplary" wife, mother, housekeeper. In this example she is shown to like to take care of her family, live for the sake of her loved ones. It's positioned as a "true purpose of a woman", which should inspire other to follow;

4. Woman as an independent and self-sufficient subject. Despite the fact that in this case women are presented as independent; they still are stereotyped specifically in two ways. Rather a lonely and nondescript woman, or still lonely, but sexualized.

In modern mass culture rethinking the place and role of women in society is an actual topic. Feminism is becoming one of the main trends in the 21st century, and marketing is responding to this trend. A clear example of this is the emerging of femvertizing, a form of advertising focused on reconstructing stereotypes about women and their behaviour. Femvertizing uses pro-feminist messages and now becomes a powerful tool for drawing attention to the issues of women's representation in the media, gender stereotypes and inequality in general. In their research, German sociologists found that gender stereotypes in advertising can have a lasting effect on the consumer: on how they perceive themselves and what lifestyle they lead. Even their daily behaviour can change depending on what they see in the media. Femvertizing is basically aimed to creating a positive image that women can identify and associate with. Such advertising strategy literally challenges the gender stereotypes that people are used to expect from advertising.

Femvertizing is actively used in the sports marketing, because it's one of the areas with strong and stable gender stereotypes e. g. the division of sports into "male" and "female". Even though both male and female teams are represented at the Olympic Games in different sports, there is still an opinion that "female" sports are tennis, synchronized swimming, gymnastics, and "male" sports are football, hockey, weightlifting, wrestling, boxing, biathlon, etc. It is widely believed that team sports are suitable for men due to the desire for competition. And for women most suitable are individual or pair sports. At the same time one can trace how women are afraid to engage in certain types of sports because unfeminine features can be attributed to them because of showing their determination, perseverance or physical strength, which may be subject to public censure. Same is true for engaging in a non-male sport for men, for example, ballet or gymnastics for it can be designated by the social opinion as "too female" or "not male".

In his paper, we will consider the reconstruction of gender stereotypes using the example of the 2017 advertising campaign "What are our girls made of" by the well-known sports brand Nike. The company has been fighting gender stereotypes and supporting gender equality trends for a long time. Since 2008, Nike has developed the project "The Girl Effect", aimed at providing support and education for girls from third world countries. Also, in 2015 the "Nike Women" movement has emerged. Its aim is supporting women and the feminist movement [7]. As part of the project, the brand provides support to novice athletes and conducts advertising campaigns that inspire women not to be afraid to be strong, courageous and free from

other people's opinions. Nike uses unique marketing strategy for each country taking cultural and value characteristics into account.

The campaign "What our girls are made of" was no exception. It was created by the Dutch communication agency "Wieden + Kennedy" and the author of the new lyrics for the song was the Russian-speaking copywriter Yevgeny Primachenko. In one of his interviews, he said that the purpose of creating the commercial was to promote the idea that women should not be embarrassed to do what they want and that stereotypes wouldn't be an obstacle for them. In 2017, the video won the Golden Lion award at the Cannes Advertising Festival [8].

The commercial begins with a girl standing on stage in a white dress, elegant shoes, with neatly styled hair. The image totally complies with the stereotypical idea of a diligent girl. And she begins to sing the first lines of the famous Soviet song "What our girls are made of." Men and women in the hall smile at the initial phrases, nod their heads to the words that girls are "made of flowers and bells" as they approve this image of girls. It is quite symbolic that the audience consists mainly of elderly people, which represents archaic patriarchal gender stereotypes about "proper" behavior for men and women.

Yet the familiar song firstly referring to nostalgic memories has been adapted to new realities and now is aimed at destroying the division about what is due for boys and girls. The girl's imagination draws the figure of the Olympic champion, figure skater Adelina Sotnikova in the hall. And girl proceeds to sing, but the lines are most unexpected: she sings those girls, opposite to what original lyrics say, are made of "iron, achievements, of dedication and accomplishments". The audience looks at the girl in surprise, but her facial expression becomes more confident, and her voice firmer. Then the audience is shown only in one of the final scenes - this symbolizes the fact that despite the bewilderment and possible disapproval of others, the girl continues to sing what she wants and chooses to do as she pleases. Then in front of her famous athletes begin to appear: ballerina Olga Kuraeva (followed by the lyrics "of perseverance, of grace, which the whole nation is proud of"), boxer and MMA fighter Anastasia Yankova ("of bruises and cuffs"), skateboarding champion Ekaterina Shengelia ("of courage and clenched fists"), track and field athlete Kristina Sivkova ("of independence and skill, of passion, heart and dignity"), Nike coach in Russia Anastasia Kotelnikova ("of strength and fire"). Finally appears football player of FC Chertanovo Ksenia Lazareva, passing the red ball to the girl on stage. First of all, these athletes confirm the words of the girl's song, and secondly, they symbolize the correctness of her choice which is to rely on herself and her own feelings. The sports that some heroines do are traditionally considered "male" in society: football, boxing, athletics, but they are demonstrated together with the "female" sports: ballet and figure skating, which highlights their equal importance.

It's important to notice that following the lines "of freedom from other people's opinions" a girl gets up from the audience and tears off her evening dress, remaining in a Nike sports top. This girl was played by Irina Gorbacheva. This actress in many

of her interviews noted that she struggled for a long time with the image of a "boy" prescribed to her because of her tall stature and thinness. She says that the directors didn't give her any feminine roles, which didn't allow her to fully self-realize in the profession. Also, at school and University, she was ridiculed by her peers. Irina Gorbacheva has repeatedly said that it was only faith in herself and ignoring stereotypes and other people's opinions that helped her succeed.

The girl's choir which appears behind the girl on a stage in the middle of the song is also worth mentioning as it symbolizes support. It is important because in the Russian context, misogyny and chauvinism are quite strongly developed among women and in relation to women, so this choir demonstrates the opposite – an element of "sisterhood" and "team game".

At the end of the commercial girl receives a soccer ball and finds herself on a winter soccer field. And here again a "non-feminine" sport can be seen. Moreover, the winter season additionally emphasizes the hardiness and resilience of a girl – qualities that are stereotypically inherent only in men. It is shown that the heroine can be whatever she wants: she can sing in a beautiful dress on stage, or she can play and run around the football field in winter.

The finale of the commercial is a phrase "You are made of what you do", that once again emphasizes that no stereotypes should influence the choice of activity and the path of one's life. The purpose of this video was to demonstrate, using visual images and symbols, that females can themselves determine the choice of their activities, and that activities can be different.

Thereby using the Nike's campaign as an example, we examined how the brand's gender policy is implemented through femvertizing. Such type of advertisement is aimed at destroying traditional common stereotypes about women. The femvertizing strategy in the gender policy of the brand is based on highlighting the existing attitudes in society towards the expectations placed on representatives of different sexes. Then determining what is the grounding for these attitudes and what may be a new narrative, violating them and showing the possibility of life without stereotypes.

This advertising campaign we examined was based on appealing to nostalgic memories (the song), national pride (represented in famous athletes) and other multiple symbols. Additionally, the campaign neither did demonstrate the dominance of women over men nor it belittled anyone's role in society.

Femvertizing on the example of Nike campaign demonstrates its social significance for modern society, especially in Russia, where gender stereotypes persist in several mass culture products that do not allow girls to build their lives the way they want.

We also must note one necessary element of this strategy – maintaining a balance between "equality" and "supremacy", as well as attention to the cultural characteristics of the target audience, the country/region of distribution. Only then such advertising will excite and inspire.

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DESIGN PRINCIPLES FOR COURSE CONTENT ORGANIZATION AND SYLLABUS DEVELOPMENT

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Abstract. The main aim of the article is to help teachers and university professors develop syllabi for their own courses in the current situation, characterized by the growth and diversification of curricula. Considering the importance of course content organization in higher education and backward instructional design, the author proposes a 5-step algorithm for structuring educational content based on universal design principles and recent education research.

Keywords: instructional design, course design, syllabus, universal principles of design, educational content.

ПРИНЦИПЫ ДИЗАЙНА ДЛЯ ОРГАНИЗАЦИИ ОБРАЗОВАТЕЛЬНОГО КОНТЕНТА И СОСТАВЛЕНИЯ УЧЕБНЫХ ПРОГРАММ

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Аннотация. Основная цель статьи – помочь учителям и преподавателям вузов в разработке учебных планов и рабочих программ для собственных курсов в нынешней ситуации, которая характеризуется ростом и диверсификацией образовательных программ и направлений обучения. Учитывая важность организации содержания курса как в высшем образовании, так и в обратном педагогическом дизайне, автор предлагает 5-этапный алгоритм структурирования образовательного контента, основанный на универсальных принципах дизайна и актуальных исследованиях в области образования.

Ключевые слова: педагогический дизайн, дизайн курсов, рабочая программа, универсальные принципы дизайна, образовательный контент.

Introduction

With the increasing number and variety of courses in modern higher education, the problems of curriculum design and syllabus development are becoming more and more urgent as for educational institutions, as for teachers responsible for their subjects. In the Russian Federation, the development and implementation of course syllabi are officially recognised as an obligatory competence of a teacher [1]. The significance of curriculum and syllabus development is also discussed in professional literature [2, 3].

According to Russian official documents, the main parts of the course syllabus are the following: 1) planned learning outcomes of a particular course; 2) the organization of course content, classes, and learning activities; 3) thematic planning and indicating the number of hours devoted to teaching each unit [3].

These three components reflect the fundamental principles of backward instructional design, in which the course content is based on pre-formulated learning outcomes. This approach corresponds to the concept of competency-based learning adopted in Russian higher education and currently valid despite the changes of 2022–2023: the educational organization generates requirements for their learning outcomes in the form of graduate competences, which in turn shape the design and development of courses and curricula [4]. Considering the importance of course content organization both in higher education and backward instructional design, this article proposes a model for structuring educational content based on universal design principles.

Literature review

As part of the standards and changes described above, the role of instructional design in higher education has increased, which is reflected in the growing number of studies on the topic. Since the end of the 20th century, this field has been well-researched in the west [5, 6, 7]. In the 2010–20s, instructional design has become a popular research area in Russian pedagogical studies [8, 9, 10, 11].

Some of these studies thoroughly discuss different models of backward instructional design [2, 10, 11], which requires the organization of educational content. Vayndorf-Sysoeva & Vorobchikova call this stage "building a relationship between the components of the subject to transform it into educational content" [2]. Smyslova puts forward the universal instructional design model, in which the formulation of learning objectives and the organization of content precede the syllabus development [11]. The design phase in the model proposed by Cennamo & Kalk includes determining "the general scope and sequence of content" [7, p. 14]. Although all the above-mentioned authors describe some practices and procedures for structuring and sequencing the content, they do not turn them into a consistent and detailed algorithm. Such an algorithm is especially needed in the conditions of information overload, when teachers and students face the problem of structuring the information properly.

Method

Basic principles of design can help structure the process of content organization and syllabus development. For this purpose, Gibbons & Rogers suggest a procedure based on layering, i. e. organizing information into units and then presenting only certain units of information at any one time [12]. According, to the authors, content layering should include the following steps:

- specifying the certain structures of the subject-matter,
- identifying the units into which the subject-matter will be divided,
- describing how elements of subject-matter will be made available to instructional functions performed by other layers [12].

Elaborating on the idea of content layering, the author of this article proposes the following steps of content organization, which eventually lead to a well-developed syllabus:

1. Identifying criteria
2. Chunking
3. Sequencing
4. Incorporating revision
5. Unit organization

This algorithm extends and refines the models that Graves [13] and Macalister & Nation [14] proposed for language learning. The suggested steps are applicable to different courses within higher education because they are based on universal design principles discovered and systematized by Lidwell et al. [15] and later developed by Strauss et al. [16].

Thus, each step in the author's algorithm is connected with certain design principles:

1. Identifying criteria is based on the principles of layering and "five hat racks."
2. Chunking is derived from the design principle of the same name ("chunking").
3. Sequencing is based on the principles of hierarchy, modularity, and progressive disclosure.
4. Incorporating revision is related to the depth of processing.
5. Unit organization is based on the principles of layering and similarity.

The author has successfully implemented this model and design principles for organizing such courses as "Research methodology" and "Course Design" in the Institute of International education in Moscow State Pedagogical University (MSPU).

1. Identifying criteria

As was mentioned above, backward instructional design starts with devising learning outcomes. This process is thoroughly explained in literature and research [2; 7; 11].

Once the teacher has formulated the learning outcomes of the course, it is necessary to define the specific content and its structure. This process begins with an immersion in the material in order to identify smaller units or criteria that will enable the students to achieve the desired learning outcomes. Each learning outcome can be divided into more specific subskills, tasks, or topics that contribute to the outcome and map the relationships between each other. This process reflects the principle of layering, which means turning course content into connected groupings to manage its complexity and reinforce relationships between them [15]. For example, the learning outcome "writing an argumentative essay" can be divided into such tasks as: choosing the question, writing a thesis statement, outlining the essay, etc. Each of these tasks preparing students for essay writing will be the criterion around which the instructor will organize each course unit: the first unit devoted to essay questions, the second – to thesis statements, etc.

There are only five criteria to organize information according to Wurman: category, time, place, alphabet, and continuum [17]. He calls them "five hat racks" on

the analogy that "hats" are information, and "racks" are criteria to group and structure this information. From Wurman's criteria, educators can expectedly rely either on categories or continua. Criteria that progress in a certain series, such as task stages or grammatical constructions, structure the content along a continuum: from simpler to more complex chunks of information. Criteria that represent categories or fields of knowledge (e.g., themes or genres), could be covered in any order.

2. Chunking

Identifying criteria is the prerequisite for chunking. The latter is an instructional design technique that combines many clusters of information into a limited number of chunks or units. Chunking course content allows learners to obtain and process information more effectively, which in turn helps them to recall the learned material and apply it later [18].

Dividing course content into chunks (or units) starts with defining topics that can be taught together, based on the identified criteria. In addition, the chunks or units should take into account the amount of material that students can learn before they need to stop and revise the information or summarize it. Teachers should also consider how much theoretical content they need to present before giving a practical task. Thus, it is vital to understand how much time it will take to present, practice, and evaluate learners' mastery of each chunk. If the course is aimed at essay writing, one chunk or unit of the course may be writing a thesis statement. Before students write their own thesis statement, the teacher must make sure they received enough information about the concept of the thesis statement, analyzed examples, and are able to produce their own statements.

3. Sequencing

The next step is to align the identified units of content with each other, relying on the principle of progressive disclosure. Progressive disclosure is a method of dividing information into multiple chunks and presenting only necessary or requested chunks at any given time. As a result, the information gradually disclosed to the student is better processed and seems more relevant [15, p. 188].

At this stage, the teacher must decide if the material in one unit depends on the content of the previous unit or whether each unit is independent, separate from the others. The former (dependent) alignment constitutes a hierarchical or linear approach to sequencing, while the latter (independent) reflects a modular approach. If the chosen criteria are based on a continuum, most likely, the units will be sequenced in a hierarchical (linear) way. More independent categories as criteria allow for modular sequencing.

3a. Linear sequencing

Hierarchical organization is the most common way to visualize growing complexity. Linear sequencing of course content is based on a hierarchy and usually arranges the curriculum units according to levels of complexity [19].

According to Graves, the relationship between the previous (Unit 1) and the following (Unit 2) chunks can be described in the following terms:
- Unit 1 is less demanding, while Unit 2 is more demanding;
- Unit 1 is more controlled, while Unit 2 is more open-ended;
- Unit 2 is based on knowledge and skills provided in Unit 1 [13].

Based on this type of sequencing, academic essay writing can be broken down in the following connected chunks: prewriting, drafting, revising, editing, proofreading, as suggested by Aliotta [20]. Every new step is impossible without the previous one. The same relationship happens when students are taught to develop essential elements of an argumentative essay: a thesis statement, a plan, topic sentences, the body paragraphs, etc. [21].

3b. Modular sequencing

A modular, more independent, approach to sequencing divides course content into non-linear, self-contained units. Each unit or module does not depend on knowledge of previous ones. These modules, which are complete in themselves, allow for more flexible sequencing, which reduces cognitive overload and keeps learners focused through more concise learning outcomes [22].

In modern courses, modular sequencing can be applied to task-based, project-based, and theme-based courses that allow learners to choose if they need to do the whole course or select particular modules to deal with. In academic writing courses, this type of sequencing is applicable when students learn how to write different types of essays: opinion, cause and effect, compare-contrast, etc.

Despite their proliferation in the 21st century, modular syllabi have been widely criticized for their lack of coherence and consistency of course content [19].

4. Incorporating revision

One potential problem in linear sequencing is the lack of repetition of information learned. Covered material is easy to forget if it is not revisited, whereas thinking carefully about the information increases the likelihood that the learner will be able to recall it later. This principle called the depth of processing is an important discovery about the learner's memory, which is still applicable to different contexts of instruction [23, p. 74].

The simplest and most obvious response to the depth of processing is adding specific *revision units* to linear sequencing. These units, occurring at certain points in the course, are entirely devoted to reviewing previously learned material. Examples here are the revision units in foreign language coursebooks or control assessment in university courses (e. g. at the middle and the end of a semester). As the amount of covered material increases, the relative amount of time and work devoted to revision should increase as the course progresses.

A more sophisticated *matrix model* organizes the course around two equal criteria, for example, topics and tasks [14, p. 83]. While learning how to write an academic essay (task), students can study complementary content areas (topic), such as the basic literary elements (plot, characters, setting, etc.). In a matrix model, one criterion is systematically cross-referenced by the other. As a result, the same items are encountered in different contexts. For example, the same task of writing a thesis statement can be applied to different content areas: characters, plot, setting, etc. Or the same topic can be revisited through different tasks required for essay writing: formulating a thesis statement, developing an outline, writing arguments, gathering evidence, etc.

Revision might also be incorporated through unit organization.

5. Unit organization

The content of each unit will depend on the formulated learning outcomes, chosen criteria, identified units, and type of syllabus sequencing. The only remaining problem is to organize the content within each unit or module.

According to the principles of layering and similarity [15], predictable events of instruction related to each other reduce complexity and contribute to better understanding of the material. Within each unit of instruction (or the course on the whole if it is concise), Cennamo & Kalk point out six learning events that structure and organize the learning experience [7]. Each of these six events is matched with 1-2 events of instruction suggested by Gagné [5]; the latter are presented in parentheses:

1. Focusing on goals (obtaining students 'attention; informing learners of objectives).
2. Connecting to prior knowledge (stimulating recall of prior learning).
3. Gaining and integrating content knowledge (presenting the content; providing "learning guidance").
4. Taking action and monitoring learning progress (eliciting performance; providing feedback).
5. Synthesizing and evaluating (enhancing retention).
6. Extending and transferring (transferring to job).

Within modular sequencing, each course module is likely to include all the learning events, which occur in a predictable sequence. Once the module (and the sequence) is completed, it starts again in a new module. The same cycle is possible when the course is organized in a linear way. However, linear sequencing allows for excluding some events (e. g. extending and transferring) and moving them to revision units.

Conclusion

Although studies on universal principles of design provide an invaluable set of rules to organize content, their practical application can be a challenge for teachers, as they do not present systematic algorithms nor describe the processes of instructional design. Research on instructional design, on the other hand, details all the stages of course development, but often does not pay enough attention to content structuring and syllabus writing. The aim of this article is to systematize well-known design principles in order to provide teachers with guidance on how to design their own programmes. Each of the steps in the proposed content organization model can be refined and supplemented, taking into account the specifics of particular disciplines and the latest research in both education and design.

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POSSIBILITY TO USE SOLAR PANELS FOR ELECTRICITY PRODUCTION IN A PRIVATE HOUSE

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Abstract. The article explores the possibility of using solar panels to produce electricity in a private house to ensure energy independence. The main types of solar systems used for electricity production are described, and their efficiency and cost are also evaluated. Examples of successful implementation of similar projects in Russia are presented, and the main advantages of using solar energy installations are analyzed.

Keywords: solar energy, electricity, efficiency, cost, ecological energy source, energy security, sustainable development.

ВОЗМОЖНОСТЬ ПРИМЕНЕНИЯ СОЛНЕЧНЫХ ПАНЕЛЕЙ ДЛЯ ПРОИЗВОДСТВА ЭЛЕКТРОЭНЕРГИИ В ЧАСТНОМ ДОМЕ

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Аннотация. В статье исследуется возможность использования солнечных панелей для производства электроэнергии в частном доме для обеспечения энергетической независимости. Описываются основные типы солнечных систем, используемых для производства электроэнергии, а также оцениваются их эффективность и стоимость. Представлены примеры успешной реализации аналогичных проектов в России, а также проанализированы основные преимущества использования установок, работающих на солнечной энергии.

Ключевые слова: солнечная энергия, электроэнергия, эффективность, стоимость, экологический источник энергии, энергетическая безопасность, устойчивое развитие.

The growing global demand for energy has led to an increase in the use of non-renewable energy sources such as oil, coal and natural gas. However, the use of these

non-renewable energy sources has a number of negative consequences, including environmental pollution, climate change and a decrease in energy resources. In this regard, the development of alternative energy sources is becoming increasingly important. Solar energy is one such alternative energy source that can bring significant benefits to electricity generation.

Solar energy is energy derived from the sun's rays. Solar energy can be used to generate electricity using solar panels [1]. Solar panels are made up of many solar cells that convert the energy of the sun's rays into electrical energy. Solar panels have a number of advantages over other energy sources (Figure 1). They are a clean source of energy, do not produce emissions into the atmosphere and do not pollute the environment. In addition, solar energy is infinite, which allows you to use it without restrictions. Solar energy can be used to generate electricity on a large scale or on a small scale. To a large extent, solar energy can be used to generate electricity in solar power plants. Solar power plants are usually built in areas where solar radiation is most intense. Solar power plants can use various types of solar technologies, including photovoltaic and thermosolar technologies.

Figure 1. Solar panels

Photovoltaic technologies use solar panels to convert solar energy into electrical energy [2]. This method of generating electricity is based on the use of solar lenses and mirrors to concentrate the sun's rays on photovoltaic cells. This increases the efficiency of power generation, but requires high installation and maintenance costs.

Thermosolar technologies use mirrors or lenses to concentrate solar energy on thermal collectors, which are then used to heat water or steam, which in turn is used to generate electricity [3]. The technology of thermosolar power plants is more efficient in conditions of high solar activity. One of the advantages of thermosolar

power plants is their high efficiency, but they are more expensive to manufacture and install.

On a small scale, solar energy can be used to generate electricity at the individual level using solar panels on the roof of a house or building (Figure 2).

Figure 2. Use of solar panels on the roof of the house

This is called home level solar power or decentralized solar power [4]. This method of energy production can significantly reduce dependence on utilities and reduce energy costs. In addition, solar energy can be used to generate electricity in remote or hard-to-reach places where there is no way to connect to the main power grid. For example, solar panels can be used on islands, in mountainous areas, or in deserts to provide electricity to residents or to operate devices such as water pumps.

Solar energy is one of the most dynamically developing branches of modern energy. Over the past years, innovations in this area have been actively developed, allowing to significantly increase the efficiency of solar energy production and reduce its cost.

One of the most promising areas for the development of solar energy technologies is the development of new materials for solar panels. Currently, most solar panels are made on the basis of silicon, which has some limitations associated with high cost and limited resources available. In this regard, scientists around the world are working to create new materials that can be used to produce more efficient and cheaper solar panels.

One example of such materials is perovskite, which has a high efficiency of converting light energy into electrical energy [5]. Moreover, perovskites can be produced from readily available and inexpensive materials such as lead, iodine, and organic compounds, reducing the cost of their production.

Another direction in the development of solar energy technologies is associated with the creation of more efficient and durable batteries. Most solar systems currently in use use lithium-ion batteries, which have a limited lifespan and may need to be replaced after a few years. However, with the development of new technologies, such as solid state batteries that do not contain liquid electrolyte, it is possible to create more efficient and durable batteries for solar systems [6].

However, despite the numerous advantages, the use of solar energy also has some limitations. One of the main problems is fluctuations in energy production depending on the time of day and weather conditions. For example, at night or during periods of cloudy weather, power generation is reduced, which can create problems for consumers. In addition, the cost of solar panels can be high, which can hinder their widespread adoption. Despite some problems associated with the use of solar energy, this type of energy has great potential and may become the main source of energy in the future. Modern technologies already make it possible to create efficient and reliable solar panels, and even more progress in this area can be expected in the near future.

Solar energy is an attractive source of energy that can replace non-renewable energy sources. Its use can bring significant economic, environmental and social benefits. However, in order to expand the use of solar energy, it is necessary to continue research in the field of improving solar panel production technologies, increasing their efficiency and reducing costs. Also, it is necessary to conduct research in the field of energy storage and distribution in order to reduce the dependence on the time of day and weather conditions.

In addition, governments and companies should actively promote the use of solar energy and provide incentives for its development, such as tax breaks or subsidies for installing solar panels. It will also help create new jobs in solar energy.

Thus, solar energy is a promising energy source for electricity generation. At the same time, it is necessary to continue research and development of technologies to increase the efficiency and reduce the cost of using this energy source. The promotion of solar energy should also be a priority for governments and companies to reduce dependence on non-renewable energy sources and combat climate change.

Let's consider an example of a transition to solar energy in a private house using solar panels to generate electricity.

Assume that the average electricity consumption of a home is 500 kilowatt-hours (kWh) per month. To produce this amount of energy, it is necessary to install solar panels that will supply energy to the house during the day. Keep in mind that the cost of solar panels and installation can vary greatly depending on the location and size of the home.

On average, the cost of one solar panel with a power of 300 W can range from 12,000 to 20,000 rubles, depending on the manufacturer and technical specifications. In addition, the cost of installing a panel may also depend on the method of its fastening, the need for additional work, the cost of materials, etc. The installation cost will be from 150,000 to 200,000 rubles, including the cost of panels, inverter, cable products, fasteners, installation and connection of the system. Let's take the average cost of installing solar panels – 175,000 rubles [7].

But keep in mind that the cost of installation may vary depending on the location, labor costs and technologies used in the installation. When using solar panels, a home can also generate income from selling excess electricity to the grid, which can help recoup the cost of installation.

If we assume that the energy generated by solar panels will allow a conventional house not to use grid electricity, then the monthly savings (based on the average cost in the Russian Federation of a tariff for 1 kWh equal to 4 rubles [8]) can amount to 2000 rubles.

Thus, taking into account regional characteristics, fluctuations in the cost of capital costs and the cost of operating solar panels, as well as a number of other factors, the payback of the project is ~ 7÷8 years. It is also worth considering that the use of solar panels helps to reduce carbon dioxide emissions into the atmosphere, which in turn is a positive contribution to the ecological situation in the region [9]. However, it must be remembered that the use of solar energy is not always efficient depending on location, climatic conditions and seasonal changes. In some cases, especially in regions with low solar activity, solar panels may not be able to produce enough energy to fully cover a home's electricity needs.

Using solar energy to generate electricity in your home is an efficient and environmentally friendly solution that can help reduce your energy bills and reduce your environmental footprint. However, before making a decision to switch to solar energy, it is necessary to carefully analyze the needs for electricity and the possibilities for installing solar panels.

In conclusion, solar energy has a huge potential for generating electricity, but there are also problems and limitations associated with its use. The development of solar panel production technologies and energy storage systems, as well as the improvement of methods for recycling old solar panels, can significantly improve the efficiency and environmental side of using solar energy. We hope that the government and private companies will continue to invest in this area and develop new technologies to make solar energy affordable and efficient for everyone.

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THE ROLE OF STRATEGIC MANAGEMENT IN INCREASING THE COMPETITIVENESS OF A COMPANY IN THE INTERNATIONAL MARKET

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Abstract. Strategic management is a crucial tool for companies to increase their competitiveness in the international market. This article analyzes the importance of strategic management and how it has helped companies like Apple achieve success in the global arena. The study highlights the key elements of strategic management and how it can enhance a company's ability to compete and succeed in the international market.

Keywords: strategic management, competitiveness, international market, Apple.

РОЛЬ СТРАТЕГИЧЕСКОГО МЕНЕДЖМЕНТА В ПОВЫШЕНИИ КОНКУРЕНТОСПОСОБНОСТИ КОМПАНИИ НА МЕЖДУНАРОДНОМ РЫНКЕ

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Аннотация. Стратегическое управление является важнейшим инструментом повышения конкурентоспособности компаний на международном рынке. В данной статье анализируется важность стратегического управления и то, как оно помогло таким компаниям, как Apple, добиться успеха на мировой арене. В исследовании освещаются ключевые элементы стратегического управления, а также каким образом оно может повысить способность компании конкурировать и добиваться успеха на международном рынке.

Ключевые слова: стратегическое управление, конкурентоспособность, международный рынок, Apple.

In today's globalized world, companies are constantly facing challenges to compete and succeed in the international market. Strategic management plays a vital role in helping companies achieve their goals by providing a structured approach to decision-making and resource allocation. In this article, we will examine the

importance of strategic management in increasing a company's competitiveness in the international market, using Apple as a case study.

Strategic management is a process that involves the formulation and implementation of strategies to achieve a company's goals and objectives. It includes analyzing the company's internal and external environment, setting objectives, developing strategies, and implementing them through action plans. The aim of strategic management is to achieve sustainable competitive advantage by leveraging the company's strengths and minimizing its weaknesses.

In the international market, strategic management is even more critical as companies face increased competition, political and economic instability, cultural differences, and legal challenges. Companies that have a clear understanding of their goals, market position, and competitive advantage are better equipped to navigate these challenges and succeed in the global arena.

The role of strategic management in increasing a company's competitiveness in the international market can be explained in the following ways:

1. Defining the company's vision, mission, and values: Strategic management starts with defining the company's vision, mission, and values [1]. These elements provide a clear direction for the company and help to guide decision-making at all levels of the organization.

The vision statement describes the company's long-term aspirations and what it hopes to achieve in the future. It should be inspiring and provide a sense of purpose for employees and stakeholders.

The mission statement describes the company's core purpose and what it aims to accomplish. It should be concise and specific, outlining the company's products or services and the target customers or markets.

Values are the principles and beliefs that guide the behavior and actions of the company and its employees. They help to establish a culture of integrity, respect, and responsibility within the organization.

Together, the vision, mission, and values provide a framework for strategic decision-making and help to align the organization towards achieving its goals and objectives.

2. Analyzing the external environment: Strategic management involves analyzing the company's external environment, including the market, competition, regulatory environment, and technological advancements. Understanding the external environment helps the company to identify opportunities and threats that may impact its performance and competitiveness.

The external environment includes a range of factors, such as the market size and growth rate, the competitive landscape, regulatory and legal requirements, and technological advancements. By analyzing these factors, the company can gain insights into the trends and changes that are shaping the industry and the broader business environment.

For example, analyzing the market size and growth rate can help the company to identify new opportunities for growth and expansion. Understanding the competitive landscape can help the company to identify its key competitors and their strengths and weaknesses. Regulatory and legal requirements can impact the

company's operations and may require changes to its business practices. Technological advancements can provide new opportunities for innovation and may require the company to invest in new technologies or adapt its existing products or services.

Overall, analyzing the external environment is critical for strategic management because it helps the company to identify opportunities and threats that may impact its performance and competitiveness. By staying aware of changes and trends in the external environment, the company can adjust its strategies and tactics to stay ahead of the competition and respond to emerging opportunities.

3. Analyzing the internal environment is also an important component of strategic management. Understanding the company's internal environment helps to identify the company's strengths and weaknesses, which in turn can be used to make strategic decisions about how to compete effectively in the market [2].

The internal environment includes the company's organizational structure, culture, resources, and capabilities. By analyzing these factors, the company can gain insights into what it does well and where it may need to improve.

For example, analyzing the company's organizational structure can help to identify areas where there may be duplication of effort or where decision-making processes are slow. Understanding the company's culture can help to identify how employees are motivated and how they work together to achieve the company's goals. Analyzing the company's resources and capabilities can help to identify areas where the company has a competitive advantage, such as specialized expertise or unique technologies.

Overall, analyzing the internal environment is critical for strategic management because it helps the company to identify areas of strength and weakness, which can be used to make strategic decisions about how to compete effectively in the market. By leveraging its strengths and addressing its weaknesses, the company can position itself to be more competitive and successful in the long-term.

4. Developing a competitive strategy: Based on the analysis of the external and internal environment, strategic management involves developing a competitive strategy. A competitive strategy is a long-term plan that outlines how the company will compete in the market and achieve its goals [3].

There are several different types of competitive strategies that a company can choose from, depending on its strengths and weaknesses and the opportunities and threats present in the external environment. Some common competitive strategies include cost leadership, differentiation, and focus.

Cost leadership involves achieving a low-cost advantage over competitors by optimizing production processes, reducing expenses, and operating efficiently. Differentiation involves creating unique and valuable products or services that stand out in the market. Focus involves targeting a specific customer segment or geographic region and tailoring products or services to meet their specific needs.

The chosen competitive strategy should align with the company's vision, mission, and values, and should leverage the company's strengths and capabilities. The competitive strategy should also be flexible enough to adapt to changes in the market and external environment.

Overall, developing a competitive strategy is critical for strategic management because it helps the company to focus its resources and efforts on achieving its goals and competing effectively in the market. By choosing a competitive strategy that aligns with its strengths and addresses its weaknesses, the company can position itself to be more successful and achieve long-term growth and profitability.

5. Allocating resources: Strategic management involves allocating resources, including financial, human, and technological resources, to implement the competitive strategy [4].

Resource allocation involves making decisions about how to allocate financial, human, and technological resources to achieve the company's goals. This may involve investing in new technologies, hiring new employees, or reallocating resources from one area to another.

Financial resources are often a key consideration in resource allocation. The company needs to ensure that it has the necessary funds to implement its competitive strategy and achieve its goals. This may involve seeking external funding or cutting costs in other areas of the business to free up resources.

Human resources are also an important consideration. The company needs to ensure that it has the right people in place to execute its strategy effectively. This may involve hiring new employees with the necessary skills and expertise or retraining existing employees to develop new skills.

Technological resources are becoming increasingly important in today's business environment. The company needs to ensure that it has the necessary technological resources to implement its strategy effectively and stay competitive in the market. This may involve investing in new technologies, such as artificial intelligence or automation, or upgrading existing technologies to stay up-to-date with the latest advancements.

Overall, allocating resources is critical for strategic management because it ensures that the company has the necessary resources to implement its competitive strategy effectively. By making informed decisions about how to allocate resources, the company can position itself to be more successful and achieve long-term growth and profitability.

6. Monitoring and evaluating performance: Strategic management involves monitoring and evaluating the company's performance against its objectives and the competitive strategy. Once the company has developed and implemented its competitive strategy, it needs to continuously monitor and evaluate its performance to ensure that it is on track to achieve its objectives.

Monitoring and evaluating performance involves measuring progress against key performance indicators (KPIs) and identifying areas where the company is excelling or falling short. This may involve analyzing financial metrics, such as revenue and profit margins, as well as non-financial metrics, such as customer satisfaction and employee engagement.

By monitoring and evaluating performance, the company can identify areas where it needs to make adjustments to its strategy or allocate resources differently to achieve its objectives [5]. It can also identify areas where it is excelling and leverage these strengths to gain a competitive advantage in the market.

In addition to monitoring and evaluating performance, strategic management also involves making adjustments to the competitive strategy as needed. The market and external environment are constantly changing, and the company needs to be able to adapt its strategy to stay competitive and achieve its objectives.

Overall, monitoring and evaluating performance is critical for strategic management because it ensures that the company is on track to achieve its objectives and stay competitive in the market. By making adjustments to the competitive strategy as needed and leveraging its strengths to gain a competitive advantage, the company can position itself to be more successful and achieve long-term growth and profitability.

Apple is a prime example of how strategic management can help a company achieve success in the international market. Apple has consistently been one of the world's most valuable and innovative companies, with a brand that is recognized globally. Apple's strategic management approach has been based on innovation, design, and quality [6]. Apple has focused on developing new products, such as the iPhone, iPad, and Apple Watch, and has built a strong brand image that resonates with customers worldwide.

Apple's success in the international market can be attributed to several strategic management initiatives.

Firstly, Apple has a clear understanding of its target market and has developed products that meet the needs and desires of its customers. Apple has also established a strong distribution network, ensuring that its products are available in key markets worldwide.

Secondly, Apple has a culture of innovation and design excellence. The company has a strong focus on research and development, investing heavily in new technology and product design. This has enabled Apple to differentiate itself from its competitors, creating a sustainable competitive advantage.

Thirdly, Apple has developed a strong brand image that resonates with customers worldwide. The company's branding is centered around simplicity, elegance, and quality, and has been consistently reinforced through advertising and product design [7].

Apple's success in the international market can be further analyzed using the SWOT analysis framework. This framework helps to identify the company's strengths, weaknesses, opportunities, and threats.

Strengths:
− Strong brand image and reputation for innovation, quality, and design.
− Large and loyal customer base.
− Vertically integrated supply chain management system that enables Apple to maintain control over its products' quality and delivery.
− Strong financial position, including a large cash reserve.

Weaknesses:
− High prices of products compared to competitors.
− Dependence on a limited number of suppliers for components.

− Lack of product diversification in certain segments, such as gaming and virtual reality.

− Dependence on a few key markets, including the US and China, for a significant portion of its revenue.

Opportunities:

− Expansion into new markets, such as India, where the smartphone market is growing rapidly.

− Diversification of product offerings, such as expanding its product lines to include gaming and virtual reality products.

− Expansion of services such as Apple Pay, Apple Music, and iCloud.

− Acquisition of smaller companies to enhance product offerings and services.

Threats:

− Intense competition from other smartphone manufacturers, such as Samsung, Google, and Huawei.

− Global economic uncertainties that can impact consumer spending.

− Changes in government policies, such as import tariffs and trade restrictions.

− Rapid technological changes that can make current products and services obsolete.

The SWOT analysis of Apple reveals that the company has many strengths, including a strong brand image, a loyal customer base, and a vertically integrated supply chain management system. However, the company also faces challenges such as intense competition, high prices compared to competitors, and dependence on a few key markets for revenue. By capitalizing on its strengths and opportunities while mitigating its weaknesses and threats, Apple can continue to succeed in the international market.

In conclusion, strategic management plays a critical role in helping companies increase their competitiveness in the international market. Apple's success in the international market can be attributed to its strong strategic management approach, which has focused on innovation, design, and quality. Apple's ability to understand its target market, develop innovative products, establish a strong brand image, and build a solid distribution network has enabled it to achieve success in the global arena.

Companies that adopt a strategic management approach can benefit from a structured and proactive approach to decision-making and resource allocation, enabling them to navigate the challenges of the international market and achieve sustainable competitive advantage. However, strategic management is not a one-time process and requires ongoing evaluation and adaptation to changing market dynamics and opportunities.

The role of strategic management in increasing the competitiveness of a company in the international market is critical, and companies that adopt a structured and proactive approach can achieve significant success. Companies that leverage their strengths, understand their target market, innovate, and differentiate themselves from their competitors are better equipped to succeed in the global arena.

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THE PROBLEM OF USING THE CULTURAL AND HISTORICAL FEATURES OF SMALL INDIGENOUS PEOPLES OF RUSSIA IN TOURISM (ON THE EXAMPLE OF THE SÁMI)

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Abstract. This article discusses the concepts of the indigenous peoples of Russia, culture, ethnic culture, reveals the importance of using ethnic culture in tourism, analyzes the cultural and historical features of the life of the small indigenous peoples of the Saami, studies the market for ethnic tourism services in the Murmansk region, suggests a way to solve the problem of improper use Sámi culture.

Keywords: culture, ethnic culture, ethnos, Sámi, Kola Sámi, small indigenous peoples, tourism.

ПРОБЛЕМА ИСПОЛЬЗОВАНИЯ В ТУРИЗМЕ КУЛЬТУРНО-ИСТОРИЧЕСКИХ ОСОБЕННОСТЕЙ МАЛОЧИСЛЕННЫХ КОРЕННЫХ НАРОДОВ РОССИИ (НА ПРИМЕРЕ СААМОВ)

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Аннотация. В данной статье рассмотрены понятия коренных малочисленных народов России, культуры, этнической культуры, выявлено значение использования этнической культуры в туризме, проведен анализ культурно-исторических особенностей жизни малочисленных коренных народов саами, изучен рынок туристских услуг Мурманской области этнической направленности, предложен путь решения проблемы ненадлежащего использования культуры саами.

Ключевые слова: культура, этническая культура, этнос, саамы, кольские саамы, малочисленные коренные народы, туризм.

Ethnic culture plays, of course, not the smallest role in the tourism industry, and the concept of ethnic tourism is embedded in the structure of the tourism industry thanks to it. Ethnic tourism contributes to the preservation of ethno-cultural and historical features of culture and life of currently existing ethnic groups, introduces tourists and sightseers to the specifics of life of indigenous ethnic minorities of Russia (hereinafter referred to as SIM), and allows learning about the culture and life of already extinct SIM.

SIM are special groups of people who live in the territories of traditional settlement of their ancestors and who preserve their traditional way of life, economy, and trade [1].

The Russian Federation has a list of indigenous ethnic minorities (2000). The unified list includes 40 peoples of the North, Siberia and the Far East, as well as the Abazin, Besermians, Vod, Izhora, Nagaibak, Shapsug, and 14 other peoples of Dagestan. According to the Russian law, in order to be recognized as an indigenous people, they must: (i) recognize themselves as an independent ethnic community (self-identify); (ii) preserve their native habitat (territory), ethnic trades (i. e. a special economic zone), a distinctive culture, and a common native language, and (iii) have a population of less than 50,000 on Russian territory [1].

The importance of utilizing ethnic culture in tourism is due to the trend toward globalization, which blurs the boundaries among peoples and affects small ethnic groups. They, in turn, either completely disappear under the onslaught of global culture or continue to exist, but the number of indigenous people is noticeably decreasing.

The Russian scientist A. I. Kravchenko states that culture, considered in terms of content, breaks down into different spheres: mores and customs; language and writing; the nature of clothing, settlements, and work; the setting of education; the economy; the nature of the army; socio-political structure; judiciary; science and technology; art; religion; and all other forms of manifestation of the distinctive spirit of the people. The latest Dictionary of Culture defines culture as follows: "in the most generalized understanding, culture is a set of material and spiritual values, which reflect active creative activity of people in mastering the world in the course of historical development of human society" [2].

The concept of "culture" is so versatile that it is used practically in all areas of human activity. The variety of types of culture used in everyday human life indicates what a big role the phenomenon of "culture" plays in the modern world. Among different types of culture, the lens of ethnic culture is employed in this paper to examine the subject matter.

Ethnic culture is a set of material and spiritual values created and accumulated by an ethnos, as well as stable stereotypes of learned human behavior, with the help of which the basic concepts and ideas can be transmitted from one generation to another or from one community of people to another [3].

There are several levels of ethnic culture:

– household level, represented by the everyday life of people, including features of cuisine, clothing, everyday life and routines in general;

– professional level, which includes art, literature, and philosophy;

– mass level, which indicates that it is familiar to the general population. It includes mass media, fictional writings, and the characteristics of people spending their free time.

For multinational Russia, the use of ethnic cultures is one of the most promising directions of tourism development in the region. Tours using the culture of ethnic groups will help change public consciousness and develop tolerance for small ethnic groups, as well as attract money to the regions, which will undoubtedly have a positive impact on the life of SIM, on the basis of whose culture tourism products were formed. Almost all regions have museums and exhibitions of such orientation. They establish and operate special places to get acquainted with indigenous crafts and traditional lifestyles. For example, the Old Tatar Settlement (Staro-Tatarskaya Sloboda) in Kazan displays traditional Tatar buildings, workshops, and a mosque. A good example is also the Tugan Avylym Tatar Village, a park where tourists can learn traditional Tatar crafts and taste Tatar dishes through activities like games.

The use of the characteristics of culture and life of ethnic groups in the formation of a new tourism product is a key aspect of the development of tourist potential of a region. An important factor is the integration of spiritual and material culture of indigenous peoples into the modern society through the formation of events and translation of culture, life and traditions.

In order to avoid any distortion of cultural and historical features of ethnic groups during the creation of a new tourism product, it is necessary to comprehensively study the entire spiritual and material culture of the ethnic group in question.

The following example of the Lapps elaborates on how the cultural and historical features of the life of small indigenous peoples are used in the tourism industry.

The Sámi (the name Sámi is also used in place of the name Lapps; the obsolete name is Lopari, Loplyane, Laplander) is a Finno-Ugric people in Northern Europe (Lapland). They live in northern Norway, Sweden, Finland, and far northwest Russia. They speak Sámi; Norwegian, Swedish, Finnish, and Russian are also common [4].

The main traditional occupation of the Western Sámi in the inner forest areas (river Sámi) is hunting wild deer and fur-bearing animals, while those in the coastal regions (Sea Sámi) subsist on cod and salmon fishing. Since the 17th century, reindeer herding has been developing. The Sámi united into communities (siytas) of up to 300 people [4].

Sámi folklore is multifaceted. The Sámi tales of the Kola Sámi include song inserts; some of the plots are borrowed from the Russians (about Ivan the Tsarevich, about the priest and his worker, etc.). The main form of traditional music-making is personal and situational vocal improvisations (yoigi, yoiki). The functional role of the text is insignificant; the crucial organising element is rhythm. Rhymed songs and ditties are also known [4].

Nowadays, the preservation of the material and spiritual culture of the Sámi, as well as acquaintance of modern Sámi youth with their native culture, is an important aspect when it comes to the development of the culture of Norway, Finland, Sweden and Russia (the Murmansk region).

The Sámi culture is unique, versatile and authentic. Tours leveraging cultural and historical features of the Sámi ethnos will be interesting for all categories of tourists, provided that the designers of tourist itineraries competently and completely reflect the ethnos and indicate in their offers the specific features of life, which may be interesting to learn during the tour.

The Sámi cultural heritage is successfully employed by ethnographic museums. Based on the analysis of the tourism market in Norway, Finland, Sweden and Russia, the key tourist sites that feature the cultural and historical aspects of the Sámi have been identified. The names and locations of these sites are presented in Table.

Table – Tourist attractions and festivals that tap on the cultural and historical features of Sámi life in Finland, Norway, Sweden and Russia

Countries	Tourist Sites and Events
Finland	Siida Museum
	SámiLand Museum
	Arctikum Museum
Norway	Kokelv Sea Sámi Museum
	Varanger Saami Museum
	Sámiid Vuorká–Dávvirat – De Sámiske Samlinger Museum
	Riddu Riđđu Indigenous music festival
	Easter music festival
	Sámi Theatre
Sweden	Ájtte Museum
Russia	Museum of the History of Kola Sámi
	The Museum of Sámi Literature and Writing named after Oktyabrina Voronova

Among Finland's museums, the most striking is SámiLand in Levi. Its center is part of the cultural village program of the UNESCO Observatory. Prominent in Norway is Sámiid Vuorká-Dávvirat – De Sámiske Samlinger, which was founded in 1972 as the first Sámi museum and the first Sámi cultural institution in Norway. There are also Sámi music festivals in Norway. The most famous is Riddu Riđu in North Tromsø.

In Russia, museums devoted to the culture and life of the Sámi tell mainly about the history of the Kola Sámi. These are the Museum of the History of the Kola Sámi, which was founded in 1962 at the Lovozero Secondary School, and the Museum of Sámi Literature and Writing, named after Oktyabrina Voronova in the township of Revda, the Murmansk region. The Oktyabrina Voronova Museum of Sami Literature and Writing is authentic, unique and inimitable, as it is the only museum dedicated to the writing of the indigenous peoples.

However, despite the successful creation of ethnographic museums, fully revealing the cultural potential of the Sámi, the creation of full-fledged ethnic tours with the use of cultural and historical features of Sámi life is at the primitive level at

the moment. The tourism industry cannot yet take the full advantage of ethnic tours which allow tourists to experience the full Sámi culture without distortion.

Examination of the market of tourist services revealed only tours to Sámi villages exist at the moment. The small amount of time spent in the ethnic environment does not allow the tourists to learn Sámi culture as much as possible. Also, the operators of such excursions often offer the tourists to take pictures in the traditional clothing of the Sámi. From this it can be concluded that the Sámi did not take part in the design of these excursions, because for the Sámi people, the wearing of their traditional clothing by non-Sámi is an insult. The fact that the Sámi are not involved in the designing of the tours means that most of the facts about the people may have been distorted, since the information is provided by external parties.

In recent years, there has been an active dialogue between representatives of the tourism industry and the indigenous population of the Murmansk region. Sámi representatives defend their right to participate in tourism development. Sámi activists fight for the preservation of the identity of their culture and traditions and consider it unacceptable when non-Sámi representatives wear replicas of the traditional Sámi clothing, but "non-professionals" make and sell "crude" reproductions of Sámi handicrafts. The Sámi culture became a marketing tool and is presented in a simplified form, which carries the risk of vulgarization and falsification of their true heritage [5].

The Ministry of Industry and Entrepreneurship Development of the Murmansk region supported the initiative to hold a seminar on Sámi tourism with the participation of travel companies, Sámi communities, and non-profit organizations. A report by Andrey Danilov, the deputy chairman of the KNSS (the Kola Peninsula Sámi Parliament «Kuellnägk neoark Sӑmí Sobbar»), states: "Tourist companies use our culture without careful evaluation; prior, voluntary and informed consent of the Sámi people is required". Andrey Danilov proposed to observe both the traditions of the indigenous Sámi people and the local traditions when developing tourism in the Murmansk region, while welcoming and giving priority to the Sámi communities and local businessmen [6].

From the above, we can conclude that there are ethnographic museums all over Lapland telling about the history and culture of the Sámi people, but the ethnic tours, particularly in Russia, give tourists only a superficial picture of the specifics of this ethnic group. The Sámi community and the tourism industry in Russia should have an open dialogue to help improve the quality of ethnic tourism on the Kola Peninsula and work together toward a common goal.

The Sámi Parliament of the Kola Peninsula is active and proactive, and the members of Parliament are interested in cooperation with the administration of the Murmansk region. They also are in constant contact with the Sámi Parliaments of other countries where Sámi live, which allows exchanging experience in matters of tourism in Sámi villages.

To achieve a desired result, it is necessary for the administration of the Murmansk region to be interested in this cooperation on the same level as the Sámi. Round table talks may be effective when held with members of the Sámi Parliament,

the administration of the region, and its entrepreneurs involved in the tourism industry.

It is also important for the designers of quality tourist products to cooperate with scientists and ethnographers who can evaluate the market of tourist services in the region from a professional standpoint. When historical and cultural distinctiveness as well as the need to preserve its identity and authenticity are taken into account, the Sámi culture would be able to avoid being distorted by the tourist industry in any way.

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GAMIFICATION AND ELEMENTS OF GAME DESIGN IN FACE-TO-FACE LEARNING

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Abstract. One of new techniques to implement active learning is gamification. The main idea of the article is to prove that gamification is an effective technique of teaching and increasing interest not only using digital technologies and computers. It can be effectively implemented to the face-to-face learning.

Keywords: English as a foreign language (EFL) teaching, gamification, interest motivation, involvement, game mechanics, didactic game.

ГЕЙМИФИКАЦИЯ И ЭЛЕМЕНТЫ ИГРОВОГО ДИЗАЙНА В ОЧНОМ ОБУЧЕНИИ

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Аннотация. Одним из новых методов для реализации активного обучения иностранному языку является геймификация. Несмотря на то, что геймификация в обучении ассоциируется с цифровизацией и компьютерными технологиями, основная идея статьи заключается в раскрытии того, что геймификация выступает эффективным методом обучения и повышения интереса не только посредством задействования цифровых технологий и компьютеров, но также с помощью обычного классического обучения в очном формате.

Ключевые слова: преподавание английского языка как иностранного, геймификация, мотивация, вовлеченность, игровые механики.

One of the core problems in modern education is the problem of intrinsic motivation to learn and insufficient involvement of students in the learning process. Thus, according to the statistics of foreign providers of MOOC (Massive open online courses), only few students can complete the course till the end [1]. Teachers all over the world look for ways of increasing interest in EFL classes and apply various

techniques that allow students to be involved in the educational process. This determines the undoubted relevance of this study.

Psychologists all over the world offer some solutions to this problem. Mihai Csikszentmihalyi, an American psychologist of Hungarian origin, in his book "Flow: The Psychology of Optimal Experience" introduces the theory that people are happy if they are in a special state of consciousness called flow – a state of concentration or complete absorption in the current activity and situation. One of display of this state is playing any game. In this case, dopamine is produced in the body – a neurotransmitter that stimulates a person to act. A person falls into the so-called dopamine loop. It is when dopamine produces pleasure not from getting what you want, but from the process of achieving it. This is what the whole appeal of games is built on – when the level has passed, a person wants more playing. This motivates a player to act and does not let him/her get bored. Therefore, speaking about trends in education, it can be argued that gamification of the educational process is currently one of the trends due to its didactic potential. Gamification techniques are currently used almost everywhere – from the commercial field to that of education. When buying two souvenirs, you are offered to get a third one for free, this is an example of gamification we face in our everyday life. But in the context of methodology of teaching, we should differentiate between the concepts of "gamification" and "game". Now we will distinguish between them.

The term "gamification" still has no single interpretation. Gamification in education is understood by various authors in many ways: as "a method of teaching and upbringing" [3], "a method of increasing motivation and involvement of students" [4], "the principle of using game scenarios to achieve real goals" [5], "technology using the principles of computer games in educational process", [6] "a paradigm of product development and material presentation that addresses the basic psychological needs of a person through game mechanics" [7]. All of the proposed ideas can be summarized in the following way: gamification is the use of game elements and game thinking in a non-game context. One of the application fields can be the learning process.

We argue that gamification should not be confused with didactic games. The goal of a didactic game is to work out a particular skill in English learning, while the goal of gamification is to increase involvement in the process due to using some game tools. Gamification does not change the activity – people continue doing everyday routine, but having introduced competitive element, we can boost interest and involvement.

We cannot ignore to date the fact of the proliferation of computer technology in the world around us. Nowadays technology is evolving so rapidly that the software studied by first-year students becomes outdated even before they graduate, digital literacy can be defined by ever-increasing pace as well [8]. For those reasons, practically gamification most often means using digital gadgets and elements of computer games, for instance, on online platforms or LMS – learning management systems.

According to the authors A. V. Zolkina, N. V. Lomonosova, D. A. Petrusevich, "the transformation of the digital educational space dictates the need to understand

gamification as a computer game that has a didactic meaning and it is easily integrated into the modern educational process of the university, which is not possible without the integrated use of electronic educational resources" [9].

The main task of the federal project "Digital Educational Environment" is the digital transformation of the education system. As a part of this project, work is underway to equip schools with modern digital facilities, as well as to develop digital services and content for the education sector.

However, as follows from the analysis of the equipment of educational institutions in Russia with computer technology, the technological base in the country is distributed unevenly. In other words, rural and urban schools are integrated in this process to different extents. Many rural schools are simply unable to upgrade their computers. The indicators of digitalization of schools are improving, but they are still far away to the target. For example, in the original version of the passport of the national project "Education", which includes the federal project "Digital Educational Environment", it was stated that by the end of 2020, at least 70 % of educational institutions should be provided with high-speed Internet (at least 100 MB/s for urban schools and 50 MB/s for rural ones). However, at the end of 2020, practically only 42 % of urban and 34 % of rural schools met this requirement. In total, this is about 38 % of all Russian schools.

In this regard, the aim of this study was to assess the prospects of using gamification mechanics in the educational space of any educational institution of secondary school or higher education, regardless of the availability of digital technologies and computers. It has been hypothesized that gamification is possible without computers and other information technologies. To do this, an experiment was conducted on two groups of Siberian Institute of Management of Russian Presidential Academy of National Economy and Public Administration, students' specialization was "security in economics". Prior to the experiment, the students passed some placement tests based on CEFR and it was found that the vast majority have A2 level.

Kevin Werbach, the author of the book "Engage and Dominate" and the author of world's first gamification course on an educational platform coursera.org., describes in detail the six-stage gamification scheme, which we clearly followed during the experiment. In the foreign version this scheme is called "The 6D Framework", in Russian it was changed to "The 6O Framework". These steps comprise:

1. Defining business objectives for the gamification project that will be undertaken – a specific skill that a teacher would like to improve with this technique (listening, speaking, writing, grammar). In the experiment under consideration, the goal was to motivate students to do their homework;

2. Delineating the target behaviors that one hopes to encourage or discourage in players– at this stage, you need to think about how you can measure the desired behavior, for which behavior and achievements should students be rewarded and with what. Behavior and quantitative indicators are best considered together, otherwise it will be difficult to assess whether the target behavior has been achieved. In the experiment, points were counted after each lesson, and more points were given for their homework;

3. Describing the intended players. After conducting a large-scale study of 200 000 people, Richard Bartle, a British professor, a researcher in the field of game design, developed a segmentation of player types:

a) Killers – players with a focus on the victory, rank, open opposition. The means of involvement for them are leader boards, ranks.

b) Achievers – or in another way "careerists", who have a focus on acquiring status and achieving initially set goals, quickly and completely. The means of involvement for them are achievements. It is important for them to accumulate power, money, cool artifacts – any game resources.

c) Socializers are those who focus on building networks of friends and contacts, for whom such means of engagement as news feeds, friend lists, chatting are important.

e) Explorers – researchers who have a focus on exploring and uncovering the unknown, discovering something new. For them the means of involvement are riddles, mysteries, quizzes.

It is necessary that gamification consider the interests of all groups of players and supports the interest of each group. To do this, you need to alternate different game mechanics. After an additional psychological test for the experimental group, it was found that out of 18 students exactly half – 9 people can be attributed to the type of "killers", 2 – to researchers, 3 to socializers and 4 – to achievers. At this stage, it became clear that 70 % of the tasks should be aimed at achievement and ranks. Ranks (captain, assistant captain) were introduced, which could be obtained for a certain number of points.

4. Devising activity loops. In this experiment, a game shell was created for the entire training course based on the TV series "Lost". The experimental group was divided into two subgroups randomly, which, in accordance with the educational situation, "got to different uninhabited islands." In order to "survive", they completed textbook assignments and homework, receiving a certain number of points.

5. Don't forget about fun and pleasure. To test the gamified system for the ability to give pleasure, we checked whether the system could work without any external rewards. In the experiment teamwork, triumph, and recognition can be noted as such sources of pleasure.

6. Deploying appropriate tools that will be used in the system. In the experiment the means of feedback were both rank tables and visual motivating "levels" – when a certain number of points were exceeded, it was announced that the team had built a hut, and for the team that beat on points, the hut was presented in a very positive and attractive image, which could not be said about the visual picture of the losing side [10].

In conclusion, after the experiment conducted during the semester, it was recorded that the cases of non-fulfillment of homework came to naught, the number of absences from classes significantly decreased. And since game practice was introduced into the real educational process, while not changing the activity, we can talk about gamification without using digital equipment and computer technology. Summarizing the above, we can talk about the confirmation of the hypothesis about the broad prospects for the use of gamification in the educational activities of any

educational institution, regardless of the availability of computer technology and classes, which in turn will boost the level of students' involvement in educational process.

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УДК 159.9

CHOOSING PROFESSION AND VALUE ORIENTATIONS
OF FUTURE TEACHERS-PSYCHOLOGISTS

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Abstract. The article discusses the peculiarities of choosing the profile of retraining and value orientations of future teachers-psychologists undergoing retraining at the Institute of Additional Education of the Higher Educational Institution "Gomel State University named after F. Skoriny". According to the results of the study, it is concluded that the choice of the retraining profile by students is due to the desire for self-knowledge and self-development in personal and professional terms thanks to knowledge and practical skills in the field of psychology. The majority of respondents have a high level of value orientations of material values, labor, and the development of moral qualities of the individual.

Keywords: choosing a profession, value orientations, additional education, personnel retraining, value orientations of teachers-psychologists.

ВЫБОР ПРОФЕССИИ И ЦЕННОСТНЫЕ ОРИЕНТАЦИИ БУДУЩИХ
ПЕДАГОГОВ-ПСИХОЛОГОВ

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Аннотация. В статье рассматриваются особенности выбора профиля переподготовки и ценностных ориентаций будущих педагогов-психологов, проходящих переподготовку в Институте дополнительного образования УО «Гомельский государственный университет имени Ф. Скорины». По результатам проведенного исследования делается вывод о том, что выбор слушателями профиля переподготовки обусловлен стремлением к самопознанию и саморазвитию в личностном и профессиональном плане благодаря знаниям и практическим умениям в области психологии. У большинства респондентов отмечен высокий уровень ценностных ориентаций материальных ценностей, труда, развития нравственных качеств личности.

Ключевые слова: выбор профессии, ценностные ориентации, дополнительное образование, переподготовка кадров, ценностные ориентации педагогов-психологов.

The current stage of social development implies the need to implement a person-centered approach to education aimed at creating conditions for the development of the personality of students. Consequently, there is a need for a teacher who "understands and accepts the inner world of his students in a non-judgmental manner, behaves naturally and in accordance with his inner experiences and, finally, treats students kindly" [1, p. 46]. Such teacher acts as a facilitator of their meaningful teaching and personal development in general. A person who has self-actualized, lives a full life, is distinguished by the certainty of his attitude to the phenomena of life, has reached a sufficient level of development of professional self-awareness, is focused on his own personal growth (L. M. Mitina, S. L. Rubinstein, I. V. Ulyanova and others) can positively influence others, encourage them to self-disclosure and self-change, revise their attitude to the world around them (L. M. Mitina, S. L. Rubinstein, I. V. Ulyanova and etc.).

The profession of a teacher-psychologist belongs, according to the classification of E. A. Klimov [2], to the type of "man-man and social systems" (socionomic). It is one of the helping professions focused on creating conditions for the disclosure of a person's internal reserves, the development of his personal qualities, abilities, skills, including self-selection of goals and solving emerging life problems in the future. For a teacher-psychologist, the moral component of his professional activity is of particular importance, characterized by high moral responsibility for its results, personal contribution to other people.

According to V. D. Shadrikov's fair remark, "a person acts, first of all, as a subject of life, and then as a subject of behavior and activity" [3, p. 61]. Therefore, in our opinion, the effectiveness of professional activity, the provision of qualified assistance to people largely depends on how much a specialist knows and understands himself, is capable of introspection and reflection, is aware of and accepts responsibility for his past, present and future, is able to admit his mistakes, overcome difficulties, thereby acquiring the necessary experience, independently set goals and take active actions to achieve them.

In the psychological reference literature, value orientations are defined as "a reflection in a person's consciousness of the values recognized by him as strategic life goals and general ideological guidelines" [4].

A. N. Bogolyub, V. V. Boluchevskaya, O. P. Demidenko, E. G. Denisova, E. V. Drapak, N. V. Klyueva, A.V. Kuchina, V. V. Milakova, N. V. Moskalenko, A. A. Pirumyan, G. V. Strogoi, E. A. Khodyreva, V. A. Yadov studied the value orientations of specialists in helping professions. The researchers emphasize the important role of value orientations in the formation of the professional position of future psychologists, the need to build a system of value orientations of students

based on the development of their reflexive abilities that allow them to choose the guidelines for personal and professional self-development (moral, psychological and operational).

A number of studies identify the most significant values of future specialists in helping professions of a socionomic type (V. V. Boluchevskaya, E. G. Denisova, V. V. Minakova, A. A. Pirumyan, etc.). In particular, according to V. V. Milakova, these are health, love, self-confidence, having friends, freedom and a financially secure life [5].

The aim of our study was to identify the features of the choice of the retraining profile and value orientations of future teachers-psychologists.

The respondents were students of the Institute of Additional Education of the Educational Institution "Gomel State University named after F. Skoriny" specialty "Practical psychology" full-time (evening) and correspondence forms of education (n = 31).

Research methods: conversation, testing. During the conversation, the reasons for admission to retraining and the choice of the specialty "Practical Psychology", intentions to change the profession after graduation and become a psychologist were determined. To study the value orientations of the individual and determine their level, the methodology of E. G. Leevik "Value orientations" was used, which allows to identify the goals of life and the means to achieve them.

Retraining students in the specialty "Practical Psychology" already have a higher education, a certain life and professional experience. According to the results of the conversation, many came to the choice of this profession through the desire to understand themselves and find inner harmony, learn to understand and accept others, build relationships with them. Among the factors that attract future psychologists to the profession, they named compliance with their abilities and character, the possibility of self-improvement, creativity, interaction with people.

Not all students plan to change their field of activity after graduation (26 %). Despite this, they note that retraining contributed to their personal growth, served as an impetus to self-development, self-education, further self-improvement, allowed them to take a fresh look at their lives and relationships with relatives, friends, colleagues, learn to react differently, be more tolerant, open and less categorical in their assessments.

According to the results of testing, the students ' life goals, taking into account the level of value orientations, received the following ranks in descending order:
1) material values (high level – 87 %, average – 13 %);
2) labor (high level – 71 %, average – 29 %);
3) communication (high level – 71 %, medium – 26 %; low – 3 %);
4) cognition (high level – 58 %, average – 42 %);
5) socio-political activity (average – 3 %; low – 97 %).

The means of achieving the goals of life, taking into account the level of value orientations, were assigned the following ranks in descending order:

1) development of moral qualities (high level – 77 %, average – 16 %; low – 7 %);

2) development of strong–willed qualities (high level – 61 %, average – 39 %);

3) development of business qualities (high level – 55 %, average – 45 %);

4) development of moral qualities (high level – 45 %, average – 36 %; low – 19 %).

At the same time, the majority of respondents with a high level of value orientations to work also have a high level of value orientations to material values (87 %). Communication is in second place (70 %), and cognition is in third place (61 %). Among the means of achieving life goals, they prefer the development of moral qualities (91 %). This is followed by business (70 %), then strong-willed (65 %) and, finally, moral (52 %) qualities.

91 % of the subjects with a high level of value orientations to communication had a high level of value orientations to material values, 76 % – to work, 67 % – to cognition. The most significant for these trainees is the development of moral qualities (86 %), the second position is occupied by strong-willed (57 %), the third – moral and business qualities (52 % each).

Trainees with a high level of value orientations on cognition highly value material values (83 %), for a slightly smaller number of these respondents, work and communication are significant (78 % each). For most of them (88 %), the development of moral qualities is of the greatest value, moral qualities are in second place (72 %), followed by strong-willed (56 %) and business qualities (50 %).

The majority of participants with a high level of value orientations to material values have the same indicators for orientation to communication (74 %), 70 % – to work, 56 % – to cognition. Among the means of achieving life goals, their preferences were distributed as follows: the development of moral (78 %), strong-willed (67 %), business (59 %), moral (41 %) qualities.

The priority of material values can be explained by the influence of modern socio-economic conditions, the desire to have a stable financial situation. Trainees also want to receive decent pay for their work. The ability to communicate and interact with people, professional competence, knowledge in psychology contribute, from their point of view, to improving the competitiveness of specialists. At the same time, moral values that serve as a guide in choosing the means to achieve the desired results do not lose their relevance. Strong-willed and business qualities are also needed, first of all, purposefulness, perseverance, determination, independence, organization, discipline, responsibility.

Thus, the students' choosing the retraining profile is primarily due to obtaining the necessary knowledge and practical skills in the field of psychology, which will allow them to understand themselves, learn how to build relationships with relatives and colleagues, as well as the desire for personal and professional self-development. Many students consider retraining as a necessary basis for further growth, continuing education (gestalt therapy, etc.). Students are oriented on obtaining material

prosperity and stability at the expense of labor, and the availability of effective communication skills, broad knowledge, developed strong-willed and business qualities are considered necessary conditions for increasing the competitiveness of a specialist. At the same time, choosing adequate means to achieve life and professional goals depends on the development of moral qualities of the individual.

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FACTORS THAT MAKE SMALL FIRMS LEAVE MARKETPLACES (BASED ON OZON AND WILDBERRIES)

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Abstract. The purpose of this qualitative research is to increase the understanding of the factors driving small firms to leave online marketplaces. Based on semi-structured in-depth interviews with 12 small business owners selling their products on Ozon and/or Wildberries, challenges and exit factors are revealed, classified, and thematically analysed. This paper contributes to the academic literature on the relationship between economic players in the e-commerce market.

Keywords: online marketplaces, exit factors, economic implications, sellers, e-commerce, Russia.

ФАКТОРЫ, ЗАСТАВЛЯЮЩИЕ НЕБОЛЬШИЕ ФИРМЫ ПОКИДАТЬ РЫНКИ (НА ОСНОВЕ OZON И WILDBERRIES)

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Аннотация. Целью данного качественного исследования является повышение уровня понимания факторов, побуждающих малые фирмы покидать онлайн-маркетплейсы. На основе полуструктурированных глубинных интервью с 12 владельцами малого бизнеса, продающими свою продукцию на Ozon и/или Wildberries, выявляются, классифицируются и тематически анализируются проблемы и факторы ухода. Данная работа вносит вклад в научную литературу о взаимоотношениях между экономическими игроками на рынке электронной коммерции.

Ключевые слова: онлайн-маркетплейсы, факторы выхода, экономические последствия, продавцы, электронная коммерция, Россия.

Introduction

In a technology-driven world it became more common for both sellers and buyers to find ways to switch from traditional offline markets to online business models [1, p. 469-496]. Technological breakthroughs in the field of Internet resources have made it possible to create platforms for connecting sellers with buyers [2, p. 563-585], [3, p. 41-51], [4, p. 3-7]. These platforms are called "Marketplaces", which business model differs from that of a retail store. In other words, the online marketplace refers to the platform that facilitates and connects transactions among sellers and buyers [5, p. 1191-1218]. There are three participants in the e-commerce market relationships: sellers, buyers, and a platform. Sellers, from small firms to multinational companies, provide a range of products on marketplaces [6, p. 184-203], while buyers shape the demand for these goods [7]. Buyers and sellers do not directly interact with each other, it is the platform that provides the link for communication and transactions [6, p. 184-203]. In this way, relations between participants involved in the activities of marketplaces are the topic that is receiving substantial attention both from the researchers and the practitioners.

In fact, marketplaces provide the opportunity to drive value to the economy and society by improving the well-being of both consumers and sellers [3, p. 41-51], [8, p. 366-387]. On the one hand, e-commerce companies make a big contribution to the economies of countries, namely to GDP [1, p. 469-496]. For instance, the market capitalization of Amazon, the largest company in the platform market, is $1,735 billion as of June 2021 [9]. On the other hand, marketplaces empower participants on the supply and demand side, facilitate information exchange, and adapt to changing trends [10, p. 436-452]. The fact is that online platforms enable many sellers to provide their goods on the online stores, therefore, increasing competition among firms. Competition, in turn, enhances dynamic efficiency by setting incentives for the development of new products and production techniques, also, forcing focus on product quality and customer service. [1, 7, 11]. For example, in Ozon, one of the main marketplaces in Russia [9], on 30 June 2021, there were around 27 million items presented on the marketplace from 50.000 sellers. As a result, Ozon can offer consumers a convenient search and a huge selection of products from different sellers, reducing delivery costs as well as the final cost of the product [12, p. 420-428]. Turning to Wildberries, another online platform that provides a place for entrepreneurs from different countries, it creates a competitive environment among different sellers. Legal entities, individual entrepreneurs, and self-employed can distribute their products on the platform. In addition, by giving an opportunity for the sellers to run their business, marketplaces provide jobs for the self-employed [6, p. 184-203]. In this way, online platforms can be considered not only drivers of economic, but also social development. Therefore, the results of studies that investigate relationships between three parties, namely sellers, buyers, and the platform, are of high practical value.

By now, there are some papers that investigate the relationship between platforms and buyers as well as between sellers and buyers [13, 14, 15]. There can

also be found some predictions in terms of the future of online marketplaces, like digitalization [16, p. 220-254]. Moreover, different risks faced by sellers while running their business in online marketplaces were already discussed [17, p. 482-493]. In addition, there are some papers that study the benefits and costs for sellers operating in marketplaces, online and offline shops. Costs arising from online and offline outlets are encouraging many firms to switch to alternative platforms [11]. While the benefits of marketplaces have been studied, situations where the costs exceed the advantages for sellers, making them leave the e-commerce market, have not received sufficient attention. Moreover, there are almost no papers that consider the relationship between platforms and sellers [18, p. 870-893]. With that being mentioned, according to statistics, 30 % of sellers are dissatisfied with the pricing policy of marketplaces, 20 % lack of sales statistics, 14 % are dissatisfied with the conditions for accepting goods, and 13 % are dissatisfied with the narrow geography of logistics [9]. As a result, some sellers decide to leave marketplaces, although this could be prevented.

Thus, to close this gap, this paper seeks to explore the third party of relationships in the platform market – sellers. Specifically, the aim of this research is to investigate what factors influence the decision of sellers to leave online platforms. Thus, the Research Question is: *What factors are driving small firms to leave online marketplaces*?

To address this research question interviews with small businesses will be used. In general, our research focuses on small businesses in Russia operating in Wildberries and Ozon. There are some reasons why an analysis of the relationship between small businesses in Russia and Ozon and Wildberries may be of interest. The first reason lies in the rapid growth of the e-commerce market in Russia. Namely, the market value of the e-commerce sphere in Russia has tripled over 3 years: in 2019, the market value was 1.7 trillion rubles, while in 2022 it accounts for 5.2 trillion rubles. Moreover, this market is expected to grow and double by 2025 [9]. Therefore, the market of online sales in Russia is worth studying. Secondly, the business activities of small companies in Russia account for about 20.6 % of GDP in 2019, and almost 30 % of the Russian workforce is employed in these companies [9]. Thus, the research on their business activities is relevant due to their potential contribution to economic development. Moreover, one of the advantages of marketplaces is an easy entry to the market, without any significant barriers [19]. In this way, without a lot of resources and not being a world-famous brand, sole proprietorships, and new firms leverage from interacting with online platforms. Compared to large companies, small businesses have much more loss leaving marketplaces [20, p. 3617-3634]. The reason behind it is that small firms may not have a potential audience outside of the marketplace, let alone their own website to sell their products. That is why their decision to stop doing business in marketplaces is deliberate, supported by strong reasons that are worth exploring. Finally, regarding Wildberries and Ozon, these platforms are the main marketplaces in Russia, with revenue of 170 and 112 billion rubles in 2020 respectively [9]. By connecting a huge

number of firms with buyers, these platforms provide an opportunity to enter the market without barriers [21, p. 28-48]. The external validity of this study is high as the results obtained based on the chosen marketplaces are applicable to other platforms.

In general, detailed research of the factors affecting doing business in marketplaces is what distinguishes this study from others in the field of e-commerce.

Methodology

Design and approach

The research design of this study utilises a qualitative methodology. The data was collected through semi-structured in-depth interviews with small business owners who sell their products on Ozon and/or Wildberries via online video calls. The interviews were analysed with content analysis aimed to point out the presence and relationships of certain concepts and words in order to grasp the meaning of the text and identify patterns, conclusions [22, p. 80-92]. The experience and knowledge of the interviewed small firms' representatives, who sell various categories of goods and have a different level of experience in working with the platforms, offer insights into the challenges they are faced during selling via marketplaces which may become factors pushing them to leave platforms.

Data collection and participants

In this study, the focus is on small firms which are operating on Ozon and/or Wildberries. Consequently, the respondents for the interview were expected to meet the following criteria (Table). When formulating the selection criteria, for this paper it is significant to select small firms that have sufficient experience in working with the platform in order to build a comprehensive understanding of the marketplaces. Thus, the number of employees and annual profit turnover were identified in order to classify the interviewed company as a small firm. In addition, consideration was given to the more experienced sellers.

Table – Selection criteria*

Criteria № 1 The maximum value of the average number of employees for the previous calendar year	15 employees – for microenterprises 16-100 employees – for small businesses
Criteria № 2 Income for the year under tax accounting rules will not exceed	120 million rubles – for microenterprises

based on the article 4 "Categories of small and medium-sized businesses" of the federal law of 24.07.2007 "The development of small and medium-sized businesses in the Russian Federation"

Based on the criteria listed in the table and required experience on the platform, out of 15 interviews conducted, 12 respondents and their answers were

selected for further analysis. Following this data, a participation rate of 80% was calculated. The sample size in qualitative studies and in an in-depth interview in particular is determined by the principle of *theoretical saturation.* Theoretical saturation is the concept of the determination of the point at which incoming data produce little or no new concepts. For the collection of primary qualitative data, in this case, the sample of 12 representatives of small business owners was selected to reach 92% saturation.

The entrepreneurial firms included in this study varied by industry, the number of months in business, sales channel, and type of firm. All participants were interviewed face-to-face, and the concerns of anonymity and confidentiality were assured, in particular the profile of participants was kept anonymous throughout the study. The respondents were warned about the interview format and agreed to the recording of the interview. The invitation to participate in the study was sent via personal email. The questions in the interview protocol were divided into blocks to structure the data and to describe and talk about individual issues in more detail: the questions related to sellers' interaction with the platforms and questions related directly to the challenges were divided into different sections. The interviews lasted around 60 minutes on average and were conducted in Russian.

Data analysis procedure

The process of analysing the collected data began with transcribing the interviews using the audio transcription aggregator Speechpad and removing all personal and confidential information from the files. Turning directly to the analysis process, the coding was applied to data to distinguish and organise the structure of information.

The themes were determined, categorised, and subcategorized into analysis. The themes were "Ozon VS Wildberries", "Warehouses", "Delivery", "Delays in payments", "Technical problems", "Discrimination", "Product description", "Other problems", "Exit factors". The sub-themes were "Opportunities", "Controls", "Guide", "Entrance", "Technical support", "Interface", "Market size", "Tracking", "Returns", "Storage condition", "Product loss", "Packaging", "State of product", "Delays", "Costs", "Regions", "Product display", "Platform failures", "Editing", "Creation", "Moderation", "Reviews", "Price index", "Discounts", "Terms and Condition", "Compensation", "Product condition", "Product description", "Reviews", "Economic loss", "Commission".

Results and Discussion

This qualitative research investigates factors that influence the decision of small firms in Russia to leave online marketplaces. Throughout our results section, we compare and present an objective report of the findings, as well as make general observations on 9 themes created and highlighted from the transcribed interviews with 12 participants (Figure 1). As mentioned above, to report data, each coded theme also considers a sub-theme, which will be analysed and described separately.
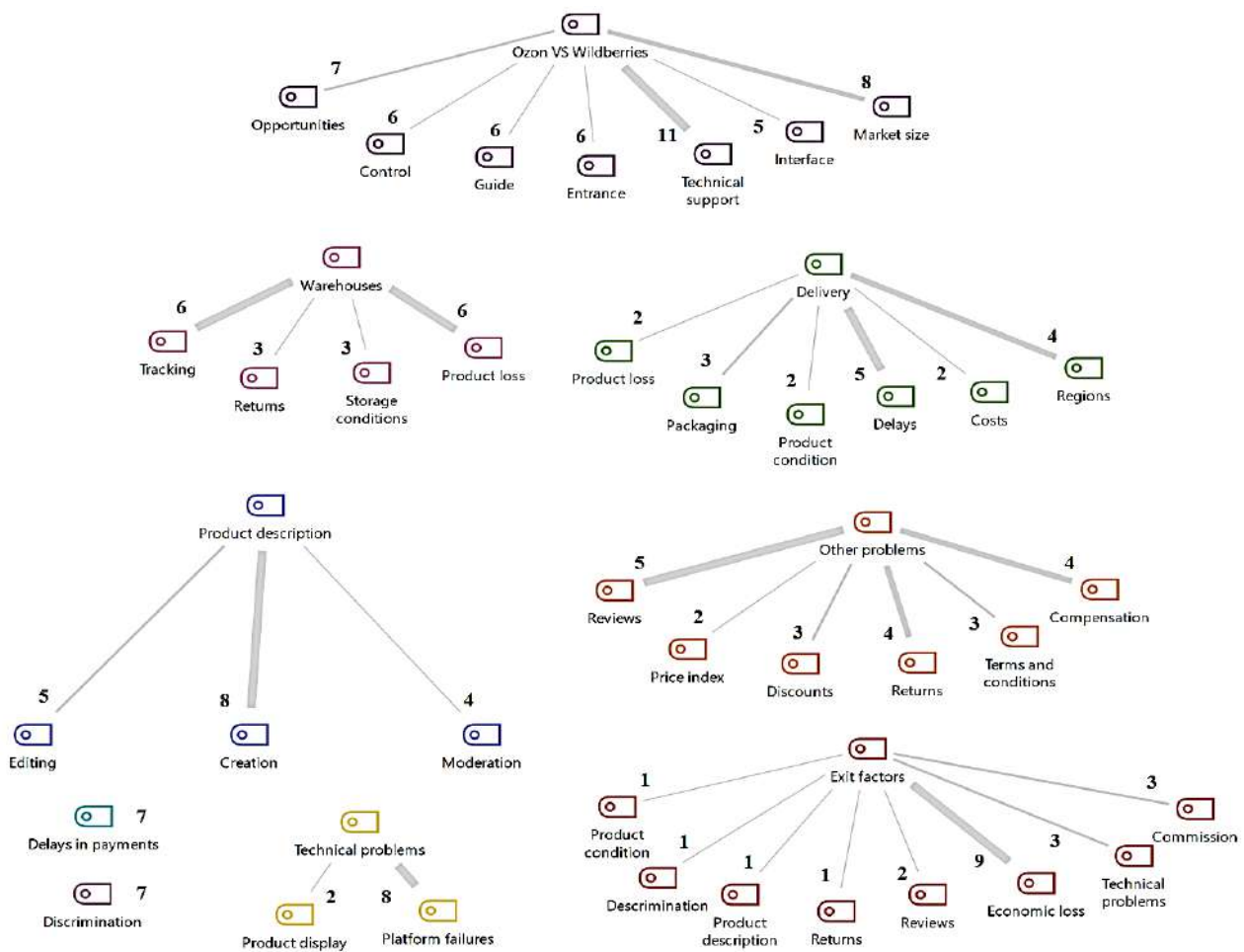
Figure 1. Themes and sub-themes. The frequency (marked with numbers) of responses determines the width of the lines (made by authors)

Following this, the first theme was identified as "Ozon VS Wildberries". Here, 7 sub-themes were generated to fully illustrate both marketplaces and compare platforms in terms of the wide range of instruments provided for sellers. Concerning the second theme, "Warehouses" was created in order to monitor every note from interviewed sellers regarding the tracking of the products, their returns, and losses, in addition to storage conditions. The third theme "Delivery" included coded issues about all transportation and distribution processes within both platforms. The fourth theme, called "Delays in payments", covered the financial side of operating on Ozon and/or Wildberries and the payment process from the platform itself to the seller. Continuing with the fifth theme, "Technical problems" was selected with the purpose of describing technical failures of the marketplace and issues concerning product display. The sixth theme involved "Discrimination" of the buyers, where cases regarding the biased transfer of preference to another seller with a similar product were coded. For the next "Product description" theme, 3 sub-themes were moderated to analyse each stage of working with the product card on the marketplace. An additional theme with "Other problems" was also generated in order not to overlook relatable data regarding more specific problems faced by sellers on both platforms. Finally, in the ninth theme "Exit factors"' each factor was coded separately from previous themes for the following analysis and discussion.

It should be underlined that one mention in the sub-theme means that 1 respondent touched the sub-topic 1 time. If the respondent named a factor several times, then this was noted down as 1 mention, thereby, that sub-theme cannot have a number of mentions greater than 12. Subsequently, it was found that the most frequently mentioned sub-category among respondents is "*Technical support*, 11 people out of 12 allocated problems related to the inaction of technical support for marketplaces.

Meanwhile, the number of mentions in themes could be exceeded by 12 since they have sub-themes, which in turn also have the number of mentions. In other words, if the respondent noted an issue several times than the sum of the sub-themes with these mentions was counted. Making calculations, it was identified that "*Ozon VS Wildberries*" is the most frequently referred to theme, accounting for 28.74 % of the total number of mentions, followed by "Other problems" and "Exit factors" which have 12.57 % for each theme. Regarding the other categories, "Warehouses" and "Delivery" – 10.78 % for each, "Product description" – 10.18 %, "Technical problems" – 5.99 %, "Delays in payments" and "Discrimination" – 4.2 % for each.

This study further provides factors which are perceived by sellers as reasons to leave platforms or switch to other marketplaces.
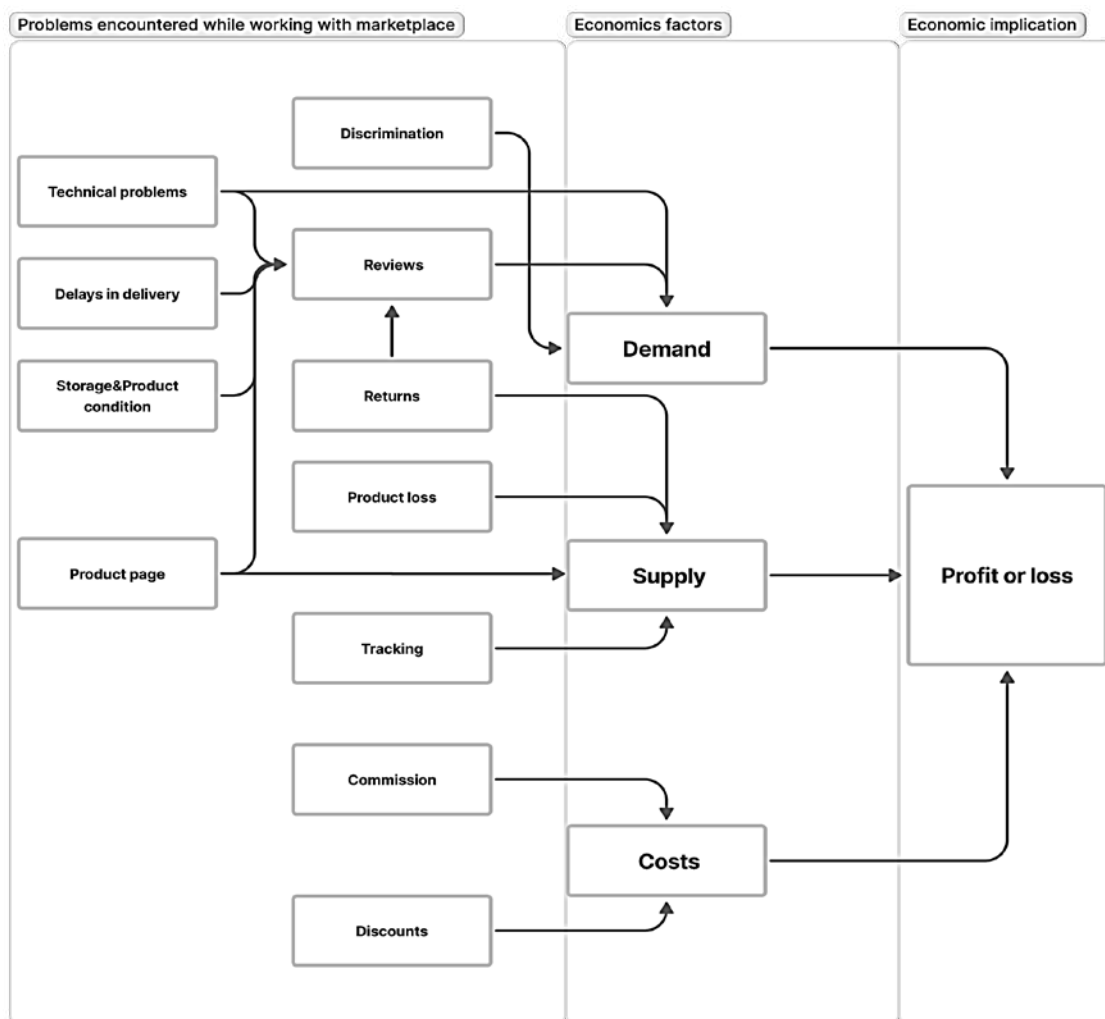
Figure 2. Exit factors and causal link between them (made by authors)

The research reveals that problems encountered by sellers while working with marketplaces *do not affect directly* the decision whether to leave or stay on platforms. According to the results, 75 % of respondents (9 out of 12) indicated economic loss as the exit factor or, in other words, the situation when costs exceed the revenue.

In the meantime, there are different reasons for economic loss: due to the seller's mistakes in terms of doing the business, like the wrong choice of a working system (FBS or FBO) or providing customers with poor quality products, and due to the challenges faced by the retailers while selling on online platforms. However, since this study is focused on the relationships between sellers and marketplaces, in this section, the indirect effect of problems encountered by sellers while working with marketplaces on the decision of retailers to stop selling on online platforms is discussed.

According to the interviews, unprofitable sales can be perceived as a factor in the sellers' exit from the marketplaces. The findings of this study reveal that there are three economic factors that lead to profit or loss: demand, supply, and costs. In the meantime, this research identifies the reasons for the amelioration or deterioration of these factors. Figure 2 represents the result of comprehension of the data obtained, which summarises the suggested factors and reasons as well as a causal link between them. It's worth noting that highlighted factors have never been reported in the context of reasons for sellers to continue operating on marketplaces.

In this way, it can be stated that challenges affect economic factors, which, in turn, cause economic consequences for sellers; these economic implications are perceived as seller's outflow factors.

Demand as an economic factor

Findings of this paper show that reviews heavily affect the demand factor. On the one hand, reviews influence the confidence in the quality of the product among potential buyers. The fact is that the number of reviews with a high rating increases client trust by virtue of understanding the positive previous experience of buyers, which leads to a greater likelihood of buying the product, or in other words, an increase in demand. On the other hand, the position of the product detail page depends on the reviews: the higher the rating, the higher the rank of the product in a search.

In general, the study suggests that there are five factors that potentially may deteriorate the rating of the good: technical problems, delays in delivery, returns, storage and product condition (in what condition the goods are delivered to the customer), and product detail page. All these factors cause inconvenience to the customer. As a result, an unsatisfied customer leaves a negative review.

Besides, it was found that for sellers it is essential to receive instrumental or financial support rather than emotional. In other words, sellers pay much attention on how marketplace could provide relevant information about the causes of problems, elaborate approaches to solve them, and make up for the loss (return of low-quality goods or its disposal) that associated directly with the actions of the marketplace, which in turn also affect feedback, rank, and product demand. Sellers expect that

marketplaces take action to deal with problems (e. g., to introduce a careful attitude to loading goods), rather than receive promises about these changes, like Wildberries do, according to respondents.

Apart from reviews, findings of this paper show that hidden discrimination, when marketplaces rank the seller's product higher in searches due to conditions not formalised, leads to one retailer being more likely to sell an item than another, as his product will be viewed earlier. The example of hidden discrimination is the fact that the product's position in a search is influenced by factors such as the number of warehouses where the product is stored or the chosen working system (FBS or FBO). The same pattern applies to the situation where marketplaces favour their products: promoting or giving a higher rank.

Supply as an economic factor

Findings of this research show that there are 4 problems encountered by sellers by working on marketplaces that affect supply: product detail page, tracking, returns, and product loss.

Regarding challenges related to the product detail page, the inability to create the description of a product or the inability to edit the description due to changes in product characteristics may lead to sales delays. The fact is that even if there is high demand, fewer orders will be viewed and fewer goods will be sold, leading to lower profits. The same pattern is applied to the tracking problem, where the number of goods in stock does not match the number stated on the website, meaning an inability to sell even though the product can be sold and delivered. Thus, sellers perceive problems with the product detail page and tracking as reasons to leave a marketplace because it affects the number of sales. In addition, when sellers are faced with the inability to return goods from warehouses or when products are lost in warehouse and/or during the delivery, the retailer has a smaller quantity of goods to be sold. In other words, the seller, having spent the resources to produce the good, is faced with a situation of forced supply reduction.

Costs as an economic factor

The findings of this study establish 2 factors that increase costs and, thus, lead to an economic loss: discounts and commissions.

In terms of discounts, "voluntary-compulsory" discount campaigns lead to unforeseen costs. "Voluntary-compulsory" discount campaigns – the situation when the marketplace offers to reduce the price. In case the seller participates, the commission is reduced; however, when the seller refuses to reduce the price of his goods by the amount of the discount, the commission is increased so that the loss of revenue from participation is less than that from refusal.

Although sales discounts are a contra revenue account, this study classifies them as costs on "voluntary-compulsory" campaigns (discounts, promotion, etc.), considering contingency. The more there are campaigns, the more costs or lost revenue there is, which means less profit. Thus, due to the economic loss, sellers are likely to switch to another marketplace, without "voluntary-compulsory" campaigns.

Regarding commission, three respondents perceived excessive commission increases as an exit factor. Indeed, when commission costs go up, the profit goes down [23, p. 10-11]. However, with that being mentioned, it's worth noting that the commission rate is the terms and conditions of working on the marketplace. In other words, it's not the problem for sellers caused by the online platform's action; on the contrary, it's a factor that determines what is received by marketplaces for the opportunities to sell on their platforms. However, in any case, this is a factor that affects the retailers' decision to continue selling or not.

Conclusion

The present study reveals that all respondents face different challenges caused by marketplaces while working with them. The most common is the failure to provide assistance from technical support. As a result, other problems cannot be solved, slowing down sales or making it impossible for sellers to operate.

Regarding problems, they were classified into seven categories: challenges related to warehouses, delivery, product detail page, delays in payments, technical problems, discrimination, and "other problem" (discount campaigns, reviews, terms, and conditions, etc.). However, not all of them were perceived by the respondents as exit factors. The fact is that, as the study suggests, problems encountered by sellers while working with marketplaces do not affect directly on the decision to stay or leave online platforms. On the contrary, according to the interviews, in case of economic loss, respondents will leave the marketplaces. However, with that being mentioned, economic losses are caused by three economic factors: demand, supply, and costs. In the meantime, there are reasons for the decreased demand and supply and increased costs. The root cause of these problems lies in the relationship between sellers and marketplaces. In other words, certain obligations on the part of marketplaces are often not fulfilled or are breached, causing problems for sellers. Some of them, like storage and product condition, product detail page, delays in delivery, result in negative reviews which means a lower rating of the product, and thus, lower rank of the product detail page as well as a lower trust of potential customers. This, in turn, reduces the demand for the product, resulting in lower revenue. Meanwhile, other problems, such as returns, product loss, and tracking, lead to the forced decrease in supply, whereas higher commissions and "voluntary-compulsory" discount campaigns result in an increase in costs. As a result, either revenue decreases or costs increase, leading in both cases to an economic loss.

In this way, it is the economic implications caused by the described above problems that are prompting sellers, if not to leave, then to consider leaving the marketplaces. That is why the findings highlight the indirect effect of problems encountered by sellers operating on marketplaces on the decision to stay or leave online platforms.

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IMPLEMENTATION AND USE OF NEURAL NETWORKS
IN DAILY LIFE

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Abstract. This article discusses the principles of building and training neural networks, as well as the operation algorithms and key features of the most popular and promising neural networks currently used by people.

Keywords: neural network, artificial intelligence, search systems, Google, Yandex, OpenAI.

ВНЕДРЕНИЕ И ИСПОЛЬЗОВАНИЕ НЕЙРОННЫХ СЕТЕЙ
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Аннотация. В данной статье рассматриваются принципы построения и обучения нейронных сетей, а также алгоритмы работы и ключевые особенности наиболее популярных и многообещающих нейронных сетей, используемых людьми на данный момент.

Ключевые слова: нейронная сеть, искусственный интеллект, поисковые системы, Google, Yandex, OpenAI.

Today, artificial intelligence is actively used in our lives and helps in solving many problems in a wide variety of fields. One of the most promising areas for the development of artificial intelligence is neural networks, which are a mathematical model built on the principle of organization and functioning of biological neural networks, that is, networks of nerve cells of a living organism. They are already widely used in marketing, security and entertainment, and a variety of other industries. The most advanced companies, such as, for example, Google, Yandex and Microsoft, are conducting research in this area, which also contributes to the development and emergence of new discoveries in this area.

As previously mentioned, the very principle of constructing artificial neural networks is extremely similar to the structure of biological ones, that is, biological principles were used with a number of certain assumptions. Artificial neural networks are made up of many interconnected simple processes and can be trained just like the human brain. The training of a neural network is understood as the process of setting up its architecture (the structure of neural connections) and the weights of synaptic connections to effectively solve a specific problem. As a rule, the learning process of a neural network is carried out on some data sample, which is a training example. It is also important to note that neural network learning algorithms are divided into two types: supervised and unsupervised. The following is a brief description of each of the algorithms:

1. The process of training a neural network with a teacher consists in presenting a network of a sample of training examples, and each of the examples is fed to the inputs of the network, is processed within its structure, then the output signal of the network is calculated, compared with the corresponding values of the target vectors, which are the required output values. Then the error is calculated and the weight coefficients of connections within the neural network change, this process also depends on the chosen algorithm. This process is carried out with each of the vectors until the minimum acceptable result is reached (Figure 1).

2. In unsupervised learning, the learning set consists only of input vectors. The algorithm changes the weight coefficients so that when sufficiently close input vectors are presented, the same outputs are obtained. In the learning process, similar vectors are combined according to statistical properties and form classes, so the presentation of a vector from this class to the input gives a certain output vector at the output (Figure 2).
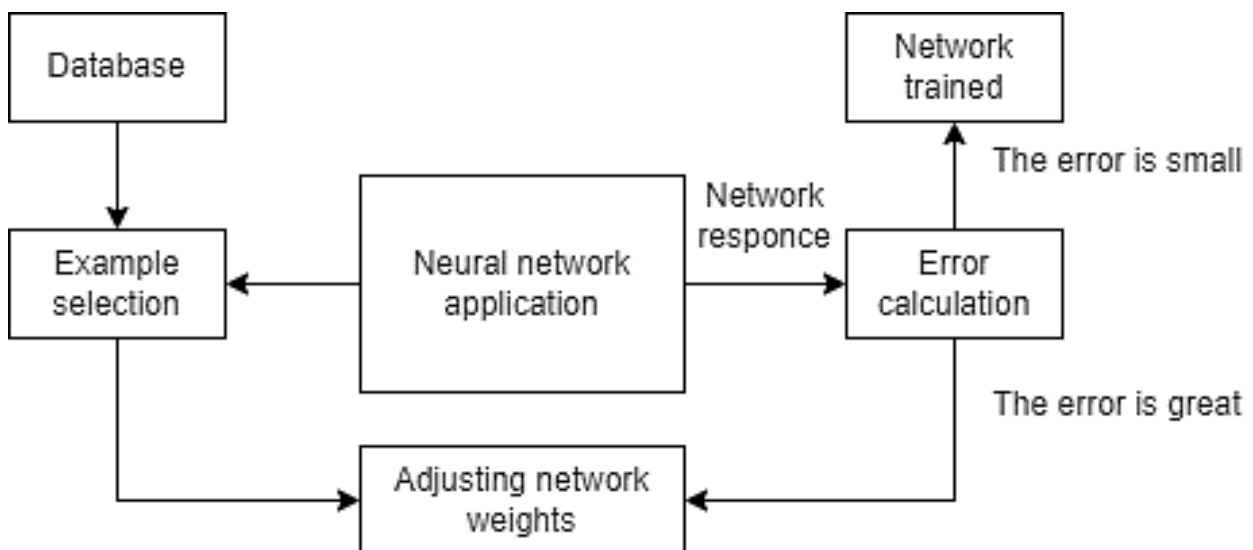
Figure 1. Scheme of the learning process of a neural network with a teacher
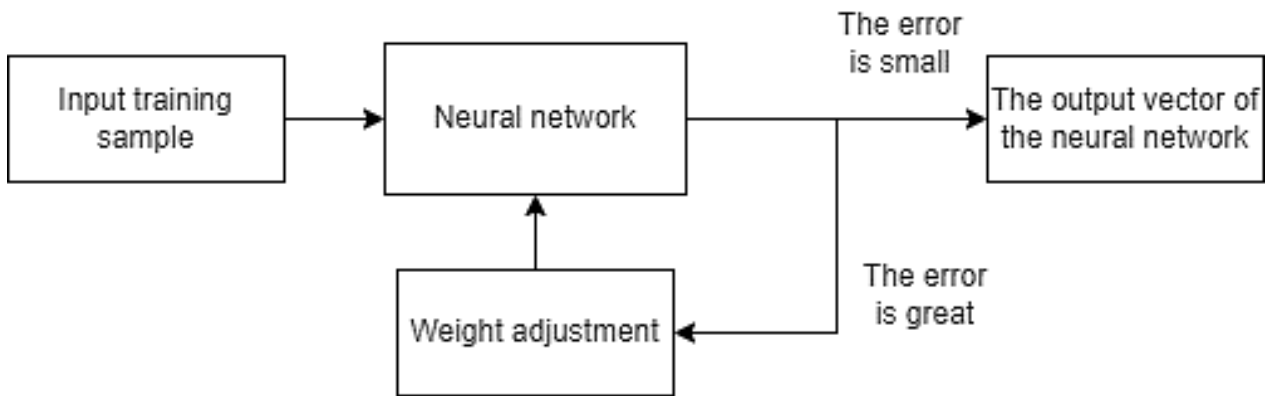
Figure 2. Scheme of the learning process of a neural network without a teacher

Turning to examples of neural networks that are most popular, it is important to note ChatGPT, a chat bot developed by OpenAI that can work in a conversational mode. Its advantage lies in the ability to both solve many tasks of the user's daily life, such as, for example, writing an essay for a schoolboy, and creating code for a programmer. The latter becomes especially relevant, since many IT professionals' resort to its help, connecting to their code the ability to access this neural network using a bot.

Next, we will consider significant algorithms and methods in the operation of a neural network using ChatGPT as an example. A distinctive feature is ease of use: the neural network does not require a specific question, but easily understands natural language when receiving a task. This is due to the work of the Prompt Engineering method. The generation of text in response to a question occurs through a technique called autoregression, which involves predicting the most likely next word in a sequence based on previous words.

Also, an important attribute of the ChatGPT neural network is its transformer architecture, which was developed by Google Research and Google Brain. Unlike the recurrent neural network architecture, which performs calculations sequentially, the transformer performs them in parallel, which significantly reduces the task execution time. In addition, an important advantage is long-term memory, which was achieved using a new approach to remembering the previous text, so that we get a contextually sustained text as an output. Transformer is a neural network architecture with a complex structure, without which the functioning of modern neural networks using various media resources is indispensable.

Machine learning does a better job with numbers than with text, so we need a tokenization procedure – converting text into a sequence of numbers.

The easiest way to do this is to assign each unique word its own number – a token, and then replace all the words in the text with these numbers. But there is a problem: there are a lot of words and their forms (millions) and therefore the dictionary of such words – numbers will turn out to be too large, and this will make it difficult to train the model. You can split the text not into words, but into individual letters (char-level tokenization), then there will be only a few dozen tokens in the

dictionary, but in this case the text itself after tokenization will be too long, and this also makes learning difficult.

Not so long ago, the programmer's toolkit, whose algorithms simplify the creation of neural networks for recognizing various objects, included the Yolo convolutional neural network. Its algorithms allow you to quickly process the received image, due to the fact that this neural network does not need to repeatedly view the image, as happens with other CNNs, the name speaks for itself – "It's worth just looking at it."

Working with an image in Yolo is carried out as follows: the resulting image is raised to a matrix consisting of image fragments, the next step is to raise objects into bounding boxes, after which the parameters of this image are calculated. The necessary parameters in this case are the coordinates of the frame (along the coordinate axis specified from the upper left edge) and its objectivity index, which serves as the center of the object, expresses the probability of successful detection of the object in the bounding box.

Thus, working with Yolo and its fast algorithm of work tell us that this tool is an excellent assistant in creating neural networks of computer vision, and that is why it has recently been widely used by programmers in projects where speed in object detection is required.

It is also important to touch upon the generative language neural network, an excellent example of which is YaLM (Yet another Language Model), developed by Yandex in 2021, it recognizes and determines the construction principle, taking into account knowledge about the world and the norms of the Russian and English languages, taking into account existing rules.

Like many other large language models from the world's leading companies (BERT, GPT, LaMDA), it is based on the Transformer architecture. Such a model has exactly one task – to generate each subsequent word in a sentence. To make the text coherent and grammatically correct, during training, the model evaluates each predicted word: for example, it decides whether the word "run" or the word "red" can go after "Roses are ...".

The considered neural network can have from 1 to 100 billion parameters, it was tested on Yandex supercomputers and processed several terabytes of texts during the training process. YaLM is used in more than 20 projects by Yandex, which certainly makes it quite popular: the neural network helps Alice better communicate with the user, and Search generates cards for quick answers. You can also use YaLM to generate an advertisement or site description.

The above lists only the most popular and sought-after neural networks in their fields of activity [1, 2, 3, 4, 5, 6, 7]. Thanks to neural networks, the annual volume of investments in the field of AI has grown 15 times since 2011, however, this is only the beginning, since the number of startups developing in this area is already in the tens of thousands and, according to analysts, there will be hundreds of them in a few years. develop into quite large-scale projects. The active development of neural networks brings improvement and relief in many areas and aspects of human life.

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HOW THE DEVELOPMENT OF INFORMATION SYSTEMS AFFECTS BUSINESS PROCESSES IN ORGANIZATIONS: TRENDS AND PERSPECTIVES

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Abstract. This article discusses the impact of information system development on business processes in organizations. It highlights the benefits of using modern IT solutions such as automation and the creation of new products and services. Additionally, it identifies several promising areas of IT development that can significantly improve the efficiency and effectiveness of businesses. The article concludes by emphasizing that the integration of technology must be done in consideration of the needs of the organization, with the involvement of trained professionals.
Keywords: development, information systems, business processes, organizations, trends, perspectives.

КАК РАЗВИТИЕ ИНФОРМАЦИОННЫХ СИСТЕМ ВЛИЯЕТ НА БИЗНЕС-ПРОЦЕССЫ В ОРГАНИЗАЦИЯХ: ТРЕНДЫ И ПЕРСПЕКТИВЫ

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Аннотация. В данной статье рассматривается влияние разработки информационных систем на бизнес-процессы в организациях. Подчеркиваются преимущества использования современных ИТ-решений, таких как автоматизация и создание новых продуктов и услуг. Кроме того, в статье определены несколько перспективных направлений развития ИТ, способных значительно повысить эффективность и результативность бизнеса. В заключении статьи отмечается, что интеграция технологий должна осуществляться с учетом потребностей организации с привлечением подготовленных специалистов.

The development of information systems (IS) is one of the key factors influencing business processes in organizations. Modern businesses cannot function without the use of information technologies and systems. The development of information systems and related technologies is already leading to the emergence of new opportunities and causing changes in existing business processes. As a result, many organizations have started actively implementing information systems into their business processes, which allows them to increase efficiency, improve the quality of products and services, optimize costs, and enhance customer interactions. Information systems not only facilitate the execution of business processes, but also improve their effectiveness [1]. This article examines the impact of information system development on business processes in organizations.

One of the main advantages of information systems is the ability to automate business processes. An example of automating business processes in an organization is the automation of the customer request and complaint management process.

When a customer submits a request or complaint, it is automatically registered in the system and assigned to a responsible manager or team for processing. The system then tracks the status of the request or complaint and notifies the customer of its status.

Such process automation allows the organization to quickly respond to customer requests and complaints, reduce response and processing times, as well as increase service levels and customer satisfaction. In addition, the system can also collect analytical data on requests and complaints, allowing the organization to optimize its business processes and improve the quality of its products and services [2].

Thanks to automation, processes become less labor-intensive, less dependent on the human factor, and more accurate. As a result, business processes become more efficient, allowing organizations to reduce costs on personnel and resources, as well as improve the quality of their products and services.

Moreover, information systems can help organizations improve their management activities. By analyzing data, monitoring performance, identifying problematic areas, and taking appropriate measures to solve them, information systems enable organizational leaders to make more informed decisions and improve the efficiency of their business processes.

Another important advantage of the development of information systems is the improvement of communication within the organization and with external partners [3]. Information systems facilitate easy exchange of data, shorten the processing time, and enhance the quality of communication, which helps accelerate the execution of business processes.

In addition, the development of information systems allows organizations to create new products and services, which can lead to increased profits. For example, creating an online store or a mobile application can attract new customers and increase the loyalty of existing ones. Information systems can also help identify

customer needs and offer personalized products or services, which can improve their satisfaction [4].

However, the development of information systems can also have negative consequences for business processes in organizations. For example, dependence on information systems can lead to problems in case of failures or breakdowns. Also, the development of information systems may require significant costs for their creation, updating, and maintenance.

There are many trends in the development of information systems (IS) in the business processes of organizations. Here are some of them:

1. Cloud Computing

Cloud computing allows organizations to use information systems located on remote servers, which reduces costs for IS infrastructure and maintenance. Thanks to cloud computing, organizations can quickly scale their IS, increase their flexibility, and improve accessibility.

2. Internet of Things (IoT)

Internet of Things is a technology that allows devices and sensors to be linked together, exchange data, and control their operation. Using IoT can improve the monitoring of business processes, reduce equipment maintenance costs, and increase the quality of products.

3. Artificial Intelligence (AI)

Artificial Intelligence can be used to analyze large amounts of data, automate business processes, and create intelligent decision-making systems. Using AI can increase the efficiency of business processes and improve the quality of products and services.

4. Robotic Process Automation (RPA)

Robotic Process Automation is a technology that allows for the automation of routine tasks that were previously performed by humans. The use of RPA can speed up business processes, reduce personnel costs, and improve product quality.

5. Blockchain

Blockchain is a technology that enables the creation of distributed databases that cannot be tampered with or altered. The use of blockchain can improve data security, increase transparency in business processes, and improve the quality of services.

6. Machine Learning

Machine Learning is a technology that enables computers to learn based on large volumes of data and make predictions and conclusions. The use of machine learning can help optimize business processes, improve the efficiency and accuracy of decision-making, and improve the quality of products and services.

7. Decentralized Applications

Decentralized Applications are applications that run on the blockchain and allow users to control their data and participate in application management. The use of decentralized applications can improve transparency in business processes, increase data security and confidentiality, and reduce costs associated with intermediaries and intermediary services.

8. Big Data

Big Data refers to large volumes of information that organizations can use for analysis, planning, and management of business processes. The use of big data analytics can help organizations make more informed decisions, optimize business processes, and increase efficiency.

9. Cybersecurity

Cybersecurity is the protection of information and systems from cyber threats. With the increasing number of cyber-attacks and data breaches, cybersecurity is becoming increasingly important for organizations. The use of cybersecurity technologies can help organizations protect their data and networks, prevent data loss and breaches, and improve overall business process security.

10. Hybrid Information Systems

Hybrid Information Systems are systems that combine different types of IS, such as local IS, cloud IS, and IoT-based IS. The use of hybrid information systems can help organizations maximize their resources, provide maximum availability, and improve the quality of products and services.

In the coming years, the following perspectives for the development of information systems in business processes can be expected:

a) Greater emphasis on digital transformation: Organizations will increasingly focus on digital technologies and the use of information systems to optimize business processes and improve efficiency.

b) Development of artificial intelligence: Artificial intelligence technologies will become more widespread and used for analyzing large amounts of data, automating processes, and improving decision-making.

c) Spread of cloud technologies: The use of cloud technologies allows organizations to manage resources more flexibly and implement new solutions more quickly. Cloud technologies will become more popular and in demand.

d) Increased attention to cybersecurity: With the increase in cyber threats and attacks, organizations will pay great attention to cybersecurity and protecting their data and information systems.

e) Development of hybrid information systems: The use of hybrid information systems allows organizations to maximize the efficient use of their resources and improve the quality of their products and services.

f) Development of the Internet of Things: The Internet of Things will increasingly be integrated into the business processes of organizations, allowing for the automation of processes, resource management, and the improvement of product and service quality.

g) Expansion of blockchain technology usage: Blockchain technologies will increasingly be used in business processes of organizations, allowing for the improvement of process transparency, increased security and confidentiality of data, and the reduction of costs associated with intermediaries and intermediary services.

However, it is important to consider that dependence on information systems can have negative consequences and require additional expenses. Therefore, organizations must carefully assess potential risks and benefits when developing and using information systems.

The development of information systems plays an important role in improving business processes efficiency in organizations. Automation, improved management and communication, creation of new products and services – all of this can be achieved through the use of information systems [5].

In conclusion, information technology continues to evolve and play an increasingly important role in business processes of organizations. Thanks to the use of modern IT solutions, companies can significantly improve the efficiency of their business processes, improve the quality of products and services, as well as reduce costs on their production and promotion.

Among the most promising directions of information technology development in business, artificial intelligence, the Internet of Things, cloud technologies, business process automation, cybersecurity, distributed applications, and big data analytics can be highlighted. Each of these directions can significantly increase the efficiency and effectiveness of business if used and integrated correctly into existing processes.

Despite significant progress in the development of information technology, it is important to understand that their use cannot replace the human factor in business processes. Technologies should be integrated into the work of companies taking into account their needs and tasks, and with the involvement of specialists who can properly configure and use these solutions.

Overall, information technology will continue to evolve and change the way organizations operate in the future, and companies that can adapt to these changes will have an advantage in conditions of competitive struggle and economic development.

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PSYCHOSOMATICS IN THE CONTEXT OF STUDENT LIFE

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Abstract. The article touches upon the problem of a high level of psychosomatic disorders among modern students. Data from domestic research in this area and statistics are provided and further analyzed. The causes of the occurrence of diseases and their possible consequences are given. Methods for the prevention and treatment of such diseases are considered.

Keywords: psychosomatics, stress, health, psychosomatic diseases, psychology.

ПСИХОСОМАТИКА В КОНТЕКСТЕ СТУДЕНЧЕСКОЙ ЖИЗНИ

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Аннотация. В статье затронута проблема высокого уровня психосоматических заболеваний у современных студентов, приведены данные отечественных исследований в данной области и статистика. Рассматриваются причины возникновения заболеваний и их возможные последствия, а также способы профилактики и лечения такого рода заболеваний.

Ключевые слова: психосоматика, стресс, здоровье, психосоматические заболевания, психология.

Psychosomatics is a relatively new science that studies the influence of a person's psychological state on his or her physical condition. Simply defined, it is the scientific rationale of the fact that all illnesses come from nerves.

In this article, we will look at the psychosomatic disorders that most often affect students, that is, we will consider the topic of psychosomatics in the context of student life.

Emotions are material, and how! When we are afraid, nervous, angry, or

experience emotions in general, certain hormones are released that affect the entire body. There are also muscular and nervous body reactions, leading to muscle cramps. Thus, a lot of illnesses are really caused by nerves. Our emotional state directly affects bodily sensations. So, what is psychosomatics?

It is believed that the term "psychosomatics" was first used in 1818 by the German psychiatrist Johann Christian Heinroth, and then employed as a generally accepted medical and psychological term thanks to the works of the Viennese psychoanalysts Flanders Dunbar and Franz Alexander. In Russia Fyodor Bassin and Boris Karvasarsky have made a great contribution to the development of Russian psychosomatics [1].

First of all, it is necessary to understand the general mechanism of negative emotions and their influence on the body and find out what the evolutionary meaning of this is.

The human body has evolved over millions of years and primarily adapted to the life in the wild in order to survive. In the modern world people mostly live in comfort, but the mechanisms that were laid down in them a long time ago are still relevant today.

In the wild, the mission of violent emotions is very simple – in order to survive, the body has to quickly prepare for a fight. If a tiger attacks, you have either to struggle for your life or run away. To do this, in the hour of danger, our adrenal glands release an increased dose of stress hormones into the body.

Unlike our distant ancestors, we do not have the ability to resolve contradictions in communication with the help of physical force to prove our case, or to express negative emotions out loud in controversial situations. We must keep all the negativity from unsuccessful communications to ourselves, and each time it accumulates more and more, which leads to the emergence of diseases that stem from nerves.

Diseases caused by stress can be very diverse, including bronchial asthma, gastrointestinal diseases, hypertension, headache, various skin diseases (for example, psoriasis), dizziness, vegetative-vascular dystonia. This list can be continued.

Due to stress, millions of people suffer from malaise, sleep disorders, fatigue, students experience stressful symptoms of emotional distress (excessive aggression, nightmares), and the development of the necessary level of stress tolerance is an important condition for a decent life in modern environment.

Thus, stress is a response of the human body to overexertion, negative and positive emotions. It makes a person look for a solution to a problem, but in case of severe stress, a person can fall into apathy – a state of loss of interest in life. Stress helps to adapt to a changing environment, but it can have negative health consequences.

There are two types of stress: positive (eustress) and negative (distress).

Eustress is a condition when the body mobilizes and concentrates on performing tasks. A person is aware of all the upcoming problems, and most importantly, knows how to solve them, and is committed to results, for example, admission to university or a long-awaited holiday.

Distress, on the other hand, occurs when we are faced with a situation that we

perceive as an insurmountable danger, for example, accepting the death of a loved one. Distress causes a decline in strength and depletion of the body's resources, and negatively affects the production of hormones as well [2].

Stress hormones are supposed to prepare the body to either run or fight. They speed up muscle warm-up, raise blood sugar levels to give the body more energy, they also increase blood vessel tone and blood pressure levels to ensure maximum blood flow to the muscles. Hormones increase heart function and make the blood circulate quickly, they thicken the blood and narrow the blood vessels so that in the event of an injury the bleeding stops as quickly as possible [3].

When the body senses danger or threat, the brain sends a signal to the adrenal glands and they produce cortisol. It is thanks to this hormone that the body releases additional energy to overcome stress successfully.

According to the oldest evolutionary mechanism, cortisol ensures the functioning of the body in a stressful situation and helps to quickly make a decision to "hit or run". However, one thing is for sure: cortisol reserves are by no means unlimited, since nature does not assume that a person will be stressed for a long time.

Cortisol is on a par with all other stress hormones – adrenaline and norepinephrine. Adrenaline is involved in the nervous system's response to stress, providing an increase in human performance, and norepinephrine affects emotions, memory and perception.

It is impossible to say unequivocally that stress was as widespread before, as in our time, but right now such factors as increased productivity, information loads, social activity and many others make any person more vulnerable to stress.

The crucial point is that at the hormone level, the body barely distinguishes between the stress from a tiger attack and the stress before a presentation at a scientific conference on psychosomatics. Under such stress, the body begins to prepare for the fight using the same mechanisms. Respectively we observe increased blood pressure, dizziness, heart palpitations, etc.

When we are stressed, but our life is not really in danger and there is no need to fight or run, the energy that stress hormones give us is not used up, but hits the weakest parts of our own body. Many people may have had similar problems: the day before an important event they suddenly have a fever or symptoms of poisoning. Or, for example, when we are late and worried about getting somewhere, suddenly our legs, head and other parts of the body begin to ache. In fact, in most cases, these are manifestations of psychosomatics, and it is necessary to pay close attention to these symptoms.

Student life itself is full of stress, as it is connected with the separation from parents, new environment and acquaintances, exams, romantic relationships and other "delights" of adulthood. Many problems have to be solved independently, without relying on parents' help, and this is a serious test for the psyche. In addition, the world situation and agenda put even more pressure on a person who has recently become an adult.

Hence, the problem "I'm only 20, but I'm already in pain and have a box of pills and a dog's hair wool belt at home" is rather widespread.

Various studies of psychosomatic disorders among students have been

reported in literature, we would like to dwell on some of them. For example, the purpose of the research of N. Rybina, A. Bobrov and M. Kulygina, was to identify the clinical features of adaptation disorder in students of one of the Moscow universities [4].

The study involved 61 students who were chosen at random, each of them filled out a questionnaire aimed at identifying the presence of psychosomatic problems. The results showed that 68 % experienced symptoms of vegetative vascular dystonia (dizziness, headache, palpitations, fainting), 88 % complained of heart problems. In addition, 33 %, that is, every third student, complained of bowel disorders, nausea, shortness of breath.

Another study of students' mental health was carried out at Irkutsk National Research Technical University, the criteria of which were autonomic dysfunctions (i. e. a set of symptoms that occur when there is a failure in the autonomic nervous system that leads to disorders of the functioning of internal organs) and emotional disorders. 63 students of INRTU at the age of 19-21 took part in the research. As a result, two groups were singled out: the first group with no pronounced signs of autonomic dysfunction (35 %) and the second group with pronounced signs of autonomic dysfunction (65 %). The greatest number of complaints from the students were headaches, decreased working capacity, and sleep disturbances.

Analysis of the results showed that vegetative disorders were accompanied by changes in the emotional sphere of students and that anxiety had a higher value in the second group of respondents. According to F. B. Berezin, it most often becomes a basis for the manifestation of psychosomatic disorders [5]. A low level of emotional stability is a factor that leads to the formation of borderline neuropsychiatric disorders in unfavorable conditions.

Thus, the study showed that problems with the emotional environment of students and autonomic dysfunctions are related, these dysfunctions being indicative of students' mental health problems [6].

We also conducted a mini-survey among 20 second- and third-year students of our university. The survey included several statements that had to be agreed or disagreed with. All the respondents agreed that their well-being worsens during strong emotional stress, 78 % of students had some physiological symptom (nausea, fever, abdominal pain, etc.) in stressful situations. 61 % admitted having physical sensations medicine cannot explain. The results indicate that the majority of students are subject to psychosomatic disorders.

This allows us to conclude that stressful states in most students are accompanied by physical ailments of various kinds. The danger of such ailments lies in the fact that in the future they can acquire a chronic form and be genetically transmitted to future generations.

After the graduation from the university, the amount of stress will not decrease and the health will not return, so it is important to learn how to identify psychosomatic problems to deal with them.

Therefore, we would like to consider the steps one should take after noticing psychosomatic problems.

First of all, it is necessary to make sure that the disease is psychosomatic, to

analyze when the pain is most active and with what experience it may be associated, and consult a doctor.

In mild cases, it would be sufficient for the students to get a detailed explanation of what is going on, because for the most part, they are disturbed not so much by the symptoms themselves but by the uncertainty and suspicion of a serious disease. Explaining that "difficulty breathing" or "tingling in the heart" are not due to organic lung or heart disease will satisfy many.

What the patient certainly does not need is the treatment with depressants, preparations with a restorative effect, "metabolic" and "vascular" drugs, and so on. Moreover, the most useless advice you can give a person with a psychosomatic disorder is not to be nervous. We are human, it is natural for us to experience emotions and worry about problems. Moreover, the advice "to take it easy", on the contrary, even contributes to the development of psychosomatic disorders.

The next step is to learn how to deal with stress. People who are used to holding back their emotions and experiences are the most susceptible to psychosomatic diseases. If a person has not learned to understand one's feelings, their causes, to be aware of one's emotions and is afraid to express them constructively, being shy to talk about one's feelings with the loved ones and ask for their support, then he or she risks having a psychosomatic disorder. A good example is the Japanese culture, in which it is not customary to show one's turbulent emotions: according to studies, the Japanese are more likely to have psychosomatic illnesses [7].

There are many different ways to release emotions without harming others, sport being the most effective. As it has already been said, stress hormones prepare the body to run or fight, respectively the best sports to combat stress are running and various types of martial arts. Enterprisers have also created an attraction, which is a room where one can scream, break and beat anything to relieve stress.

Contrary to the modern trend toward super productivity, quality rest shouldn't be neglected either. Recreation and doing what you love is also an important part of life, helping one to relax and rejuvenate. Charlie Chaplin said, "A day without laughter is a wasted day", that is why it is crucial to let as many good vibes as possible into your life.

Breathing practices and meditations are also considered effective in the fight against stress. Breathing exercises can be performed in a stressful situation directly, as it will help to calm down and cope with your emotions [8].

Another way of dealing with stress is through rational psychotherapy, which is a deep psychological examination of the problem. This means conducting an analysis of how a stressful situation affects our body and what mechanisms it triggers. A competent specialist will help to find the way to harmony with oneself, face one's fears, become aware of them and thereby overcome them [9].

Studies show that the problem of psychosomatic diseases and mental health of students today is much more acute than many people think. It is necessary to organize systematic work on the health of students with the involvement of specialists from medical and psychological services.

In conclusion, it should be said that our thoughts and emotions have tremendous power, consequently, awareness of and control over them is a direct path

to harmony with oneself and the world; it is a guarantee of physical and mental health. After all, it is thanks to stress that people provide each other with emotional support, and rejoice more strongly at any positive event in life. The presence of stress is the indicator that our life is real.

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THE PROBLEM OF ALIENATION AND LONELINESS IN S. PLATH'S NOVEL "THE BELL JAR"

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Abstract. This paper discusses the relevant problem of alienation and loneliness on the example of Esther Greenwood, the protagonist of Sylvia Plath's novel "The Bell Jar". The main attention is paid to the analysis of the causes of alienation and loneliness and the way they are depicted in the novel. In this context, Plath's novel is also tied in with the philosophy of absurdism and the general sociocultural environment of the twentieth century.

Keywords: alienation, loneliness, absurd, problem of isolation, Sylvia Plath, Esther Greenwood, twentieth-century American literature.

ПРОБЛЕМА ОТЧУЖДЕНИЯ И ОДИНОЧЕСТВА В РОМАНЕ С. ПЛАТ «ПОД СТЕКЛЯННЫМ КОЛПАКОМ»

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Аннотация. В статье рассматривается актуальная для современного общества проблема отчуждения и одиночества личности на примере Эстер Гринвуд, главной героини романа Сильвии Плат «Под стеклянным колпаком». Основное внимание уделено анализу причин отчуждения и одиночества и способу их реализации в романе. В данном контексте также проведена связь романа Плат с философией абсурдизма и общей социокультурной обстановкой XX века.

Ключевые слова: отчуждение, одиночество, абсурд, проблема изоляции, Сильвия Плат, Эстер Гринвуд, американская литература XX века.

The development of the literary process in the twentieth century took place under the shadow of major world crises. The ideas of nineteenth-century humanism proved to be incapable of preventing two world wars, the Great Depression and financial crises. These disruptions shaped (at least played a significant role in this process) the social and cultural landscape of the century, and influenced art and literature. If the realist novelists of the nineteenth century focused on the

representation of the individual within the society and social problems (like Hugo, Stendhal, Zola and others), the twentieth century literature experienced a certain shift towards loneliness, even isolation of the individual. Left to himself, the individual was inclined to reflection. In literature, it manifested in a deeper psychologism and a frequent reference to the theme of loneliness as an attempt to reflect one's experience. As Eugene Ionesco expressed it, "...coupé de ses racines religieuses ou métaphysiques, l'homme est perdu, toute sa démarche devient insensée, inutile, étouffante" [1, p. 232] ("...cut off from his religious, metaphysical, and transcendental roots, man is lost, all his actions become senseless, absurd, useless").

The culture of the second half of the twentieth century was developing under a burden of existentialism. After World War II, many intellectuals and philosophers turned to existentialism as a way of making sense of the present. Contrary to the universal philosophical systems of the past, existentialism concentrates on the individual consciousness or individual existence. Certainly, it has had a profound effect on literature, in which a closed, self-reflexive narrative has become prevalent.

It is in such a sociocultural environment that Sylvia Plath's development as a writer took place. Though a well-known poet, Plath only published one novel, "The Bell Jar" [2] (1963). It is worth mentioning that she originally published it under the pseudonym "Victoria Lucas" as she did not take her novel as a "serious work" and "was worried about the pain publication might cause to the many people close to her whose personalities she had distorted and lightly disguised in the book" [2, p. 103]. Thus, Plath's novel is semi-autobiographical with numerous events based on Plath's own life. The first-person narrative enhances the effect of the connection between the heroine and the author. As Howard Moss puts it, "The Bell Jar is a fiction that cannot escape being read in part as autobiography" [3, p. 59].

Edward Butscher notes that the novel depicts Plath's "fictional portrait of the therapeutic process" [4, p. 125]. In his biography book "Sylvia Plath: Method and Madness" [4] Butscher analyses in detail the correlation between the events in the writer's real life and their portrayal in the novel, touches on Plath's relationships with parents, friends, love interests and also on her mental instability. All of these aspects are reflected in the novel. Linda Wagner-Martin, who has devoted several studies to Sylvia Plath, notes that one of the pervasive themes of the novel is "the autobiography of her breakdown" [5, p. 34].

"The Bell Jar" records seven months in the life of Esther Greenwood, undergraduate student awarded a summer internship in a fashion magazine "Ladies' Day" in New York. It is regarded as a great achievement that will help the heroine advance in her career. However, as Esther realises the artificiality and meaninglessness of what is happening, she plunges into apathy and eventually attempts suicide. In the context of the study of Plath's work, this theme is particularly sensitive, as the writer committed suicide herself, which was preceded by several attempts. Butcher notes that in Plath's life "the month spent in New York – representing the pinnacle of her achievement – was thus a time of steady deterioration and increasing despair" [4, p. 108]. Coming from "some out-of-the-way town" [2, p.

2], she does not feel special as she did before: "The self-centered personality, whose childhood anxiety could be soothed only by unqualified admiration and love, found that her anxiety was keenly intensified in circumstances where its uniqueness was easily lost amid a crowd of other egos" [4, p. 108]. It reflects on the feelings of the character. Plath's psychologism is very sharp and precise: "Pain and gore are endemic to The Bell Jar, and they are described objectively, self-mockingly" [3, p. 60].

As Esther gets to know high society, she becomes disillusioned about social niceties and conventions and starts to see the world "like a stage backcloth" [2, p. 128], full of insincerity. She even describes the blue of the sky as "silly, sham" [2, p. 128], indicating the falseness and irreality of the world around. Tim Kendall notes: "The goal she aims for, once attained, seems tawdry and artificial, her life a charade" [3, p. 121]. Esther finds herself ignoring the social norms and does not find happiness in an internship, though it is seen as a success to others: "I guess I should have been excited the way most of the other girls were, but I couldn't get myself to react" [2, p. 2]. Unwilling to fit into a conventional pattern, Esther distances herself from people and becomes estranged. Moss notes: "Unable to experience or mime emotions, she feels defective as a person" [3, p. 59]. She confesses that she is numb, indifferent and uncaring: "I couldn't feel a thing <...> it wouldn't have made one scrap of difference to me, because wherever I sat <...> I would be sitting under the same glass bell jar, stewing in my own sour air" [2, p. 152].

It is important to note that in Plath's novel one can discover features of absurd aesthetics. The concept of absurdism was mainly unfold in the works of French existentialist Albert Camus who thought of absurd as a collision between man's desires and the objective reality: "dans un univers soudain privé d'illusions et de lumières, l'homme se sent un étranger <...> Ce divorce entre l'homme de sa vie, l'acteur et son décor, c'est proprement le sentiment de l'absurdité" [6, p. 18] ("...in a universe suddenly divested of illusions and lights, man feels an alien, a stranger <...> This divorce between man and his life, the actor and his setting, is properly the feeling of absurdity"). As it was mentioned before, existentialism most certainly influenced Plath's works. Hence, it is safe to assume that absurdism also had an impact on Plath's writings. Camus identifies "l'hostilité primitive du monde" [6, p. 28] ("the primitive hostility of the world") as one of the signs of the absurd. The above-mentioned sham of the sky fits in with this concept. Esther feels like a stranger, out of place, "like a racehorse in a world without racetracks" [2, p. 62]. She also feels powerless, unable to change the course of her life: "Only I wasn't steering anything, not even myself" [2, p. 2].

Camus notes that "les hommes aussi sécrètent de l'inhumain" [6, p. 28] ("men, too, secrete the inhuman"), for instance, when one sees meaningless pantomime of someone talking on the telephone behind a glass partition. Esther often finds herself in this absurd state of mind. While sitting in a movie theater Esther draws attention to the audience, silently watching the film: "I looked round me at all the rows of rapt little heads with the same silver glow on them <...> and they looked like nothing more or less than a lot of stupid moonbrains" [2, p. 34]. While riding with friends, the

heroine feels how they "seemed to move off at a distance" [2, p. 61], and observes the silently moving lips, feeling abandoned. Lying on the floor and watching her friends dancing, Esther felt herself "shrinking to a small black dot against all those red and white rugs and that pine paneling" [2, p. 14]. The feeling of estrangement and alienation is often brought up in the novel. Esther gives herself the role of a bystander, but not an active participant, calls herself an "observer" [2, p. 86]: "I liked looking on at other people in crucial situations <...> I'd stop and look so hard I never forgot it" [2, p. 10-11]. Esther much resembles the canonical absurdist character Meursault from Camus' "The Stranger" [7]. Thus, despite the fact that Sylvia Plath has never been seen as an absurdist, her work shows distinct traits of this philosophy, particularly the themes of the meaninglessness of human existence, a detached narrative style and lost, estranged protagonists which directly corresponds with the problem of alienation and loneliness.

Apart from the absurdity, the crucial theme of the novel is the weight of society's expectations of a woman in 1950s America and social conflict in general. Wagner-Martin writes that "from the smallest scenes to the largest, The Bell Jar is a tapestry of women's experiences, women's comedy, and all too often, women's tragedy" [4, p. 34]. The society expects Esther to have a child instead of pursuing her aspiration of becoming a writer. Her boyfriend Buddy Willard does not support Esther in her ambitions and thinks that she would leave the writing after giving birth and becoming a mother: "...after I had children I would feel differently, I wouldn't want to write poems any more. So, I began to think maybe it was true than when you were married and had children it was like being brainwashed, and afterward you went about numb as a slave in some private, totalitarian state" [2, p. 69]. Perhaps Esther's alienation is due to the fact that society has "privatized" her body, and she no longer feels it belongs to her. On the other hand, in a fashion magazine, Esther is waiting for a brilliant career as an editor.

The ambiguity of woman's role gives Esther an anxiety and leads to a breakdown. She rejects the assumed roles of domesticity and strives to find her own identity. Buddy tells Esther that a man is an arrow into the future and that a woman is the place the arrow shoots off from, meaning the woman must always stay behind, in the background and help a man to thrust into the future. Esther realises that she does not want to remain in the shadow of men. Instead, she wants to be in charge of her own life: "That's one of the reasons I never wanted to get married. The last thing I wanted was infinite security and to be the place an arrow shoots off from. I wanted change and excitement and to shoot off in all directions myself, like the colored arrows from a Fourth of July rocket" [2, p. 68].

This metaphor showcases Esther's desire to have a choice. In the other piece Plath compares the life of her heroine with a fig tree with countless possibilities: "I saw my life branching out before me like the green fig tree in the story. From the tip of every branch, like a fat purple fig, a wonderful future beckoned and winked. One fig was a husband and a happy home and children, and another fig was a famous poet and another fig was a brilliant professor <...> I saw myself sitting in the crotch of this

fig tree, starving to death, just because I couldn't make up my mind which of the figs I would choose. I wanted each and every one of them, but choosing one meant losing all the rest, and, as I sat there, unable to decide, the figs began to wrinkle and go black, and, one by one, they plopped to the ground at my feet" [2, p. 62-63]. The comparison is the embodiment of Esther's fears and indecisiveness; she is in a quandary over her best course of action.

Diane Bonds thinks that Esther's breakdown was a result of increasing tension between her authentic self and the fact that at the time women were supposed to identify themselves primarily through relationship to a man [8, p. 61]. However, Bonds also mentions that Esther's way of building her own personality is destructive as she "systematically separated from the very means by which such a self might be constituted: relationships with others" [8, p. 61], thus, also bringing up the problem of loneliness.

The city also plays a key part in shaping Esther's sense of loneliness. A British writer and cultural critic Olivia Laing in a book "The Lonely City. Adventures in the Art of Being Alone" [9] shares her experience of being alone in New York (the same city part of the events of "The Bell Jar" take place) and analyses the works of numerous artists who dealt with the feeling of loneliness and embodied it in their works. Laing notes that "there is a particular flavour to the loneliness that comes from living in a city, surrounded by millions of people" [9, p. 3]. Laing addresses this contradiction and adds that "mere physical proximity is not enough to dispel a sense of internal isolation" [9, p. 3]. One can clearly see the reflection of that thought in "The Bell Jar". Laing expresses similar emotions to Esther: "My life felt empty and unreal and I was embarrassed about its thinness" [9, p. 14]. It is worth noting that research into the theme of loneliness remains relevant because even more than half a century after the publication of Plath's novel, readers still find in it a reflection of their experiences.

Another cause of Esther's alienation might be found in her complicated relationship with her mother who does not pay attention to Esther's own needs and simply urges her daughter to mold to a socially accepted and ideal womanhood. Esther notes that her mother "wasn't much help" [2, p. 32] and she never had a support from her. While living with her mother after returning from New York, Esther adopts the "hollow" [2, p. 97], even "zombie" [2, p. 103] voice as her mental state is getting worse. Since all of her identity has been centered upon academic validation, Esther feels completely lost when she is not accepted for the writing course and has to live with her mother. Mrs. Greenwood instructs Esther to see a psychiatrist, though it seems like an attempt to make Esther "normal" rather than sincere caring. Just as with her mother, Esther is "unable to find, in the female characters she meets, an attractive role model" [3, p. 123].

Wagner-Martin remarks that Esther "is the unquestionable product of her ambitious mother and family" [5, p. 34] in the beginning of the novel and that in order to genuinely rebirth and find her identity Esther "must reconcile what she wants out of life <...> must stop being the good daughter and become the woman who

wants" [5, p. 34]. Separating from her mother is seen as a way to overcome Esther's alienation. However, at the end of the novel "the destructive social systems remain in place <...> and Esther has still not discovered a desirable identity for herself" [3, p. 126]. The novel's ending is open and it is uncertain whether Esther truly feels better or not.

Thus, the problem of alienation and loneliness in the novel is expressed in the main character's inability to connect with the world and society. In search of her identity Esther becomes alienated and feels deceived, as the world turns out to be more violent and artificial than she had expected. Plath demonstrates the meaninglessness, heaviness and absurdity of human existence, inner crises, despair and the metaphysical unfreedom of the individual. The high social expectations, the patriarchal demands and the complicated relationship with her mother play an essential role in shaping the loneliness and alienation of the heroine. The image of the big city also enhances the heroine's sense of loneliness.

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SUPRAMOLECULAR CHEMISTRY AND ITS PRACTICAL SIGNIFICANCE

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Abstract. This paper presents the main applications of supramolecular systems that have been extensively studied for their biological activity and the development of molecular materials for various applications, especially medicinal substances. Examples of some natural and synthetic supramolecular systems and the functions they perform are presented. For example, some important representatives of supramolecular systems, calculated and experimentally determined anti-cancer activity of N, O-containing macrocyclic compounds were described.

Keywords: supramolecular chemistry, macrocyclic ligands, Schiff bases, valinomycin, anticancer activity, biological activity.

СУПРАМОЛЕКУЛЯРНАЯ ХИМИЯ И ЕЕ ПРАКТИЧЕСКОЕ ЗНАЧЕНИЕ

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Аннотация. В данной статье представлены основные области применения супрамолекулярных систем, которые широко изучены на предмет их биологической активности и разработки молекулярных материалов различного назначения, в первую очередь лекарственных субстанций. Приведены примеры некоторых природных и синтетических супрамолекулярных систем и выполняемых ими функций. Так, рассмотрена рассчитанная и экспериментально определенная противораковая активность некоторых N, О-содержащих макроциклических соединений – важнейших представителей супрамолекулярных систем.

Ключевые слова: супрамолекулярная химия, макроциклические лиганды, основания Шиффа, валиномицин, противораковая активность, биологическая активность.

In recent decades, supramolecular chemistry has emerged as a promising, rapidly developing and highly promising interdisciplinary field. It addresses the chemical, physical and biological aspects of chemical systems that are more complex than molecules and that are networked together through intermolecular (non-covalent) interactions. These include the processes of molecular recognition and self-organization, which are used to create "intelligent" artificial systems that are built on the model of biological complex structures. Interest in supramolecular systems is related to their role in understanding the processes occurring at the molecular level in living organisms, as well as in catalysis, hydrometallurgy, optoelectronics and other important industrial fields. Jean Marie Lehn, considered the founder of supramolecular chemistry, defined this field of science in 1978 as "chemistry beyond molecules", in other words, the chemistry of molecular aggregates and intermolecular bonds. This definition was subsequently modified and supramolecular chemistry is now the science of compounds that, through non-covalent interactions or the formation of complexes, can assemble into supramolecules and their individual properties are integrated into the properties of the whole ensemble [1].

Supramolecular chemistry studies the formation of complex aggregates resulting from the association of two or more chemical particles bound together by intermolecular forces due to non-covalent or other weak interactions that occur between two different types of molecules. Very often, supramolecular systems are based on the host-guest principle. The "host" is a large molecule with a void in the centre and convergent binding centres; the "guest" is a simple inorganic anion, a single-atom cation or a more complex organic molecule with divergent binding centres [2]. As a result of their interaction, the "host" molecule selectively binds the "guest" in its cavity, forming a stable ensemble [1].

Macrocyclic compounds acting as host molecules and representing polydentate systems with different donor atoms in cyclic backbone such as N, S, O and P have become the most important objects of research in supramolecular chemistry [3]. Such compounds are widespread in nature and play a key role in many biological processes of living organisms, as they act as ligands to form complex systems. As simple and well-known examples, hemoglobin, chlorophyll and vitamin B12, which firmly bind Fe, Mg and Co ions, respectively, in such a way that their biological functions are not impaired, for example, by competing demetallation reactions. Such properties are also characteristic of many synthetic macrocyclic ligands with increased resistance to degradation, high thermal stability and inertness to acids and alkalies compared to the metal-containing complexes of their open-chain analogues [4].

Schiff macrocyclic bases containing the C=N bond as part of the cyclic backbone is widely used as host molecules. These substances are named after the scientist who discovered them, Hugo Josef Schiff. The interest in these compounds is directly related to their amazing properties because of which they can mimic the functions of biological systems in the recognition and transport of certain metal ions, anions or neutral molecules, as well as act as models for understanding and reproducing the catalytic activity of metalloenzymes and proteins [5]. Another important property of macrocyclic Schiff bases is their biological activity including

antibacterial, antifungal, anticancer, anti-inflammatory and antimalarial properties as well as the ability to effectively separate alkali and alkaline earth metal ions based on chemical affinity [6]. Lately the compounds containing both azomethine bond and C-O-C grouping in cyclic framework of macrocycles, that is fragments of well-known crown ethers, have attracted great attention. Their peculiarity lies in their mixed soft-hard donor nature, which makes them more ligands that are versatile and indispensable in many areas of biochemistry. The complexes of these substances with transition metals can act as synthetic models of metal-containing metalloprotein and enzyme sites, having significant influence on the development of drug chemistry, radio-immune therapy, and in the diagnosis and treatment of cancer [7]. They are also capable of becoming universal hosts for the recognition of organic and inorganic ions and molecules in various biological and synthetic systems [8].

The application of complexes of macrocyclic compounds with various metals as catalysts for various reactions in organic chemistry, such as epoxidation of olefins, cyclopropanation of alkenes and trimethylsilylcyanation of ketones [9], is well illustrated in the work of Y. He and C. Cai, 2011 [10]. The authors describe the performed Suzuki reaction with p-bromanisole and phenylboronic acid using as a catalyst the macrocyclic Schiff base **1** complex with palladium (Figure 1). Through the use of supramolecular system **1**, the authors increased the yield of the target product to 98 %.
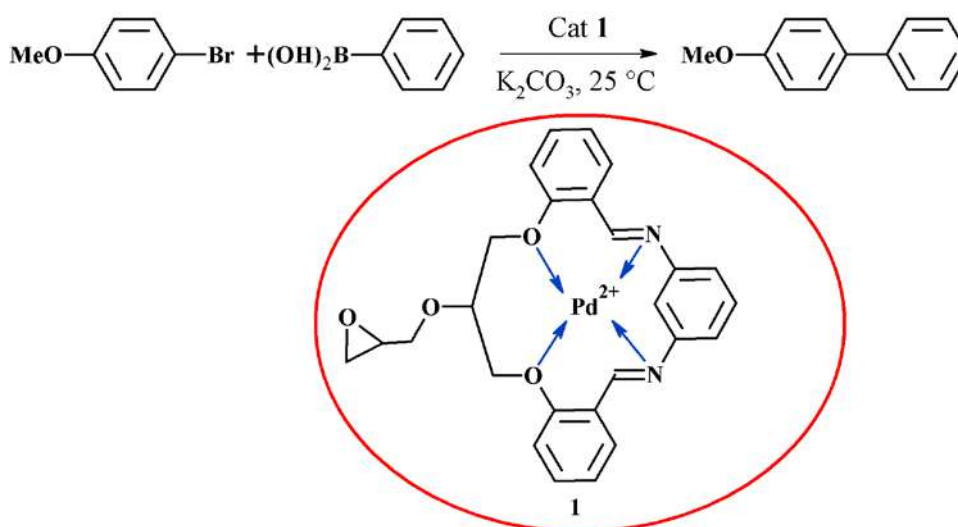
Figure 1. Suzuki combination reaction catalysed by supramolecular complex **1**

A large number of studies on the manifestation of various biological activities of both supramolecular systems and macrocyclic compounds are also known. For example, Kuzmin et al. [11] analyzed the anticancer activity of macrocyclic azomethines 2-5 using regression models constructed within the framework of topological approach. The results obtained, shown in Figure 2 and Table, indicate a significant biological activity of these compounds.
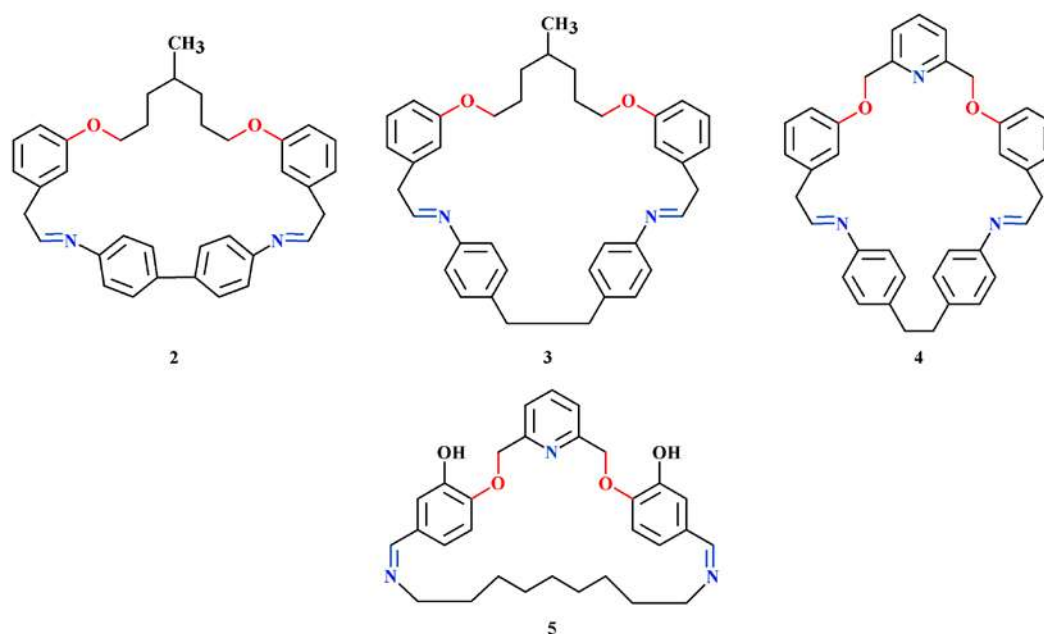
Figure 2. Structure of macrocyclic compounds **2-5**

Table – results of macrocyclic compounds **2-5** anticancer activity

Compound	Leukymia		Cancer of CNS		Prostate cancer		Melanoma	
	Calcul.	Expt.	Calcul.	Expt.	Calcul.	Expt.	Calcul.	Expt.
2	88	94	42	91	83	97	43	109
3	75	56	111	52	89	100	124	92
4	72	108	109	98	102	115	156	93
5	76	94	90	93	97	94	-	-

There has also been research into the use of supramolecular systems in positron emission tomography (PET) as radiopharmaceuticals for the imaging and detection of tumour masses. For example, Y. S. Kim et al [12] have investigated a number of macrocyclic systems with very high tumour selectivity and sensitivity to changes in mitochondrial potentials in the early stages of tumour growth. In addition, drugs based on macrocyclic ligands are currently being developed that can exhibit high selectivity towards the copper ion, their stability through chelate and macrocyclic effects, immediate absorption, high tissue specificity and ability to be completely eliminated from the body [13].

The use of supramolecular ensembles may also allow the production of multifunctional hybrid materials capable of combining magnetic and non-linear optical properties. For example, De La Torre et al [14] obtained macrocyclic complexes of phosphonium derivatives **6** and **7** (Figure 3), which could subsequently lead to various molecular materials.
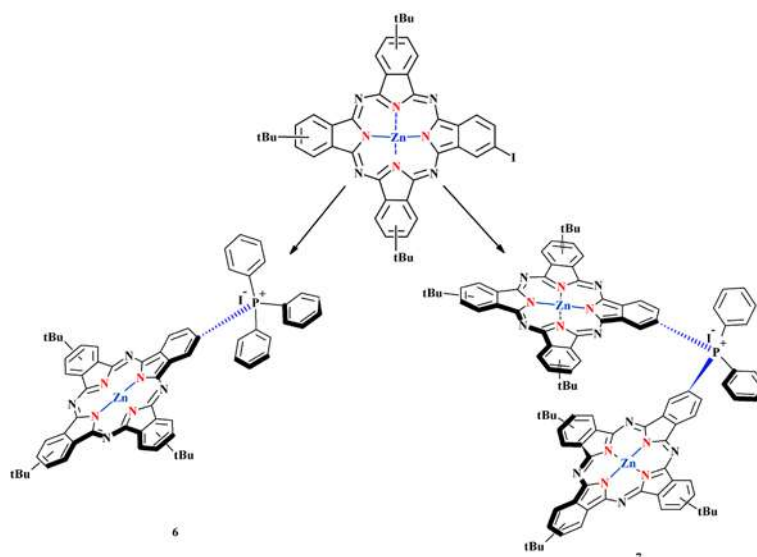
Figure 3. Structure of compounds **6** and **7** for creating molecular materials

An important feature of supramolecular systems is that they are widespread in cells of living organisms. For example, the macrocyclic compound valinomycin (Figure 4) has a selective transport function and facilitates the transport of potassium ions across lipid membranes, thereby regulating the concentration of this vital metal in cells.

(a) K⁺–valinomycin complex (b) Transport of K⁺ across a membrane
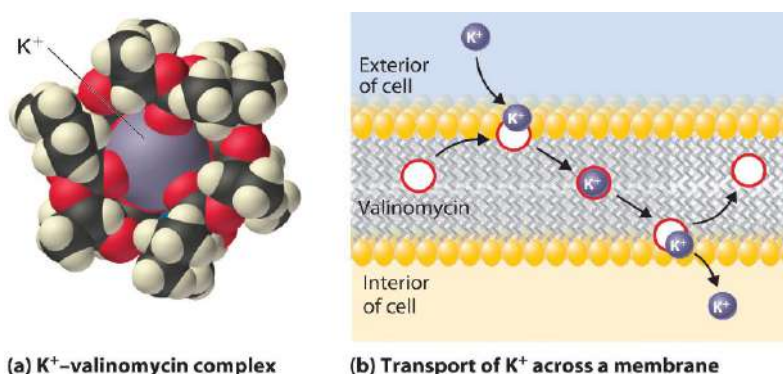
Figure 4. Molecular structure of valinomycin and its mechanism of action

A promising application of supramolecular systems is the modelling of compounds that function under natural conditions, allowing an understanding of the mechanisms of natural processes and finding applications in medicine, pharmacy, analytical chemistry, agriculture and many other fields [1].

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FEATURES OF ENRICHING THE VOCABULARY OF SECONDARY SCHOOL STUDENTS IN ENGLISH LESSONS WITH THE HELP OF EDUCATIONAL ELECTRONIC RESOURCES

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Abstract. The article discusses the features of creating an educational resource for the development of vocabulary in English lessons for high school students with the help of specially selected tasks, to improve the lexical side of the speech of high school students, as well as to increase the level of English proficiency. The theoretical base is supplemented by the results of an empirical study of the effectiveness of English language acquisition for the development of vocabulary in English lessons for secondary school students using an educational resource.
Keywords: educational electronic resource, vocabulary, high school students, English lesson.

ОСОБЕННОСТИ ОБОГАЩЕНИЯ СЛОВАРНОГО ЗАПАСА ОБУЧАЮЩИХСЯ СРЕДНЕЙ ШКОЛЫ НА УРОКАХ АНГЛИЙСКОГО ЯЗЫКА С ПОМОЩЬЮ ОБРАЗОВАТЕЛЬНЫХ ЭЛЕКТРОННЫХ РЕСУРСОВ

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Аннотация. В статье рассмотрены особенности создания образовательного ресурса для развития словарного запаса на уроках английского языка у школьников средней школы с помощью специально подобранных заданий, а также увеличения уровня владения английским языком. Теоретическая база дополнена результатами эмпирического исследования эффективности усвоения английского языка для развития словарного запаса на уроках английского языка у школьников средней школы с помощью образовательного ресурса.
Ключевые слова: образовательный электронный ресурс, словарный запас, школьники средней школы, урок английского языка.

The goals and objectives of the modern school are inextricably linked with the requirements of society, which is already unthinkable outside of modern computer

technology. The teacher today is not the only source of knowledge for students. He is an assistant who accompanies children to the world of information, helps and guides them. Therefore, the ability to develop and apply electronic educational resources in the classroom is relevant for teachers today, it is a requirement of the time.

This skill has become very relevant due to the complex epidemiological situation with Covid-19. With the development of technology, the number of platforms for learning foreign languages for schoolchildren has increased.

In the course of an empirical study, Google surveys of schoolchildren were planned and conducted to study the effectiveness of an educational resource for vocabulary development in English lessons for secondary school students.

The term "Electronic Educational Resources" (EER) combines the entire range of learning tools that are developed and reproduced on the basis of computer technologies [1].

You can also find the term "DER", that is, digital educational resources – that is, those that are created on the basis of digital technologies and can be reproduced using digital devices.

The use of digital educational resources in teaching allows you to expand the possibilities of the lesson, while also increasing its effectiveness. The teaching materials presented in digital form make it possible to use them without difficulty at various stages of the lesson, and to solve the tasks of the lesson:

the stage of updating knowledge – electronic tests, electronic constructors;

the stage of explaining new material – electronic textbooks, encyclopedias, reference books, multimedia presentations, educational videos;

the stage of consolidation and improvement of knowledge, skills and abilities (KSA) – electronic tests, electronic simulators, learning environments, multimedia presentations;

the stage of control and assessment of knowledge, skills and abilities (KSA) – electronic tests, crosswords [2].

The use of electronic and digital educational resources is justified, as it allows students to activate their activities, makes it possible to improve the quality of education, improve the professional level of a teacher, and diversify the forms of communication of all participants in the educational process.

The use of electronic educational resources in the educational process is a mandatory part of the work of a modern teacher. It is extremely difficult to conduct lessons in accordance with the Federal State Educational Standard without resorting to modern methods and means of teaching.

The concept of an electronic educational resource is much broader – it includes sound recordings, video clips, and educational computer games, tests, quizzes that students take on a computer or tablet. All these features are implemented on different information platforms.

In an electronic educational resource, this can be done much more comfortably: specify an unfamiliar term and immediately get its definition in a small additional

window, or instantly change the contents of the screen when specifying a so-called keyword (or phrase).

In essence, the key phrase is an analogue of the line of the familiar book table of contents, but this line is not placed on a separate page (table of contents), but is embedded in the main text, which will be studied and considered by all students of the class [1].

In modern society, knowledge of the English language plays an increasingly important role, which provides an opportunity to join the world culture, use the possibilities of Internet resources in their work, as well as work with information and communication technologies (ICT) and use multimedia learning methods. That is why it is so important to improve the methodology of using computer information technologies in teaching English. Modern information technologies are becoming part of the educational process. Computer technologies and English language lessons are an urgent direction that requires modern approaches and innovative solutions [3].

English is an academic subject, which, due to its own specifics, implies a more flexible and extensive implementation of various technical means of study.

One of the most important tasks of a foreign language teacher working with schoolchildren is to help children master the articulation base of modern English, its basic intonation models, prepare for an adequate perception of sounding speech, develop phonemic hearing in children. Mastering the sign side of the language, the child masters, first of all, the sound side. The child perceives the sound side of the language in contrast to adults figuratively, looking for connections between the designated object and the image of the word transmitting this object. The basis of the possession of the sound side of the language is the principle of understanding the sign [4].

The introduction of grammatical material is facilitated by the use of animated videos, which are an example of the use of a particular grammatical construction. It also creates a solid foundation for fixing grammatical models [3].

The use of electronic dictionaries not only simplifies the search for the right lexical units, but also deepens and diversifies English language teaching. Traditional dictionaries give an incomplete picture of the use of a word or expression in a language. In addition, they become obsolete quite quickly. Some words go out of use, they are replaced by others. Developers of electronic dictionaries react to the change of the language situation quite quickly. The user of the electronic dictionary has the opportunity to update the program already installed on the computer using the Internet. In addition, all the listed dictionaries have Internet versions [5].

It is difficult to overestimate the advantages of electronic encyclopedias in relation to teaching English. In addition to the Internet, students have an authoritative source of information, because the encyclopedia contains articles by the most outstanding researchers of writers and artists, actors and musicians, popular science explanations of the realities of modern life, the world of economics and finance. An electronic encyclopedia in English is not only a source of information, but also a source of vocabulary. If a student uses an encyclopedia when preparing a message, he

not only expands his horizons and replenishes his knowledge, but also expands his vocabulary [4].

At the beginning of the empirical study, a conversation was held with a teacher about the main problems of vocabulary development in English lessons for secondary school students. These problems were typical for most high school students:

- the problem of memorizing compound words;
- the problem of memorizing words rarely used in active speech;
- difficulty remembering a large volume of words;
- difficulties in mastering new vocabulary (correct translation).

Further, as part of an empirical study, an educational resource was developed for the development of vocabulary in English lessons for secondary school students. For this purpose, the use of electronic and digital educational resources was chosen, since it is this form that allows students to activate their activities, makes it possible to improve the quality of education, improve the professional level of a teacher, and diversify the forms of communication of all participants in the educational process.

The WiX website builder system was chosen for the design of the educational resource. This platform can design and develop websites, is available in Russian, has many templates (using videos, graphics, statistics and other applications).

The educational resource is made in the form of a website on a separate topic of studying the material – "Family". Methodical material and educational tasks (games, exercises, etc.) were selected for the development of vocabulary in English lessons for secondary school students. The educational resource offers two categories – "theory" and "tasks" to consolidate the material. The "theory" section presents the words of this topic, their translation, and a contextual version of the use of words. In the "tasks" block, exercises were offered to consolidate the material passed in theory. There is an exercise "Insert words", which is configured to automatically check the task in points. There is also a system of exercises for working with text, in this task the student can see the final result and finalize problematic exercises.

In order to analyze the results of the study of the effectiveness of English language acquisition for the development of vocabulary in English lessons for secondary school students, a control cross-section of knowledge in the form of a Google form was conducted. This Google form was developed as a test work on the topic and included answers to 9 questions on the topic "Family". We offered the Google form in two classes for 60 schoolchildren, in one the students studied according to a textbook, in the other they used the developed educational resource as a supplement. The results of the comparative study will be presented below (Figure 1, 2).

Figure1. The results of the control work in the first group
(using a tutorial)

Figure 2. The results of the control work in the second group
(using a textbook and an educational resource)
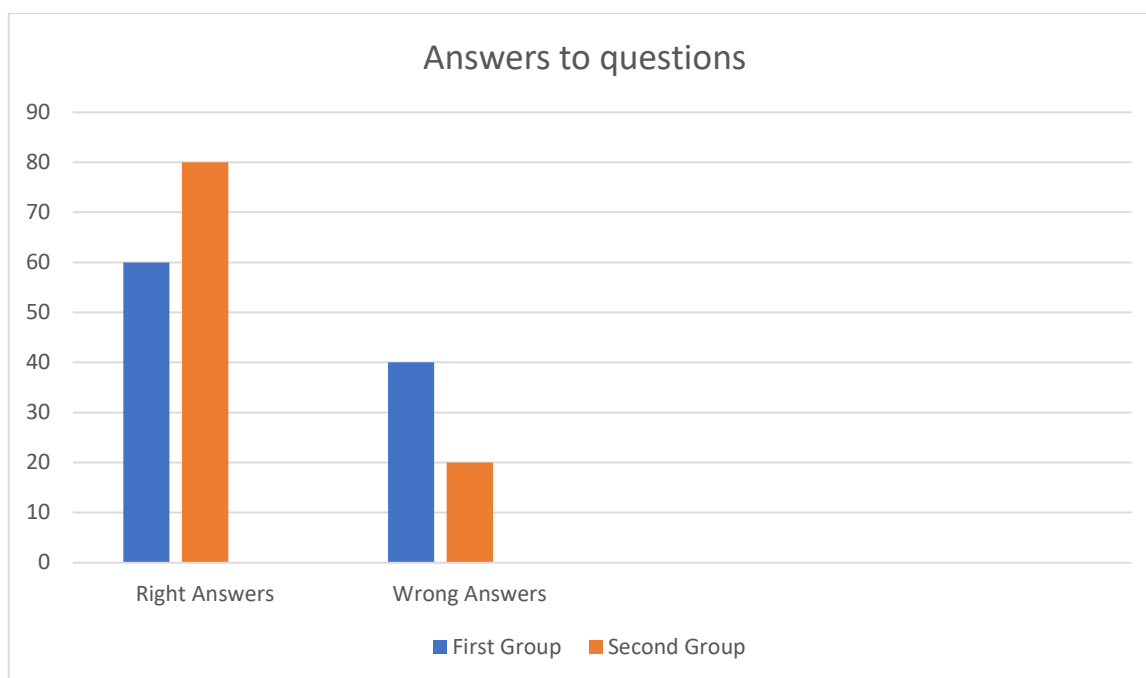
Figure 3. Comparative results of the effectiveness of the training
of the first and second groups

Comparing the results of the first and second groups in the diagram, you can see that they are qualitatively different – the results of the first group are 20 % lower than the results of the second subgroup (Figure 3). This proves the effectiveness of the created educational resource of the effectiveness of English language acquisition for the development of vocabulary in English lessons for secondary school students on the topic "Family".

The analysis of the results of the tasks performed by students to study the effectiveness of an educational resource for vocabulary development in English lessons for secondary school students on the topic "Family" showed that the educational resource significantly increased the effectiveness of English language acquisition for vocabulary development in English lessons for secondary school students with the help of an educational resource.

At school, the ability to develop and apply electronic educational resources in the classroom is relevant for teachers today, it is a requirement of the time. This skill has become very relevant due to the complex epidemiological situation with Covid-19.

Currently, the study of foreign languages is in great demand, especially English, which is considered the most used in international communication. With the development of technology, the number of platforms for learning foreign languages for schoolchildren has increased, but most of the schoolchildren do not know foreign languages perfectly.

The use of an educational resource for the development of vocabulary in English lessons for secondary school students with the help of specially selected tasks, allows you to improve the lexical and phonetic aspects of the speech of

secondary school students, and also helps to increase the level of English proficiency. This was fully confirmed by the results of an empirical study.

The objective of the empirical study was achieved, an educational resource was developed on the WIX platform and educational tasks were selected for vocabulary development in English lessons on the topic "Family" for secondary school students.

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APPLYING SPIRAL DYNAMICS THEORY TO CORPORATE CULTURE

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Abstract. This article discusses the application of Spiral Dynamics in corporate culture. Each level of the spiral is considered and characteristics of the personalities at this level are given. The usefulness of this model for company management is also explained.

Keywords: spiral dynamics, company, level, values, corporate culture.

ПРИМЕНЕНИЕ СПИРАЛЬНОЙ ДИНАМИКИ В КОРПОРАТИВНОЙ КУЛЬТУРЕ

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Аннотация. В данной статье описывается применение спиральной динамики в корпоративной культуре. Рассматривается каждый уровень спирали и даются характеристики личностям, находящимся на этом уровне. Также приводятся аргументы в пользу использования этой модели для управления компанией.

Ключевые слова: спиральная динамика, компания, уровень, ценности, взаимодействие, корпоративная культура.

Spiral Dynamics is a model based on the work of Claire Graves, which makes it possible to trace the development of worldview systems. It can be used to analyze the development of both individuals and communities – cultural and political ones, as well as business processes.

In this paper, we will consider the application of Spiral Dynamics in corporate culture.

Like every employee in a company, the organization as a whole has a certain set of values. By identifying which spiral the company is in, it will be easier to recruit staff who share those values.

When a company develops, its values change, and the old ones stop working. If an organization "gets stuck" at one of the stages, it tends to solve new problems using old methods and consequently "goes down" at some point. The Graves's model can help solve this problem and even prevent it [1].

Graves had been monitoring the social and cultural conditions, values and moral guidelines of people from different countries for almost 30 years. Based on a study of the behavior and motives of more than 50 thousand people, he concluded that any living system (person, society, company or country) goes through approximately the same levels of development. This theory of emergent cyclical levels of existence, according to Graves, provides important clues to understanding the life goals and priorities of each person throughout their life, explains what a person lives for. Graves substantiated this study of different types of human thinking with the reference to Maslow's hierarchy of needs. His research made it possible to elicit what factors (value-based, cultural and psychological) influence the development of a person in addition to meeting their biological needs [2].

Each turn of the Graves spiral has its own color. There are nine levels in total: beige, purple, red, blue, orange, green, yellow, turquoise and coral. There are also special tests to determine at what level a person or a company is.

The beige level is typical for people whose needs are their instincts. The last – coral – level is considered to be hypothetical and barely met in the history of mankind. Hence, these two levels will not be examined in the context of corporate culture.

We will start our analysis with *the purple level*.

Its representatives are "programmable" employees "conceding to the majority", because safety and comfort in the team are important for them.

At this level, a person can already sacrifice something and adapt oneself to others so that teammates feel comfortable and the company can develop. The person becomes part of the group and is ready to obey the leader, traditions and rituals. Here, people can already analyze what is happening within the team and even outside it [3].

A typical scenario implies:
– adaptation to existing norms, formation of a common subculture;
– priority of public interests over personal ones;
– beliefs and values related to maintaining the group.

As it has already been said, for "purple" employees, it is important to be part of the whole, in addition to material values. They are often invisible, but can be encouraged to grow. Good motivators are corporate events, team building and various tasks that can take an employee to a new level [4].

The red level is the level of strength, aggression and feats. A person suddenly begins to realize that even in a small team one can be a leader, subordinate other people, control and show one's power over them. This person does not see halftones and wants to prove their right whatever it takes. It makes no sense to fight them, as well as to negotiate [3].

You can meet such "heroes" in some companies; they are harsh in their statements and are always certain they know best, though it may not be the case.

People who are not ready to learn, listen and benefit the company, who shift responsibility to someone else and misuse their power, should be avoided, because they can ruin a company.

At *the blue level*, the spiral moves from "I" to "we" again, because the interests of a company itself are more important than those of an individual. Rules, regulations and traditions are of great significance at this level, therefore, people in the company have a common goal to strive for and work in order to accomplish it [3].

Employees are characterized by a high level of discipline and order, nevertheless, they lack creative freedom.

A typical scenario implies:
- valued hierarchy, the need to maintain discipline;
- priority of public interests over personal ones;
- performance of tasks according to ready-made rules and instructions;
- teamwork and the opinion of the majority are vital, as well as confidence and security.

Stability plays a key part for "blue" employees. They are ready to give up the momentary for the sake of the long term. In addition to material values, the status and regalia in the system, recognition by an expert in their field and awards such as honor boards, certificates, diplomas are important [4].

People at *the orange level* are project workers who are able to control their activities independently. Management only needs to create conditions for their development and creativity.

The main belief of this level is that the result and money are the framework for any kind of activity. People become aware that self-realization is possible only via changes. They are also able to manage various resources to achieve the goal, while often breaking the rules and hiding their real feelings.

The orange level is characterized by healthy competition, but each member tries to satisfy their own needs. That is why such qualities as rationalism and pragmatism are valuable here.

A typical scenario implies:
- setting goals;
- minimal control over the correct choice of tools to achieve the goal;
- general support for the management of the organization [4].

The green level suggests the intention to make the world a better place for others, without having a significant benefit for oneself. The relationship between people is the main characteristic of this stage. Often a person of this level is ready to leave their own comfort zone for the sake of others. Spirituality here is much higher than material wealth, that is, the status and hierarchy in society as a whole are not important. A clear example of this stage is the hippie movement, whose ideology promotes pacifism, friendly relations and pacification of one's own ego [5].

For corporate culture the scenario implies:
- setting long-term goals;

– checking how the goals coincide with the goals of the company.

"Green" employees like to attend team trainings, share experiences, create something new, valuable and environmentally friendly. They can be entrusted with social activities.

Team victories and consolidation of leadership positions are important for the "greens". They are motivated by values that benefit people as well as by the ability to choose the environment [4].

The yellow level is characterized by the holistic perception of the world. In addition, freedom of choice and self-sufficiency are important. Such individuals have an inner stimulus and a clear view of the world of their own. What is more, they can easily communicate with people of the previous stages, taking into account their values.

They do not depend on the views of others and think out of the box. At the same time, it is impossible to set a task for such employees.

"Yellow" are managers, they like to change the world around them and understand the essence of the hierarchy. They can easily switch and carry on a conversation at the value level of employees of other levels [5].

A typical scenario implies:
– setting goals and leading the company in the direction of these goals;
– adhering to the pursuit of personal interests [4].

At this level, a person still wants to express himself or herself, doing it not at the expense of others, but through the knowledge and experience, skills and strengths. The focus shifts towards everyone's uniqueness.

A person becomes more flexible, compassionate and understanding, no longer needing to prove anything to others. Perhaps these are the very maturity and wisdom that come with experience and age [3].

At *the turquoise level*, the social craving for integrity is activated. For people of this paradigm, it is important to follow the path of their calling, the three main achievements being self-government, integrity and evolutionary purpose. There is no hierarchy in this system, centralized regulation is excluded, the organization rests on the foundation of mutual trust.

Nevertheless, it should be noted that in the modern world there are no companies of pure "colours", because organizations, like human beings, develop unevenly in various aspects of their activities, therefore they have signs of different paradigms. One can only single out the dominant "color" that most accurately describes the direction of the company's development and ways to achieve strategic goals [6].

Having considered the Spiral Dynamics, we can conclude that from time immemorial a person goes through the same stages of development and self-expression in society. Therefore, knowing the principle of operation of this system helps to find ways to build a dialogue with a person, understand what prospects this person has in the future, as well as to predict their possible social roles in society.

The Spiral Dynamics determines how mature, wise, and compatible an individual or a company is. If a company moves forward and passes at least half of all levels of development according to Graves, it will have new requirements for

employees. Therefore, those who do not want to comply with them do not stay in it for a long time. Alternatively, if a person has "outgrown" the company, he or she will simply find a new place and will definitely take root there. The most important thing is the coincidence of values. It is precisely the theory of Spiral Dynamics that helps to track these levels.

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AUTOMATED WEATHER DETECTION USING ARTIFICIAL INTELLIGENCE

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Abstract. The paper discusses the automation of meteorological data measurements using a system of ultra-small weather stations for analyzing weather conditions. The forecasting of events based on the collected experimental data is also considered, as well as the optimization of taking readings from sensors for subsequent weather forecasting by means of neuromodeling and artificial intelligence based on hidden Markov models and statistical analysis.

Keywords: weather station, weather station system, weather prediction, event modeling, Markov models, artificial intelligence, analysis of physical fields, ultra-short-term weather prediction, prediction of catastrophic events.

ПРОГНОЗИРОВАНИЕ ПОГОДЫ С ПОМОЩЬЮ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА

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Аннотация. В работе рассматривается автоматизация измерений метеорологических показаний с помощью системы сверхмалых метеостанций для анализа погодных условий. Также рассматривается прогнозирование событий, исходя из собранных экспериментальных данных, и разбирается оптимизация сбора показаний с приборов для последующего прогнозирования погоды с помощью нейромоделирования и искусственного интеллекта на основе скрытых марковских моделей и статистического анализа.

Ключевые слова: метеостанция, система метеостанций, прогнозирование погоды, моделирование событий, марковские модели, нечеткая логика, искусственный интеллект, анализ физических полей, сверх-краткосрочный прогноз погоды, предсказание катастрофических событий.

Weather forecasting has always been a very long, complex and time-consuming process. In order to give a weather forecast, you need to analyse large amounts of collected data and make many complex calculations, but with the development of computer technology such as artificial intelligence and neuromodelling it has become much easier to analyse large amounts of data and to do complex calculations, therefore using these technologies can make weather forecasting much easier.

The problem of weather forecasting complexity has always been an issue. From ancient times to the present day, people have studied weather patterns, which depend on many different factors, such as temperature, atmospheric pressure, wind speed and direction. In this article, we will discuss how data-driven artificial intelligence may simplify weather forecasting, using a weather station system based on the Arduino platform as an example.

A system of weather stations refers to a set of stations located at a certain distance from each other. Each of them can independently take readings from instruments, process them and send the result to the main station. The main station enters all data into the neuromodel and forecasts the weather. Hereinafter the system of weather stations will be referred to as a weather station.

The importance of weather stations.

Weather stations are becoming part of the infrastructure in very different industries. Nowadays, when the work of many companies depends on weather conditions (e. g. airlines, construction companies, taxis, etc.), they need to have their own weather station, which will give a faster and more accurate forecast than its counterparts.

While big companies need the weather forecast because it can affect their business, it can also make a big difference to ordinary people because they make their plans based on this data. To prove this, we will give you some statistics. A survey shows that 14 % (Figure 1) of all respondents found the weather forecast very useful and 64 % say the weather forecast helps them regularly. This survey was conducted among students of Faculty of Digital Industrial Technologies and teachers of the Department of Applied Mathematics and Mathematical Modelling of SPbGMTU. A total of 100 people took part.
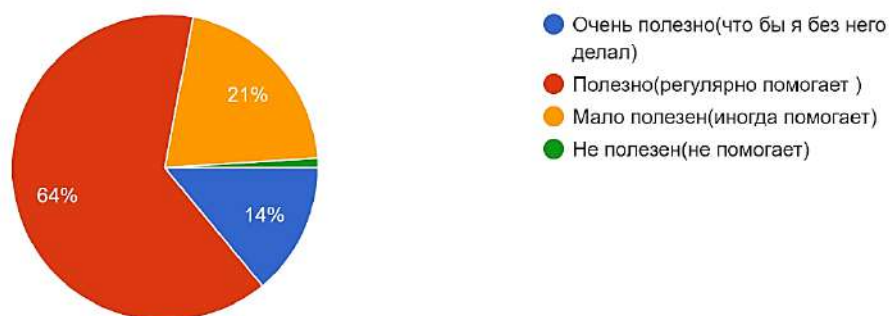
Figure 1. Chart No. 1

In Chart No. 1 (Figure 1) the following answers were given to the question: "How useful do you think the weather forecast is to you?":
– Very useful
– Useful
– Little useful
– Not useful

Как часто вы смотрите прогноз погоды ?
100 ответов

- Очень часто(Перед каждым выходо…
- Часто(Каждый день)
- Редко(Каждую неделю)
- Очень редко(Каждый месяц)
- Когда нужно, почти никогда
- Пару раз в неделю
- никогда
- Я привыкла просто смотреть на гра…

△ 1/2 ▽

Figure 2. Chart No. 2

Chart No. 2 (Figure 2) shows statistics on how often people check the weather forecast. 25 % check the weather forecast before they leave home, 36% check it every day. Therefore, it can be concluded from this data that, on average, a potential consumer wants to see weather changes every hour.

Что вы считаете должно быть в прогнозе погоды?
100 ответов
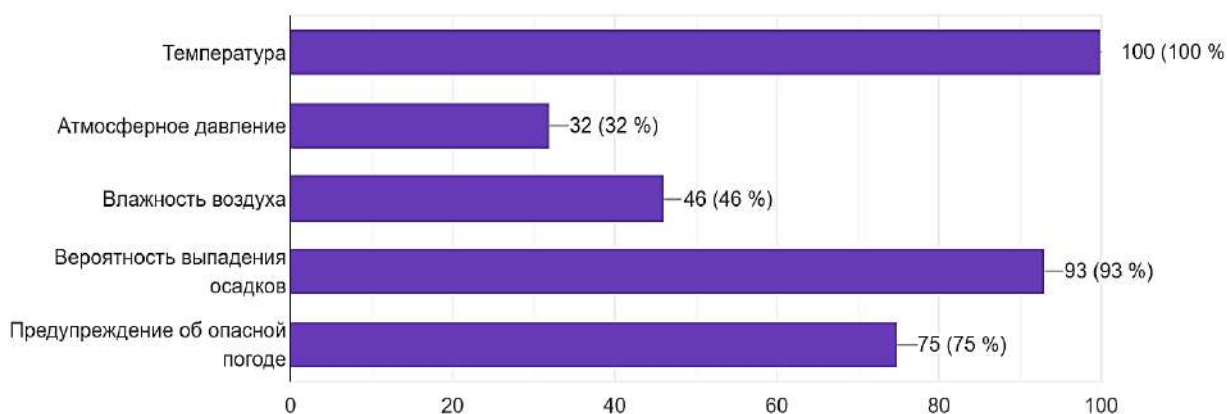
Figure 3. Histogram № 1

Histogram No. 1 (Figure 3) shows that in the weather forecast everyone is interested in the temperature, 93 % of respondents want to know precipitation probability, only 46 % want to see humidity. These facts indicate that our weather forecast should include air humidity and temperature, as well as the precipitation probability. The precipitation probability is directly related to temperature, humidity and pressure variations. Therefore, our weather station must take such readings as temperature, air humidity and pressure in order to fulfil the consumers' wishes.

After we had decided what readings our weather station should take, we can proceed to the electronic modeling of the prototype weather station. The station was assembled according to the principle of minimum monetary costs.
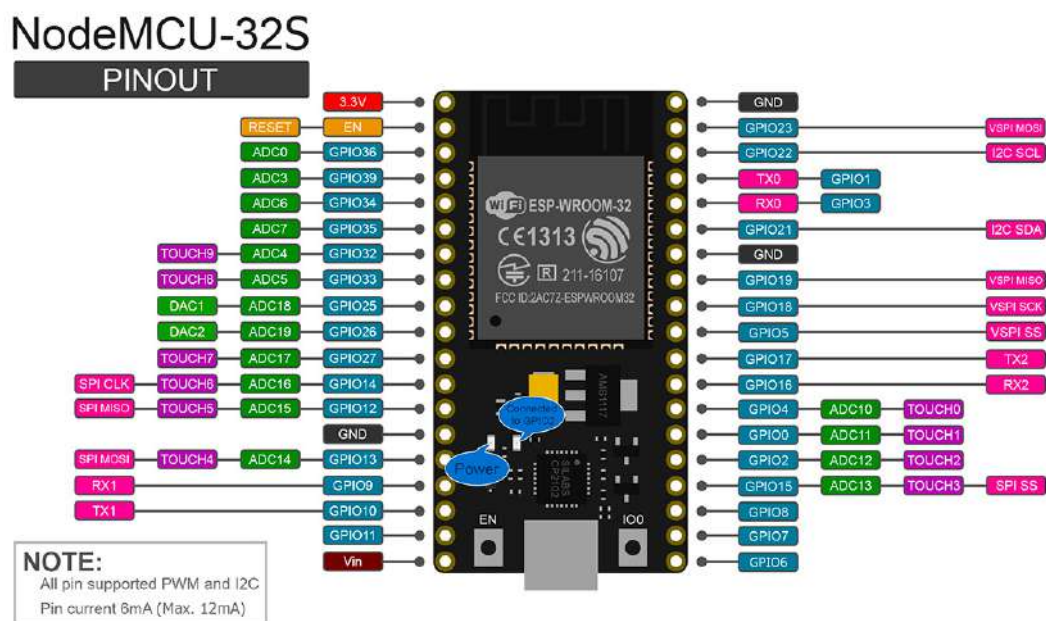
Figure 4. Microcontroller esp 32

A standard station has: an Arduino Nano microcontroller or esp 32 (Figure 4). The designed configuration includes a complex sensor BME280, which measures temperature, humidity and pressure, a SIM800L communication module to transfer data between the stations, a 5V power supply to power the whole system and a XL4015 voltage step-down converter to power the low voltage sensor and communication module.

Each station looks like the one in Figure 5 and can cover an area with a radius of 60 km (regarding the use of field pressure data). The stations operate fully autonomously and transmit data to the server every hour with autonomous power supply from a lead battery for at least six months. Then the main (head) station, having obtained the required amount, transmits data in an asynchronous channel to the server, which generates a forecast based on the developed neuromodel.
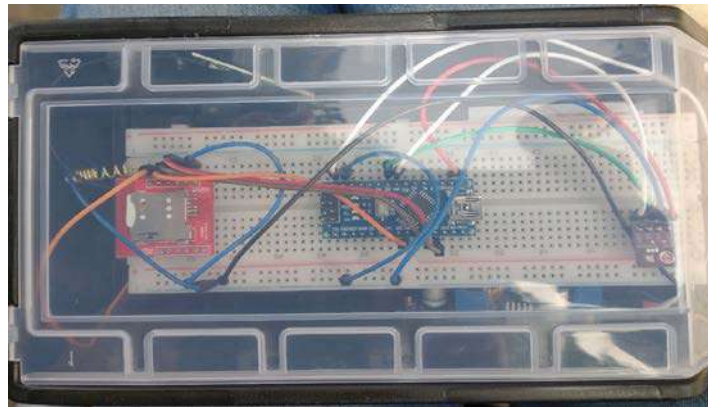
Figure 5. Photo of the prototype of the station

The neuromodel works on the basis of a hidden Markov model. Since, so far, our weather station is only able to measure three quantities: temperature, humidity, and pressure, it was decided to use a two-parameter Markov model. It includes two states (Figure 6): sunshine (state 1) and rainfall (state 2) and four coefficients a_i, which are responsible for the probability of going back and forth between state 1 and state 2. The coefficient a_i depends on three parameters: (Figure 6) t – temperature, P – pressure, φ – relative humidity. In the future it is planned to move to a more complex model with an increased number of states and analysis modules, including interpolation models.
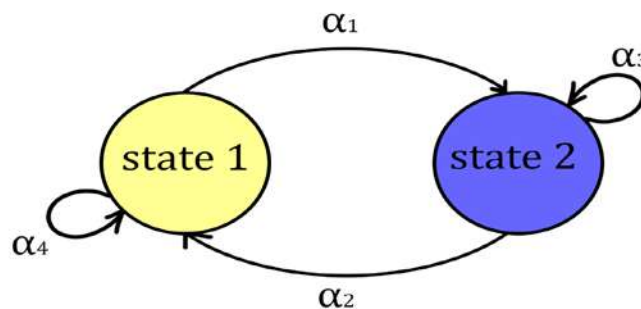
Figure 6. Two-parameters Hidden Markov model

The value of the function f (t, P, φ) is calculated using the sum of two probabilities: precipitation depending on the dew point, and the probability depending on the pressure change. For a more accurate prediction model of α (event probability) weather, it is worth considering natural factors such as:
- Increase in pressure in the morning and evening;
- Decrease in pressure after 12.00 and 00.00.
- Increase in precipitation probability at temperatures below dew point.
- Decrease in precipitation probability at temperatures above the dew point.
  Calculating the precipitation probability from changes in pressure.
  When pressure drops, overcast rainy weather is expected, and, on the contrary, when atmospheric pressure rises, the chance of sunny weather increases significantly. Cases where the pressure drops very sharply should also be considered, this would

indicate a high chance of dangerous weather: a storm, a tempest or a severe thunderstorm [1].

Having studied the relation between precipitation and changes in pressure, we decided to create our own model of precipitation probability. The model takes into account low atmospheric pressure (720-730 mm Hg) and high atmospheric pressure (760-770 mm Hg), as well as changes in pressure during the day by 5-10 mm Hg from the average of all weather stations. If the atmospheric pressure becomes lower than the norm, the probability of precipitation increases, i. e. coefficients a_1 and a_3 increase, and a_2 and a_4 decrease. When atmospheric pressure rises, the opposite is true. This allows us to understand if precipitation should be expected and what direction it will come from.

Calculating the precipitation probability from the dew point.

The dew point is the temperature to which the air must be cooled to become saturated with water vapour [3]. It has a direct effect on precipitation: if the temperature falls below the dew point during the day, precipitation is guaranteed, and if the temperature is above it, you can expect a sunny day today.

To calculate the dew point we use the formula:

$$g(T, \varphi) = \frac{a * T}{b + T} + \ln \frac{\varphi}{100}, \qquad were \ a = 17.27, b = 237.7 \ [5]$$

$g(t, \varphi)$ − auxiliary function, where T – temperature, φ – air humidity, a and b const.

$$T_p = \frac{b * g(t, \varphi)}{a - g(t, \varphi)} - \text{formula for calculating the dew point.}$$

We will assume that if the current temperature is equal to the dew point temperature, then the precipitation probability is 50 %. The probability itself changes by 7 % with a change of 1 °C. That is, if the temperature is higher than dew point, then a_1 and a_3 decrease, while a_2 and a_4 increase, and vice versa, if the temperature is lower than dew point, then a_1 and a_3 increase, while a_2 and a_4 decrease.

From these two natural phenomena we calculate the overall probability of the event. With more data collected and analysis of our neuromodel performance, we plan to adjust the calculation of the transition probability between events, which will make weather forecasting more accurate.

We believe that the weather station discussed in this paper, based on a hidden Markov model, will greatly simplify the work of both meteorologists and those who depend on weather forecasts. It will be able to take over the complex part of the systematic collection of information and calculation of complex relations, or it can work completely autonomously, producing weather forecasts at once.

Despite its apparent simplicity, even such a simple model can provide useful information for the air navigation of drones and unmanned autonomous robots. In particular, the possibility of using optics, the appearance of fog, ice formation on machinery, thunderstorms – all those events that make it impossible to use modern autonomous systems.

The advantage of using client-server technology is the accumulation and further processing with the training of a neuromodel, which, in general, increases the forecast accuracy.

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DIGITALIZATION OF PRODUCTION AS AN IMPORTANT STAGE IN THE DEVELOPMENT OF ENTERPRISES

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Abstract. This article examines the issues associated with the transition of enterprises to digital technology in the production sphere. The advantages of digitalization of production, which affect the improvement of product quality and increase labor productivity, are analyzed. It describes the modern methods and technologies used to diagnose the production process, to analyze production data and to automate production. The article contains research confirming the importance of digitalization of production for the development of enterprises and increasing their competitiveness in the market.

Keywords: digitalization, production, automation, production process, data analysis, technology.

ЦИФРОВИЗАЦИЯ ПРОИЗВОДСТВА КАК ВАЖНЫЙ ЭТАП В РАЗВИТИИ ПРЕДПРИЯТИЙ

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Аннотация. В данной статье рассматриваются вопросы, связанные с переходом предприятий на цифровые технологии в производственной сфере. Анализируются преимущества цифровизации производства, влияющие на улучшение качества продукта и увеличение производительности труда. Описываются современные методы и технологии, используемые для диагностики производственного процесса, анализа производственных данных и автоматизации производства. Статья содержит исследования, подтверждающие значимость цифровизации производства для развития предприятий и повышения их конкурентоспособности на рынке.

Ключевые слова: цифровизация, производство, автоматизация, производственный процесс, анализ данных, технологии.

Nowadays, with the rapid development of technology and current trends in the economy, digitalization of production (Figure 1) is becoming one of the most pressing issues that concern entrepreneurs. Digitalization is one of the main trends of modern business, which covers almost all sectors of the economy. Various technologies and tools are used in the digitalization of businesses, including artificial intelligence, cloud computing, Internet of Things, data analytics, automation, and more. Digitalization technologies make it possible to monitor the efficiency of processes, manage resources, optimize costs and improve product quality [1].

Figure 1. Digitalization of production

There are many modern methods and technologies that are used to diagnose the production process, analyze production data and automate production. These technologies and methods can help companies increase productivity, reduce costs and improve production quality.

One such technology is the Industrial Internet of Things (IIoT), which combines several technologies, such as sensors, communication systems and cloud technology, to collect and analyze data from equipment. The IIoT allows companies to better understand the manufacturing process and their products, and improve production efficiency.

Machine learning (ML) and artificial intelligence (AI), which are used to analyze production data, also play an important role. These methods make it possible to quickly analyze large amounts of data and identify hidden dependencies and patterns to improve production processes and product quality [2].

On the other hand, production automation, which is done through software systems such as SCADA (Supervisory Control and Data Acquisition), ERP (Enterprise Resource Planning) (Figure 2) and MES (Manufacturing Execution System) (Figure 3), can automatically monitor equipment operation and control production processes. This reduces the chance of human error and increases production efficiency and accuracy.

Figure 2. ERP (Enterprise Resource Planning)
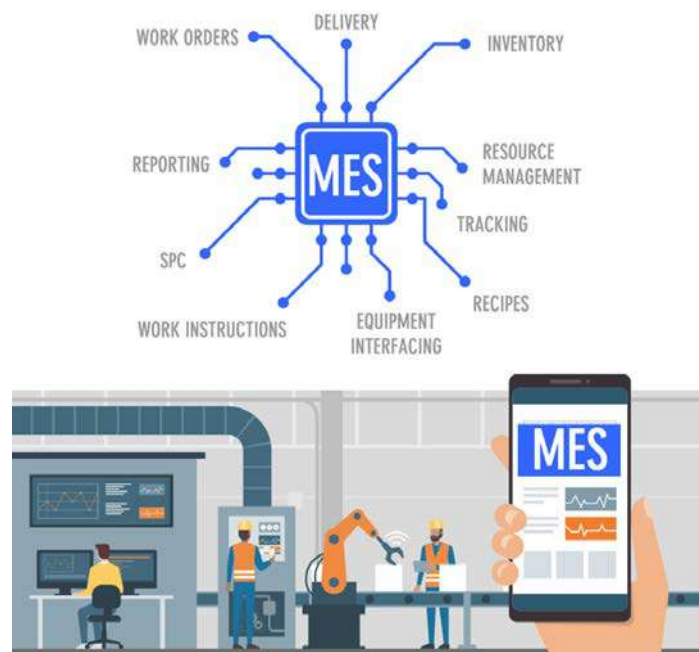
Figure 3. MES (Manufacturing Execution System)

Enterprises in many industries are actively integrating digital technology into their operations. This contributes to higher production efficiency and productivity, as well as enables flexible enterprise management.

One of the brightest examples of successful digitalization of production is the Digital Manufacturing and Design Innovation Institute (DMDI) project, founded in the United States. This institute develops modern digital production technologies, which allow for the rapid and efficient production of innovative products. In its work,

the institute actively uses information technology and data analytics, which can significantly reduce production time, reduce costs and improve product quality.

One of the world's leading car manufacturers that is successfully implementing digital technology is BMW. As part of the industry 4.0 program, the company is actively transitioning to cloud technologies, improving production management processes, using software to model and simulate production processes.

An example of the implementation of digital technologies in production activities is the Chinese company Foxconn Technology Group, which is engaged in the production of computer components. The company has implemented a production management system that allows it to automate production processes, quickly solve problem situations, and control product quality.

Many Russian companies are also actively using various digital technologies in their work. For example, Russian banks are actively introducing online banking systems and other technologies that allow clients to conduct transactions quickly and conveniently using mobile devices. Russian manufacturing companies are also using digital technologies to manage warehouses and transport, as well as to control product quality.

A prime example of digitalization in Russia is the state aerospace holding Roscosmos, which is actively introducing artificial intelligence, machine learning and analytics technologies to analyze data and improve production processes.

It is also worth noting technology companies in Russia, such as Yandex, Mail.ru Group and Ozon, which actively use various digital technologies to improve business processes and increase competitiveness [3].

At the same time, the use of these technologies in Russia at enterprises in other industries is also increasing markedly. For example, digital design and 3D modeling technologies are the most popular in the production sphere. In transport, digital transport monitoring and control systems are being introduced, as well as navigation and routing systems. Positive results from the introduction of digital technologies are also noted in such sectors as health, education, science, culture and sports.

According to McKinsey Global Institute's 2018 report, "Digitalization: Creating Income and Productivity through Increased Confidence in Innovation," digitalization is a key driver of economic growth. This report indicates that digital technology can add $1.5 trillion to $3.0 trillion in value across business sectors per year.

An analysis of 2021 data by Germany's Federal Agency for Digital Transformation found that nearly 90 % of German businesses use measured or automated processes, and more than 60 % of them use digital tools. In the Euro-standard area, about 54 % of all microenterprises, 74 % of all small businesses and 89 % of all medium-sized businesses use the Internet.

In Russia, according to Rosstat statistical data for 2020, the greatest use of digital technology is observed in information technology, communications and telecommunications. The index of physical volume of communication services was 103.2 % compared to the same period last year, the index of production of electronic equipment and computers was 106.8 % [4].

The benefits of digitalization in manufacturing are multifaceted and depend on the specific conditions and goals of each individual organization. In general, however, there are some of the most important benefits of digitalization. First and foremost, the automation of processes reduces the likelihood of human error and mistakes. At the same time, productivity and product quality are greatly improved. Digitalization also improves safety, which is particularly important in hazardous industries.

Another advantage of digital technology in production is the ability to maintain document management in electronic form, which significantly reduces the time for information processing and increases its reliability.

In addition, digitalization of production helps to optimize the costs of energy consumption, the use of modern equipment, and the development of new technologies.

Finally, digital technology can help reduce project time through various management methodologies such as Agile, Scrum, etc.

Today, it is possible to implement digitalization in almost all areas of industry. However, according to some analysts, about a third of enterprises are not ready to implement a digital transformation strategy. As some problems arise during the implementation of digital solutions. Most often this is due to the lack of qualified specialists, the instability of the economy and the acquisition of the necessary equipment, the price of which can be unaffordable. It should be noted that at present in the field of digital technology there are no organizational and legal restrictions, and there are no preferences in terms of taxation for their implementation.

It should also be remembered that many employees are afraid of innovation. Because it will be necessary to get used to the new methods of accounting and control, the new organization of work with clients, as well as the change from paper to electronic document management.

The above disadvantages can be eliminated if the model of organization of production, supply channels for raw materials and components, markets for products and other aspects relating to the activities of industrial enterprises in the development of the digital economy is completely reconsidered. Concrete and coordinated actions by enterprise management and government bodies at the industry, regional, and federal levels are also needed. Legislation on digital technologies must be developed, digital infrastructure modernized, digital practices introduced in all key areas of the economy, and most importantly, training for the transition period must be established [5].

Digitalization of production is an important stage in the development of modern enterprises. One of the most important tasks for Russia is not to miss the moment of transition and not to be left behind in the digital economy. The introduction of digital technology will not only increase production efficiency and reduce costs, but also improve product quality, improve working conditions for enterprise employees, and ensure more accurate control of production processes.

The application of advanced methods and technologies for process diagnostics, production data analysis and production automation will allow enterprises to achieve better results and ensure their competitiveness in the market. It should be noted that

for the successful implementation of the digitalization process, it is necessary to take into account the specifics of the industry and competently configure the interaction of new technologies with all participants of the production process.

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УДК 332.1

BLAGOVESCHENSK – HEIHE BRIDGE AS A NEW STEP
IN RUSSIAN-CHINESE BUSINESS CO-OPERATION IN THE CONTEXT
OF MODERN GLOBAL CHANGES

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Abstract. The greatness of two countries determines their development which influence historical processes in the world. Consideration of major changes taking place in democratic Russia and new China is impossible without a sufficiently clear understanding of civilizational complex interaction prospects. During long historical period of Russian-Chinese relations, the features of their relations became clearer.

The article examines the sequence of development of Russian-Chinese relations and gives a description of the large international project bridge "Blagoveshchensk – Heihe" with its prospects and expectations.

Keywords: Russia, China, economic relationships, international project, Blagoveshchensk, Heihe, "Blagoveshchensk – Heihe" bridge, goals, expectations.

МОСТ БЛАГОВЕЩЕНСК – ХЭЙХЭ КАК НОВЫЙ ШАГ
В РОССИЙСКО-КИТАЙСКОМ ДЕЛОВОМ СОТРУДНИЧЕСТВЕ
В КОНТЕКСТЕ СОВРЕМЕННЫХ ГЛОБАЛЬНЫХ ВЫЗОВОВ

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Аннотация. Масштабы двух стран таковы, что их развитие влияет на всемирно-исторический процесс. Обзор крупных перемен, происходящих в демократической России и новом Китае, невозможен без достаточно четкого осознания того, каковы перспективы взаимодействия цивилизационного комплекса. За длительный исторический период российско-китайских связей вполне отчетливо выявились присущие им особенности.

В статье рассматривается последовательность развития российско-китайских отношений и дается описание крупного международного проекта – моста «Благовещенск – Хэйхэ» с его перспективами и ожиданиями.

Ключевые слова: Россия, Китай, экономические отношения, международный проект, Благовещенск, Хэйхэ, мост Благовещенск – Хэйхэ, цели, ожидания.

The history of economic relationships between China and Russia

The history of economic relations between China and Russia dates back to the XIX century, when the Russian Empire began exporting goods to China through the Siberian trade routes. At the beginning of the XX century, economic relations were interrupted due to political upheavals, such as the 1917 Revolution in Russia and the Civil War in China.

However, in 1949, the establishment of communist power in China led to the strengthening of economic ties between the two countries. The allied relations between China and the USSR also contributed to an increase in economic cooperation. In the 1950s, China began to take on a significant share of Soviet aid and technical support.

In the 1960s, however, relations between China and the USSR cooled, which led to a significant deterioration in economic relations between the two countries. China started looking for new trading partners and found them in Japan, Western Europe and the USA.

In the early 1990s, China and Russia began to revise their relations, and in 1992 an Agreement on Friendship, Cooperation and Mutual assistance was signed. This agreement helped to strengthen economic ties between the two countries. In the following years, China and Russia established extensive trade and economic ties, including energy supplies from Russia and supplies of goods and technologies from China.

Since the early 2000s, trade and economic relations between China and Russia have continued to strengthen. Both countries are working on joint projects in the field of energy, transport, telecommunications and other industries [1].

However, some experts point to a number of problems between states.

One of the main problems in economic relations between China and Russia is the unevenness of their development. While China is one of the fastest growing economic giants in the world, Russia is suffering from declining economic growth and imperfections in economic structures. This may have a negative impact on economic relations between the two countries.

Another problem is Russia's dependence on oil and gas exports, which makes its economy vulnerable to price fluctuations on world markets. China, in turn, is seeking to diversify its economic ties, which may lead to a reduction in dependence on Russia.

It should also be noted that in recent years, relations between China and Russia have become more complicated in light of the growing tensions in their geopolitical relations with the United States. Despite this, both countries continue to strengthen economic ties and look for new opportunities for cooperation.

In general, the history of economic relations between China and Russia has its periods of boom and bust, but both countries continue to work to strengthen their economic ties and develop cooperation in various industries.

Project history

The possibility of building the first automobile bridge between the USSR and China was discussed back in the 1960s. However, this idea was not supported by the Soviet party leadership, as the first secretary of the Amur Regional Committee of the CPSU, Stepan Avramenko, believed that a bridge between the two states would be a threat to the country's security.

In 1988, the Amur Regional Executive Committee sent a proposal to the leadership of Heihe and Heilongjiang Province to jointly build a bridge crossing over the Amur border River. The parties agreed to appeal to the governments of their countries with a request to approve the bridge project. However, due to the difficult economic situation in the USSR during Perestroika, this idea was never implemented. In the 1990s, the leadership of the Amur Region put forward a new proposal: to build a cable car from Russia to China across the Amur River in order to develop tourism and a pontoon bridge for the delivery of heavy goods, but this idea also did not continue.

In 1995, in Moscow, Viktor Chernomyrdin, the Prime Minister of the Russian Federation, and Li Peng, the Premier of the State Council of the People's Republic of China, signed an intergovernmental agreement on the joint construction of a bridge across the Amur River. Twice (in 1996 and 2005) China and Russia began to develop a feasibility study for the future construction. In the early 2000s, the "Most" company was formed, which conducted engineering and construction surveys and developed bridge crossing and highway projects. At that time, the construction was estimated to be very expensive, so the project was not implemented again.

In 2012, the Governor of the Amur Region Oleg Kozhemyako again raised the topic of building a bridge and cable car across the Amur River. On October 22, 2013, during Dmitry Medvedev's visit to China, the two countries signed a protocol on the need to build a bridge crossing. Two years later, on September 3, 2015, during Vladimir Putin's state visit to Beijing, the transport ministers of Russia and China signed an intergovernmental agreement on the construction of a cable car between the cities of Blagoveshchensk and Heihe and a protocol on amendments to the bilateral document on the construction of a bridge across the Amur River [2].

Construction preparation

The cost of all the works was estimated at 20 billion rubles, and two-thirds of this amount was accounted for by the Russian side. Budget funds were not used in the construction of the bridge. The public-private partnership mechanism chosen by the parties provided that the concessionaire builds the facility at its own expense, and then reimburses the costs by charging a fare. It was planned to pay for the construction in 16 years of operation of the structure [3].

A joint Russian-Chinese campaign was created to carry out work on the construction of the bridge. She borrowed funds for the construction from a Chinese bank. At the same time, the loan was taken out in yuan, but contracts with Russian contractors were concluded in rubles, so that they would not bear the risks of changing the exchange rates of national currencies. Upon completion of all the works, the Russian part of the

bridge became the property of the Amur Region, while the Chinese part became the property of Heilongjiang Province.

Construction process

Construction of the bridge began on December 24, 2016. Each of the parties was responsible for the construction of half of the structure of the main transport crossing. During the construction of the Russian part of the bridge, elements of domestic production were used. Construction was carried out around the clock, and parts of the bridge were built simultaneously from both banks. The course of construction on both sides did not coincide due to differences in the methodology and timing of work, but it was carried out in a single schedule.

The solemn docking of the two parts of the bridge took place on May 31, 2019. On June 19, 2019, the installation of shrouds on the Russian side was completed, and ten days later, similar work was completed by Chinese builders. Then the superstructure was lowered to permanent support parts, and the reinforcement of the roadway slab for subsequent concreting began.

Construction of the bridge was completed in December 2019. In May 2020 the Ministry of Construction of the Russian Federation has issued an official permit to put it into operation. However, the opening of traffic on the bridge was postponed due to restrictions imposed in connection with the new coronavirus infection.

Specifications

The main bridge is about 1 kilometer long and almost 15 meters wide. The bridge has two 2 lanes for traffic and 3 transport interchanges. It is worth noting that on the bridge there are places specially equipped for the passage of ships. When fully loaded, 630 trucks, 164 buses and 68 cars can pass through the bridge every day. Presumably, the annual flow of passengers is more than 2 million people, cargo-about 4 million tons [3].

Putting the bridge into operation allowed increasing the trade turnover between Russia and China to 1 million tons of cargo per year. In addition, the transport crossing provides the necessary infrastructure for the Amur region, which contributes to the development of investment projects and has a positive impact on business.

The road bridge between Blagoveshchensk and Heihe has become the second cross-border transport crossing in the Far East, which is undoubtedly important for the development of friendly relations.

Conclusion

Russian-Chinese relations have a long history. Nowadays these countries are true and reliable partners for each other. In a constantly changing society and advanced technologies Russia and Chine support each other and make big plans to the near future [4]. Trade turnover and economic relations between Russia and China will continue to grow. Energy cooperation will remain a priority area of co-operation. The countries will also improve humanitarian relationships and tourism which was seriously injured due to a coronavirus infection. It is also worth mentioning, that Russia and China are actively cooperate in the military-technical sphere and on international issues [5].

Our countries have many plans and projects which allow to lay the foundation of sustainable and friendly relations for many years.

Bridges as engineering constructions have always served people connecting two shores. Blagoveschensk – Heihe bridge continues this noble tradition securing Russian-Chinese business co-operation.

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THE PUBLIC'S VIEW OF THE PHENOMENON OF THE INFORMAL ECONOMY: EXPECTATION AND REALITY

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Abstract. This article aims to reflect the essence of the concept of informal economy, as well as the situation in the country on the basis of statistical data. In addition, the article presents a conclusion about the degree of awareness of Russian citizens on this issue, as well as a comparative analysis of the opinions of Russians on the most popular areas of informal activities and the official data of the Federal State Statistics Service.

Keywords: informal economy, informal employment, informal employment statistics, population opinion, population survey.

ВЗГЛЯД НАСЕЛЕНИЯ НА ФЕНОМЕН НЕФОРМАЛЬНОЙ ЭКОНОМИКИ: ОЖИДАНИЯ И РЕАЛЬНОСТЬ

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Аннотация. Цель данной статьи – отразить сущность понятия неформальной экономики, а также ситуацию в стране на основе статистических данных. Кроме того, в статье представлен вывод о степени информированности российских граждан по данному вопросу, а также сравнительный анализ мнений россиян о наиболее популярных сферах неформальной деятельности и официальных данных Федеральной службы государственной статистики.

Ключевые слова: неформальная экономика, неформальная занятость, статистика неформальной занятости, мнение населения, опрос населения.

In Russia, the informal economy has existed for decades and covers a wide range of activities. This labor activity is not officially registered and is not subject to labor legislation. Statistics show that the number of people employed in the shadow sector grows every year. In addition, informal employment can be both a choice and a forced measure for many people who cannot find work in the official sector or for those who want to work for themselves and have more freedom in their activities.

Undoubtedly, there are factors that caused the emergence of this problem and its rapid development [1]. Among them are the following:

1. The tendency of employers not to pay taxes on employees' wages. Many employers prefer to hire people on an informal basis in order not to pay taxes and provide social guarantees. This allows them to reduce labor costs and increase profits.

2. The reluctance of employers to take social responsibility for the employee. Informal employment allows people to earn money, but does not provide any social guarantees, such as health insurance or pensions.

3. Insufficient number of official jobs and low wages. This forces people to seek alternative sources of income.

4. The low level of qualifications of workers. Education may not meet the requirements of hiring managers, making it difficult for people to find formal employment.

Also, for the understanding of what indicators can be used to identify informal employment, there are criteria for the shadow economy:

1. Lack of a formal employment contract. The employee does not have a formal contract with the employer, which means that person does not receive social guarantees and does not pay taxes.

2. Uncertain working conditions. The employee does not have a definite work schedule, does not receive a definite wage, and is not entitled to vacation or sick leave.

3. Lack of social guarantees. The employee does not have health insurance, pension contributions or other social guarantees that are provided to formal employees.

4. Unofficial pay. The employee receives his or her salary in cash, without any paperwork or taxes.

5. Unofficial nature of activities. An employee engages in activities that are not officially regulated by the State, such as trading at the market or providing services without registration.

6. The unofficial status of the worker. The worker has no official status, for example, he is not registered as an entrepreneur or does not have a permit to work in the country [2].

Despite the fact that this phenomenon is difficult to trace in full, there are official statistics from Rosstat, which showed that in 2021 about 14.6 million people are working in the Russian economy in conditions of informal employment, which is 20.4 % of total employment.

The percentage of men employed in the informal sector in 2021 is 8,047,000 (55.23 % of the total number). Accordingly, 6,523,000 women (of the total number 44.77 %) [3].

Among men who work in the informal sector, the most popular age category is 30-34 years old, which is 16.3 % of the total. Among women the most common age is 35-39 years old, which is 15.2 % of the total [3].

Also, it is interesting that the specific weight of those employed in the informal sector in the total number of employees at the age of 15-19 years old among men and women was 45.8 %, at the age of 20-24 years old 25.7 % and then with increasing

age the specific weight decreases, but at the age of 65 and older the specific weight increases again indicating that this trend is popular among young people and pensioners [3].
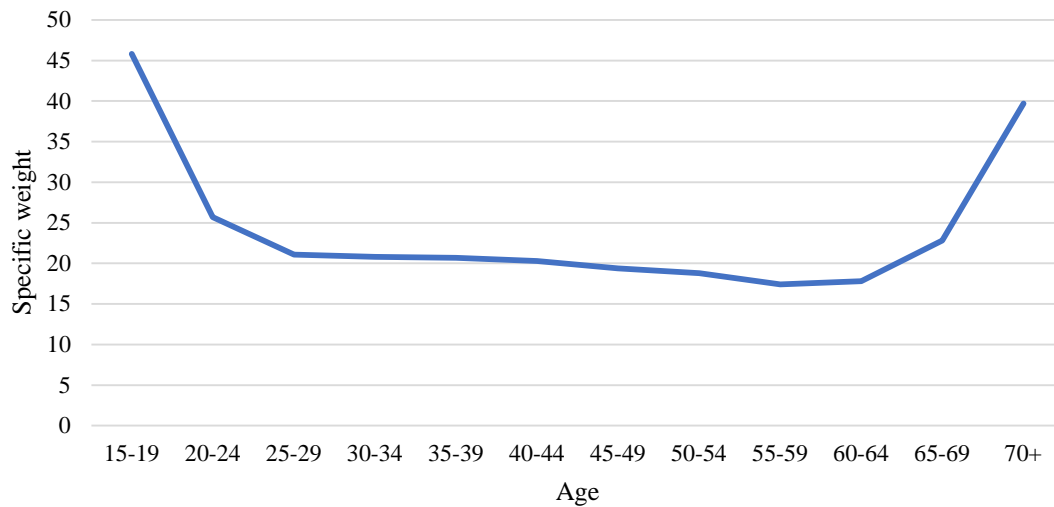
Figure 1. The share of people employed in the informal sector by age in 2021

There are many types of economic activity, where informal employment occurs, but according to the statistics we analyzed, the most popular are: wholesale and retail trade and repair of motor vehicles and motorcycles (in 2021 the number of employees was 4 467 thousand people); agriculture, forestry, hunting, fishing (in this sector the number of employees 2 334 thousand people), slightly less popular, but still quite common are the construction, transportation and storage and handling sectors [3].
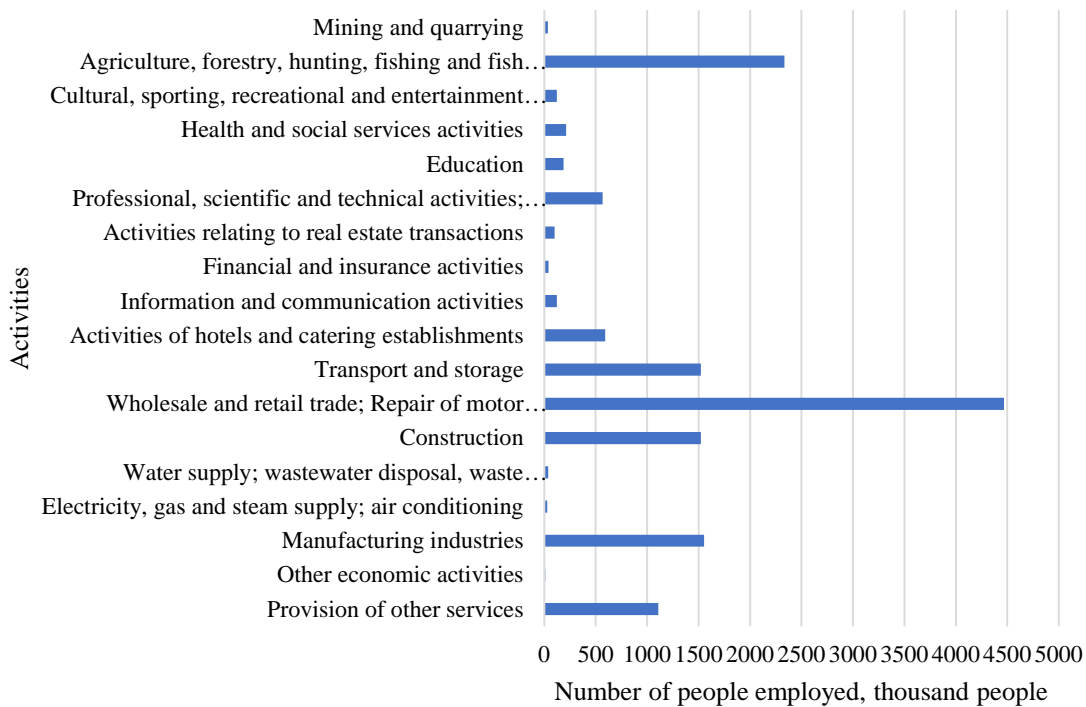
Figure 2. Rosstat information on the most popular informal sectors of the economy

After reviewing the data on informal employment in Russia, we wondered whether the population of our country was aware of this phenomenon, whether they had encountered it in their daily lives, and what they thought were the most informally employed sectors of the economy. For this purpose, we created a survey, in which 150 respondents of different age and social status took part.

According to the results of the survey, which reflects the awareness of the population on this topic we can conclude: 49.3 % of respondents know what the informal economy is, the remaining 29.3 % and 21.3 % respectively are not sure or do not know about such a concept.
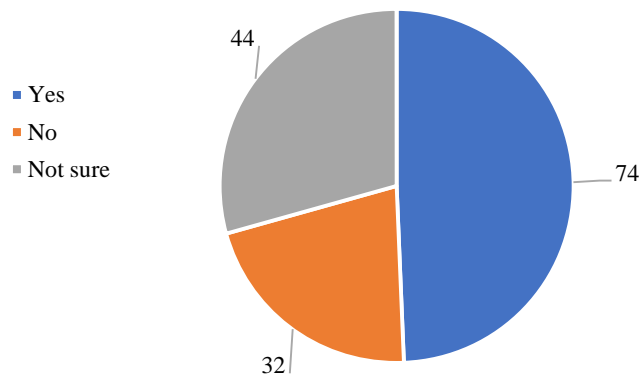
Figure 3. Results of the answer to the question "Do you know what the informal economy is?"

Everyone looks at this phenomenon from two angles: as a worker who wants to find the most favorable working conditions for himself and as a consumer who uses the services of stores, beauty salons, service stations and others in everyday life.

According to the results of the answer to the question about experience in the informal sector, we can conclude that 62.7% of respondents have encountered such experience even in a small sample, which indicates the great influence of the informal economy in the modern world.
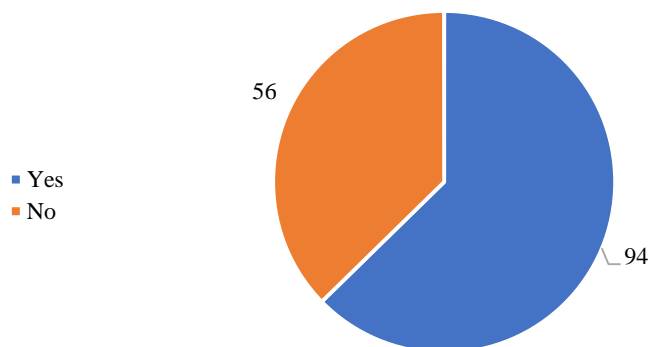
Figure 4. Results of the answer to the question "Have you ever worked unofficially?"

We also looked at this issue from the perspective of the consumer. In this case, the survey showed that 99 % of respondents had encountered this phenomenon in their daily lives. As an example, we can mention payment for products at the market, manicure services at home, private tutoring services, car service at the car wash/parking/service, renting accommodation, and so on. These situations are very popular in everyday life of each person, so the result of the survey once again confirms the fact that there is a tendency for this phenomenon to spread among people of different ages and different social status [4].

Convinced through our own survey that the nature of the spread of informal employment has recently been pronounced, we also decided to find out the views of respondents on the most popular informal sectors of the economy in their opinion. So, trade and repair of motor vehicles by a large margin won the largest number of votes, about 80 votes were cast for the provision of other types of services, and also the most popular sectors according to the population are education; construction and agriculture, forestry, hunting, fishing.
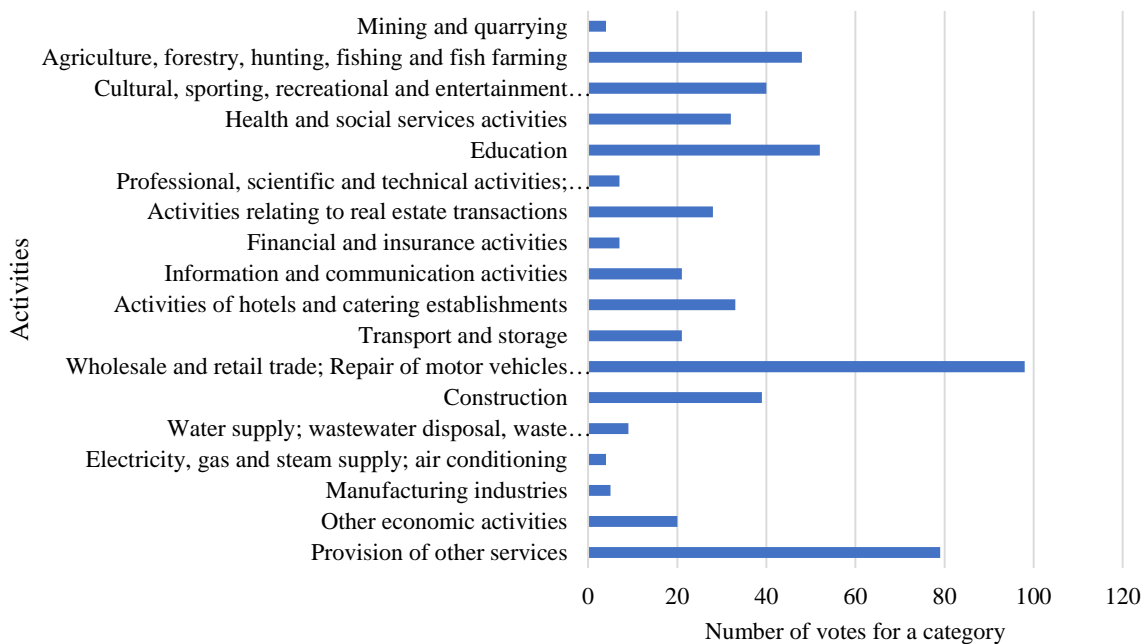
Figure 5. Respondent's views on the most popular informal sectors of the economy

Comparing with the official statistics of Rosstat, we can conclude: that people's opinion coincides with reality – the most common sector of informal employment is wholesale and retail trade / repair of motor vehicles. In addition, activities such as construction and agriculture, forestry, hunting, fishing are also popular in fact, as suggested by respondents, what cannot be said about the areas of education, culture, sports, leisure and entertainment and activities in the field of health and social services, which were highlighted by respondents as popular, but in fact they are not. We would like to note that the sphere of manufacturing was clearly underestimated by those people who took the survey.

As a result, we can conclude that people's opinions about types of activities partially coincide with reality. This also confirms the fact that the Russian population

is aware of what the informal economy is, and the fact that they often encounter this phenomenon in everyday life in absolutely different situations, including the result of this question. Some areas are overestimated by respondents, and some on the contrary, which is justified again by the fact that there are many factors that influence the formation of opinions among the population, such as age, level of education, field of work, choice of leisure activities and others.

Thus, this study has shown that in the modern world the phenomenon of informal employment is widespread. Despite the complexity of its identification, modern technology helps to collect data for analysis and understanding of the current situation [5]. Thanks to our own survey we were able to see it on our own example and look at the situation from different sides.

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УДК 7.046.1

MYTHOLOGY OF CHINA AS A REFLEXION OF PEOPLE'S MENTALITY

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Abstract. This paper discusses the main aspects and features of Chinese mythology; the classification of myths is given. For each kind of myths are given the most famous examples. An analysis of how the moral consciousness and worldview of the people are reflected in mythology has also been conducted.

Keywords: China, mythology, people's mentality, worldview, myths.

МИФОЛОГИЯ КИТАЯ КАК ОТРАЖЕНИЕ МЕНТАЛИТЕТА НАРОДА

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Аннотация. В работе рассматриваются основные черты и особенности мифологии Китая, описывается классификация мифов. К каждому виду приведены примеры наиболее известных мифов. Также проведен анализ того, как моральное сознание и мировоззрение народа отражается в мифологии.

Ключевые слова: Китай, мифология, менталитет народа, мировоззрение, мифы.

Chinese culture is distinctive and unique. Unlike Western cultures, it is more rational, pragmatic and focused on the values of real Earth life. The other important characteristic of it is the exceptional, enormous and decisive role of traditions, customs, rituals and ceremonies. That is why in modern world mythology plays a huge role in Chinese people's lives.

Historians have determined that Chinese mythology originated at the dawn of the 12th century BC. For over thousand years myths were transmitted orally before being recorded in some early books. The greatest amount of information on mythology is contained in the ancient treatise "Shanhai Jing" "Classic of Mountains and Seas", IV-II centuries BC. This volume is a Chinese classic text and a compilation of mythic geography and beasts. This work, the creation of which is traditionally attributed to the legendary Great Yu, was actually written during the last centuries BC and the first centuries AD (Warring States Period 战国时期 – Han

dynasty 汉朝). The book is divided into 18 sections; it describes over 550 mountains and 300 channels [1].

In different regions of the country people prayed and worshipped different gods. For instance, inhabitants of a village situated near the long, deep river prayed to the god of water to prevent flooding, but the healers from another district would probably pray to Shen Nung, the God who invented the medicine. Nevertheless, there were some of the Gods who were prayed in every corner of the country, so today we can find three or even four different versions of the same myth about the same god. Thus, Chinese mythology is considered to be a very scattered system, which is quite incomprehensible.

Nevertheless, myths in general can be divided into four main groups: ancient myths (or myths about creation of the world), religious myths, folk myths (or myths about life of ordinary people) and literary myths. Ancient legends were created to explain the occurrence of the world, how the celestial bodies were created, how did we get the grass, the trees, the day and the night. The most remarkable examples of this type of myths are: "盘古创世" ("Pangu creates the world") and "女娲补天造人" ("Nüwa makes people") [2]. Religious myths in its' turn were about the gods, the way they became gods (for Chinese people it was crucial to show the path that a person has walked to earn the honor to become a god) and about their actions. There are such myths as "八仙过海" ("The Eight Immortals crossing the sea"), "天鹅仙子和蛤蟆神" ("The swan fairy and the toad god") and "妈祖传说" ("The legend of Mazu") [2]. Folk myths reflect the life of ordinary people; there, it is easy to observe the historical features of the particular periods of time and also you can not only learn how people did explain some processes, but also to see the lifestyle of people from different timelines and perspectives. Such myths include "白蛇传" ("The legend of the White Snake"), "牛郎织女" ("The Cowherd and the Weaving girl") and "嫦娥奔月" ("Chang'e flies to the Moon") [2]. Literary myths are the last. Those all were formed in a special way. First, an author had written a novel, released it, then people read the novel and they created the myth according to the plot of the novel. This method of creating was widely used in an ancient China. The most famous examples are: "三打白骨精" ("Three dozen white bone essence"), "宝莲灯" ("Baolian lamp") and "哪吒闹海" ("Nezha riots the sea") [2].

As it was discussed above, Chinese mythology is variative and diverse. However, it is possible to highlight some common peculiarities that reflects the mentality features of the nation. The first one to mention is the rationalism of Chinese people showed us through the process of euhemerization. According to this process, gods and mythological characters are fantastic transformations of real people, and myths are distorted historical narratives. In European countries this method of mythological interpretation wasn't that widespread as it was in ancient China. Under the influence of rationalistic Confucian worldview, mythological characters began to be interpreted as real figures very early on. The Chinese chronicles also mention

Gods, who were once mortal and then became advanced creatures. People were also deified in antiquity. These cases happened when a man did an extraordinary thing or left an effective legacy. Many of the emperors and generals were deified after the reign or death. Usually, those periods of time were defined as the most prosperous or the most victorious ones. This way we can see that for Chinese people the most important was to leave a mark on history, every decent person should strive to pursue the noble purposes and principles. The possibility of becoming a God encourages people to make good deeds, because all people know, that more good action you make, the closer you will be to the immortal life of a God. One of the best examples of the process of euhemerization is the first Chinese Emperor Huang Di (黃帝). From the historical point of view, Huang Di is the first ever Emperor of China. He was able to unite three belligerent states under the one Qin dynasty. The emperor paid great attention to the healing process and demanded it from his ministers. He studied medicinal plants, practiced acupuncture and cauterization, diagnosed health problems on the surface, for example, by skin color could identify heart problems. He is considered to be a unique inventor who gave the world a boat and oars, axe, bow and arrow. It was during his reign that dresses and shoes appeared, and people learned to divide the land into parcels. Thanks to him the Chinese learned to grow rice, make silk fabrics. The wise emperor established peace on Earth, reconciled and united the enemies. People revered Huang Di for justice and worshipped him. According to legend, the emperor came from heaven to Earth in a white egg that could turn into a dragon. In ancient chronicles it is said that the inhabitants of the valley saw a shining egg, which first broke the shell, and a fire dragon appeared, and then a yellow emperor came out of the belly of the monster. The Chinese believe that their first emperor is immortal. He did not die, but once left the Earth, returning to heaven. His immortality is attributed to the fact that Huang Di is said to have managed to reach Dao. The "Dao" Confucians understood the "path of man", based on morality and ethics. Now it is tough to say for sure whether Huang Di did really exist in this world or he was just a mythological character (even though we have historical evidence in ancient literature). This is the essence of euhemerization process. And there are numerous examples of this process in Chinese mythology and history, when the real people were given a supernatural power or the legendary Gods became the men on the Earth.

Even now Chinese nation has that tendency to worship real people. For example, some of the students during the exam time pray to Karl Marx, believing that he will give them his knowledge and help to pass the exam. It shows us the superstitious side of the nation. Even though people are so desperately trying to make the story real, they still do believe in fate, and pray to the ancient gods, who weren't euhemerized, as much as they worship emperors and bureaucrats of the past. In many remote areas in China, people still make offerings to the gods believing that they will prevent flooding or save the inhabitants from weather disasters. If God saves the residents, they give him generous gifts, but if he doesn't do his job properly, they, in

turn, terribly scold him and may even turn away from the God and stop praying to him.

The next important point is the role of the appearance in Chinese myths. Most of the mythological characters in Chinese culture are hideous. Their external image repels and frightens. But there is a tendency, that the more benefits God gave to people, the uglier his appearance was. For instance, there was a god named Shen Nung. According to Chinese mythology, Shen Nung is considered to be a patron of medicine and agriculture, the founder of trade. He created an agricultural calendar and a variety of agricultural tools, discovered tea and all medicines, and wrote a pharmacological treatise on herbs and medicinal herbs: Shennun bancaozin (神农本草经, "Shen-nun's Treatise on Roots and Herbs"), which is the oldest treatise on medicinal plants in China. People all over China love him. They pray to him for help and support in tough life situations. Shen Nung is an exceptionally kind creature, but his appearance many will consider frightening (snake-like body, cow's head and lion's nose). In fact, Chinese people consider that the appearance isn't the most vital aspect of a person. What really does matter is your inner-self, the way you see the world and the people around you. Your face and body shouldn't be perfectly beautiful or handsome, it must reflect your true nature. For example, having a half of a body of a dragon or snake means to be a noble person. One of the most significant characters in Chinese mythology is the goddess Nüwa. She was one of the first gods and goddesses who came down on Earth. Nüwa is famous and loved by Chinese nation for creating the mankind and for patching the sky. Supposedly, when Nüwa came to the Earth she felt lonely, as there were no one except for the flowers and trees. Then she created animals. On the seventh day of creation, she decided to create creatures that resemble gods and goddesses to clear the loneliness that existed in the world at that moment. She picked up yellow clay and molded a figure that resembled her likeness. She was completely pleased with her creation, so she decided to create more 'humans'. The hand-made creatures became the wealthy and the noble in society. Some of the figurines were deformed after they were rained on and after she flanged a rope over them. These deformed ones became the peasants, farmers, and regular workers within society [2]. Nüwa is also known as a defender of a mankind. When half of the sky was falling down due to a long war between one of the gods Gong Gong and emperor Zhuanxu, Nüwa patched the sky holes. Then she cut off the legs of a giant turtle (which is supposed to hold the world) and with these four legs, like pillars, strengthened the sky. Nüwa has arms and a head of a human and a snake's tail instead of a body. It represents her nobility and shows that she is an ancestress of a mankind. Thus, due to Chinese people views the appearance of a person should show others the true identity of a man or a woman. Every person has his or her own beauty and the external image should reflex the nature of a human. As it was said, even gods and goddesses were not all exceptionally perfect and beautiful. Yet people all over China love them for being caring and helpful to a mankind. The appearances of gods show people the strong sides and character traits of deities.

It is also crucial to mention the simplicity of Chinese myths and folklore in common. All the written myths are plain. There are not many details. The only aspects that are usually described well are the appearance of characters (as it was said before, the external image matters a lot as it reflexes the true nature of a person) and the results of gods' actions. Usually, it is the deformation of the Earths' relief or people gaining new skills. Chinese people thought that it's important to attribute the occurrence of benefits to someone. So, there are a lot of legends and myths about gods teaching people. In myths the Chinese tried to explain the world order, general truths and beliefs. That is why it is more similar to chronicles than to a novel.

The last quite interesting point is the role of mothers and fathers in mythology. In most of myths and legends women and goddesses got pregnant by getting involved in some kind of abnormal situations. For instance, the goddess Huaxu (华胥), the mother of Nüwa, got pregnant with the daughter by stepping into a footprint left by the god of thunder, Leigong (雷公) [3]. It is complicated to find a myth where the woman gives a birth to a child after the intercourse with a man. Women in myths often became pregnant from some divine magical influence. It is also interesting to learn that in most of the myths are presented only the names of the mothers of gods and goddesses. The fathers, from the other hand, usually are unknown. Thus, there always have been a lot of arguments on whether China is a matriarchal or a patriarchal country. However, according to the history of China this country would most probably be called patriarchal, as the sons of the family had usually been given the names of fathers and grandfathers. Thus, it is possible to make a conclusion. In the ancient China, even though people were trying to explain processes and phenomena from a rationalistic point of view, the topic of pregnancy and birth giving weren't described that carefully. It was explained with the help of magic and miracles. Gods and goddesses didn't appear from a nowhere. The mothers of the deities were presented, but fathers were unknown as they (fathers) didn't take part in the process of getting pregnant according to the myths. However, even though in mythology fathers didn't play a vital role, in real life of the ancient China's people men were dominating the life and the sons were gotten the name of a father or a grandfather.

In closing, Chinese mythology is a system of cultural history, folktales, and religious tradition that has been passed down for centuries in oral or written form. Chinese mythology generally concerns moral issues and informs people about their culture and values [4]. Chinese mythology is diverse and variative. There may be at least two or three versions of the same myth, as even though in various areas of the country inhabitants were praying to different gods and goddesses, there still were main deities who were worshiped in all corners of the country. Every district had its' own version of the myth. In myths people were trying to present their view of the world and moral values. Despite the fact that Chinese mythology is a scattered system, still all of the myths reflect basic, general ethics that Chinese nation consider to be vital to follow. In the first place, for the Chinese it is important to live with dignity. As it was in the past "you need to earn the right to become a god". Following

noble principles will always be rewarded. And even an ordinary man can become a god. Next, the appearance of a person should reflect his or her true nature, but not to be perfect. People shouldn't judge a person by his or her outer image. It is always more crucial to get to know a person's inner self. Also, the very important aspect of Chinese mentality is simplicity. Simplicity is the main principle of Taoism, that is widespread in China [5]. Only vital parts should be emphasized. That way, people would not be distracted by unnecessary details and would be able to catch the essence. The last peculiarity is the role of parents in the life of the Chinese. In China, it is believed that the family is life. It is the basis of Chinese culture. And the parents are revered and respected by the children. In the ancient China's mythology were shown the mothers of the gods, as they were giving the birth to children. But the fathers were usually unknown, as women got pregnant by facing a miracle. So, the mother was a key figure to a child. However, it is complicated to state whether the ancient China's society was matriarchal or patriarchal, as the child still was given a name of his father and his family. So, it can be stated that the both figures (the mother and the father) were playing equally important roles in the life of a baby and in the family. Thus, it can be noticed that Chinese mythology is not only a chronicle full with various unique creatures, gods and goddesses; but also, is a set of moral values and ethics, that reflex the main peculiarities of nation's mentality. Thanks to myths it is easy to understand the Chinese people and get along with them.

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ACTUAL MOTIVATIONAL PROBLEMS OF RUSSIAN PERSONNEL

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Abstract. In the modern economy, staff motivation is one of the key success factors for companies. However, in Russia, many entrepreneurs and managers are faced with low productivity of employees, lack of initiative and interest in work, which leads to a decrease in profits and the competitiveness of companies. This article will consider the historical background, key problems of motivation of Russian personnel, as well as possible solutions based on scientific data.

Keywords: staff motivation, stimulation, company, employee, management, performance.

АКТУАЛЬНЫЕ ПРОБЛЕМЫ МОТИВАЦИИ РОССИЙСКОГО ПЕРСОНАЛА

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Аннотация. В современной экономике мотивация персонала является одним из ключевых факторов успеха компаний. Однако в России многие предприниматели и руководители сталкиваются с низкой продуктивностью работников, отсутствием инициативности и заинтересованности в работе, что приводит к уменьшению прибыли и конкурентоспособности компаний. В данной статье будут рассмотрены исторические предпосылки, ключевые проблемы мотивации российского персонала, а также возможные пути решения на основе научных данных.

Ключевые слова: мотивация персонала, стимулирование, компания, сотрудник, руководство, производительность.

To understand the current motivational problems of Russian workers, it is necessary to pay attention to the history of labor relations in the country. The main factors that determined the development of Russian business culture are serfdom and Orthodoxy (until the 20th century), as well as propaganda during the Soviet Union.

In Orthodoxy, work was considered a virtue, and the ideal of labor service was a monk-worker. Moreover, in Orthodoxy spirituality and obedience to the will of God are in the first place, and the accumulation of wealth was condemned and considered immoral.

Life in conditions of serfdom involved hard monotonous work and suppression of will (and motivation) by those who stood above – the master. At that time, the question of food was raised, and, of course, there was no question of making a profit [1].

Motivation began to emerge as a conscious, in some way desirable work after the overthrow of the monarchy and the arrival of Soviet power. In Soviet times, work was recognized as the main value, and the motivation for work was ideological beliefs and a desire to serve the Motherland. In this regard, a system of bonuses was created for over-fulfillment of plans and structures that control the quality of products.

Thanks to the successful state propaganda, the population willingly worked in the name of the idea of the common good. There were slogans "Five–year plan in three years!", "How much work – so much earned" and others. Despite the change of orders, the attitude to work has remained the same. But the difference is that instead of working on the elevation of the soul, the people of the Soviet Union worked for the benefit of society and the state. We can say that immaterial motivation prevailed in the USSR.

In the 90s of the last century, the methods of self-government in Russia began to change dramatically. First of all, this is due to the weakening of the role of trade unions, an increase in the volume of work, the emergence of the need to work with representatives of different nationalities. Unlike in the 80s, when an employee was in the same place for a long time, in the 90s people began to change jobs more often, which led to the formation of partnerships between employer and employee. This trend continued until the beginning of the 21st century [2].

Historically, Russian people have been engaged in labor activities from under the stick. In fact, until now, only incentive methods have been used, and there were no motivational systems as such. Mainly material incentives and psychological pressure were used. This leads to problems of motivation of Russian personnel.

At present, staff motivation is one of the key tasks for Russian companies. However, despite considerable efforts, many organizations face problems in this area.

Secondary and higher education is not available to everyone. After graduation, not everyone can afford to pay for the education of the desired specialty, and there are few budget places in universities and colleges. Applicants do not go where they want, but where they can. According to VTSIOM data for 2019, along with this, the skeptical attitude towards higher education as a prerequisite for a successful career (45 % in 2008 and 68 % in 2019) and the doom to low-paid and low-prestige work in the absence of a higher education diploma (50 % in 2008 and

65 % in 2019). Most often, doubts are recorded among respondents aged 18 to 25 years (74 % of them talk about overestimating the importance of higher education among them, and 76 % do not agree with the doom to low-paid work without a diploma), from 25 to 34 years (77 % and 74 %, respectively) and from 35 to 44 years (73 % and 74 %, respectively). Over the past three years, Russians have increasingly been inclined to believe that higher education is becoming less accessible to all citizens (53 % in 2016 and 63 % in 2019). Against this background, the majority of respondents do not believe that any means are good for a higher education diploma nowadays, although 11 years ago they thought so less often (51 % in 2008 and 65 % in 2019). Another 55 % would think about the need for higher education if they had to pay for it. In 2008, there were 45 % of them [3].

It is often difficult to get a job after training, as many employers are afraid to accept only specialists who have completed training. Getting a job is also hindered by such a phenomenon as nepotism, which is common in many enterprises and institutions.

In Russia, wages are often below the average level compared to other countries in Europe and the United States. At the same time, it should be borne in mind that the minimum wage in European countries provides a comfortable existence, unlike the minimum wage in the CIS. This can cause demotivation and the departure of qualified specialists to more favorable working conditions. Mainly in Russia, a tariff system of remuneration is used, which does not take into account the complexity of the work and the qualifications of the employee. The salary is estimated biased, which leads to indifference on the part of employees, reduces their interest in work [2]. Most Russians are not satisfied with their current job due to low wages. This is evidenced by the results of the study of the service "Work. ru", which are available to TASS.

"At the moment, 23 % of the surveyed residents of Russia are satisfied with their current work. Most often, job satisfaction <...> was noted by workers in manufacturing and industry (17 %), transport and logistics (11 %), IT (9 %), education (8 %) and medicine (6 %)," the text of the study says. Also 42 % of respondents of the service "Work.ru" pointed to the lack of career opportunities. The study was conducted in August 2021 in all regions of the Russian Federation. It was attended by over 5 thousand people over the age of 18 [4].

Currently, without providing a social package, employers cannot equip their staff with highly qualified personnel. In Russian practice, a social package is actively used to organize work and stimulate employees [5]. But a TASS study shows that 14 % of respondents express dissatisfaction with the social package, and 10 % of respondents would like to have voluntary health insurance.

Another problem is the lack of recognition of employees' work by management. Almost half of Russian employees do not receive sufficient recognition for their work, which can negatively affect their motivation.

Corporate culture also plays an important role. If it does not imply a respectful attitude towards the staff, then this can lead to demotivation and low productivity.

In addition, the lack of opportunities for professional growth and development can also be a factor that makes it difficult to motivate staff. Many employees want to continue to develop and gain new knowledge and skills in order to increase their value in the labor market. If the company does not provide such opportunities, this can cause poor labor productivity and an obstacle to staff retention. According to the study, 19 % of Russians are not satisfied with the tasks solved in the process of work, 18 % – lack of free time, 16 % – lack of training [4].

Finally, one of the main problems is the lack of a clear goal and objectives for the company. If employees do not see the ultimate goal of their work, this can cause disorientation and loss of motivation.

In general, the problems of staff motivation in Russia pose a serious challenge for business. To successfully cope with them, companies should pay more attention to remuneration, professional development, recognition of employees' work by management and the creation of a respectful corporate culture. As a result, a number of problems appear, such as a high percentage of staff turnover, low motivation of employees, an unsatisfactory psychological climate, high conflict and a low level of discipline. And the main solution to this problem is to improve the motivation system.

Based on the conducted research, the author offers the following recommendations. To solve the current problems of motivation of Russian personnel, it is necessary to conduct a comprehensive analysis of the reasons that may affect the lack of motivation among employees. The first step may be to assess the level of satisfaction of employees with working conditions and career opportunities. To do this, you can use questionnaires, questionnaires or focus groups. These questionnaires and questionnaires should not be too voluminous, so as not to take up too much working time. The results of the analysis will reveal shortcomings in the remuneration system, unfavorable working conditions, lack of opportunities for professional and career development. After that, everything will be in the hands of management: they decide how to use the information received.

In order to increase staff motivation, attention should also be paid to the system of rewards and punishments. It is important to create a reward system that will encourage employees to achieve better results. For example, you can provide prizes or bonuses for completing certain tasks or exceeding productivity. Recognition of achievements in front of the team and management also has a positive impact on motivation.

Another way to increase motivation is to provide employees with additional benefits, corporate bonus programs or life and health insurance. You can also provide a flexible work schedule or the opportunity to work remotely.

Managers should be able to motivate their subordinates, create team spirit and provide conditions for cooperation.

Another important aspect is the creation of a favorable corporate culture and working environment. Employees should feel like part of a team that strives for a common goal. To do this, it is necessary to hold various events, such as corporate trainings, communication with each employee individually and encouragement of collective achievements. Such events will help strengthen ties between colleagues and improve work efficiency.

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THE RESULTS OF THE STUDY OF METHODS FOR MODELING THE PROCESSES OF SZI TYPE "PREDATOR" IN THE FRAMEWORK OF THE PROJECT "PRORIV-C"

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Abstract. As part of the Center for mastering technologies of information opposition and the implementation of the educational and laboratory research complex a laboratory work on studying the electronic key technology has been prepared and put into trial operation. Its implementation should help students studying in the field of information security to familiarize themselves with the technology of the cryptographic protective subsystem, and the skills and knowledge gained will come in handy in further education.

Keywords: USB key, laboratory work, cryptographic protective information subsystem, educational laboratory research complex.

РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ МЕТОДОВ МОДЕЛИРОВАНИЯ ПРОЦЕССОВ СЗИ ТИПА "PREDATOR" В РАМКАХ ПРОЕКТА «ПРОРЫВ-Ц»

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Аннотация. В рамках Центра освоения технологий информационного противоборства и реализации учебно-лабораторного исследовательского комплекса подготовлена и принята в пробную эксплуатацию лабораторная работа по изучению технологии электронного ключа. Ее выполнение должно помочь студентам, обучающимся по направлению информационной безопасности, познакомиться с технологией подсистемы криптографической защиты информации, а полученные навыки и умения пригодятся в дальнейшем обучении.

The rapid development of information technology and the digital transformation of educational processes have significant implications for the development of laboratory facilities in departments and Saint Petersburg State Marine Technical University as a whole. The new requirements for laboratory equipment, modular design, instructional accessibility, universality of use, and diversity of profile are changing the way educational institutions approach their laboratory facilities. However, the primary concern is the reduction in the moral aging period, which puts a strain on serial production capabilities, increases costs for equipment and consumables, limits the use of equipment with depleted resources and restricts access to spare parts and accessories.

Today, the laboratory facilities of educational institutions play an important role in global university rankings as a crucial factor in the quality of training high-quality professionals. The "forgotten" aspect of using educational and laboratory complexes for university research and design activities is also significant, as it can add to the efficient adoption of technology that can be used in the educational laboratory complex and contribute to its development.

These challenges are also evident in the deployment of software and hardware systems in laboratory facilities, which become obsolete in 3...5 years, resulting in the inability to maintain laboratory facilities at a high level. In this regard, it appears that upgrading laboratory facilities [1, 2] to satisfy the modern requirements of educational processes involves a transition towards new ideas (paradigms), concepts, plans (roadmaps) and their provision.

An analysis of sources [1, 2, 3, 4] shows a rising trend in requirements while opting for a "classical" approach to formulating laboratory facilities for most universities, despite the availability of a diverse range of multimedia equipment, computer labs and other options for laboratory facilities that provide varied and reasonably promising alternatives to the traditional setup.

Means of the cryptographic protective information subsystem are software, hardware, or software-hardware devices, systems, and complexes that implement cryptographic transformations of information and are intended for protecting information during its transfer over communication lines or for protecting against unauthorized access. The Russian and international markets offer a wide variety of paid solutions from various vendors that use all sorts of complex and obscure cryptographic algorithms in their implementations. In aggregate, these factors make it difficult for students starting their journey in information security to become familiar with cryptographic protective information subsystem technologies, and there is a problem with their mastering.

To solve this problem, as part of the Center for mastering technologies of information opposition at the Department of ship automation and measurements of Saint Marine Technical University and the implementation of the educational and laboratory research complex [5], a lab work has been prepared and put into trial operation on the study of the electronic key technology. The main goal of this work is to familiarize the student with the technology and form an understanding of cryptographic protective information subsystem.

In the course of this work, the student becomes familiar with the technology of creating and using a USB key using the specialized software Predator. Its principle of operation is transparent. The initial settings are shown in Figure 1. In the program, it is necessary to select the USB device that will be used as a key. At the same time, the user sets a password to unlock the station in case of loss of the USB drive.
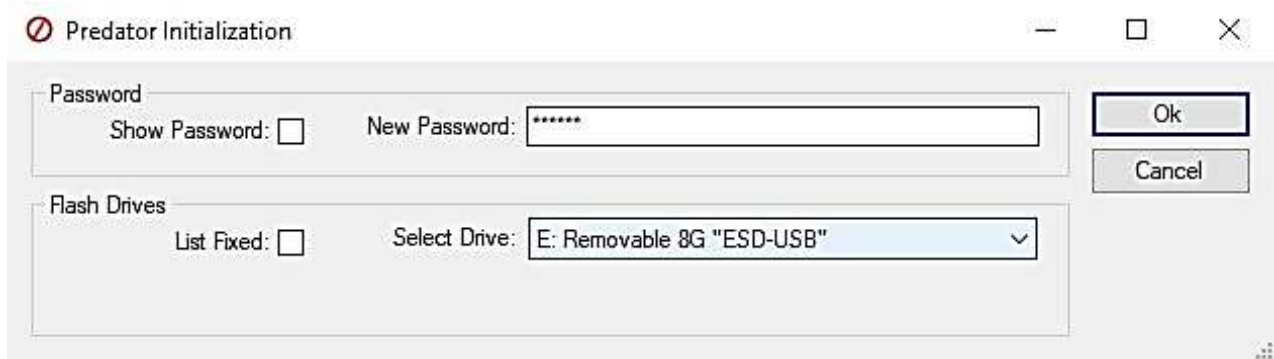
Figure 1. Software settings for Predator

The program creates a file on the USB drive, which after launching the program is used as an access key to the workstation. With a certain periodicity, Predator checks the presence of the file on the media. If the USB key is removed from the computer, the program, not finding the necessary file, limits access to the workstation, which can be restored by inserting the carrier back in. After each check of the key's presence, the program changes it, which makes stealing the necessary file from the media meaningless, and in the event of loss or damage to the USB key, access can be restored using the password entered during the first program launch. The simplicity of implementation allows the student to understand the basic principles of the USB key technology.

Figure 2 below shows the main settings of the Predator. You can configure the period of checking for the presence of the USB key, the period of file rewriting on the media, or configure access restriction parameters to the computer.
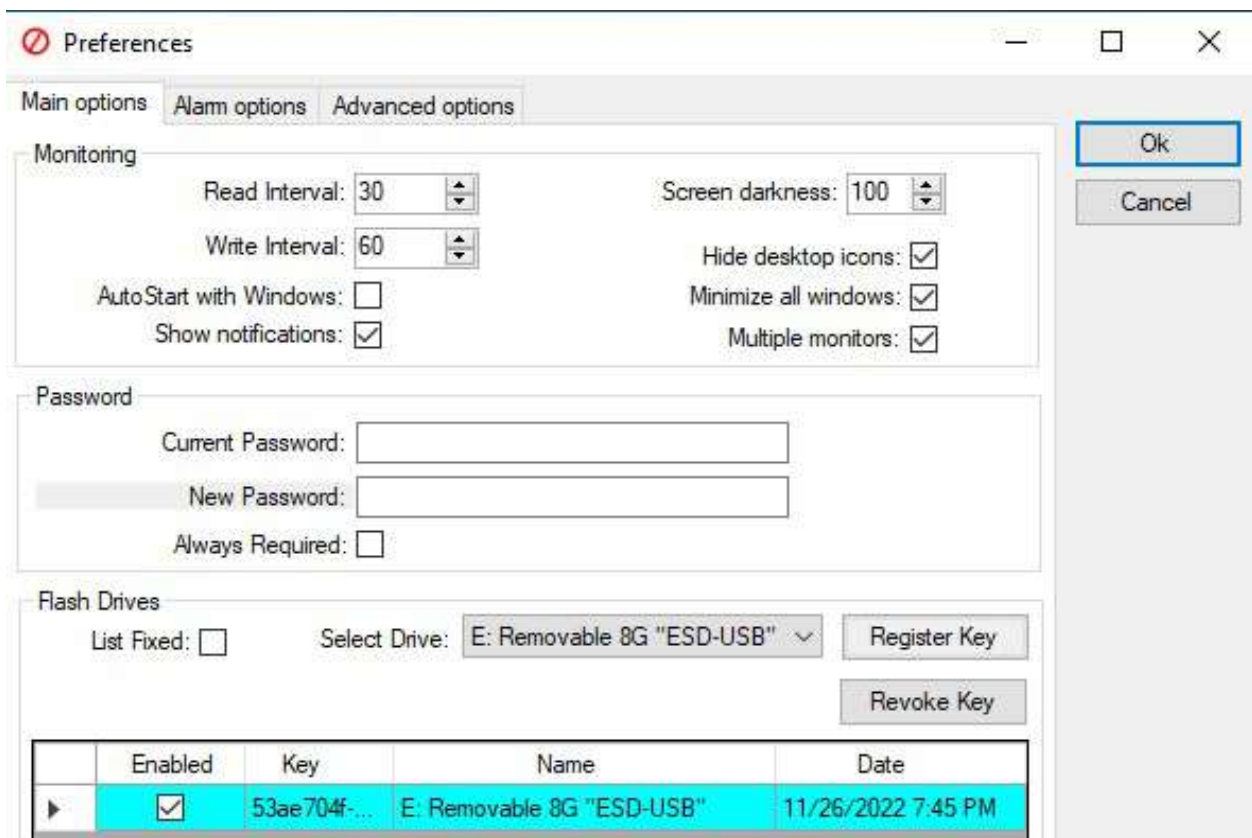
Figure 2. Software settings for Predator

If you remove the USB key while the Predator program is running, the keyboard and mouse will be blocked, and the user will see a black screen (by default in the program settings). And when you insert it again, everything will work again. If you try to type something on the keyboard or click the mouse, a warning message will appear and a countdown will start (Figure 3).

Figure 3. Block screen of Predator

If you enter the password incorrectly three times, the computer will be locked (Figure 4), and it can only be unlocked by inserting a USB key.

Figure 4. Access Denied screen

Also, the program has the ability to view logs (Figure 5). In them, you can see information about:
– The start and end of the program's work.
– Putting the program on pause.
– Creating a key file.
– Unlocking and locking the computer using the USB key.
– Unauthorized access attempts.

This information will allow the user to track what happened on the computer during the entire period of operation. It can be useful for monitoring and troubleshooting any issues or security breaches that may have occurred while using the program.

11/26/2022 7:40 PM	Warning	DesktopDisabledByKey	Locked by key	
11/26/2022 7:41 PM	Warning	DesktopEnabledByKey	Unlocked	E: Removable 8G "ESD-USB"
11/26/2022 7:41 PM	Warning	DesktopDisabledByKey	Locked by key	
11/26/2022 7:42 PM	Warning	DesktopEnabledByKey	Unlocked	E: Removable 8G "ESD-USB"
11/26/2022 7:45 PM	Information	Preferences	Show Preferences window	
11/26/2022 7:45 PM	Information	Stop	Monitoring paused	
11/26/2022 7:46 PM	Warning	KeyCreated	Key file created	
11/26/2022 7:52 PM	Information	Start	Monitoring started	
11/26/2022 7:53 PM	Warning	End	Predator terminated	PREDATOR
11/26/2022 7:54 PM	Information	Stop	Monitoring paused	
11/26/2022 7:54 PM	Warning	End	Predator terminated	PredatorACM
11/26/2022 7:59 PM	Warning	Begin	Predator started	PredatorACM
11/26/2022 8:00 PM	Warning	Begin	Predator started	DESKTOP-K14INDG\Test
11/26/2022 8:00 PM	Information	Start	Monitoring started	
11/26/2022 8:00 PM	Information	Preferences	Show Preferences window	
11/26/2022 8:00 PM	Information	Stop	Monitoring paused	
11/26/2022 8:00 PM	Information	Start	Monitoring started	
11/26/2022 8:01 PM	Warning	DesktopDisabledByKey	Locked by key	
11/26/2022 8:01 PM	Warning	DesktopEnabledByPassword	Session unlocked after entering password	
11/26/2022 8:01 PM	Information	Stop	Monitoring paused	
11/26/2022 8:01 PM	Information	Preferences	Show Preferences window	
11/26/2022 8:01 PM	Information	Log	Show Log window	

Figure 5. Event logs screen

After completing the lab work, the student gains a basic understanding of the use of the cryptographic protective information subsystem technologies, in particular

the use of the USB key. These knowledge and skills will allow him to proceed to a deeper and more detailed study of the means of the cryptographic information protection subsystem.

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DIGITAL FINANCIAL ASSETS: TYPES, LEGAL REGULATION, METHODS OF PROTECTION

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Abstract. This article discusses the basics of virtual asset accounting, protection and regulation. The article provides a classification of digital financial assets, discusses various methods of their protection by means of electronic signature. This article will be useful for accounting professionals, as well as for anyone interested in cryptocurrencies and blockchain technology.

Keywords: accounting, digital financial assets, electronic signature, tokens, bonuses, cryptocurrency.

ЦИФРОВЫЕ ФИНАНСОВЫЕ АКТИВЫ: ВИДЫ, ПРАВОВОЕ РЕГУЛИРОВАНИЕ, СПОСОБЫ ЗАЩИТЫ

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Аннотация. В данной статье рассматриваются основные моменты учета виртуальных активов, защиты и их регламентации. В статье приведена классификация цифровых финансовых активов, рассмотрены различные способы их защиты с помощью электронной подписи. Данная статья будет полезна для специалистов в области бухгалтерского учета, а также для всех, кто интересуется криптовалютами и блокчейн-технологиями.

Ключевые слова: бухгалтерский учет, цифровые финансовые активы, электронная подпись, токены, бонусы, криптовалюта.

The relevance of the chosen topic is due to the fact that currently virtual assets have become very popular, many companies use cryptoassets for a variety of purposes (investing in share capital, issue, sale and so on), but, unfortunately, there is still no single document that allows the entrepreneur to find all the issues of interest, which also proves the need to study this issue.

The emergence and spread of digital values, especially digital money and digital financial assets, entailed the need for their legal regulation. Thus, the year 2020 was the starting point of their regulation, as the Federal Law – No. 259-FL of

31.07.2020 came out. "On Digital Financial Assets, Digital Currency and on Amendments to Certain Legislative Acts of the Russian Federation", where the typical rules of their issue, accounting, circulation and their interaction with other legislative acts were fixed.

Digital assets are assets that exist in digital form and can be used to generate income or increase capital. Digital assets are becoming increasingly popular in today's world due to the ability to access them quickly and easily via the Internet, as well as their high liquidity and the opportunity to make money from their growth in value.

If we talk about the possibilities of application of CFA, companies and investors have the opportunity to issue digital assets, buy them, sell them, exchange and redeem them. Bank of Russia has so far registered three platforms that can issue CFAs:

1. Atomyze, one of whose investors is Interros.
2. Sberbank.
3. Fintech company Lighthouse.

All CFA platforms and operations are based on distributed registries technology, which guarantees data immutability. The website of Atomyze states that issuers of CFA's can be legal entities and citizens can be buyers of such assets. CFA can only be exchanged or sold only for fiat money1 or other CFA.

There is a classification of digital assets according to their functioning. Thus, they are divided into financial and non-financial. The classification of financial digital assets in this article we will consider in more detail [1].
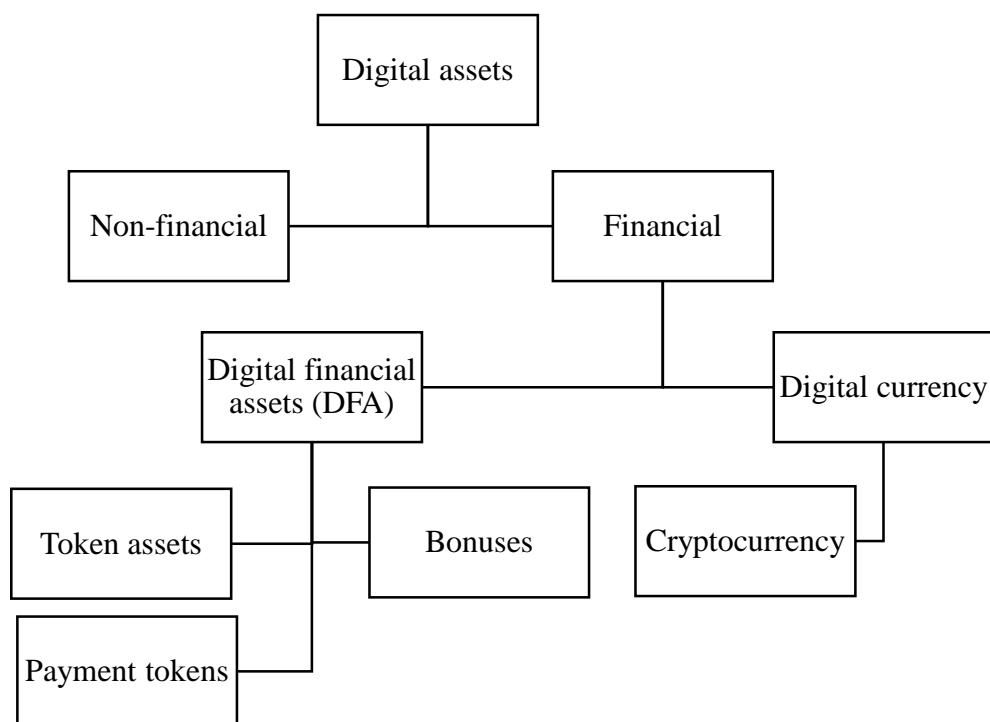
Figure. Classification of digital assets by form of function

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Thus, according to Clause 2, Article 1 of Law No. 259-FL of 31.07.2020 (as amended and supplemented), digital financial assets are recognized as digital rights, In accordance with the Law No. 259-FL of July 31, 2020 (as amended) (in force from 11.01.2023), digital rights are recognized as digital rights, including monetary claims, the ability to exercise rights to equity securities, the right to participate in the capital of a non-public joint stock company, the right to demand the transfer of equity securities, which are provided in the decision to issue digital financial assets in the order established by this Federal Law, whose issue, accounting and circulation are possible only by making (changing) records in the information system based on a distributed register, as well as in other information systems [2].

There are several types of digital financial assets:

1. A token is a digital financial asset that can represent a share in a project or company, have a specific function in a management system, or be used as a medium of exchange. Tokens can be created and managed based on blockchain technology and can be sold or bought on cryptocurrency exchanges. Some tokens may also have additional functions, such as voting in the management system or gaining additional privileges in the project.

2. Bonuses are additional rewards that can be given to customers or employees for meeting certain conditions. It can be, for example, a discount on a product or service, a free gift, additional loyalty points or a monetary reward. Bonuses can be used as a tool to motivate and stimulate sales, as well as to retain customers and increase their loyalty.

For example, the accumulation of "Miles" from Aeroflot, "Thank you" from Sberbank, "Cashback" from Tinkoff Bank and many more examples that are used to implement the commercial transaction included in these programs.

These programs are cost-effective for both property owners and customers. Bonuses are primarily considered by financial businesses as a real source of attracting investment.

There is another type of financial digital assets – digital currency.

Digital currency is a form of electronic monetary unit that is used to make online payments and store value. It can be created by the government as well as by private companies or communities, and can be exchanged for other currencies or goods.

It is very important to understand that digital currencies are not cash and cash equivalents or financial instruments [2].

But cryptocurrencies can be stocks, as individual organizations may purchase cryptocurrencies for resale in the normal course of business. In such cases, cryptocurrencies may be recognized as inventory and accounted for under IAS 2.

Digital financial assets (DFAs) and cryptocurrency in accounting require special attention. An information system tracks the issuance and turnover of assets and accounts for them using special entries. The study of digital asset transactions will help to understand what a DFAs is to accounting [3].

So, cryptocurrency can be used in different ways: to engage in mining ("create" cryptocurrencies by using electronic devices), to exchange for other digital assets or for real money, cryptocurrency can be used as a means of payment online, it

is also suitable for buying and selling transactions because it is independent of the state and has a high degree of anonymity.

Currently, there is no separate financial reporting standard (IFRS) for crypto-assets. However, in June 2019, the IFRS Interpretations Committee published a decision stating that cryptocurrencies can be accounted for as intangible assets or inventories. If the cryptocurrency is held for the purpose of sale in the ordinary course of business, it should be accounted for as inventory under IAS 2, otherwise as an intangible asset. If an entity elects to account for cryptocurrencies as intangible assets, it must choose to account for them at cost or at revalued amount (paragraph 72 of IAS 38) [4].

If there are no other restrictions, such as legal, regulatory, contractual, competitive, economic or other factors, the life of the cryptoassets is uncertain. Therefore, digital currencies should not be subject to a useful life limitation.

With the proliferation of digital financial assets, society has needed a way to protect them. An electronic signature protects an electronic primary payment document from being drawn up in bad faith.

The basic rules of electronic signature are regulated by the Federal Law № 63-FL of 06.04.2011 "On electronic signature" as amended by Law № 259-FL-2020. By definition, electronic signature is a digital analogue of an ordinary signature used for authenticity assurance of electronic documents, messages and transactions [5]. It is created with the help of cryptographic algorithms and consists of a unique sequence of symbols which is associated with a certain document or message.

An electronic signature establishes that a document or message was created by a specific sender and has not been altered since its creation. It also ensures the confidentiality and integrity of electronic data, protecting it from unauthorised access and alteration. As data protection is a very important aspect there are several types of electronic signature:

1. Simple Electronic Signature (SES) is the least secure type of electronic signature, which uses a regular password or PIN to authenticate a document or message.

2. Qualified Electronic Signature (QES) is the most secure type of electronic signature, which uses a certificate from a Qualified Electronic Signature Service Provider (QESP) to authenticate a document or message.

3. Advanced Electronic Signature (AES) is a type of electronic signature that uses a certificate from an Electronic Signature Service Provider (ESSP) to authenticate a document or message.

4. Biometric-based electronic signature is a type of electronic signature that uses biometric data, such as fingerprints or facial recognition, to verify the authenticity of a document or message.

5. Public key infrastructure (PKI) is a type of electronic signature that uses public and private keys to authenticate a document or message.

A standard electronic signature kit requires a flashcard, specialised software, and an electronic signature verification key certificate. ES verification key certificate is a document, which confirms ownership of an ES verification key by the certificate owner and guarantees authenticity of information. An ES licence is legally valid and

is limited by the term specified in the ES certificate. Usually, the validity period of the licence is one year from the date of issue.

As a result, digital currencies continue to grow in popularity and are becoming an increasingly important financial instrument in the world of online payments and investment. It is therefore important on the legislative side to monitor the situation and adopt the proper regulations for them.

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THE IMPACT OF MENTAL DISORDERS ON CREATIVITY

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Abstract. The article discusses how mental disorders can affect the creative process. Different types of disorders such as depression, bipolar disorder, schizophrenia, and others are discussed. The examples of famous artists, Vincent Van Gogh, Mikhail Vrubel, Francisco Goya are provided, who suffered from various disorders, the effect of these disorders on their creative work is analyzed.

Keywords: mental disorders, schizophrenia, affective mood disorders, Vincent van Gogh, dark cypress, Mikhail Vrubel, Demon, Francisco Goya, "black paintings".

ВЛИЯНИЕ ПСИХИЧЕСКИХ РАССТРОЙСТВ НА ТВОРЧЕСТВО

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Аннотация. В статье рассматривается вопрос о том, как психические расстройства могут влиять на творческий процесс. Рассказывается о различных типах расстройств, таких как депрессия, биполярное расстройство, шизофрения и другие. Анализируются примеры известных художников, таких как Винсент Ван Гог, Михаил Врубель, Франциско Гойя, которые страдали от различных расстройств, и то, как данные расстройства отразились на их творчестве.

Ключевые слова: психические расстройства, шизофрения, аффективные расстройства настроения, Винсент Ван Гог, темный кипарис, Михаил Врубель, демон, Франциско Гойя, «черные картины».

The modern inhabitants of our planet are exposed to different sources of stress, so the emergence of mental disorders no longer surprises anyone, and doctors are only trying to find better and more effective methods of correction of these pathologies.

Contrary to popular belief, mental disorders are a problem. However, in ancient times, the attitude towards the mentally ill was very different, depending on the type of society they could simply be destroyed.

Mental disorders are human conditions characterized by a change in the psyche and behavior from normal to destructive. We will consider their classification in more detail.

1. Organic and symptomatic mental disorders are characterized by an involution of the intellect, a decline in thinking abilities and a gradual loss of memory, which are accompanied by increasing emotional instability.

2. Mental and behavioral disorders associated with the use of psychoactive substances combine personality changes caused by the abuse of alcohol, drugs, as well as tobacco, stimulants, sleeping pills and tranquilizers.

3. Schizophrenia, schizotypal and delusional disorders.

When the disease progresses, the general symptoms and signs of schizophrenia occur. They can be psychotic (positive), including:
– hallucinations, when the patient sees and hears things that are not there;
– delusions, i. e. illogical beliefs from which the patient cannot be dissuaded.
– disordered thinking, i. e. the patient speaks too fast, or stops in the middle of a thought and calls out words that do not exist;
– unnatural movement, when the schizophrenic patient moves in a sluggish manner and freezes in an unnatural posture or moves too quickly and jerkily [1].

Negative symptoms imply:
– inability to express emotions, i. e. the patient constantly appears depressed and disconnected from reality;
– impaired thinking process, when the patient does not assimilate information well, cannot concentrate and forgets everything [2].

4. Affective mood disorders include bipolar disorder and its different variations: episodes of mania and depression, presence of psychotic symptoms, somatization, cyclotomy and dysthymia.

Depression in bipolar disorder proceeds pronouncedly, with bright symptoms. It can last up to a year and manifest itself not only in a lowered mood, lack of capacity for pleasure and interest in events, but also in psychosis, when self-blaming ideas arise, the patient feels inferior, unnecessary, poisoning life to others. Nihilistic thoughts about suffering from some most severe illness, despite medical evidence to the contrary, are also inherent. There may be delusional thoughts, as well as suicidal thoughts and even attempts [3].

The other pole of bipolar disorder is the hypomanic state, the characteristic features of which are an increased euphoric emotional background, the patient is constantly on the move, hyperactive, and characterized by very rapid, associative speech. The patient is constantly cheerful, often hypersexual, tends to be always awake or sleeps 2-3 hours a day [4].

According to statistics, at least 10 percent of the world's population has mental disorders, including 20 percent of children and adolescents. About 300 million people worldwide suffer from depression, while schizophrenia has been diagnosed in 23

million people and bipolar disorder has been detected in 60 million. Meanwhile, mental disorders account for 30 percent of all nonfatal illnesses and 10 percent of the total [5]. Mental disorders lead to isolation, disability and personality degradation. However, among the mentally ill there are many people whose work is of interest and enjoyment to thousands and even millions of viewers. In our article we would like to look at the most striking examples.

Based on the biographies of Mikhail Vrubel, Vincent Van Gogh and Francisco Goya we conducted an analysis of how mental disorders affect creativity and what influence the works of these artists had on society.

The famous Russian artist Mikhail Vrubel (1856-1910) was sickly and withdrawn from his childhood. All his life he was haunted by illness. Until the age of three he was considered autistic and paralytic: he spoke little and poorly and was very late to walk. As an adult, he had syphilis, which is believed to have provoked all of his other health problems, including bipolar disorder with hallucinations.

It is unbelievable that the author of the most fabulous, most beautiful artistic works could have been mentally ill. However, his friends and, later, art historians have noted that the stamp of the illness lies on almost all his canvases, starting with The Demon Seated (Figure 1). The subject of the Demon is one of the most important themes of the artist's work, to which he turned throughout his life. The Demon first appeared during the painting of the Kiev churches and was embodied in a sketch; unfortunately, this early work has not been preserved. Many years later, Demon reappears in Vrubel's oeuvre: he searches for the form and character of Demon; in the process of creating the image, the thought of Demon seizes the soul of the artist more and more, depriving him of his inner freedom. Demon, the proud spirit that rebelled against the gray of colorlessness, thirsting for boundless freedom of creativity, demanded incarnation, and Vrubel was like a captive Demon, behind which stood the abyss, suffering, madness and, finally, the highest price – the destruction of the soul. Demon became a fateful sign for the artist: contemporaries linked the tragedy and Vrubel's illness with this dark ideal, and some directly identified Vrubel with Demon [6].

Figure 1. The Demon Seated by Mikhail Vrubel

The Dutch painter Vincent van Gogh (1853-1890) began his career when he was twenty-seven years old. Although Vincent painted for only ten years, he left

behind an impressive body of work. He voluntarily entered the Saint-Paul de Mausole lunatic asylum in 1889 because of mental health problems and created several works while he was in the institution. The Starry Night (Figure 2), from 1887, one of his most famous works of art, was inspired by a landscape near the asylum.

Figure 2. The Starry Night by Van Gogh

In 2016, a group of experts gathered at a symposium organized by the Vincent van Gogh Museum in Amsterdam to discuss the illnesses the artist may have suffered from. They concluded that Vincent van Gogh probably had bipolar disorder, borderline personality disorder, alcohol use disorder, and suffered psychotic episodes.

One obvious way Van Gogh's mental health problems affected his art is through his depiction of various Saint-Rémy objects and landscapes (Figure 3). The artist incorporated them into his work because of his time in the asylum. Johns Hopkins University professor of psychiatry and behavioral sciences James C. Harris has written several essays on the connection between art and mental illness.
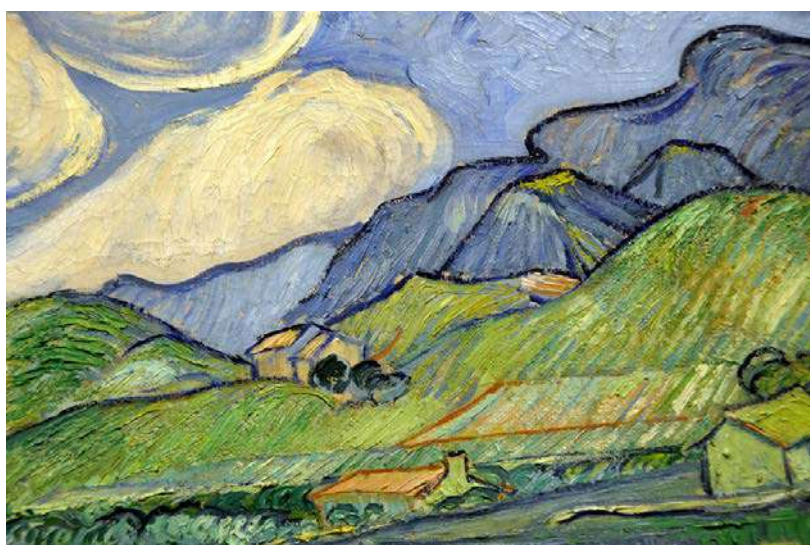
Figure 3. Landscape from San-Rémy by Van Gogh

According to James C. Harris, The Starry Night may be an image of how Van Gogh's condition stabilized while he was in the asylum. Harris wrote, 'The cloudy images in the center of the sky take on the archetypal form of the mandala, a symmetrical form that often occurs when psychological conflicts come into balance. The dark cypress, however, may indicate impending psychological problems, since the cypress is a symbol of death in the area where Vincent was living at the time' [7].

Francisco Goya (1746-1828), who stood at the origins of the new European art, worked at the court of the Spanish king and knew in person the most powerful and wealthy people of Spain, had all the chances of a dignified old age. However, having lost his hearing after a long illness, he lost faith in himself, withdrew and became a hermit. Secluded in a house that five decades after his death would be called the House of the Deaf Man, Goya began to paint gloomy, dreadful pictures caused, by his own admission, by horrible nightmares and hallucinations. Longing, fear, dark, horrible thoughts are all in the Spaniard's Black Painting cycle. Saturn Devouring His Son (Figure 4) is the most famous of the "black paintings", the most horrific and most discussed one. The plot of the painting comes from a mythological account of the Greek god Kronos, whom the Romans called Saturn. According to mythology, he was predicted that some of his children would overthrow him, so he would mercilessly swallow them. But in this painting, Saturn does not swallow the whole body, but gnaws into it. This god looks like a monster, his victim being helplessly dead, but in the god's eyes we can still see inhuman terror [8].

Figure 4. Saturn Devouring His Son by Francisco Goya

In Denmark there is a Museum Ovartaci, which has the largest collection of works by mentally ill artists in Europe (Figure 5). Moreover, it is located on the territory of the psychiatric hospital Aarhus. Nevertheless, all the exhibits are the work of not just mentally ill people, but of real artists, just diagnosed [9].
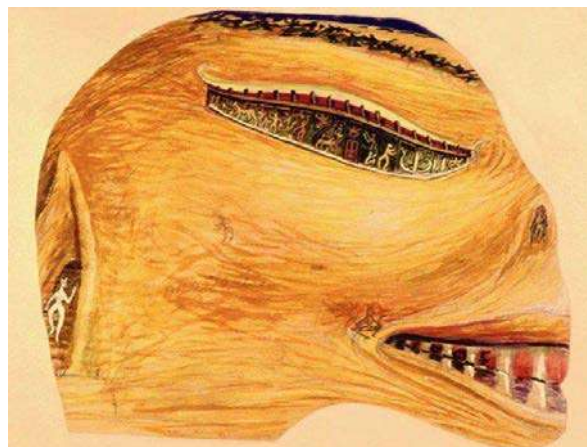
Figure 5. Paintings from Museum Ovartaci

To summarize the above, the life of a gifted person is not as beautiful as it seems at first glance. Brilliant people are often insane. But sometimes it is madness that helps to break all the boundaries of normality and create something that in the future will be of great importance to the culture and worldview of society. Van Gogh provides a good example of how a mediocre talent, through madness, turned into an internationally recognized genius.

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EMPLOYEE WELL-BEING AND WORK-LIFE BALANCE

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Abstract. The paper discusses the importance of creating conditions to improve employee well-being, taking into account the need for work-life balance. The resulting work outlines methods that promote well-being and reduce stress, such as flexible working hours, the provision of fitness and meals, organizing activities, increasing holiday days and communication.

Keywords: employee well-being, work-life balance, employee satisfaction, productivity, creating a conducive working environment, working hours.

БЛАГОПОЛУЧИЕ СОТРУДНИКОВ И БАЛАНС МЕЖДУ РАБОТОЙ И ЛИЧНОЙ ЖИЗНЬЮ

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Аннотация. В статье рассматривается важность создания условий для улучшения благополучия сотрудников, учитывая необходимость соблюдения баланса между работой и личной жизнью. В результате сформулированы методы, которые способствуют повышению благополучия и снижению стресса, такие как гибкий график работы, предоставление фитнеса и питания, организация мероприятий, увеличение отпускных дней и коммуникации между сотрудниками.

Ключевые слова: благополучие сотрудников, баланс между работой и личной жизнью, удовлетворенность сотрудников, продуктивность, создание благоприятной рабочей обстановки, рабочее время.

Employee well-being is a relevant topic these days. We live in an age of rapid changes and increased productivity demands, which often have a negative impact on the psychological and physical health of employees. Even though many employers understand the significance of a healthy and balanced lifestyle, they do not always succeed in creating a healthy work environment that enables employees to successfully balance their professional and personal interests. Therefore, in order for

employees to be able to thrive in both their personal and professional lives, employers need to pay more attention to creating an environment that promotes work-life balance. After all, the well-being of employees determines the future of a company and, more importantly, its profitability, which in the majority of organizations is the main objective.

What is employee well-being as a concept? It is one of the most important facets of any company. It encompasses many different areas of an employee's life such as mental and physical health, along with job satisfaction and the quality of their personal lives. It is formed and altered by various factors such as working hours, fair labor remuneration, relationships with co-workers, workspace and work resources. It makes sense that happy and healthy employees are more productive and achieve better results [1, p. 15].

Let me give you a statistic: according to a survey by Superjob, 41 % of respondents cannot focus on two areas of their lives at the same time: 38 % prefer to focus on their career and only 3 % choose their personal life. However, young people do try to balance their professional and personal lives: 58 % of respondents under the age of 24 said so. Only 25 % of young people are prepared to sacrifice their personal life for their career; 45 % of respondents aged 45 and over are able to maintain a balance [2].

Figure 1. Results of the answer to the question "Do you think you manage to keep a balance between work and private life?" by age group

American executive, manager, CEO of Apple, Tim Cook, asserts that the importance of employee well-being cannot be underestimated and that companies that ensure the well-being of their employees can gain a significant advantage over their competitors. He states that one of the keys to employee well-being is work-life balance. This means that employees should have opportunities to take care of

themselves, take care of their personal affairs, spend time with family and friends and enjoy their passions and hobbies. Companies should do their best to make sure that employees are not overburdened and that they are not forced to work overtime. This can be good not only for the employee, but also for the company, as overwork leads to lower productivity and more absences due to illness.

To begin with, we need to understand why these two concepts, employee well-being and work-life balance, are so important in a company.

– First of all, the impact on labor productivity.
– Secondly, a reduction in diseases and absenteeism.
– The third is increased employee satisfaction.

Each point can be considered in more detail. Let's begin with the first.

It is quite fair to state that if employees are happy at work, they are more likely to work more and more willingly, than if they are dissatisfied. Workplaces where employees are able to balance their personal and professional lives help them feel more relaxed. They are also more motivated and committed to their work, which ultimately leads to higher productivity and better company results. In addition, happy employees often find it easier to overcome stress and conflicts in the workplace because they have a more positive mindset and a high level of self-esteem [3, p. 1025].

That brings us to the second point. Employee welfare and life-career balance help to reduce stress in the workplace, which in turn reduces the risk of illness and the likelihood of absenteeism. Investing in the health and well-being of employees is a cost-effective solution for a company and its employees. It improves the quality of life of employees, increases productivity and company profitability, and enhances the company's image in society [4, p. 165].

What about the third one. It is fair to say that if employees are happy at work, they are more likely to work more and more willingly than if they are dissatisfied. Providing a supportive working environment and achieving work-life balance will increase employee satisfaction [5, p. 15].

The most prominent example of a violation of the second point is employees in Japan. In Japan, there is a cultural and social significance to high performance and dedication at work, known as 'work enthusiasm'. This has led to a number of issues relating to employee contentment and work-life stability [6, p. 183].

One of the main problems for Japanese workers is long working hours, 12 to 16 hours a day. This leads to fatigue, stress and diseases associated with overwork, such as heart disease and headaches. The Japanese even have a term, "Karoshi", which refers to death from overworking. What is more, a culture that prioritizes work over personal life leads to an imbalance between work and personal life. Many Japanese workers do not have time for family life, friends or hobbies. This leads to feelings of isolation, depression and other psychological problems [7, p. 8].

Such a problem exists not only in Japan. Work-life balance is a problem in Russia: the 5-day working week often exceeds 40 hours (part 2 of Article 91 of the Russian Labor Code), which leads to fatigue, stress and decreased efficiency. At the

same time, many employers do not provide sufficient paid leave, which does not allow employees to rest and replenish their energy. Many workers are forced to work overtime to earn a living. As a result, many employees are pushed to work into old age. This further contributes to workers' poor health and has a negative impact on their personal lives.

As previously outlined, according to the research, less than half of Russians are able to combine work and private life. Another survey published on Statista further demonstrates that the largest percentage of Russians who think they have a good work-life balance are young people under the age of 24. The share of respondents with full-time jobs who prioritize work over personal life is particularly high among those 45 and older, at 40 %. By comparison, a quarter of Russians aged 18-to-24 feel that they spend a lot of time at work [2].

Along with that survey, which interviewed people of different age groups, the researchers compiled another one based on gender, which showed that men spend more time on work (39 %) than women (36 %). Women were more likely to be able to balance their personal lives with their work (51 %), compared to only 45 % of the men who responded to the survey [2].

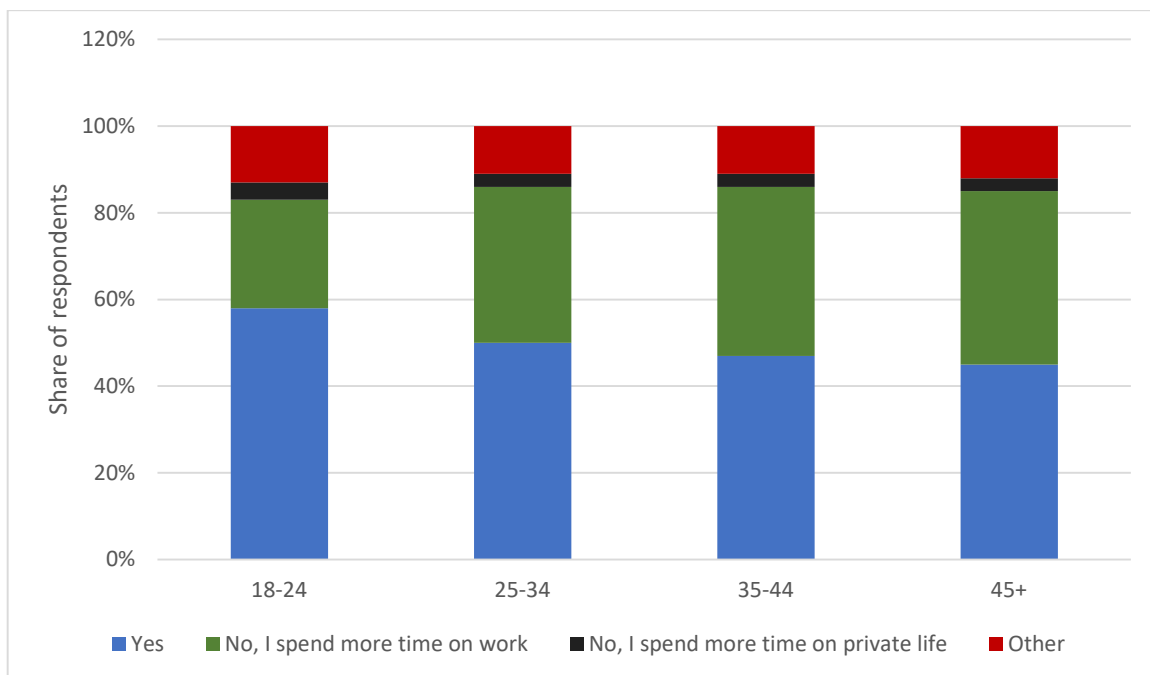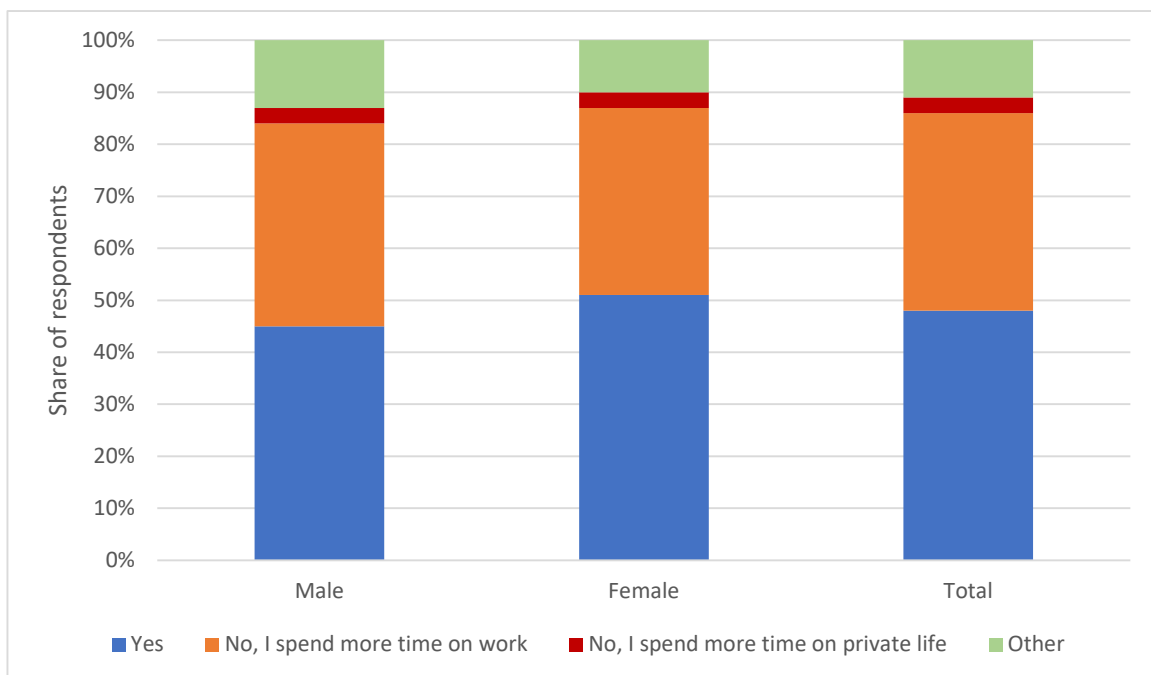

Figure 2. Results of the answer to the question "Do you think you manage to keep a balance between work and private life?" by gender

To encourage employees to stay motivated, work productively and contribute to the company's development, it is necessary to create a suitable environment in which they feel comfortable and confident. However, employers do not always succeed in creating such an environment.

The issue of work-life harmony is particularly relevant these days, when the COVID-19 pandemic has forced many employees to work from home. Working from

home may seem flexible, but it can be very difficult to draw a line between work and private life. In addition, many employees are stressed by keeping in touch twenty-four seven and feel insecure and anxious about their skills and knowledge.

Thus, how can companies help employees solve this issue? Companies can take several steps to create a work environment that simultaneously supports their professional goals as well as the health and well-being of their employees.

To begin with, I think companies should provide their employees with flexible working hours [8, p. 283]. A flexible work schedule is a form of working time organisation that allows employees to work a wide range of hours and control their working hours. Flexible working hours are important for the staff welfare and the balance of their professional and personal lives because:

– A flexible timetable system allows workers to spread their workload throughout the day and reduce travel time;
– Employees who know how to manage their time are more motivated to get their work done and perform better, which contributes to better business results and relationships in the workplace;
– Flexible working hours allow employees to have more time for personal needs such as childcare, socializing with their environment, sports and leisure activities;
– Working flexible hours shows that the company follows the principle of respecting its employees and their rights, which is one of the main attractions when hiring new employees and retaining current ones.

Furthermore, supervisors should increase the number of holiday days [9, p. 284]. Complementary holidays are a powerful motivator for employees and help the company attract the best candidates for the vacancies. Additional time off also allows employees to balance their work and life, which is an important factor in maintaining health and well-being. Time off can be used for travel, communication with family and friends, hobbies that improve mental health and medical care. If a company can provide their employees with special holidays, they will appreciate and thank them. In addition, companies that take care of the welfare of their employees get a reputation bonus and will be regarded as more attractive employers.

Fitness. A manager can support a healthy lifestyle, thereby improving employee productivity by giving employees free access to fitness rooms and sports clubs. Regular physical activity helps improve health, physical fitness and mood. Sport also improves endurance and energy levels and has a positive effect on employees' performance and productivity. Exercise is also an effective means of reducing stress and anxiety. Regular physical exercise can also improve the quality of employees' sleep, which leads to higher work efficiency and more productive working hours.

Nutrition is also an important aspect. Many employees spend most of their time at work and do not have the opportunity to prepare meals at home. Companies can therefore provide free or subsidized meals in the office, for which there are health food cafés or home-delivery services [10, p. 113].

Organizing holiday-related activities can boost team spirit and improve morale of the team. Organizing events during the lunch break or after work allows employees to spend time with family and friends outside the workplace.

Communication is regular feedback and interaction between the management and staff builds trust and contributes to staff well-being. Without effective communication, organizations can face a number of problems, including mistrust, insecurity, insecurity, inefficiency and frustration. Interaction and communication between management and staff can help staff to better understand their needs and take action to satisfy them. It also prevents conflict and builds good relationships between each team member. Creating a work-life balance requires that both management and staff understand each other and respect their personal responsibilities. At the same time, employees must be able to express their demands and expectations freely.

Therefore, flexible working hours, fitness, meals, events and communication can be key for managers to achieve employee well-being by improving working conditions. It is important that employers become aware of this and start attracting and retaining their employees not only by paying high wages but also by improving working conditions.

Having analyzed all of the above, we realise that employee well-being and work-life balance is important for both the employee and the supervisor. For the former, it is, obviously, a direct cumulative impact on their health, physical and psychological state, happiness, and confidence in themselves and the world around them. Employees who feel protected and reassured that their employer cares about them can work more productively and concentrate on their work.

These two aspects have a significant role to play in the success and long-term development of a company. A company with happy employees who are satisfied with their work, leisure and personal lives often leads to greater productivity and success in the marketplace. The inability to meet employees' needs and achieve work-life balance often causes a reduction in job satisfaction and motivation, resulting in sickness and poor productivity. On the contrary, managers who care about their employees' well-being and strive to create an environment that supports work-life stability usually receive the loyalty and devotion of their employees.

In summary, employee well-being and work-life balance are small steps leading to big results. Establishing a policy that promotes employee contentment and personal-professional harmony not only enhances productivity, but also creates a healthier and happier work environment for all. Workers who are able to balance work and personal life are often more motivated and productive in the workplace. They are also often more experienced and qualified, which contributes to organizational growth and sustained economic growth in the society. Therefore, employee well-being and work-life balance are key to the success of an organisation and the well-being of society as a whole.

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GEARS MADE OF POLYMER MATERIALS

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Abstract. The article discusses three-dimensional printing, various types of plastic are considered and the best of them is selected. Gears are considered, which are an integral part of any gearbox and which can be used in various types of technical gears.

Keywords: three-dimensional printing, gears, gears, deformation.

ШЕСТЕРНИ ИЗ ПОЛИМЕРНЫХ МАТЕРИАЛОВ

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Аннотация. В статье рассматривается трехмерная печать, изучены различные виды пластика и выбраны наиболее лучшие из них. Описаны шестерни, которые являются неотъемлемой частью любого редуктора и которые могут использоваться в различных видах технических передач.

Ключевые слова: трехмерная печать, шестерни, зубчатые колеса, деформация.

In modern industry, various types of gearboxes are used to transmit torques, which, in turn, are part of mechanisms used in many fields of science and technology. With the development of technology, new and new opportunities for the creation and improvement of existing mechanisms appear.

One of these technologies is three-dimensional printing, which has become widespread recently. Thanks to her, the creation of objects out of the blue has ceased to be something unattainable. To do this, it is enough to create a three-dimensional model on a computer and send it to print [1].

Various types of plastic are used in three-dimensional printing, these include the following types:
- PLA (polylactic acid),
- ABS (acrylonitrile butadiene styrene),
- PETG (polyethylene terephthalate glycol), etc.

But all of them can be divided into two groups. One includes non–degradable polymer materials, and the other – degradable [2].

The advantage of degradable plastics, which include PLA, is that it does not have a negative impact on the environment, which is undoubtedly very important, but in addition, it combines the qualities of non-degradable plastics, which allows it to be a more versatile and environmentally friendly material [3].

Gears are an integral part of any gearbox, depending on their properties, you can get more torque and power by increasing the speed of rotation.

Replacing traditional materials with plastics as the basis for parts has a lot of advantages.

Gears made of polyamide are:
- reducing the wear of mated parts by orders of magnitude;
- a significant increase in repair intervals for equipment;
noise reduction during equipment operation;
- reducing the weight of parts compared to metal analogues at times;
- ease of machining;
- the ability to replace fuel in some nodes with running water [4].

Plastic gears can be used in various types of technical gears. Due to their properties, they are able to withstand heavy loads and show good values in torque transmissions [5].

The developed three-dimensional model of the gear wheel is shown in Figure 1, according to which two samples with a diameter of 41 mm and a thickness of 5mm were printed from each of the three types of plastic PLA, ABS and PETG. Gears made of various types of plastic were created to study the physical and mechanical characteristics, to compare the possibilities of their application.
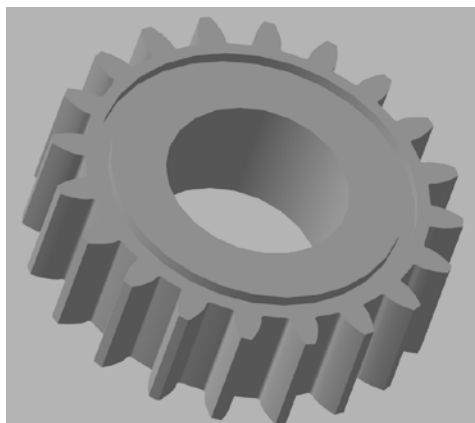
Figure 1. The developed three-dimensional model of the gear wheel

Pairs of identical gears were primarily tested for wear under the action of an engine with different power, the experimental scheme is shown in Figure 2.
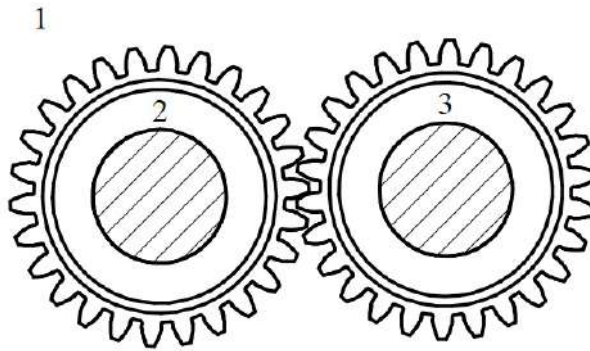
Figure 2. The scheme of the experimental setup for determining the deformation
at different engine speeds:
1 – Drilling machine Caliber SS-13/400A 00000057331;
2 – drive gear; *3* – driven gear

The experiment consisted in checking pairs of gears made of the same type of plastic for wear in a short-term mode and checking for deformations of the teeth of the wheels. The short-term mode of operation is due to the fact that the gearbox being developed should give out the maximum of its potential capabilities in the shortest possible time.

The results indicate that at an engine speed of 2650 rpm, gears made of ABS and PETG plastic began to deform slightly.

Each pair of gears was tested for compression in two planes. One of the samples was installed on the abscissa axis, and the other on the ordinate axis with installation on the teeth of the wheel. After that, with an effort of 40 kN, the test sample was compressed.
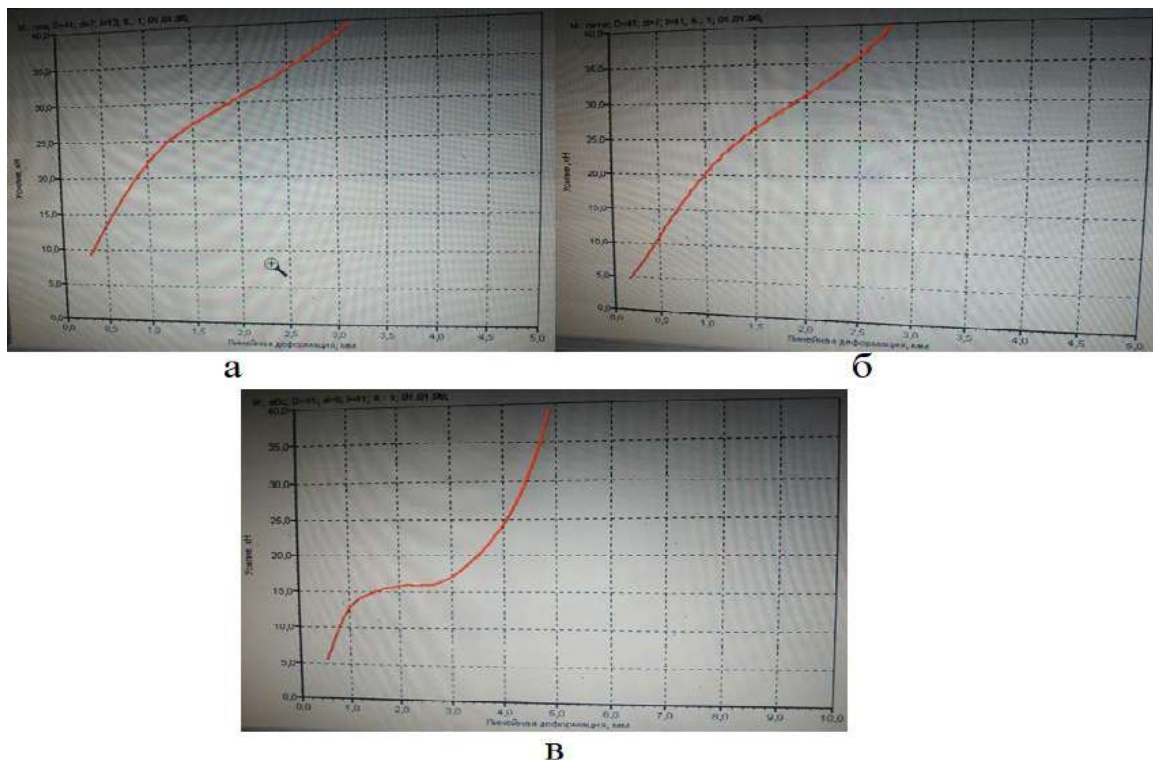
Figure 3. The dependence of linear deformation on the force of 40 kN along the abscissa axis
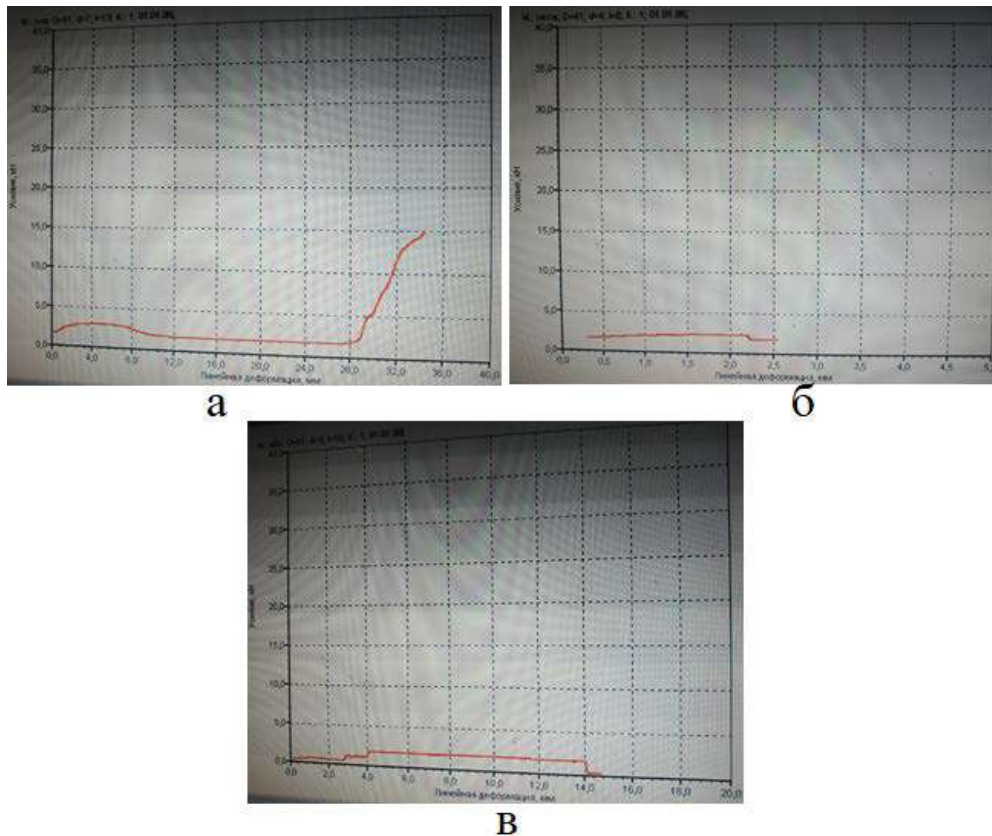
Figure 4. The dependence of linear deformation on the force of 40 kN along the ordinate axis

Figure 3 clearly shows how the gear made of each type of plastic reacts to the load in the horizontal axis on the flat part. Figure 4 (a) shows the value of linear deformation for a gear made of PLA plastic. It can be seen that the deformation value is less than 3.2 mm at maximum force. Fig. 4 (b) shows the value of linear deformation for a gear made of PETG plastic. The value of linear deformation is less than 2.8 mm at maximum force. Figure 4 (c) shows the linear deformation value for the ABS gear was almost 4.9 mm.

Fig. 3 demonstrates how a gear made of each type of plastic reacts to a load along a vertical axis with installation on the teeth of the wheel. Figure 5 (a) shows the value of linear deformation for a gear made of PLA plastic. During the experiment, the gear bent by more than half, so the linear deformation is 32 mm. Fig. 5 (b) shows the value of linear deformation for a gear made of PETG plastic. During the experiment, at a load of 3 kN, the gear wheel broke apart. Figure 5 (c) shows the linear deformation value for an ABS gear. During the experiment, the gear wheel was crushed, the linear deformation is 14mm.

All images were printed under the same temperature conditions and on the same 3D printer. In preparation for the tests, the gears made of ABS plastic were printed more difficult than the rest. When printing, due to the internal stresses of this plastic, shrinkage occurred. No such problems were noticed with other samples. In addition, the gears made of PLA plastic did not require additional heating of the table, which greatly simplified the printing process.

According to the results of the experiments, the features of each type of plastic were obtained. The way the test samples interact with each other when the torque increases. The way the samples react to the increasing load and deform under its action.

Compression experiments have shown that the linear deformation along the abscissa axis for PLA plastic was 3.2 mm, and along the ordinate axis 32mm. Wheels made of ABS plastic showed a result of 4.9 mm on the abscissa axis and 14 mm on the ordinate axis. And gears made of PETG plastic showed the best result along the abscissa axis with a deformation of 2.8 mm. With the installation on the teeth for testing along the ordinate axis, the wheel could not withstand the load and burst after a couple of seconds.

It can be concluded that ABS is quite plastic and can withstand heavy loads, PETG is quite hard, but very fragile under heavy loads, and PLA combines the best qualities from each of them and at the same time has no problems with printing like the others.

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TEACHING METHODS OF TECHNICAL DISCIPLINES BASED ON STUDENT PSYCHOLOGY

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Abstract. The article deals with the issues of effective teaching in technical schools. The ways of improving the development of special disciplines and methods of instilling the skills of in-depth study of technical schemes, drawings of female students are shown and understanding of mathematical formulas.

Keywords: learning, teaching, technique, technology, method, efficiency, scheme, drawing, formula.

МЕТОДЫ ПРЕПОДАВАНИЯ ТЕХНИЧЕСКИХ ДИСЦИПЛИН, ОСНОВАННЫЕ НА ПСИХОЛОГИИ СТУДЕНТОВ

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Аннотация. В статье рассматриваются вопросы эффективного преподавания в технических учебных заведениях. Показаны пути совершенствования в освоении специальных дисциплин и методы формирования у студентов (девушек) навыков углубленного изучения технических схем, чертежей и понимания математических формул.

Ключевые слова: обучение, преподавание, техника, технология, метод, эффективность, схема, чертеж, формула.

The modern methodology and teaching of students of higher educational institutions (HEI) is developing due to the continuous improvement of the qualifications of the teaching staff of educational organizations. As you know, professional development is mainly dealt with by professionals with basic education in the humanities. This has recently shown the insufficiency in increasing the competence and creativity of teachers of technical vocational schools and higher educational institutions. The reason for this is the lack of knowledge of teachers in the institutes for advanced training of teachers in technical subjects. Because, developed several hundred methods recommended for implementation in the educational process of universities in no way contribute to improving the quality of teaching and student achievement. The developed methods, in order to attract the attention of listeners, are mainly of a playful nature and it is recommended to implement them with division into small subgroups. On the one hand, such an individual approach to each student is approved by many experts. However, when it

comes to a huge audience, where lectures are held for 50-75 students, then the effectiveness of these methods not only does not increase the degree of mastering the topic being studied, but, on the contrary, as a result of the formation of noisy disorder, many students can remain completely out of the teacher's field of vision. In addition, in practice there are no methods that can help to reproduce well in the understanding of machines and mechanisms, various structures, instruments, devices designed to perform any technological operations. If we are talking about the most complex professions such as energy (nuclear, alternative, thermal, etc.), electronics, instrumentation, aviation and computer technology, then undoubtedly it is necessary to develop such methods that really helped the student in thinking. Technical sciences are relatively easy to study by male students compared to female students. Some experts explain this difference by the most frequent and close contacts of guys with machines and technical equipment. However, in modern universities there are many girls who are very interested in disassembling equipment and technology. This should be paid attention to and some practical recommendations should be developed in order to be introduced into the educational process.

Based on the above considerations, in our opinion, it is necessary to streamline the undescribed methods of professional teachers of higher educational institutions, production workers-teachers of hourly workers with many years of experience. After all, it is no secret that most of the methods that contribute to increasing the degree of mastering the subject do not even remain on paper. Because, these teachers are limited to lecturing and preparing for classes. If you systematically analyze this, you can get a huge amount of knowledge on teaching methods. This conclusion is confirmed by the results of open lessons. In recent years, in connection with the permission of the Higher Attestation Commission of the Republic of Uzbekistan, for admission to defense in specialized councils, according to the teaching methods in technical universities, the number of developments has been increasing and published in the open press. One of such works is [1, 2], where the principles of applying this method in teaching students on alternative sources of electrical energy are given. Here is the essence of the methods of "Electronic Swimming" and "Logical Thinking". It is possible to successfully apply the results of work, in which special attention is paid to the teacher's media competence.

Thus, since a special approach is required to teaching students of technical universities, it is necessary to share some teaching methods that were introduced in the teaching process at the Fergana Polytechnic Institute. The essence of this method is as follows.

The initial task for female students of technical universities should be psychological preparation. This is explained by the importance of compensating for the lack of understanding of technical equipment in girls compared to students of the opposite sex. At this stage, it is important to teach female students the skills of handling technical and technological equipment. Further important is the explanation of the studied subjects. Moreover, the classes should be conducted by teachers with the skills of media competence. The use of information devices of social networks here can also be used in favor of female students [3]. The highest quality of a teacher in this case is his tolerance. The latter quality plays a decisive role in the management

of only beginners, very young female students. Only skillful teachers will be able to direct a young person, who is not yet completely weaned from adolescence, to focus his attention on the study of technical subjects.

The next process is characterized by teaching female students to communicate with technical drawings. This period is also important because only by mastering the technique of reading diagrams and drawings, in the end, it is possible to get an expert in your field, that is, an engineer. Working with a diagram can be likened to learning a foreign language. Because if a student teaching a foreign language does not know the dictionary of words, then he will certainly not be able to understand foreign words. Similarly, in this case, the student must understand the meaning of each circuit symbol as much as possible. It is appropriate to use the term "talk to the schema" here. Only by understanding the symbol, the trainee will be able to understand the principles of operation of both simple and complex technical circuits.

In the subsequent stages, in addition to explaining the subject of the lesson, the teacher should draw students' attention to the understanding of simple and complex mathematical formulas as much as possible. Each formula has its own physical meaning. That is, any formula tells "about something." In practice, not everyone pays attention to this. Dry and boring formulas do not always win the interest of students. Not disclosing the meaning of the formula is a rather gross mistake of teachers. Such phenomena are often observed in novice teachers. Perhaps here it can be useful to come up with some game methods, perhaps even combined with humor. So, for example, from life situations: it is required to calculate the coefficient of performance (efficiency) of two students using a mathematical formula and compare them.
first student with excellent studies:

$$\eta_{1\text{ст}} = \frac{x_1 + x_2 + x_3}{Z_{\text{еж}}}$$

The second student who receives a grade of "satisfactory":

$$\eta_{2\text{ст}} = \frac{y_1 + y_2 + y_3}{Z_{\text{еж}} + C_{\text{к}} + C_{\text{кв}}}$$

In these formulas, respectively: x_1, (y_1) – student scholarship as an excellent student (triple student) of study; x_2, (y_2) – premiums for good studies $(y_2=0)$; x_3, $(y_3=0)$ – deep knowledge. Z_{eh}-amount of money that he receives monthly from his parents.

Next, we proceed to the analysis of the efficiency students. So, the total cost per student in the second case is much higher, and, in the numerator – that is, the benefit that comes from the student is much less compared to the first student. Here, even in order to make it interesting and funny for students, you can add the cost of visiting cinemas, restaurants, entertainment programs, etc. With such analyzes, the student not only understands the usefulness of excellent studies, he will also become critical of some of his actions, and on the basis of this, like a simple example, it is possible to explain quite complex technology processes in machines and mechanisms,

as well as other technical disciplines. The skill of the teacher plays a significant role [4].

Thus, in this report, the author wishes to inform the participants of the conference about some topical issues of modern teaching and recommend several methods developed by them for implementation in the educational process in technical universities.

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APPLICATION OF ARTIFICIAL INTELLIGENCE IN MODERN PRODUCTION AUTOMATION SYSTEMS

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Abstract. This paper focuses on the application of artificial intelligence (AI) in manufacturing automation systems. The paper collects and analyzes data on how modern enterprises use AI to automate production processes and improve business efficiency. Examples of the use of AI systems for monitoring the production process, demand forecasting, transportation optimization and many other tasks were considered. The results achieved were analyzed and the prospects of using AI in production automation were identified.

Keywords: artificial intelligence, production automation, production control systems, machine learning, algorithms, robotics, technology, efficiency, optimization of production processes.

ПРИМЕНЕНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В СОВРЕМЕННЫХ СИСТЕМАХ АВТОМАТИЗАЦИИ ПРОИЗВОДСТВА

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Аннотация. Данная статья посвящена применению искусственного интеллекта (ИИ) в системах автоматизации производства. В работе собраны и проанализированы данные о том, как современные предприятия применяют ИИ для автоматизации производственных процессов и повышения эффективности бизнеса. Рассмотрены примеры использования систем ИИ для мониторинга производственного процесса, прогнозирования спроса, оптимизации транспортировки и многих других задач. Авторами был произведен анализ достигнутых результатов и выявлены перспективы использования ИИ в автоматизации производства.

Ключевые слова: искусственный интеллект, автоматизация производства, системы управления производством, машинное обучение,

алгоритмы, робототехника, технологии, эффективность, оптимизация производственных процессов.

AI technologies offer a transformative opportunity for businesses, enabling them to automate routine and repetitive tasks, while fostering flexibility and innovation in effective decision-making strategies. AI can also increase safety by minimizing physical interaction in potentially dangerous tasks, improve predictive maintenance, ultimately reducing equipment downtime and maintenance costs, while reducing waste in the production process. These benefits not only enable businesses to remain competitive but also help to ensure sustainable development. For example, in the automotive industry, AI-powered machines can work 24 hours a day, 7 days a week without making a single mistake. This ensures high-quality production and reduces the costs associated with reworking products, which greatly benefits businesses while meeting the expectations of customers.

Furthermore, AI technologies hold great potential for enhancing the accuracy of supply chain management by using algorithms to analyze historical data, thereby predicting the demand more precisely and identifying trends. This helps reduce the possibilities of stock-outs, improves shipment scheduling, and ensures efficient delivery of goods.

However, the implementation of AI technologies presents several challenges. For example, businesses must invest in data collection, analysis, and management to generate data on the inputs, processes, and outcomes of production processes. Additionally, businesses must build a culture of collaboration between AI and human actors, while avoiding the polarization of the workforce, which might emerge as a potential pitfall if not correctly managed.

In conclusion, AI technologies have transformed the business landscape, bringing unprecedented progress to modern production processes across various industries. However, businesses and policymakers must be mindful of the potential challenges posed by AI technologies, including the need for investment in data collection, management and the importance of creating a culture of collaboration between AI and human actors [1].

Below are some of the best practices for applying AI to production and sales.

Product quality control: AI can be used for automatic product quality control. Using machine learning, the system can be trained to recognise defects on products and automatically reject defective products.

Production process optimisation: AI can be used to optimise production processes, e. g., to improve production planning, optimise energy costs, improve inventory management, etc.

Demand forecasting: AI can be used to forecast demand for products, helping to optimise production processes, reduce inventories and keep costs down.

Personalised marketing: AI can be used to analyse shopper data and create personalised marketing campaigns. This can help increase conversion rates and improve the customer experience.

Improving the shopper experience: AI can be used to create virtual assistants and bots that help shoppers quickly find the products they want and get answers to their questions.

Data analysis: AI can be used to analyse large amounts of data to help identify hidden trends, predict future events and make more informed decisions.

Logistics optimisation: AI can be used to optimise logistics processes, e. g. to determine the optimal route for the delivery of goods and to minimise delivery times.

The cost of introducing artificial intelligence into production depends on many factors, such as the type and complexity of the problem to be solved, the degree of automation required, the availability of technical resources, the experience of specialists, etc.

Tasks such as developing in-house machine learning algorithms can be costly, as it requires highly skilled people as well as appropriate hardware and software.

However, reducing the cost of introducing artificial intelligence into production can be achieved in several ways.

Firstly, using off-the-shelf solutions instead of developing your own algorithms can significantly reduce the cost of implementing AI.

Secondly, the use of cloud services can reduce hardware and software costs, as well as technical support costs.

Third, hiring specialists with AI implementation experience can reduce training costs and increase project efficiency.

Fourth, the gradual introduction of AI into production, starting with the most critical tasks, can gradually reduce the cost of AI implementation.

Finally, partnering with AI companies can allow access to off-the-shelf solutions and technical resources, which can significantly reduce AI implementation costs [2].

In November 2019, IDC analysts published the results of a study of the Russian AI market.

Experts expect sales of AI-enabled solutions to reach $139.3 million in 2019, a 48.2% increase on the year before (Figure 1).
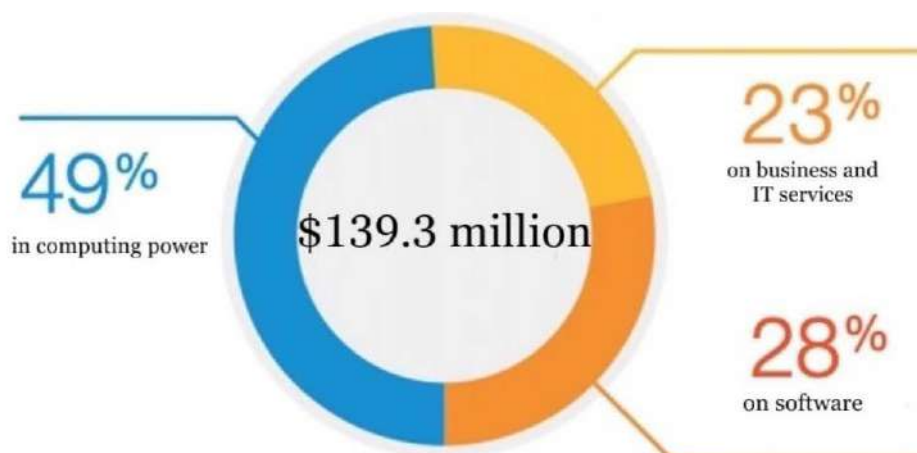
Figure 1. Investment in building AI solutions
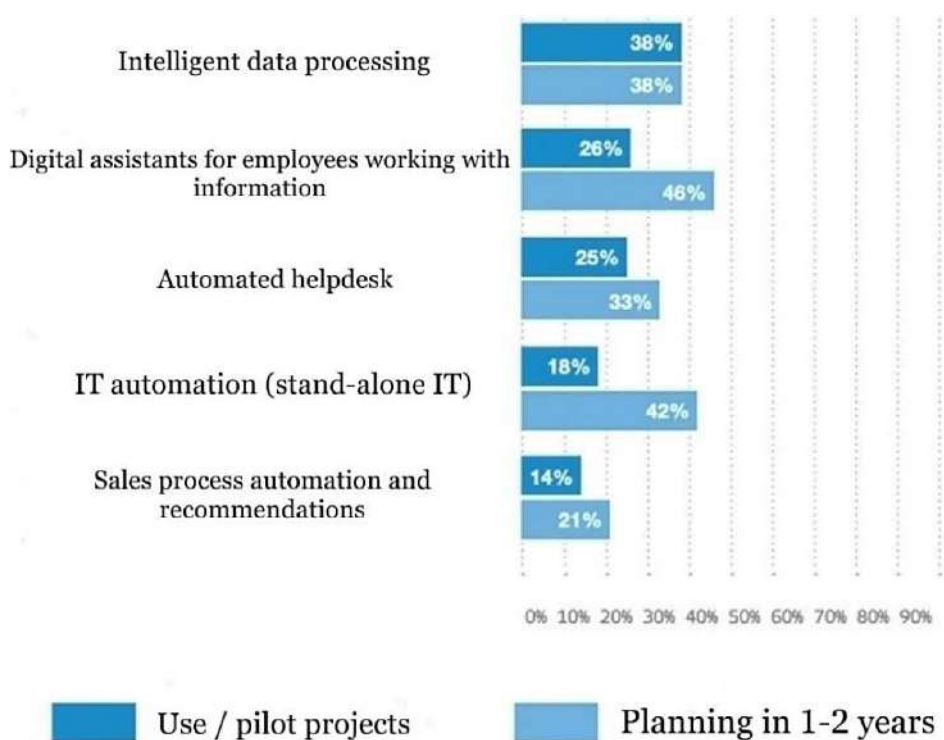
Figure 2. AI application scenarios

38 % of businesses said they use AI technology in intelligent automation solutions for data processing. 26 % of businesses use AI technology to create digital assistants for information workers (Figure 2).

30 % of Russian companies surveyed by IDC said they use AI solutions, and 70 % reported plans to implement the technology within two years. Business spending on such developments is expected to increase by around 30 % per year.

According to a study by IBM, more than 60 % of the world's large enterprises already use AI, and 53 % of them believe they plan to invest in this technology additionally [3].

An example of the use of AI could be « Gazpromneft`», which has introduced a neural network machine learning system to improve its production processes.

There are also examples of AI being used to improve product quality at Russian companies. For example, «Yunkers Ae`rodzhet Rusland» used AI to optimise the production process of aircraft engines, which resulted in fewer rejects and improved product quality.

In addition, Russian businesses are using AI to automate logistics and inventory management processes. For example, «Tin`koff» used AI to optimise its operations, which enabled it to reduce logistics costs and make its processes more efficient and faster.

«BMW», for example, has implemented «Intelligent Maintenance» on its production lines, which predicts possible equipment failures based on the analysis of line and appliance data. Thanks to this system, the company saves money and time on repairs and reduces downtime.

In 2019, inventory management at retailer «Lenta» added a team of specialists from the big data field. The engineers have begun developing a demand forecasting project using artificial intelligence (Machine learning forecast). The algorithm must

take into account hundreds of factors for any retail chain shop. Namely, product attributes, specifics of retail outlets, features and intersections of promotions, price, product characteristics, stock, demand depending on the season, holidays and even on how many competitors' shops are nearby. The data scientists assembled a big data model from both company information systems and external sources (geolocation, weather conditions, etc.).

A set of models is formed on the basis of previous periods. The artificial intelligence itself determines the priority of each factor for a particular product in an individual shop. As a result, the model is able to constantly adapt and evolve to take account of different demand trends, as well as being self-learning, flexible to customise and highly detailed.

One of the strong advantages of using AI to automate manufacturing is the ability for smart robotics. «Amazon Robotics» has developed a system of smart warehouses that automatically select goods, pack them, print labels and send orders to customers. This process is extremely efficient and can speed up order processing and reduce errors and losses [4].

Artificial Intelligence can optimise production processes and reduce the time it takes to reconfigure and fine-tune equipment, resulting in increased productivity. Product quality also improves as AI is able to analyse data and determine optimal production parameters. It is possible to significantly reduce personnel costs, optimise energy costs and reduce the cost of equipment maintenance and repair services. Artificial intelligence can quickly adapt to changing production conditions and also react to unforeseen circumstances, which together make management more flexible. The ability to detect potentially dangerous situations and perform automatic operations to prevent accidents increases safety in production. Artificial Intelligence is easy to learn by acquiring new data from production and user experience. Documentation is filled in automatically, which gives a large database in digital format and will also reduce time and increase efficiency. In this way, the competitiveness and efficiency of a company's production capabilities are improved [5].

The use of artificial intelligence in modern factory automation systems has many advantages. One of the main advantages is the possibility of reducing equipment maintenance costs and reducing production downtime. In addition, artificial intelligence helps to optimise production processes, improve product quality and increase resource efficiency [6].

One of the foremost risks associated with AI integration in businesses is the potential for unintended consequences that could arise from an inappropriate use of the technology. This could include accidents caused by equipment malfunction or incorrect interpretation of data, leading to significant damage to the production process or even injury to personnel.

Another risk associated with AI is its potential impact on employment, with the fear that the widespread automation of production processes could lead to the displacement of human workers. While automation does reduce the need for manual labor, it also creates new job opportunities for those who possess the necessary skills

to manage and maintain AI systems, as well as those who specialize in more complex and value-added tasks.

Furthermore, there are concerns around the ethical implications of the use of artificial intelligence, particularly regarding data privacy and security. AI needs access to a vast amount of data to learn and make decisions, which could potentially compromise the privacy and security of individuals and businesses.

It is, therefore, essential for organizations to carefully consider the implications of AI adoption before integrating the technology into their production processes fully. This might require investing in the necessary resources for data collection and management, incorporating safeguards to mitigate risks, and creating an ethical and responsible framework for using AI in production processes.

To conclude, while artificial intelligence presents significant opportunities for businesses to improve their productivity and competitiveness, the potential risks associated with its application must also be considered. Addressing these risks requires appropriate measures to ensure safety, respect for privacy, and human-centered management of AI technology. Only then can businesses truly benefit from the transformative power of artificial intelligence in modern factory automation systems.

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DATA SCIENCE AS A POWERFUL INSTRUMENT FOR IMPROVED PERFORMANCE IN THE THERMAL POWER INDUSTRY

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Abstract. Automated control systems together with intelligent technologies are actively used in various spheres of life and industry. They help to increase control speed, improve product quality and reduce production costs. The advantages and disadvantages of such technologies are presented in this article, and also their application in heat supply systems is considered.

Keywords: automation, heat supply, equipment control, production process, thermoregulation, data science.

DATA SCIENCE КАК МОЩНЫЙ ИНСТРУМЕНТ ДЛЯ УЛУЧШЕНИЯ ПРОИЗВОДИТЕЛЬНОСТИ В ТЕПЛОЭНЕРГЕТИКЕ

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Аннотация. Автоматизированные системы управления вместе с интеллектуальными технологиями активно применяются в самых разных сферах жизни и промышленности. Они способствуют повышению скорости управления, улучшению качества продукции и снижению затрат на производстве. В данной статье представлены преимущества и недостатки таких технологий, а также рассматривается их применение в системах теплоснабжения.

Ключевые слова: автоматизация, теплоснабжение, управление оборудованием, производственный процесс, терморегуляция, наука о данных.

The modern world is hard to imagine without all sorts of gadgets and devices. They are needed not only to simplify everyday tasks, but also for production purposes. But controlling them requires smart systems that can reduce human intervention and speed up the production process. Process automation systems have been created for this purpose.

Process automation is a set of methods and tools designed to implement a system or systems that control the technological process without direct human intervention or giving him the opportunity to make only the most responsible decisions [1].

The main objectives of process automation are:

- Increasing the efficiency of the production process.
- Increasing the safety of the production process.

Automation of technological processes is carried out by implementing modern methods and means of automation. As a result of the implementation, it is possible to obtain ACSPP (automated process control system) [2, 3].

One of the most important systems for humans is the heating system. Every building and structure needs heating and thermoregulation, so modern facilities that can be automated.

Automation of heating systems includes several functions: regulation and stabilization of parameters, control and monitoring of objects and units, both remotely and in direct contact, control and measurement of parameters, metering of consumption of supplied and consumed resources [1].

Automatic control system of heat supply (Figure 1) consists of several modules, which perform certain tasks:

- Main controller. Programmable microprocessor is the main part of controller.
- Heat sensors. The sensors sense the temperature both inside (from the coolant) and outside (the environment) and send commands to the controller.
- Manual control panel. Necessary for manual control of the heating automation system. Used for test runs, connection of new modules, and in case of accidents.
- Temperature regulators. These devices are responsible for adjusting the cross-section of the pipes according to the current external conditions and needs. They can be either mechanical or electronic. They directly affect the performance of the system.
- Pumping equipment. Pumps create the pressure required for a particular water flow rate. Through these processes, the circulation of the coolant is ensured [4].

In order to minimize human presence in the vicinity of the facilities, a remote control system is necessary to control the system via the Internet or a local network. The dispatching system can help in this.

The main functions of the dispatching system are:

- maintenance of the required room temperature, which provides more economical heat consumption;
- management of the system in real time using a special user-friendly interface;
- management of the system via the Internet using wired and wireless channels;
- notification of irregularities and emergencies, as well as restoration of the system to operating condition;
- planning of preventive maintenance of equipment, based on the data analyzed by the system about the state of equipment;
- creation of archives of data on the system for further analysis of the system performance and emergency diagnostics [3].

Automation of heat supply has a number of advantages, it allows you to maintain and regulate a certain thermal regime, depending on external conditions (time of day, season, ambient temperature). Also, the automation system reduces the risks of exceeding the temperature in case of emergencies, as well as in the mode of daily operation.
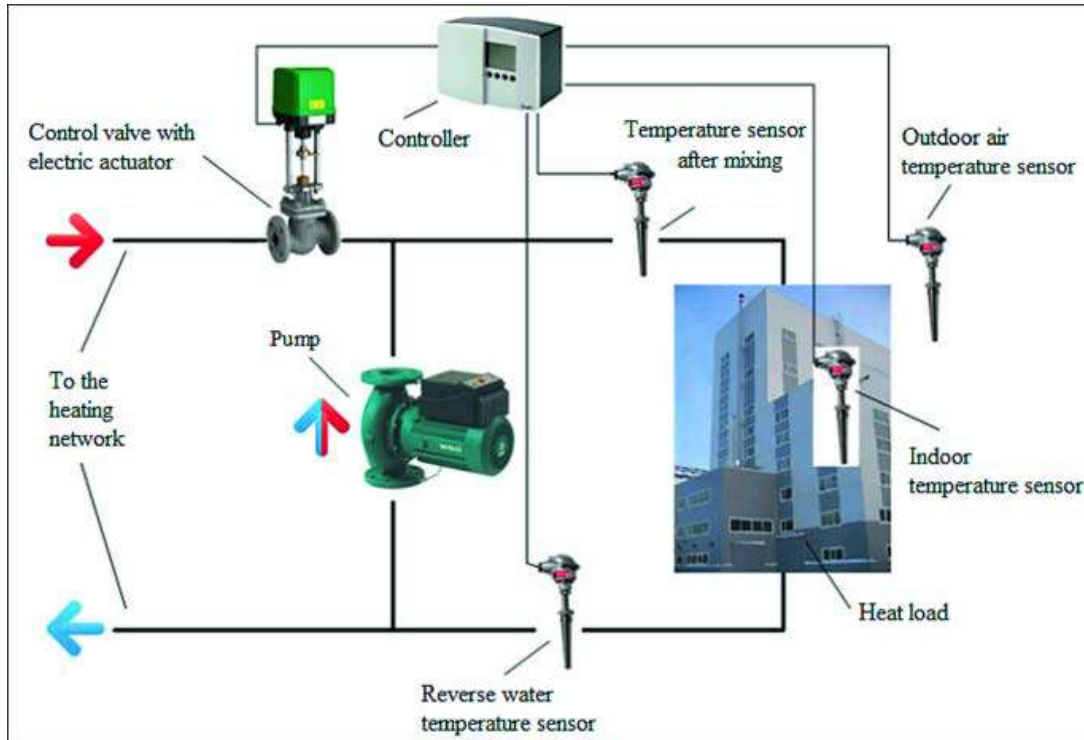
Figure 1. Automated heated system

Rational use of heat energy allows to optimize the operation of heating automation systems. Maintaining the set temperature depending on the outside temperature reduces losses at any time of the day, as well as on weekends and holidays. This helps to save heat due to overheating of premises during the heating season. In addition, the system allows you to maintain the temperature in the return pipe, eliminating possible penalties from exceeding it. Due to this, heat losses, which incur economic losses, are reduced [5].

At present, together with automated systems, modern technologies are used in production. For example, intelligent technologies based on neural networks, various expert systems, data science.

As a rule, data science is used in industry for predictive analytics for planning repairs and production.

Data science is a science that deals with extracting knowledge from data. It uses methods of mathematical statistics, machine learning, and data analysis to extract information from large amounts of data (Figure 2). In the thermal power industry, data science can be used to improve production efficiency, optimize fuel consumption, and improve equipment reliability.

In the thermal power industry, data can be obtained from various sources, such as sensors, control and monitoring systems, customer databases, and others. These data can contain information about temperature, pressure, fuel consumption, power

consumption, and other parameters that can be used to optimize production and improve service quality.
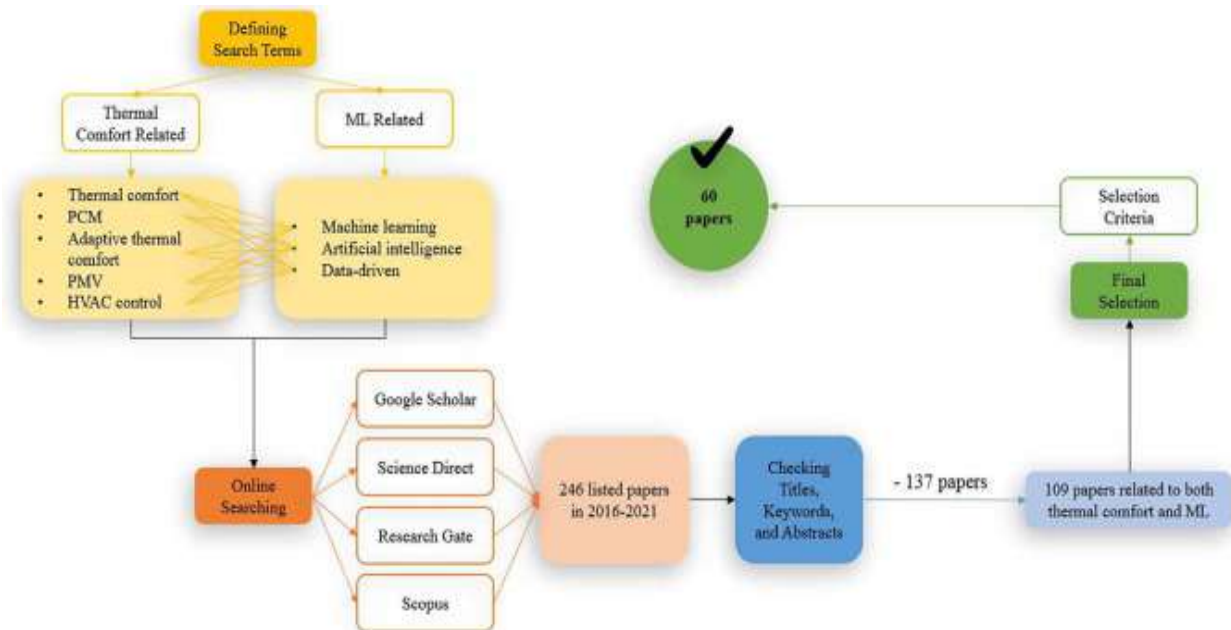
Figure 2. Machine learning in heat supply systems

One example of the use of data science in the thermal power industry is equipment condition monitoring and analysis. Sensors and monitoring systems can be used to obtain data on the condition of equipment, such as temperature, pressure, vibration, and other parameters. This data can be used to identify possible equipment problems and prevent accidents.

Another example of the use of data science in the heating industry is the optimization of fuel consumption. Fuel consumption is one of the main indicators in the thermal power industry, so optimizing its use can lead to significant savings. By analyzing data on fuel consumption and production parameters, it is possible to determine the optimal conditions for fuel use and reduce fuel consumption.

Data science can also be used to improve service quality. For example, analyzing customer energy consumption data can help identify consumption peaks and suggest more efficient ways for customers to use energy, which can lead to cost savings and improved service.

Using Data Science allows:

− Make data scientists more productive by helping them speed up development and create models with fewer errors faster;

− Make it easier for data analysts to work with large volumes of diverse data;

− Create robust AI-based applications that work without errors.

However, the use of data science in the thermal energy industry can face several challenges. One of them is the need to ensure data security. In the thermal power industry, data can contain sensitive information about customers and production, so it must be protected from unauthorized access.

The use of data science can require significant investment in hardware and software. Specialized hardware and software must be used to collect, store and analyze the data, which can lead to additional costs.

During the implementation of data science in production, problems may arise due to the lack of qualified specialists. It should also be remembered that many employees are afraid of innovation. Because it will be necessary to get used to the new organization of work.

All of the above disadvantages can be eliminated, if you completely revise the model of production organization in the modern conditions of development.

The introduction of these technologies will not only improve the efficiency of production and reduce costs, but also to improve working conditions for employees of enterprises and provide more accurate control of production processes [6].

Data science is a powerful tool to improve production efficiency, optimize fuel consumption and improve the quality of services in the thermal power industry. In general, the use of this technology to diagnose the production process, analyze production data and automate production will allow enterprises to achieve better results [7] and ensure their competitiveness in the market.

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УДК 628.3.:332.1

INTRODUCTION OF A CLOSED-CYCLE ECONOMY IN VODOKANAL MANAGEMENT SYSTEM IN TERMS OF SLUDGE RECYCLING

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Abstract. The necessity of including the principles of circular economy by analogy with the mechanism of functioning of natural biogeocenoses in the management system of large enterprises, such as Vodokanals, which synthesize a significant amount of sediments with different properties, is considered.

Keywords: circular economy, wastewater treatment, sewage sludge treatment technologies, sustainable economy, use of wastewater treatment sludge in the circular economy system.

ВНЕДРЕНИЕ ЭКОНОМИКИ ЗАМКНУТОГО ЦИКЛА В УПРАВЛЕНИЕ ВОДОКАНАЛОМ В ЧАСТИ РЕЦИКЛИНГА ОСАДКОВ

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Аннотация. В статье рассматривается необходимость включения в систему менеджмента крупных предприятий, таких как «Водоканал», синтезирующих значительное количество осадков с различными свойствами, принципов циркулярной экономики по аналогии с механизмом функционирования природных биогеоценозов.

Ключевые слова: циркулярная экономика, очистка сточных вод, технологии переработки осадков сточных вод, устойчивая экономика, использование осадков водоочистки в системе циркулярной экономики.

Around many cities and regional centers of Russia, as well as near individual objects (including rural rest homes, pioneer camps, etc.), a significant amount of precipitation has been accumulated on silt sites, which occupy a huge territory. In

megalopolises, such precipitation with an initial humidity of 98.99 % is dried, conditioned and burned in special energy-intensive units. These aggregates have a specific ecological footprint in the form of greenhouse gases and ash residues, which are then stored for a long time. These technologies with similar "burials" are common in Europe, Asia and America [1]. Considering that in modern conditions there are no free areas for ash dumps, there is a critical issue of including them as secondary raw materials in the circular economy.

Sewage sludge is a complex multicomponent system consisting of organic and mineral parts. Urban wastewater sediments contain a large number of microorganisms, including pathogenic, toxic compounds, especially heavy metal ions, in concentrations significantly exceeding the maximum permissible concentrations (MPC) of metals in the soil. The volume of wet precipitation generated at sewage treatment plants ranges from 0.5 to 1.0 % of the volume of wastewater, depending on the treatment technology. The quality of precipitation significantly depends on the initial composition of the runoff and specific solutions for the removal of impurities. The most promising direction is the localization of wastewater by homogeneous component composition, which is an important element for obtaining various target products from wastewater.

Depending on the conditions of formation and features of separation, primary and secondary precipitation are distinguished [1].

The primary ones include coarse impurities that are in the solid phase and isolated from water by mechanical purification methods: straining, sedimentation, filtration, flotation, precipitation in a centrifugal field. Secondary precipitation includes impurities that are originally in the water in the form of colloids, molecules and ions, but in the processes of biological or physico-chemical water purification or treatment of primary precipitation form a solid phase.

The formation of a high-tech competitive industry, which will contribute to the transition to sustainable development, is implemented as a management tool at all hierarchical levels within the environmental industry of the state. Accumulated damage from previous economic activity and the lack of a comprehensive solution for the rational use of the resulting secondary resources hinders the development of various industries. In the regional management of economic activity, it is necessary to take into account the possibility of using these resources in related areas. The example of Vodokanal's work shows that the progressive movement of extensive nature management is not effective and leads to significant costs, damages and secondary pollution of ecosystems. All this together increases social and economic risks.

Vodokanal's management system, which is inextricably linked with the general management system of the regions, should be based on the principles of a circular economy (Figure 1). This principle is described in the work of B.G. Preobrazhensky [2] and reflects, in fact, the mechanism of functioning of natural biogeocenoses [3]. To implement this approach, it is necessary to clearly define the properties of specific precipitation at various stages of the process. For the targeted use of new products, systematic work is needed to organize a comprehensive study, since the existing technologies for processing large-tonnage sediments are not fully solved today [4]. In

the National Standard GOST R 59748-2021 "Technical principles of sewage sludge treatment. General requirements" [4] options for using water treatment precipitation as a target product are not considered, although these issues were actively discussed at the Baltic Sea Day site in 2023 [5]. The package of documents to address this issue is only at the development stage and does not have a final version yet. At the moment, the discharge of water treatment precipitation is carried out at best into the sewerage system, which is unacceptable for users who use this system to discharge their wastewater. There are technological solutions that make it possible to prepare these precipitates for targeted use in the circular economy, an example is the study "The use of a new low-concentration composite coagulant-flocculant based on nepheline-containing raw materials and waste in the form of ash for testing promising technologies" that became the winner of the competition for the best innovative projects in the field of science and higher education in St. Petersburg in 2019.

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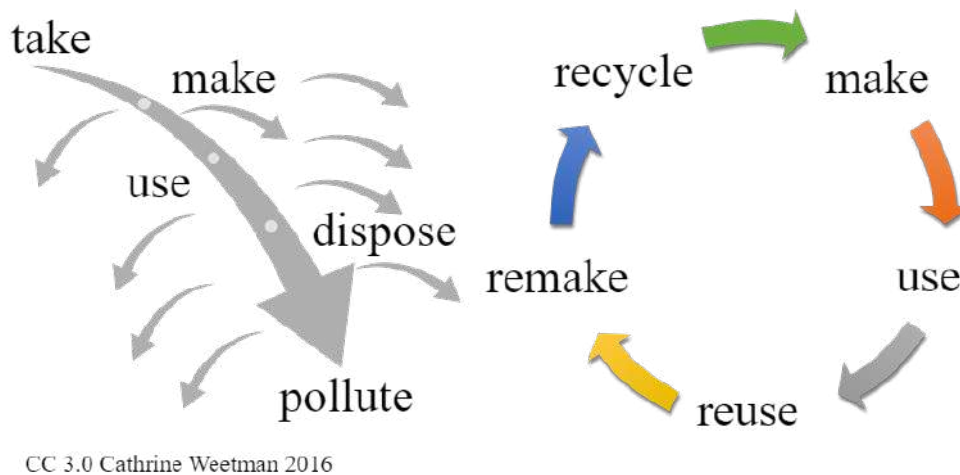
Figure. Principles of the circular economy

The sediment formed in the process of wastewater treatment is characterized by various compositions and properties that depend on the conditions of formation, the method of purification, the operating conditions of wastewater treatment plants and on the amount and type of wastewater treated at wastewater treatment plants (domestic, industrial, rain).

The main part of the dry matter of sediment from primary sedimentation tanks (on average 60-75 %) and activated sludge (on average 70-75 %) are organic substances. The organic part of the activated sludge mainly consists of substances of protein origin (up to 50 %) with a fat and carbohydrate content, respectively, up to 30-10 %. In the raw sediment from the primary sedimentation tanks, proteins are about 2 times less, and carbohydrates are 2.5-3 times more than in the active sludge [6]. The organic part of the precipitation quickly decays, releasing an unpleasant odor, while the number of colloidal and fine particles increases, as a result of which the water output of precipitation decreases.

The main component of raw sludge, excess and compacted activated sludge, as well as fermented sludge is water, which is poorly separated from mineral and organic particles. All types of sediment (except waste from the grates and sediment

from sand traps) contain 90-99 % moisture, which consists of free, colloid-bound and hygroscopic water.

Sewage sludge may also contain lead, cobalt, cadmium, mercury and other elements. Precipitation water output is also affected by the granulometric composition of precipitation, i. e. it depends on the particle size of their solid phase. The smaller the particles, the worse the precipitation water output. Artificial or natural changes in the composition and properties of precipitation leads to a change in their water output. Since the composition of the treated wastewater is different, the water output of precipitation is different for different treatment plants. Such precipitation, as a rule, after burning, requires their transfer to a stationary state in contact with groundwater, the main direction of their use is construction.

As for water treatment, it is advisable to reduce the concentration of residual aluminum in the sediment by replacing traditional or imported reagents with more effective modern composite coagulants-flocculants. For this purpose, low-concentrated composite reagents can be used [7]. The concentration of effective doses of reagents for the removal of specific substances from natural water must be carried out in accordance with the standard. As practice shows, for composite reagents, the efficiency is significantly higher at lower concentrations of aluminum [8]. This fact helps to reduce the cost of the process. An additional advantage of the resulting sludge is that it can be used for various purposes. The sediment may be of particular importance for an urbanized area as a complex reagent, as a dust suppressor, as part of fillers of compositions with ash from a thermal power plant.

The municipal administration, as an object of economic activity, organizes a dust suppression system by spraying water on the problem area from stationary and mobile installations. These systems are considered simple and economical. When using them, the effect is short-term and does not solve the problem of air quality management in the surface layer. Modern, new polymer-based compositions compete with water irrigation. In practice, various binding reagents that can be used for dust suppression have been studied, such as polyvinylacrylic copolymer, bitumen emulsions, lignosulfanates and a number of other components [7, 8]. Unfortunately, they are not able to significantly reduce the risk to public health in the processing zone of an urbanized territory. Therefore, as a more promising dust suppressor, components of natural origin, including lignohumin substances, which are part of the precipitation of water treatment, should be considered. However, for more specific recommendations for processing techniques, a more detailed study is required. Such works are carried out by the Department of Environmental Protection and Rational Use of Natural Resources of the Higher School of Technology and Energy. They have shown the fundamental possibility of using these reagents for dust suppression. At the moment, the compilation of new compositions is being worked out and their effectiveness in relation to dust particles of various chemical nature is being evaluated.

Thus, the materials considered show the prospects of using a number of precipitation in the system of circular economy, but for the successful implementation of these economic principles, it is necessary to improve the management system of end products based on precipitation from various stages of

water purification. To accomplish these tasks, a symbiosis of science and production and the implementation of targeted contracts with SUE Vodokanal is necessary.

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THE IMPORTANCE OF TERROR MANAGEMENT THEORY FOR SOCIAL SCIENCES

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Abstract. The article provides an explanation for terror management theory and examines aspects that are particularly important for social sciences. Terror management theory has existed for over thirty years, yet so far it has been taken into consideration predominantly by social and behavioural psychologists. The objective of this article is to draw the attention of social scientists to this theory.

Keywords: terror management theory, cultural worldviews, self-esteem, mortality salience, internal religious orientation, right-wing authoritarianism, in-group, out-group.

ЗНАЧИМОСТЬ ТЕОРИИ УПРАВЛЕНИЯ СТРАХОМ СМЕРТИ ДЛЯ СОЦИАЛЬНЫХ НАУК

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Аннотация. В статье дается объяснение теории управления страхом смерти и рассматриваются наиболее значимые для социальных наук аспекты. Теория управления страхом смерти существует уже более тридцати лет, однако до сих пор она принималась во внимание преимущественно социальными и поведенческими психологами. Целью статьи является привлечение внимания представителей общественных наук к данной теории.

Ключевые слова: теория управления страхом смерти, культурные мировоззрения, самооценка, значимость смертности, внутренняя религиозная ориентация, правый авторитаризм, ингруппа, аутгруппа.

Like all other living things humans are biologically predisposed to want to stay alive. But what makes us uniquely different is a vastly developed forebrain that allows us to think abstractly and symbolically. Humans are able to recognise that life is finite and we are perpetually vulnerable to be erased at any moment. American cultural anthropologist and author Ernest Becker in his book "The Denial of Death" (1973) took an interdisciplinary approach to trying to understand the motivational principles of human behaviour [1]. He argues that the fear of death is in the core of human cognition and the recognition of human mortality gives rise to existential terror.

Terror management theory (TMT) is experimental psychologists Jeff Greenberg, Sheldon Solomon, and Tom Pyszczynski effort to frame Becker's ideas in a way that would allow them to test these ideas empirically. TMT explores fields of religion, emotions, social hierarchy, self-esteem and others. Experimental researches conducted across the globe, including Russia, have given a solid validation to the theory and prompted numerous new questions [2].

Foremost TMT has significant value for social sciences. As in order to explain the significance of life, human societies construct standards and build cultural worldviews: religious meanings, cultures, laws and belief systems. According to TMT our primary motivation is to maintain confidence in the truthfulness of our beliefs and faith that we are living up to and therefore have self-esteem which gives us a right to be immortal literally or symbolically. First of all, cultural worldviews give reality a sense of meaning: people evaluate their actions on the basis of whether or not these actions deserve to devote time to. Secondly, standards that are used to estimate value, such as ethics and mortality give people a sense of connection to one another and buffer their anxiety of mortality. Finally, cultural worldviews provide humans with hope of physical or symbolic immortality: where physical is traditional religious understanding of it and symbolic finds its depiction in creation of art, literature, scientific or technical inventions and other ways to overcome bodily limitations and continue life beyond death.

Ongoing death's reminder has an effect on how we view other people and social groups. To cope with paralysing terror caused by awareness of the inevitability of death people use means of psychological defence. For example, they show a more positive attitude towards those who are similar to them and more negative towards those who are different. Research has found that when fear of death is triggered people cling to their cultural beliefs and rational thinking tends to weaken, national beliefs become less flexible and more dogmatic. The mortality salience hypothesis explains described behaviour, it states that when people are reminded of death they momentarily or temporarily experience an increasing need for affirming their cultural worldviews.

The earliest study done on the silence of mortality was the famous experiment with municipal court judges [3]. It is generally accepted that judges have a very clear set of values as part of their worldview which is upholding the law. Nevertheless, when judges that were reminded of death and a control group (not reminded) were asked to set a bond for a hypothetical alleged prostitute, their decisions varied significantly. Mortality silent judges recommended an average bond of $455 and the control subjects recommended an average of $50. In order to evoke death terror, it was enough to ask subjects what would happen to them when they physically die. Though it has been shown in more recent studies that it is possible to produce similar results by flashing the word death on a screen quicker than the person is able to register.

Other studies have shown that mortality salience appears to increase in-group favouritism, rejection of those who are different and authoritarian tendencies. For example, German students reminded of their death will sit further away from Turkish people in a waiting room [4]. Similarly, mortality salience led Christian students to more positive perceptions of fellow Christians and to more negative of a Jewish person [2]. Furthermore, after a mortality salience induction, Americans became

more physically aggressive toward other Americans with different political beliefs. Research conducted after the terrorist attack of September 11, 2001 showed a significant increase of support for President George W. Bush and his policies among Americans. Likewise conservative Americans became more enthusiastic about preemptive nuclear and chemical strikes against countries which pose no immediate threat to them. Additionally, Iranians reminded of death were more supportive of suicide bombing and more likely to consider becoming suicide bombers themselves after being reminded of death [5].

However, there are individual features that allow to alleviate mortality salience impact. The most known characteristics are self-esteem and religiosity. Studies have shown that influenced by fear of death, if reminded of the value of compassion people with high self-esteem [6] and internal religious orientation display fewer negative attitudes towards individuals and groups than people with opposite characteristics [7, 8].

Subsequent recreations of the first mortality silence study have shown that harsh treatment of the prostitute induced by mortality salience occurred only when subjects had generally negative attitudes toward prostitution (Rosenblatt et al., 1989). It supports the notion that mortality salience leads to negative reactions to others only if such people violate important aspects of the individuals' own specific world views.

Another psychological trait which has been demonstrated to play an important role is the level of right-wing authoritarianism. In social psychology, the right-wing authoritarian is a personality type that describes somebody who is highly submissive to their authority figures that are perceived to be established and legitimate, acts aggressively against people that are perceived to be sanctioned by said authorities, and is conformist in thought and behaviour (Altemeyer, 1981). People with low and high levels of right-wing authoritarianism have different attitudes towards out-groups. Therefore, the reminder of death can have different effects on them. For example, it was shown that the reminder of death worsens the attitude towards migrants in people with a high level of right-wing authoritarianism, but improves the attitude towards this group in people with a low level of right-wing authoritarianism [9].

Similarly, the research conducted by Moscow High School of Economics has demonstrated that people with a relatively low level of right-wing authoritarianism after being reminded of death demonstrate similar reactions to "friendly" and "hostile-oriented" countries: they express less sympathy, trust and willingness to communicate with its representatives. Meanwhile, people with a relatively high level of right-wing authoritarianism demonstrate different reactions: they express greater sympathy, trust and willingness to communicate with the residents of a "friendly" country, but less sympathy, trust and willingness to communicate with the residents from "hostile-oriented" one [10].

The examples given above make it easy to suggest that whenever events heighten mortality salience (e. g., newspaper accounts of catastrophes or violence in intergroup and interindividual conflicts, military actions, deadly virus epidemics), in-group solidarity, out-group derogation, nationalism, religious extremism, prejudice, discrimination, and intolerance to deviations are likely to escalate. Generally, the findings are consistent with the frequently stated contention [11] that prejudice and

hostility toward those who are different may be a particularly costly means of coping with fears and insecurities.

It is therefore important to examine TMT on a larger scale, as most of the research is conducted on small portions of respondents that are often only representative of students from particular universities. Consequently, it is hard to evaluate social and demographic differences of mortality salience impact on different social groups within a society. In a broad examination TMT helps to predict tendencies in social, economic and political spheres of society. For this reason, terror management theory ought not to be overlooked by social scientists.

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ON THE ISSUE OF THE APPLICATION OF ENERGY SERVICE CONTRACTS

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Abstract. This article describes the method of using an energy service contract as part of reducing energy costs and increasing the productivity of companies. The article provides information about energy service contracts, methods and results of their implementation by the enterprise. Thus, the article provides examples of the legislation of the Russian Federation aimed at implementing such contracts and sanctions in case of non-fulfillment. The article provides information that can help enterprises in determining a strategy in finding a supplier that ensures the execution of an energy service contract, and describes a successful example of the implementation of an energy service contract within the framework of improving the energy efficiency of the Russian machine-building plant "AVTOVAZ".

Keywords: energy service contract, energy efficiency, energy, economy, enterprise, company, provider, "AVTOVAZ".

К ВОПРОСУ О ПРИМЕНЕНИИ ЭНЕРГОСЕРВИСНЫХ КОНТРАКТОВ

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Аннотация. В данной статье описываются методы использования энергосервисного контракта в рамках снижения затрат на энергии и повышения производительности компаний. В статье раскрывается информация об энергосервисных контрактах, способах и результатах их внедрения на предприятия, приводятся законы Российской Федерации, направленные на внедрение таких контрактов и санкций в случае его неисполнения. В статье дается информация, способная помочь предприятиям в определении стратегии поиска поставщика, обеспечивающего исполнение энергосервисного контракта, и описывается успешный пример реализации энергосервисного контракта в

рамках повышения энергоэффективности российского машиностроительного завода «АВТОВАЗ».

Ключевые слова: энергосервисный контракт, энергоэффективность, энергия, экономия, предприятие, компания, провайдер, «АВТОВАЗ».

Energy conservation is an important topic in today's world, since energy consumption is constantly increasing and natural resources are limited. In addition, energy production is often accompanied by emissions of harmful substances, which negatively affects the environment and human health.

However, despite all the advantages of energy saving, its implementation often faces a number of problems. One of the main problems is the high cost of upgrading and renewing equipment that consumes energy. In addition, many companies and organizations do not have sufficient knowledge and experience in the field of energy efficiency, which prevents the introduction of new technologies and methods.

Nevertheless, on the territory of the Russian Federation there are a number of legislative documents in the field of energy efficiency, in particular the Federal Law № 261-FZ of 23.11.2009 "On energy saving and increasing energy efficiency and on Amendments to Certain Legislative Acts of the Russian Federation. It provides recommendations to state and municipal enterprises on what they must do to implement energy efficiency in their facilities. In addition, Article 14 of this Federal Law obliges municipal organizations to have energy saving programs; failure to comply with these requirements is punishable by a fine from 30,000 to 100,000 rubles. All enterprises must undergo an energy audit, as a result of which they must obtain an energy passport. Based on the results of the energy audit, energy-saving programs must be drawn up, in which they must be spelled out:

1. Values of the target indicators.
2. List of energy saving and energy efficiency improvement measures.
3. Information on sources of funding for energy saving and energy efficiency measures.

Further, companies are obliged to conduct an energy inspection at least once every five years, in case of violation of these terms there are fines from 50 000 to 250 000 rubles, inspections are carried out by Rostechnadzor [1].

To solve these problems there is an effective tool – energy service contracts. They allow companies and organizations to reduce energy costs and increase energy efficiency without the need to invest large sums in equipment modernization and personnel training. Energy Service Contracts (ESCs) are contracts between companies and organizations that provide services to reduce energy consumption and improve energy efficiency and their customers. Under an ESC, the service provider agrees to reduce energy costs and improve the client's energy efficiency, and the client agrees to pay the provider according to the terms of the contract.

The concept of an energy service contract is introduced in Article 19, 261-FZ. Also, the energy service contract is regulated by part 3 of article 72 of the Budget Code, which stipulates that for state and budget organizations the price of the energy service contract is determined as a percentage of the cost of energy resources saved. The Decree of the Government of the Russian Federation of August 18, 2010 № 636

("On requirements to the conditions of the energy service contract and on peculiarities of determination of the initial (maximum) price of the energy service contract") specifies requirements to the energy service contract. It must stipulate:

1. Activities to be performed by the contractor of the contract;
2. The amount of savings in ruble terms, which will be achieved;
3. Volume of energy resource consumption – how much energy resources the customer will consume annually;
4. The term of achievement of the stated savings;
5. Amount of payment under the contract, which is set as a percentage of the achieved amount of savings on payment of energy resources;
6. It is obligatory that the contract should spell out the condition on the procedure of transfer to the customer of the right of ownership of the equipment installed under the contract [2].

ESCs work on the principle of sharing risks and benefits between the service provider and the client. The service provider assumes the risk of inconsistency between expected and actual results, while the client receives guaranteed economic benefits from the implementation of new technologies and methods. The service provider conducts an energy efficiency audit of the client, determines the potential for reducing energy costs, and develops a plan of measures to improve energy efficiency. This plan may include installing new equipment, upgrading existing equipment, training personnel, and other activities.

The service provider finances all the costs of implementing the action plan and receives payment for the services from the client after they are implemented and bring economic benefits. USCs allow companies and organizations to reduce energy costs and improve energy efficiency without having to invest large sums in equipment upgrades and staff training. In addition, ESCs help reduce risk for the customer and the service provider because the results of the contract are guaranteed and monitored.

One of the main advantages of ESCs is the reduction of energy costs. By taking steps to optimize their energy consumption processes, customers can significantly reduce their energy costs. This allows them to reduce their operating costs and increase profits.

In addition, the implementation of energy service contracts can help to improve the efficiency of the company. Optimizing processes and using new technology will improve the quality of products or services, increase productivity and reduce production time. This can lead to an increase in the company's profits and strengthen its position on the market.

Another important result of the introduction of energy service contracts is the improvement of the environmental situation. Companies that care about their environmental responsibility can take advantage of this opportunity to reduce their carbon footprint and reduce emissions of harmful substances into the environment. This can lead to a better environmental situation and improve the reputation of the company.

Implementing energy service contracts can also help create a more comfortable work environment for company employees. For example, using efficient air

conditioning systems can help improve indoor air quality and workplace comfort. This can have a positive impact on employee health and productivity.

Finally, the implementation of energy service contracts can help to reduce risks and increase the reliability of the company. The use of new technologies and equipment can help reduce the likelihood of accidents and system failures [3].

Energy service contracts are an effective tool for reducing energy costs and improving the efficiency of companies and organizations. They allow reducing risks, getting guaranteed economic benefits and increasing competitiveness. Energy service contracts can include a variety of services aimed at reducing energy costs and improving the efficiency of companies and organizations. Some of them are:

1. Energy audit. The service provider analyzes the company's energy consumption and identifies opportunities to reduce energy costs;

2. Installation of new equipment. The service provider can install new equipment that uses less energy or is more efficient;

3. Upgrading existing equipment. A service provider can upgrade existing equipment to increase efficiency and reduce energy costs;

4. Process optimization. The service provider helps the company optimize production and management processes to reduce energy costs;

5. Personnel training. The service provider can train the company's staff on how to use the equipment properly and use energy efficiently;

6. Energy management. The service provider can provide energy management services to reduce energy costs and improve company efficiency;

7. Monitoring and control. The service provider can monitor and control the company's energy consumption to identify opportunities to reduce energy costs [4].

The services included in energy service contracts depend on the needs of the company and can be individually selected by the service provider. Choosing the right energy service provider is a key step in the process of optimizing energy costs and improving company efficiency. In order to choose an effective energy service contract implementation plan and the right provider, you need to properly identify your needs. Before you start looking for an energy service provider, you need to determine what specific services your company requires. This will help narrow down the right providers. When choosing a service provider, you need to make sure that they are qualified and certified to provide the services. For example, an energy service provider must be ISO 50001 certified. When choosing a service provider, you need to make sure that they provide warranties for their services and perform quality control. This will help ensure that the services provided are of high quality and protect the company from possible risks.

A successful example of the implementation of an energy service contract in Russia is one of the country's largest car manufacturing plants "AVTOVAZ", which under this contract has implemented the optimization of the heating system, installed a capacity correction system, set up compressed air production and upgraded the lighting system. This process allows the plant to save more than 100,000 MWh/year in electricity and more than 245,000 Gcal/year in heating. More detailed information on optimization of plant "AVTOVAZ" is presented in Figure [5].
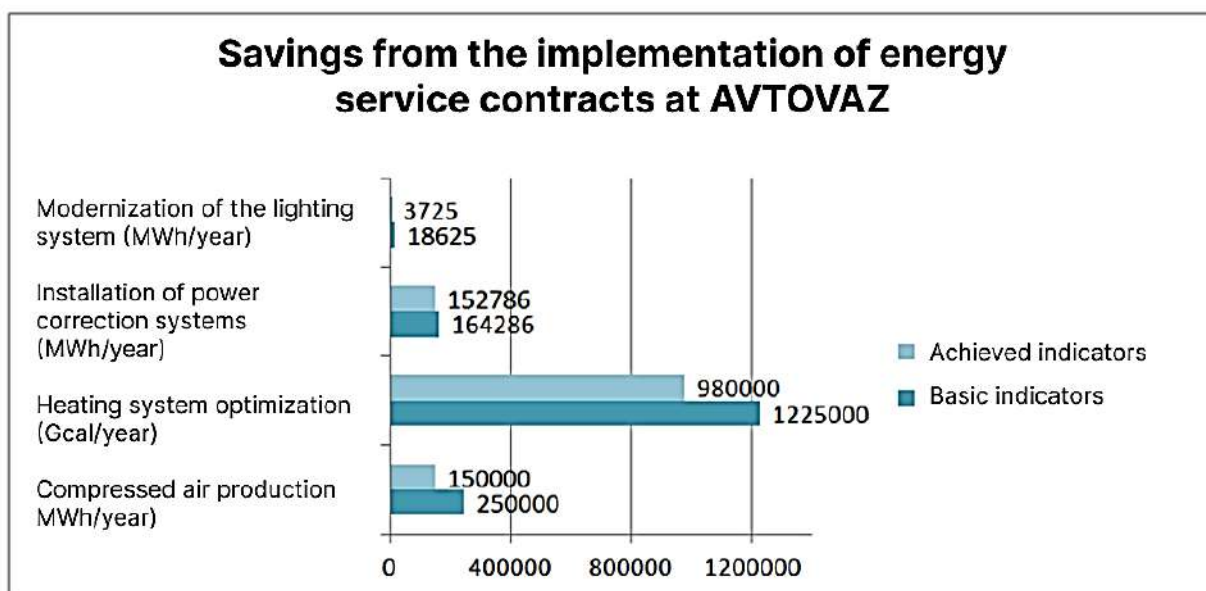
Figure. Details of "AVTOVAZ" plant optimization

In general, the introduction of energy service contracts can lead to many positive results for the company, including reduced energy costs, increased efficiency, improved environmental conditions, creating a more comfortable working environment for employees and reducing risks and increasing the reliability of the company.

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ATTRACTIVE DESIGN AS AN INTEGRAL PART OF ANY MODERN PRODUCTION

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Abstract. This paper focuses on the role of design in modern manufacturing and its impact on consumer engagement. The paper looked at examples of successful companies such as Apple, Nike, and Airbnb, which use design to create unique brand elements and user-friendly interfaces for users. However, examples of unsuccessful design decisions that led to the deterioration of the brand image were also considered. The paper offers recommendations on how to use attractive design in modern production.

Keywords: design, production, consumers, brand, interface, companies, Apple, Nike, recommendations, audience, minimalism, uniqueness, research, technology.

ПРИВЛЕКАТЕЛЬНЫЙ ДИЗАЙН КАК НЕОТЪЕМЛЕМАЯ ЧАСТЬ ЛЮБОГО СОВРЕМЕННОГО ПРОИЗВОДСТВА

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Аннотация. Данная статья посвящена роли дизайна в современном производстве и его влиянию на привлечение потребителей. В работе рассмотрены примеры успешных компаний, таких как Apple, Nike и Airbnb, которые используют дизайн для создания уникальных брендовых элементов и удобного интерфейса для пользователей. Однако также были рассмотрены примеры неудачных решений в дизайне, которые привели к ухудшению имиджа бренда. В работе предложены рекомендации по использованию привлекательного дизайна в современном производстве.

Ключевые слова: дизайн, производство, потребители, бренд, интерфейс, компании, Apple, Nike, рекомендации, аудитория, минимализм, уникальность, исследования, технологии.

In today's world, design plays a huge role in production, as it is one of the key factors determining the success of a product on the market. Attractive design attracts the attention of consumers, evokes positive emotions and increases brand loyalty. In this regard, the choice of the topic "Attractive design in modern production" is relevant and important for research [1].

The purpose of this article is to study the role of attractive design in modern production and its impact on sales and company reputation.

To achieve this goal the following objectives were set:

1. To study the definition of attractive design and its role in modern production;

2. To consider the elements of attractive design and their influence on the aesthetic perception of the product;

3. To study the process of creating an attractive design, the roles of participants in the process and tools for its creation;

4. To investigate the impact of attractive design on sales and company reputation, to give examples of successful design implementations and cases of how improper design can damage a brand.

To write this article, a literature review was conducted on the topic. Scholarly articles, books, and publications on engaging design and its role in modern manufacturing were reviewed. The review revealed that attractive design is one of the key factors for the success of a product in the marketplace. It is able to attract consumers' attention, evoke positive emotions and increase brand loyalty. Attractive design elements such as colors, shapes and lines, textures and materials, as well as lighting and shadows, play an important role in the aesthetic perception of a product.

Examples of successful design implementations in different industries, such as the automotive and furniture industries, were also examined, as well as case studies on how improper design can hurt a brand. Tools and techniques for creating compelling design were discussed.

The definition of "attractive design" can vary depending on the context, but it usually means design that attracts attention and evokes positive emotions in consumers. Attractive design can be related to various aspects of a product, such as shape, color, texture, materials, etc. It is important to note that attractive design is not only aesthetically pleasing, but can also increase the functionality and usability of a product.

The role of design in modern manufacturing cannot be overstated. Design is a key factor in the success of a product in the marketplace. In modern manufacturing, designers work together with engineers and marketers to create a product that is pleasing to consumers and effective to use.

Examples of successful design implementations can be found in various industries. For example, the automotive industry is known for its beautiful and functional cars, such as the Tesla Model S and Audi A7. There are also many examples of attractive designs to be found in the furniture industry, such as Eames chairs and Le Corbusier sofas. Design also plays an important role in the field of technology, for example, in Apple products such as iPhone and MacBook.

In general, successful implementations of design are characterized by an excellent combination of aesthetic appeal and functionality of the product, and often

there can be a situation where design depends on more than functionality, the same Apple smartphones, not being the best devices among other smartphones every year are in great demand, in particular because of their unique and recognizable design. An example of effective and attractive design on the example of Apple smartphones are shown in Figure [2].

Figure. An example of effective and attractive design

Color is one of the most important aspects of an attractive design. Colors can evoke different emotions in consumers and influence their purchasing decisions. For example, red can evoke feelings of passion and energy, while blue can feel calm and reliable. Attractive design usually uses harmonious color combinations that create a pleasing visual impression.

Shapes and lines also play an important role in an attractive design. They can create motion effects, direct the consumer's gaze, and create an impression of the product's character. For example, round shapes can create a sense of comfort and safety, while sharp angles can create an effect of strength and dynamism.

Textures and materials can also affect a product's appeal. They can create a sense of luxury, naturalness or innovation. For example, products made from natural materials such as wood or leather can create a sense of luxury and high quality, while products made from modern materials such as plastic or metal can create a sense of innovation and modernity.

Lighting and shadows can also create effects and influence the appeal of a product. They can highlight certain parts of a product and create volume and depth. For example, the right lighting can emphasize the shape and texture of the product, and shadows can create a three-dimensional and dynamic effect [3].

In general, an attractive design should combine all of the above aspects in order to create a product that is attractive to consumers and effective to use.

During the development of a design project for a particular product, production can go through a huge number of stages of its development in order to eventually get the product, which will be positively perceived in the market. These stages can be summarized as follows:

1. Research and analysis: this stage involves studying the target audience, competitors, trends in the industry and other factors that may influence the creation of the design.

2. Conceptualization: at this stage, ideas and design concepts are created, which correspond to the goals and objectives of the project.

3. Layout creation: at this stage, an initial design layout is created to visualize the concept and assess its workability.

4. Design development: at this stage, the design is detailed, including colors, shapes, textures, lighting and shadows.

5. Testing and adjustment: at this stage, the design is tested on the target audience and adjustments are made according to the test results.

6. Implementation: the final implementation of the design takes place in this phase, including the creation of the necessary files and materials for print or web placement [4].

In the development of design, in addition to the customer is involved a huge number of experts of different structures, each of them has its own specific roles:

1. The customer: defines the goals and objectives of the project, as well as the requirements for the design.

2. Designer: creates a design based on the customer's requirements and taking into account the goals and objectives of the project.

3. Copywriter: creates texts that meet the design and project goals.

4. Project manager: coordinates the work of all participants in the process and ensures the timely completion of tasks.

Technology has stepped forward a few steps and few of today's designers are still wielding brushes and paints, most of them have long since moved to digital tools. To create an interesting visual, you may need a huge variety of software, each of which is designed for some narrowly focused activities of a modern artist, for example:

1. Graphic editors: Photoshop, Illustrator, Sketch, Figma, and others.

2. 3D modeling: 3ds Max, Blender, Maya, and others.

3. Programs for creating animation: After Effects, Cinema 4D, Flash, etc.

Tools for prototyping: InVision, Axure, Proto.io and others.

7. Internet services for file sharing and collaboration: Dropbox, Google Drive, Trello and others.

Research shows that design has a big impact on consumers and can influence their decision to buy a product or service. For example, a study by Adobe found that 38 % of users stop interacting with a website if the design doesn't grab their attention. Additionally, 48 % of users believe that design is the most important factor in evaluating a website's quality.

Examples of companies that have achieved success through design:

1. Apple is a company that is known for its unique product design. Its products have a minimalist and simple design that provides ease of use and attracts consumers.

2. Nike is a company that uses design to create unique brand elements, such as logo and slogans, ultra-modern footwear models. These elements help create a recognizable brand and attract consumers.

3. Airbnb is a company that uses design to create a user-friendly and attractive interface. This helps to attract more customers and make the service easy to use.

Incorrect presentation of this or that design idea can lead to complete failure, up to complete neglect of the brand in the market and huge financial losses. Case studies on how improper design can damage a brand:

1. Pepsi – in 2008 Pepsi introduced a new logo, which caused a negative reaction from consumers. The logo was too similar to the logo of a competitor, Coca-Cola, which caused criticism and negative attitude towards the brand.

2. GAP – in 2010, GAP introduced a new logo, which was too simple and did not evoke emotions in consumers. The company quickly brought back the old logo to avoid damage to the brand.

3. Tropicana – In 2009, Tropicana introduced a new packaging design that consumers did not like. The new design was too simple and did not evoke emotions in consumers, which led to a decrease in sales and damage to the brand [5].

Having studied the materials accompanying this article, I can make recommendations for the use of attractive design in modern production:

1. Research the needs and preferences of your target audience to create a design that appeals to them.

2. Use a minimalistic and simple design that is user-friendly and engages consumers.

3. Create unique branding elements, such as logos and slogans, that help create a recognizable brand and appeal to consumers.

4. Provide a user-friendly and attractive interface for users to attract more customers and ensure that the product or service is easy to use.

Further research can focus on the impact of design on different types of products and services, as well as the impact of design on different cultures and regions. In addition, new technologies and trends in design, such as virtual and augmented reality, can be explored and their impact on consumers can be investigated.

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ARTIFICIAL INTELLIGENCE IN LEARNING AND PRACTICE: RISKS AND OPPORTUNITIES

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Abstract. This article describes the application and importance of artificial intelligence nowadays. The paper highlights the use of neural networks by students in education and professional practice. Also, special attention is paid to the risks and opportunities associated with the implementation of modern technologies in contemporary life.

Keywords: artificial intelligence, neural network, education, professional practices, modern technologies, risks and opportunities.

ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В ОБУЧЕНИИ И ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ: РИСКИ И ВОЗМОЖНОСТИ

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Аннотация. В данной статье описывается применение и важность искусственного интеллекта в настоящее время. Делается упор на использование нейросетей студентами в обучении и профессиональной деятельности. Также особое внимание уделено рискам и возможностям, которые связаны с внедрением современных технологий в жизнь.

Ключевые слова: искусственный интеллект, нейросеть, обучение, профессиональная деятельность, современные технологии, риски и возможности.

Artificial intelligence is one of the most important and promising technologies of our time. Today its use is widespread in many areas, including education and professional activities. The use of AI can speed up and simplify tasks, improve the quality of work and increase productivity. However, there are also potential risks and challenges associated with its use, which generally can affect the quality of life and society.

What is artificial intelligence or neural networks? It is a system that can mimic human behavior in order to complete tasks and gradually learn from the information it collects [3]. The basis for the creation of artificial intelligence was laid by

cybernetics and the first computer architecture created in 1944. As the "young" artificial intelligence evolved the first robots, data analytics systems, and finally machine learning were created.

Why are neural networks so popular right now? Because they began to learn very quickly due to the development of the Internet, equipment upgrades, and an increase in the amount of input data. With this popularity support for further developments also increased. Today, there are many paid and free AI for various purposes, and in various forms: in the form of a chat, a digital assistant, a constructor, and etc. The most popular today is Chat GPT, which was launched at the end of 2022; in January 2023, the platform set a new record of 100 million new users, making Chat GPT the fastest growing platform [1]. Today, many AIs, such as Chat GPT, are not available in Russia due to the geopolitical situation, but students find ways and use this platform for education and in their professional practices.

Speaking about Russian artificial intelligence, from September of 2022, the National Center for the Development of AI under the Government of the Russian Federation was launched [2]. Technologies are created and applied in the field of medicine (more than 45 platforms based on AI), agriculture, IT and many others have been created; however, there are no technologies for direct introduction into the educational process and the possibility of free use of technology today.

Today the use of neural networks both in education and in practices is a natural course of digitalization, so today AI can be used in all areas: from composing music to driving a car. Today it is possible in a few minutes to create a lesson program for any subject at the university, generate assignments for students, and check their work. It is also possible to pass a test with the help of AI for the maximum score, write a term paper or thesis in a few hours, and much more. Although the possibilities of use in AI are limited today, they are becoming wider and wider every day.

AI today can already do almost anything at the human level and even better. Moreover, many of these things have always been perceived by us as something that only a person can do: that it needs creativity, imagination, knowledge of the human psyche. However, in recent times, many things that people used to believe in have been refuted. AIs beat a person in the game Diplomacy [4], which is based not on the calculation of options, but on knowledge of human psychology and the ability to convince: even such skills are subject to computers. Naturally, with the development of AI, many professions will be replaced and there is a risk of mass retraining in all areas of life.

Most experts note that we are on the verge of creating General Artificial Intelligence: a kind of digital assistant who can think and act like a person in various areas of life and professional activity. It is also noted that behind this we are waiting for the creation of Super AI: intelligence with self-awareness and the possibility of self-improvement. The jump can happen almost instantly. Therefore, many experts, such as Eliezer S. Yudkowsky, an AI security specialist, are extremely worried about the insanely fast development of this technology. The concern is not unfounded, because today there is "the global race for AI" [5] – the race of the USA and China, large IT companies for the creation of "the best and ideal" AI, which can lead to security gaps, inaccurate algorithms and to the onset of one of the worst scenarios. It

is also worth mentioning the risks in the field of intellectual property: laws do not restrict the use of AI in education or work, since there is no general understanding of the ethical side of the issue: should teaching AI and generating new ideas be considered plagiarism or creativity? This question remains open.

The current generation of students is and will be the main consumer of this technology, promoting and instilling in the next generations the need and dignity of its use. It was important to understand what percentage of people already use technology in education and work, how often, in what areas, and what students think about the opportunities and risks of AI. Therefore, it was necessary to conduct a quantitative study. We interviewed 70 students from various faculties and courses from cities in central and northwestern Russia. A hypothesis was put forward that at least 30 % of students use AI today in their education or professional activities, but their understanding of the opportunities and risks is extremely narrow.

According to the study, about 75 % of students used AI; at the same time, about 60 % of them use technology on an ongoing basis (several times a week or a month) in education and 45 % in professional activities; 75 % of unemployed students would like to implement the permanent use of AI. Neural networks (Chat GPT and etc.) are used by 98 % of respondents, other neural networks (DALL-E, Midjourney and others) by 45 %. The use of AI by students in various fields is shown in Figure 1.
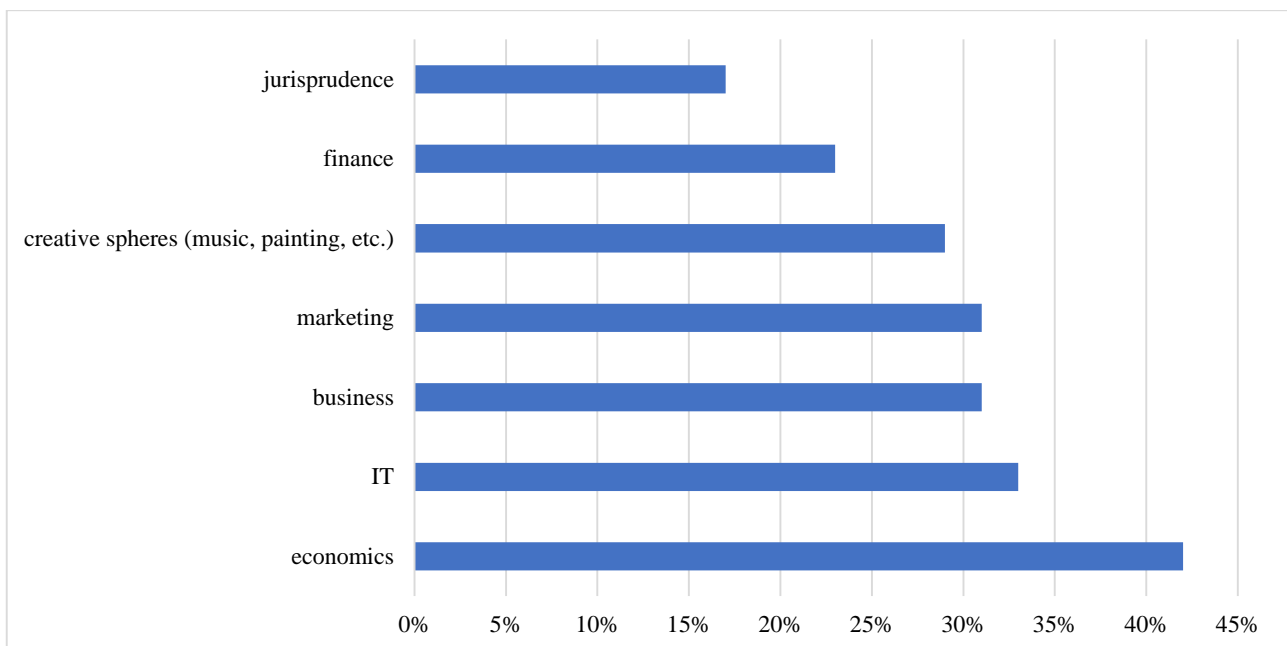
Figure 1. Using of AI by students in various spheres

Also, students are sure that the use of AI is impossible in some areas: the results are presented in Figure 2.
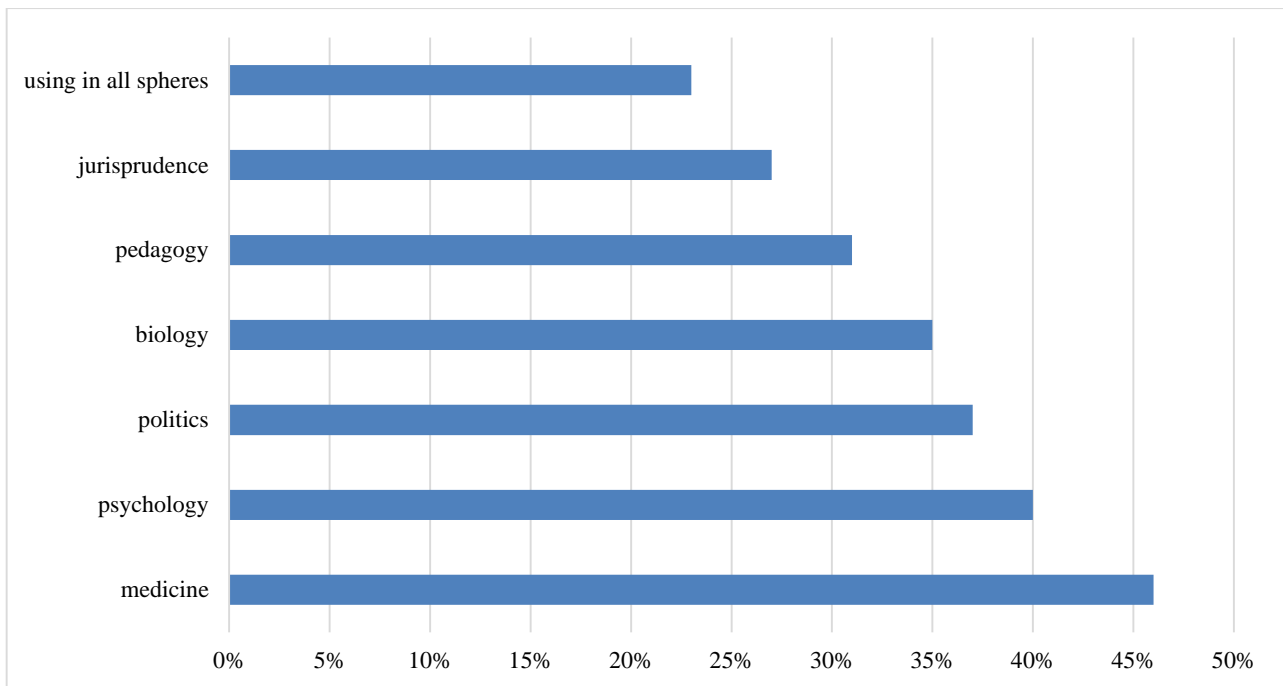
Figure 2. The impossibility of using AI in various fields in learning and practice, according to students

It can be seen that students believe that the use of AI is impossible in the natural sciences, while technology is widely used in technical sciences and part of the social sciences and humanities. As noted earlier, today the use of AI is successfully used in almost all areas of life, so we can conclude that students are not sufficiently aware of the possibilities of AI.

The majority of students (73 %) do not notice the formation of psychological dependence. Significant increase in experience and notable work experience 60 % of people; a third of respondents have a positive or very positive attitude towards the use of AI.

Speaking about the benefits, most students note the automation of routine tasks and time for creativity at work (87 %), increased productivity (52 %), and quick completion of the task (29 %). Young people have faced such problems or are afraid of such risks as: errors and imperfections of algorithms and artificial intelligence systems (79 %); dependence on technology and loss of control over processes (44 %); threat to data privacy and confidentiality (33 %).

About half of students expect that the use of AI in education and professional practices will lead to: improved quality of education and practice; the use of technology is general and comparable to the Internet today; increasing opportunities for the creation and development of new technologies. Also, 80 % of students believe that it is necessary to conduct trainings on the use of AI in education sphere.

Based on the results of the survey, it can be argued that the research hypothesis was partly confirmed: students are familiar with AI, but do not always understand how and in what areas it can be applied in their studies and work. However, 75 % use this technology, more than half of the students use it on a regular basis.

Thus, the use of artificial intelligence in education and practices has great potential, but also presents certain challenges. Students understand opportunities of

AI in improving productivity and competitiveness, however, due to the risks of error and fear of losing control and dependence on this technology, students justifiably use AI with caution. It is important that educational institutions pay attention to teaching students how to use AI and understanding its application in various fields, taking into account the ethical and social aspects of the use of AI. Indeed, it is necessary to analyze the risks of imperfection of algorithms and the everyday evolution of neural networks with diverse ways of using them in education and professional activities.

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KEY PROBLEMS AND FEATURES OF ORGANIZING RHYTHMIC GYMNASTICS CLASSES FOR ADULT AMATEURS

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Abstract. In the research the question of the relevance of amateur sport and its new direction – rhythmic gymnastics for adult amateurs is under consideration. The main issues, which exist in the researched field, are given, arising from the building of the training process of adult athletes, in particular; proposed recommendations for the effective organisation of training for the indicated audience; the substantiation of the inclusion of the competitive component in the training process is given.

Keywords: amateur sport, rhythmic gymnastics, physical training, amateur athletes, theories and principles of sport, training process, Strategy 2030.

КЛЮЧЕВЫЕ ПРОБЛЕМЫ И ОСОБЕННОСТИ ОРГАНИЗАЦИИ ЗАНЯТИЙ ПО ХУДОЖЕСТВЕННОЙ ГИМНАСТИКЕ ДЛЯ ВЗРОСЛЫХ-ЛЮБИТЕЛЕЙ

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Аннотация. В исследовании рассматривается вопрос актуальности любительского спорта, а также его нового направления – художественной гимнастики для взрослых-любителей. Приводятся основные проблемы, существующие в данной сфере, в частности, возникающие при выстраивании тренировочного процесса взрослых спортсменок, предложены рекомендации по эффективной организации занятий указанного контингента, приведено обоснование включения соревновательной составляющей в тренировочный процесс.

Ключевые слова: любительский спорт, художественная гимнастика, физическая культура, спортсмены-любители, теория и методика спорта, тренировочный процесс, Стратегия 2030.

In recent years amateur sport has become increasingly popular, as people involved in physical training and sports want not only to improve their health and maintain good physical shape, but also to participate in competitions in order to

achieve certain sports results. Thanks to the developmentof amateur sport, it becomes possible to increase the interest of adult population to physical training and sports. In its turn it is relevant in the frame of the Strategy of the development of physical training and sports in Russian Federation by 2030. The target indicator of the Strategy is to involve 70 % of the population in the field of physical training and sports by 2030 [1].

Rhythmic gymnastics for adult amateurs is an innovative direction of amateur sport and, in particular, rhythmic gymnastics. Analysing the development of rhythmic gymnastics for amateurs, it is necessary to settle on the statistical indicators for the development of rhythmic gymnastics in Russian Federation as a whole. According to the statistical reporting in the form 1-FK of the Ministry of Sports of the Russian Federation, the number of rhythmic gymnasts is constantly growing. In Figure 1 the data on the number of people doing rhythmic gymnastics from 2020 till 2022 are represented [2, 3, 4].
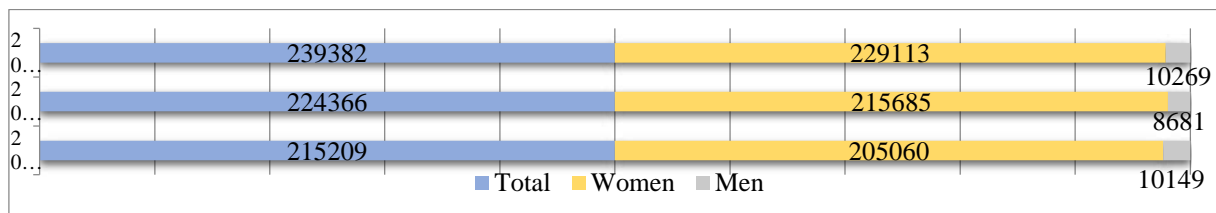
Figure 1. The number of rhythmic gymnasts in Russian Federation from 2020 till 2022

It can be concluded, that since 2020 the total number of rhythmic gymnasts in Russian Federation has been increased by 24.173 people.

However, nowadays, from the point of view of physical training, modern rhythmic gymnastics is characterised by extremely high requirements for the coordination and amplitude of movements of athletes, which is fundamentally possible to demonstrate to few ones [5]. Rhythmic gymnastics, originally conceived, as a means of harmonious physical development of women, is losing its mass character, becoming an elite sport, in which the tendency to the highest possible sports result prevails [6]. In this case, rhythmic gymnasticsfor amateurs is considered to be an alternative to sports longevity of adult gymnasts, as well as for practicing it by women who have not done gymnastics before, taking into account their physiological characteristics, degree of emotional maturity, needs for self-expression through motor activity and the level of technical and physical preparedness. The age of athletes is not limited, the main audience, considered by the authors, are women aged from 21 to 35 years, which, according to the accepted age periodisation, corresponds tothe first mature age [7, 8, 9].

Nowadays the issue of organising trainings for adult amateur athletes has not studied yet. We would like to single out currently existing key problems of rhythmic gymnastics for amateurs.

1. A small number of organisations offering rhythmic gymnastics trainings for adults and relatively small occupancy of groups in clubs.

Currently, a fairly small share of population is informed about trainings in rhythmic gymnastics for amateurs. As a result, for example, tournaments in rhythmic gymnastics for amateurs are conducted only some times a year, which deprives adult athletes of the opportunity to fully realise their potential. Many women hesitate to attend trainingsdue to the lack of information on organisations of trainings. As a result, many opening clubs cannot compete with other directions for adults. It confirms the necessity for conduction a work on informing potential newcomers, who have had no experience in sport before, about the peculiarities of the training and competitive process in order to reduce their uncertainty and form motivation to start rhythmic gymnastics.

2. Problems with creation of conditions for organising training process.
Many sport clubs have to conduct training process in premises, inconsistent with the requirements of the chosen sport. Even in large cities, there is an acute shortage of gyms, as well as their inaccessibility and high cost. Trainings in smallgyms have a significant negative impact on the level of preparedness of gymnasts and the quality of their performance at competitions.

3. Frequent lack of understanding among the leaders of organisations of well-managed goals of existence of rhythmic gymnastics for amateurs.
Not all leaders and coaches understand the goals that they face conducting the training process of adult athletes. Rhythmic gymnastics for amateurs should be developed as sport, first of all, which supposesparticipation in competitions and other mass events. As the experience shows, most athletes start training in order to achieve certain results. The study of the elements of rhythmic gymnastics and methods of working with objects turns out to be futile for many if there is no way to apply the acquired knowledge and skills in practice in the future. [10].

To confirm the above, a questionnaire of adult amateur athletes was conducted in order to identify the reasons why athletes start to compete (Figure 2). In the frame of the questionnaire, the respondents could choose multiple answers.
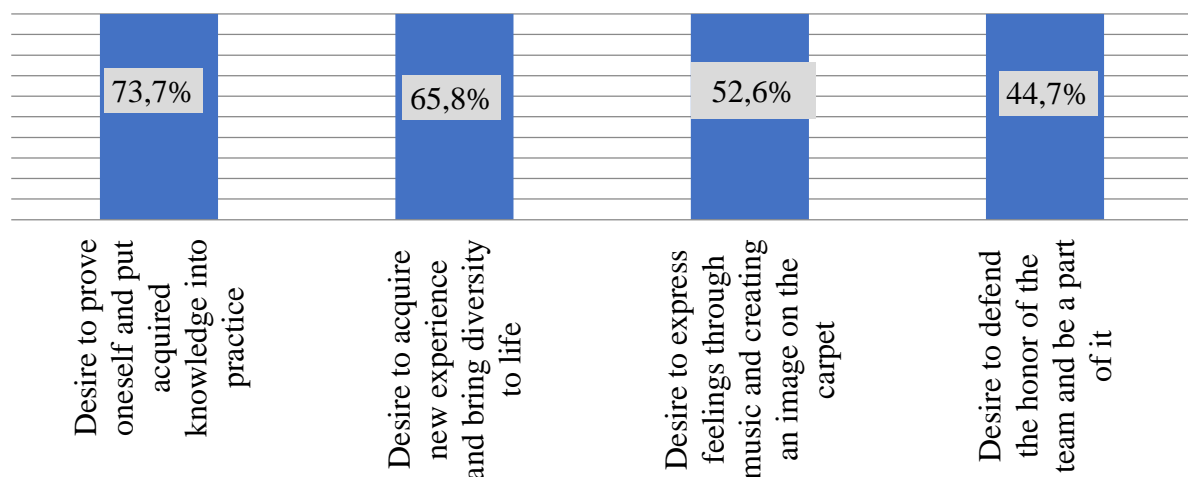
Figure 2. Reasons, which encourage adult athletes to participate in competitions (%) (n = 40)

It can be seen that competitive activity is an integral part of the educational and training process of adult amateur athletes. Competitions add emotional richness to the training process and allow to demonstrate the acquired skills and maintain the interest of adult athletes in rhythmic gymnastics [11].

4. The lack of justificationof methodology for preparing for competitions of gymnasts who start rhythmic gymnastics as adults and have different level of physical and technical preparedness, taking into account their different previous experience in physical training and sports.

In training practice, learning physical actions is not optimal. Low-quality of learning of physical actions technique, forced development of physical abilitiesand accelerated inclusion of physical actions in competitive programs lead to strengtheningof mistakes in the structure of physical actions, low competitive results and high probability of getting injures by amateur athletes. In addition, training process of adult athletes is often deprived of diversity, which leads to a state of monotony among athletesand, consequently, to a decrease of interest in training process, fatigue and nervousness, and a negative attitude towards training loads [12].

The authors offer the following recommendations for organising the training process of adult amateur gymnasts:

1. The load should be regulated taking into account age characteristics and the level of physical training of athletes. Loads and requirements should be increased gradually, while strictly observing their variability in direction and intensity in order to prevent physical and emotional stress [9].

2. It is necessary to select educational materialcarefully, excluding one, that can harm athletes [13]. Thus, elements of excessive flexibility, stretching with the help of a partner or a coach should be excluded from the training program, as it can lead to muscle microtrauma, ligamentous instabilityand joint damage. Recent studies also prove that long-term continuous use of static stretching during training process affects negativelymuscular performance, increases the time of simple and complex reactions, and can negatively affect athletic technique and strength endurance [14].

3. It is necessary to maintain the interest of athletes in training with a variety of exercises and alternate means in weekly cycles. Promising is both to include the use of apparatus in the program of warm-ups and to prepare apparatus lessons that include groups of physical actions similar in technique, based on the principle of positive transfer of skills.

Thus, the conducted research demonstrates the necessity to popularise the direction of rhythmic gymnastics for adults and correct the training process in existing organisations. It should be noted again that the most important task of specialists is to search for such forms of trainings that would both have a beneficial effect on health, provide all-round developmentof physical abilities, and be attractive and meet the interests and needs of athletes [15].

Thanks to the developmentof rhythmic gymnastics for amateurs the share of population systematically engaged in physical training and sport will be increased.

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INTERCULTURAL COMMUNICATION IN COUNTRIES OF SUB-SAHARAN AFRICA: CHALLENGES AND PERSPECTIVES

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Abstract. The paper examines and describes key challenges to intercultural communication in countries of Sub-Saharan Africa, their nature and origin. In addition, the article provides information on how these problems affect the region, along with the actions already being taken to solve them as well as the different perspectives for the future of Africa.

Keywords: intercultural communication, Africa, languages, colonialism, integration, economic cooperation.

МЕЖКУЛЬТУРНАЯ КОММУНИКАЦИЯ В СТРАНАХ АФРИКИ ЮЖНЕЕ САХАРЫ: ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ

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Аннотация. В данной работе рассматриваются современные проблемы межкультурной коммуникации в странах Африки Южнее Сахары, их происхождение и сущность. Кроме того, в статье описывается влияние этих проблем на рассматриваемый регион, упоминаются предпринимаемые для их решения действия, а также отмечаются перспективы для будущего Африки в случае их преодоления.

Ключевые слова: межкультурная коммуникация, Африка, языки, колониализм, интеграция, экономическое сотрудничество.

The region of Sub-Saharan Africa appears to be particularly interesting when researching the phenomenon of intercultural communication. The reasons for it are many and they are directly connected with historical past, hundreds of languages that may exist in one region, political climate, etc. It is important to mention that this interest is not purely scientific. Africa as a whole is a very resource-rich continent. Gold, oil, platinum, natural gas, and that is only speaking of minerals, are a few of what can be found and, more importantly, exported from Africa. It was one of the reasons for its colonial exploitation. Nowadays, Africa has once again become a battlefield for different world powers to assert their influence. However, for countries

of Sub-Saharan Africa to become successful economic and political partners, many things must be improved upon, one of which being intercultural communication. Therefore, in many "developed" countries we can observe the rise of African studies, with particular interest in intercultural communication.

The goal of this article is to analyze the main challenges to intercultural communication in Sub-Saharan Africa as well as to state which actions can be and have already been taken to solve them.

To better understand the nature of this article, it's important to establish what the term "intercultural communication" means, as it will be one of the focal points of further discussion. One of the many definitions of this term gives the following explanation to its nature: "[Intercultural communication] Loosely, an umbrella term for interaction between people from different cultural or subcultural backgrounds intended to lead to shared understandings of messages" and "in discourses where cross-cultural communication refers to entire cultures, intercultural communication may be restricted to interpersonal communication between individuals from different cultures and intracultural communication to that between individuals with a shared cultural background" [1]. Both of these definitions were taken from the Oxford Dictionary. As we can see, intercultural communication can usually be seen between groups of people from different cultures, however it can sometimes be observed on a much bigger scale, when whole cultures are concerned, or a much smaller one, when interactions happen between two people. In addition, in some cases, interaction between people who share some parts of their cultural background can also be put down under the intercultural umbrella.

However, it's vital not just to give the definition of intercultural communication, but to state what it is composed of. The essence of it is directly tied to the concept of culture. Any group of people that possess one, can have the following characteristics [2, p. 1-2]:

– attitude towards oneself and their surroundings. Different cultures have varied views on comfort zone, ways of greetings, reactions to cultural blunders, etc.;

– language. One of the most obvious factors to the hinder of human communication, nevertheless must always be taken into account, as not only each country has its own language, but there can be variations of one, of dozens existing on a small territory;

– ways of expression. Each culture has their own attitude towards what tone to use in a conversation, how to dress and what to wear to certain events;

– national cuisine is also not restricted to the concept of nationality, as many different cultures, which may coexist in one nation, may have different foods and dishes;

– attitude towards time and its perception. Some cultures view time as a strict thing, which must be regulated by preexisting plans and schedules, while others perceive it as a freer thing;

– religious beliefs, one of the more heated topics nowadays. It is directly tied to many aspects of one's culture, ranging from historical past to perception of foreigners and attitude towards business;

– attitude toward work, education, relationships;

– in many cases even the historical past of certain people may have an effect on their culture, whether it be from how they view people from particular parts of the world or their work ethics and political culture.

The list given isn't even close to covering every component that the concept of "culture" consists of. However, it shows perspective to just how big of a part "culture" plays in our lives, whether we realize it or not. The concept of "intercultural communication" appears when two such cultures face each other and are forced to interact.

To better understand the challenges of intercultural communication in countries of Sub-Saharan Africa themselves, it is important to address the complexities of this region.

Sub-Saharan Africa consists of 50 countries and 4 big regions, them being: Central, East, South and part of West Africa. These countries have more than a 1000 spoken languages [3, p. 62-63, 86] and more than 1000 tribes living on their territory. Such plurality brings a lot of challenges to intercultural communication, and rightfully so.

Let us take a look at components of intercultural communication and practical examples of them in concrete regions of Sub-Saharan Africa. As was mentioned before, there are more than 500 languages in Sub-Saharan Africa, however the problem is even more complex than it may seem. Let us take a look at the region of West Africa.

The languages that are spoken in West Africa can be roughly divided into two groups. First being different native languages and second – languages left over from the times of colonization. In terms of native languages in West Africa there can be observed 3 out of 4 language families of the continent [3, p. 62-63]:
- Afro-Asiatic group, consisting of roughly 350 languages;
- Nilo-Saharan family extending past Sahara. It consists of around 200 languages;
- Niger-Congo family. Being the largest, it covers more than a half of the African continent and consists of different sub-groups, including by itself more than 500 languages.

The problem with languages in Africa is more complex than just the vast amount of them, as these are only the officially recognized languages. For example, in Nigeria, the biggest country of West Africa, spoken languages can be further divided into 3 groups [4, p. 49]: A) being the ones that are recognized by the government and spoken by a majority in West Africa itself, B) the ones officially recognized, but not spoken by many and C) the ones that are not officially recognized. Nigeria has more than 500 languages officially recognized by the government, only 3 of which fall into first category, them being Hausa, Yoruba and Igbo [4, p. 49]. However, if that was not enough, West Africa can be further divided by a second language factor – whether a country is English or French speaking. According to "Organisation internationale de la Francophonie (OIF)", out of 200 million of people who speak French daily 50 % of them live in Africa [5]. In terms of West Africa – 9 out of 15 counties have French as their official language, which brings a different set of problems.

It is assumed that ex-colonial languages are easier to teach and that they unify people. However, forcing their learning in schools instead of the native languages only hinders the education process, but also has other lasting consequences. For example, it leads to a crack in understanding between rural and urban areas, as the first tend to use their micro-languages, whereas the second use the ex-colonial (macro) ones. Another case of harmful effects of such policies, is when parents in French speaking countries send their children to English speaking ones, purely for the language of studying. This leads to worsening of political climate in host countries, as these children are rarely properly accommodated, as well as lasting intergenerational consequences. In addition, it is important to mention a particular problem of refugees in Africa. Later on, problem of constant armed conflicts would be discussed, however now it is important to mention in connection with national language policies. Policy of promoting one language nationwide is not viable in the context of accommodating refugees in different African villages, as they may exceed the amount of native population by thousands [6, p. 539]. In his article "Alternative Contexts of Language Policy and Planning in Sub-Saharan Africa" Tope Omoniy comes to the conclusion that to solve many language problems of the Sub-Saharan region, it is important to implement micro-language policies: "Both macro and micro models can pursue the achievement of the same ultimate goal of facilitating national and human development; the micro model may deliver checks and kicks to galvanize the macro model when the need arises" [6, p. 546].

Another problem of intercultural communication in countries of Sub-Saharan Africa comes from historical past. Year 1960 is called "The Year of Africa", as in that year 17 countries of the continent gained their independence. However, this independence was hurried, metropolitan countries had to let go of the most of their colonies fast. During the colonial rule native people could not get higher education or hold high positions of power, day-to-day life was highly regulated. In addition to that, when countries were given independence, native people were not consulted on the borders. If we look at the modern map of Africa, we will see straight and jagged lines, as if they were drawn with a ruler. Unfortunately, that is too close to what happened. In one moment, people of Africa were left to create stable countries with no prior experience of ruling, no qualified manpower, with production solely based on exporting raw resources. What they did have were armies and broken borders. All of this led to constant conflicts between people of one country and between countries in regions.

Conflicts based on religious, language or ethnical clashes continue into XXI century. Tigray War in Ethiopia started in 2020 and lasted for two years, until 2022. It was between government of Ethiopia and people of Tigray region. During this war many atrocities against human kind took place, such as attacks on civilians, bombings, extrajudicial killings, etc. Country of Central African Republic has long been a battlefield of constant armed conflicts. All of these conflicts and unstable governments are one of the biggest hindrances to Africa's progress as well as a challenge to intercultural communication. Relationship cannot be built on repetitive history of conflict and unsolved issues, so reaching peace and stability is recognized

by the vast majority of African countries as one the main goals for future development.

Language barriers and historical past are some of the most prevalent problems that modern Sub-Saharan Africa faces in terms of intercultural communication. They have existed since the beginning of the independent history of countries, however, for almost as long, Africa has been seeking ways of solving them.

The main tool that was chosen is regional integration. As of now, each region of Sub-Saharan Africa has an organization whose goal is economic integration of its members. In West Africa it is ECOWAS, in South and East it is COMESA and in Central Africa it is ECCAS, as well as the African Union (AU) which unites countries of the whole continent. However, these organizations long ago exceeded their purely economic nature. For example, ECOWAS sees economic integration in creation of free trade and movement zone, which would lead to cultural and political coordination between countries. This is reflected in 2 chapter of its treaty [7]. However, the main actor in encouraging better intercultural communication between countries of Sub-Saharan Africa is the African Union (AU) – the main organization of Africa, uniting 55 countries across the continent.

Through AU policies we can see several trends of solving problems of intercultural communication in Africa. For example, the problem of language. AU is actively implementing various African languages as the official languages of organization, as of now Arabic, English, French, Portuguese, Spanish and Kiswahili (Swahili) have been chosen [8]. However, AU recognizes that the problem of languages is not only about their variety. In the "Continental Education Strategy for Africa. 2016-2025" it is stated that: "Africa is the only continent where the language of instruction is more often than not a foreign language" [9, p. 15], as was mentioned before such a phenomenon not only hinders education process, but brings more misunderstandings and frustration between rural and urban population. To solve this problem, AU plans to promote the use of national languages in education process, while also encouraging reading and writing in them.

AU has many documents that outline the bright future that can only be achieved through the betterment of intercultural communication facilitated by integration. In general, from these documents we can see that the evolution of intercultural communication will lead to economic integration, cultural exchange, political stabilization, cessation of civil wars and armed conflicts at borders. The "Agenda 2063", created by the AU, sets prosperity of Africa and it becoming a key region in Global politics as its main goal. It consists of 7 aspirations, each of them has their own sub-goals and areas of priority. Most of them cannot happen without active efforts in the field of promoting and establishing intercultural communication, especially the aspiration (2): "An Integrated Continent Politically united and based on the ideals of Pan Africanism and the vision of African Renaissance" [10].

Improvement of intercultural communication is also important from the standpoint of different companies and countries oversees. As was mentioned in the beginning of the article, Africa is a very recourse-rich continent with cheap manpower, which brings the attention of world powers, such as China, USA, Russia, France, European Union (EU) and more. From economic standpoint, the value of

Africa can be clearly seen. Many countries in Sub-Saharan Africa are specializing in export of one particular resource to a set of staple countries. Many times, China appears to be the lead economic partner. For example, it has long-standing relationship with Ethiopia and billions of investments in Nigeria, both on the government and firm level. In 2016 China made more than 1000 deals on the firm level in Sub-Saharan Africa, the most being 240 in Nigeria, 152 in South Africa and 114 in Ethiopia (Figure) [11].

Figure. Number of firm-level deals by China in the African continent

Therefore, the economic integration and cease of cultural clash between African countries may only make the region more appealing to investments and international business.

In terms of international business and relationship with world powers, it is important to mention another benefit of intercultural communication. By becoming more politically and economically stable, while providing more people with better primary and higher education, Africa can acquire greater independence. Nowadays, there is a continuing trend of transnational companies and "developed" countries exploiting Africa for its raw resources and cheap manpower, similar to how it was a hundred years ago. The term "Neocolonialism" was first used by Mehdi Ben Barka of Moroccan origin during National Union of Popular forces and it means the following:

"neocolonialism – the control of less-developed countries by developed countries through indirect means… [it was] first used…to refer to the continuing dependence of former colonies on foreign countries, but its meaning soon broadened to apply, more generally, to places where the power of developed countries was used to produce a colonial-like exploitation" [12]. If Africa were to become what the African Union hopes it to be, then it would not have to rely on investments from China and the World Bank, which leads them to default, or to base their economy sorely on export of one or two resources, which leads to economic crisis and degradation of industries and other areas.

In conclusion of the article, we can say the following. Intercultural communication is a complex subject, consisting of many components which have a direct effect on our day-to-day life, relationship between different peoples and different countries. Sub-Saharan Africa, as well as Africa in general, remains one of the most interesting regions to study this phenomenon. In the article we have discussed several main challenges to intercultural communication in Sub-Saharan Africa, how these problems affect people of Africa, as well the specifics of the region in general. In addition, were listed different methods and actions that can be taken and are already taken by different African organizations to solve these challenges and how the development of intercultural communication affects the relationship between Africa, international companies and oversees countries. The overall conclusion that can be given, is that intercultural communication is still a very sensitive issue in domestic and foreign policy of different African countries as well as in different integrational organizations. In the article we described many actions being taken to solve this issue, however there is still a long road ahead, but a road that leads to the development of Sub-Saharan Africa, to peace, cultural exchanges and economic growth.

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THE «NORTHERN CUPIDS»: BASHKIR CAVALRY
IN THE NAPOLEONIC WARS

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Abstract. The article discusses the participation of the Bashkir cavalry in the Napoleonic Wars. The features of horses used in the Bashkir cavalry are studied. The armament and tactics of these light cavalry units are analyzed. The authors show that the use of the Bashkir cavalry in the Napoleonic Wars was an effective means of combating French troops, who had difficulty finding ways to counter mobile and accurate horsemen.

Keywords: «Northern Cupids», light cavalry, Bashkir cavalry, Napoleonic Wars.

«СЕВЕРНЫЕ АМУРЫ»: БАШКИРСКАЯ КАВАЛЕРИЯ
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Аннотация. В статье рассматривается участие башкирской кавалерии в Наполеоновских войнах. Изучаются особенности лошадей, применявшихся в башкирской кавалерии. Анализируются вооружение и тактика этих подразделений легкой кавалерии. Авторы показывают, что применение башкирской кавалерии в Наполеоновских войнах было эффективным средством борьбы с французскими войсками, которые с трудом находили способы противодействия подвижным и метким всадникам.

Ключевые слова: «северные амуры», легкая кавалерия, башкирская кавалерия, Наполеоновские войны.

Since ancient times, light cavalry has played a great role on the battlefield. In these corps, small breeds of horses were used, the main feature of which was fairly high speed. An important advantage of the horses used in the light cavalry was their stamina, thanks to which they could make long trips without significant loss of fighting qualities.

Basically, the light cavalry was used at the beginning of the battle to disrupt the enemy's battle formations. Riders on fast, light horses attacked swiftly, inflicted damage to the enemy, and retreated just as rapidly. Usually, they did not risk sending a light cavalry to a densely built infantry, because the horses that were part of the light cavalry often refused to go to such groups of people.

Light cavalry was also used to perform intelligence functions and to carry out communication between units. It can be said that horses were the best messengers on the battlefield, promptly delivering important messages in those days when there was no radio communication and no Internet.

In addition to starting the battle, the light cavalry was effectively used to destroy the enemy, taking them out of formation and running from the battlefield. Usually there were two or more horses for one rider, as the horses actively maneuvering on the battlefield were too tired under the saddle.

A striking example of light cavalry that existed in ancient times is the cavalry from Numidia - the famous Numidian cavalry. Numidia in Latin means "country of nomads". Numidian nomadic tribes in ancient times lived in North Africa, in the territories of modern Algeria, Tunisia and Morocco. The way of life of these tribes was completely dependent on horses, so absolutely all the warriors were born equestrians. They, one might say, spent their lives on horseback from the cradle. The Numidians did not use saddles; their weapons were light, short spears, with which they showered the enemy's ranks.

When the Carthaginian Empire was formed in North Africa, the Numidians began to form detachments from their equestrians and send them to the army of Carthage. As Numidians were numerous, they could put up significant forces at that time – up to 10 thousand horsemen.

Usually, Numidian warriors were tasked with provoking the enemy to a counterattack, enticing him with a feigned retreat in order to lure him into an ambush, forcing him to leave an advantageous position or, conversely, taking strategically important points ahead of the enemy. Numidians were sent to investigate and to ambush. During the campaign, they were in the vanguard of the army. Numidian equestrians hindered the activities of enemy foragers – those who obtained fodder for horses. Thus, the enemy's cavalry was weakened. The Numidians' predatory raids on enemy territories, the pursuit of a defeated enemy and the capture of prisoners were their responsibility.

The Numidian cavalry guarded the rear, communications, and strategically important points. Among the tasks assigned to the Numidians were clearing the way

for the troops and maintaining order on the march during a difficult crossing through swampy terrain. The Numidian cavalry was greatly appreciated by the famous Carthaginian commander Hannibal. It was often thanks to the actions of the light Numidian cavalry that Carthage won victories over the enemy.

When it comes to the Russian Empire, the Bashkir cavalry, which will be discussed in this article, met all the qualities of a light cavalry. In a certain sense, we can say that the Bashkir cavalry became the successor of the Numidian cavalry, performing the same functions, but many centuries later, during the period of firearms.

In 1748, the Orenburg Governor I.I. Neplyuev drafted the military structure of the Orenburg Region. In this project, he proposed to create the Orenburg Irregular Corps. This idea seemed reasonable to Empress Elizabeth Petrovna and was implemented. According to the schedule approved in 1755, 1969 Bashkirs were annually involved in the royal service.

In 1798, during the reign of Emperor Paul I, an irregular army was formed from the Bashkirs. It was divided into 12 divisions, which in turn were divided into departments and teams. The units were managed by Bashkir officials. Many of these officials rose to rank of staff officer. At the head of the departments were foremen. Bashkirs were promoted to foremen by the corps commander. Moreover, it is worth noting that Bashkirs were appointed to all positions in the army.

The whole army was under the chief command of the commander of a separate Orenburg corps with headquarters in Orenburg, where he had a military board and office. In total, Bashkirs had to field 5413 soldiers. The main duty of the Bashkir army was to maintain troops along the Orenburg border fortified line [1].

However, not only on the borders of the Russian state did servicemen from Bashkortostan heroically fulfil their duty – they also stood shoulder to shoulder on the battlefields during the years of military trials. Throughout the Patriotic War of 1812, the soldiers of Bashkortostan played a direct part in all stages of that campaign. During this war, 20 Bashkir regiments were formed.

Indeed, the magnificent fighting qualities of the Bashkir horsemen manifested themselves especially vividly in the Napoleonic Wars. The Napoleonic Wars, which occurred at the beginning of the XIX century, became a severe test for the whole of Europe, including Russia. Napoleon Bonaparte was a talented commander who led a strong army and an economically rich country – France. However, in the Patriotic War of 1812 and the foreign campaign of 1813-1814, the first army of the Russian Empire, demonstrating its best qualities, managed to defeat a formidable enemy. A significant contribution to the victory over the troops of French emperor Napoleon Bonaparte was made by light cavalry, among which the units of Bashkir horsemen, who received the nickname "Northern Cupids" because of their weapons, stood out.

The Bashkirs were armed mainly with bows, arrows and pikes, and a small number with sabers, rifles and pistols. The massive lack of firearms was explained by

the consequences of the Decree of February 11, 1736, related to the Bashkir uprising, according to which Bashkirs were forbidden to have forges and firearms. After 1798, Bashkirs were already allowed to have them, but for several generations, the skill of handling such weapon was lost, and vice versa, the art of archery reached its perfection. Later, during the fighting of the 1812-1814s, the Bashkirs again turned to firearms, taking them as trophies [2, p. 177].

Bashkirs skillfully shot from a long distance at the target. Usually, an arrow fired by a warrior from 30 m could pierce not only a man but also a horse. Bashkir equestrians have developed a kind of tactic, which was subtly noticed by one author. According to him, 40 steps is the average distance for a confident bow shot. In battle, the Bashkir transfers the quiver from his back to his chest, takes two arrows in his teeth, puts the other two on his bow and releases them instantly one after another. After firing 4 arrows, he stabs with a pike [3, p. 45].

An arrow in the ball of the spire of the church in Schwarz (Germany) serves as a kind of monument to the accuracy of the Bashkir warrior and the power of his bow. At the end of the foreign campaign, passing through the territory of the imperial principality of Schwarzburg-Rudolstadt (Thuringia), on April 14, 1814, in the courtyard of the church of St. Laurence (Schwartz), Bashkirs showed the art of archery. Prince Karl Gunther, the son of the reigning Prince Friedrich Gunther, questioned the fighting qualities of the bow and arrow. A dispute arose, and in order to settle it, a Bashkir warrior, dismounting, shot an arrow into a ball on the spire of the church, which was on the opposite corner of the town square. The arrow, having pierced the ball, stuck in it. Thus, the dispute was won. The residents of the town preserved the arrow as a memory of the Bashkirs, and when it rotted, it was replaced with an iron copy that still exists [4, p. 14].

As for uniforms, Bashkirs are depicted in dressing gowns and trousers made of striped multicolored fabric in almost all engravings and drawings. The headdress was either a fold-eared hat, a cap made of cloth or felt with cut brims, or a fur hat made of sheepskin, fox, lynx or wolf fur in an elongated shape. On the outside, the hats were lined with fur, and sometimes there was no fur, or it could be removed.

There were no formal suits, or hats with hanging fox or raccoon tails, so familiar to us from television broadcasts and concerts of dance groups. Such an outfit has nothing to do with the true story.

Another characteristic phenomenon was the use of captured clothing by Bashkirs, as N. Kazantsev and E. Loeb mention in their notes. As you can see, the custom of taking trophies was typical not only for representatives of the army of Europe, but also for Asia.

Another interesting feature was that the material used for stirrups, which can be seen from the drawings, was not only metal but also wood. The same practice of making wooden stirrups was among the Indians of North America. Probably, such use of natural materials is typical for the nomads of the forest-steppe zone [5, p. 4].

If we discuss the military organization of the "Northern Cupids", its distinctive qualities were the uniform structure of mobile cavalry troops, experienced commanders, strong discipline, sufficient military training and a large horse reserve. The peculiarities of weapons and the relatively weak tactical training in comparison with the regular army predetermined a variety of forms of their use: intelligence, guard duty, convoy service, transportation of soldiers and direct participation in battles. The use of Bashkirs is described in detail in Marbo, which allows us to draw several conclusions about their tactics. Bashkirs rushed at the French "in countless crowds", "moved without any formation and no road hindered them" and rushed around "like a swarm of wasps".

Mass courage, the dedication of the Bashkirs and their patriotic attitude also played a significant role. All this allowed the Bashkir soldiers to resist the light European cavalry effectively [2, p. 178].

Nowadays, the descendants of the "Northern Cupids" cherish the memory of their brave ancestors. For example, in 2017, a monument to the "Northern Cupids" was opened in the village of Krasnousolsky in Bashkortostan.

The opening of the monument was timed to coincide with the 205th anniversary of the participation of Bashkir cavalry units in The Patriotic War of 1812. This monument is one of a number of monuments erected to the "Northern Cupids" in European countries. On the pedestal stands a golden eagle with outstretched wings, holding an arrow in its claws – a symbol of victory and the main weapon of the "Northern Cupids".

The monument was erected with peoples' money, which indicates the respect of the population for the memory of the "Northern Cupids" who played a significant role in the victory over the enemy.

The event ended with the festival of archers, which was attended not only by men, but also by women from many parts of Bashkortostan. As you can see, respect for the memory of their ancestors is preserved in Bashkortostan not only in monuments, books and articles. Modern residents of Bashkortostan continue the traditions of the "Northern Cupids" and train in the art of horse riding and archery.

Thus, it is safe to assume that the Patriotic War of 1812 and the foreign campaign of 1813-1814 were more than an ordinary war for the Bashkirs. Eyewitness accounts of that era, as we see, speak of a high sense of duty, patriotism, respect for religious feelings, and the discipline of Bashkir warriors. The participation of Bashkirs in the Napoleonic wars became a kind of standard of their attitude to military service, the highest manifestation of patriotic duty, which played a major role in strengthening the cantonal management system. Participation of Bashkirs, as well as other nomads, in the Napoleonic wars of the early XIX century was an undoubted phenomenon of this era, which was vividly reflected in the memoir literature and pictures.

Bashkirs kept the traditional weapons and equipment of nomads, using it according to their custom and skills. The influence of the ideas of the modern army of modern times only slightly affected them. However, even such weapons, consisting mainly of bows and arrows, cold weapons, allowed them to carry out orders and pose a danger to the enemy, who undoubtedly had the best weapons and the latest tactics [6].

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ESG TRANSFORMATION

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Abstract. The article discusses some theoretical aspects of responsible investing, which include environmental, social and governance issues. The importance and necessity of ESG-policy is highlighted. In addition, the analysis of the state of the Russian market from the ESG factors in an unstable economic situation is carried out. The paper analyzes foreign and domestic experience, statistical data characterizing certein aspects of responsible investing process.

Keywords: sustainable development, responsibility, ESG factors, Russian Federation, ecology.

ТРАНСФОРМАЦИЯ ESG

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Аннотация. В статье рассматриваются некоторые теоретические аспекты ответственного инвестирования, которые включают в себя экологические, социальные и управленческие вопросы. Подчеркивается важность и необходимость ESG-политики. Кроме того, проводится анализ состояния российского рынка с точки зрения ESG-факторов в условиях нестабильной экономической ситуации. В статье анализируется зарубежный и отечественный опыт, статистические данные, характеризующие отдельные аспекты процесса ответственного инвестирования.

Ключевые слова: устойчивое развитие, ответственность, ESG-факторы, Российская Федерация, экология.

Modern society is experiencing a number of global challenges: climate change, growing inequality, the transition from a linear to a circular economy, the economic backwardness of some countries, the demographic crisis, and more. Investors, regulators, governments as well as customers and employees are now increasingly focusing not only on the cost-effective disposal of capital, but also on the management of natural and social capital, and have the necessary management systems to support this. More and more investors are incorporating ESG elements into their investment decision-making process, making ESG increasingly important in terms of raising capital, both debt and equity.

The abbreviation "ESG" stands for Environmental, Social and Governance and refers to a comprehensive set of rules for assessing the sustainable and ethical practices of companies.

These three criteria are designed to ensure that companies operate sustainably and can be held accountable for their actions.

Let us consider each of the factors of ESG-policy in a little more detail.

Environment. As there is growing evidence of the realities of climate change and other environmental issues that will potentially be felt around the world, it is increasingly important that companies commit to sustainable practices. The "environment" factor from the ESG triad refers to the impact, if any, a company has on waste, pollution, resource use, greenhouse gas emissions, deforestation, and climate change.

Social factor shows a company's attitude toward its staff, suppliers, customers, partners and customers. Because in today's world, a company is more than its products, services, and logo. And a company's reputation depends not only on the quality of its products and services.

When analyzing environmental, social, and governance factors, the "G" element is often forgotten because of the greater public profile of environmental, social, and other "E" and "S" risks. However, understanding the governance factor in decision making is equally important, as some of the biggest corporate scandals have been based on poor corporate governance practices. Governance principles relate to the quality of corporate governance: transparent reporting, a healthy office environment, shareholder relations, anti-corruption measures, and more.

Certainly, the criteria will be different for each industry or sector of the economy. For example, for heavy industry the issue of hazardous emissions may be acute, and for the service sector the social criterion will prevail, and so on. I will give the most general examples of issues on which compliance with ESG principles can be assessed (Figure).

ESG policy is widely used around the world, this is a global phenomenon for several years. But it is obvious that the degree of application and implementation of such a policy differs significantly depending on the region.

The European Union takes a leading position in the adoption of ESG policy, where there are special regulatory, supervisory and advisory laws and various documents. For example, there is the EU regulation on disclosure of information on sustainable financing (SFDR), which came into force in March 2021, requiring asset managers and financial advisers to disclose information about the environmental and social impact of their investments. European countries are also actively promoting ESG practices through stock exchange listings and corporate governance codes [1].

In the USA, the implementation of the ESG policy was slower. In March 2021, the Securities and Exchange Commission (SEC) announced that it would review its corporate disclosure requirements with a focus on environmental, social and corporate governance issues. Moreover, in the states of California and New York, a law has been introduced that obliges companies to disclose information about ESG practices and actions do not stop there.
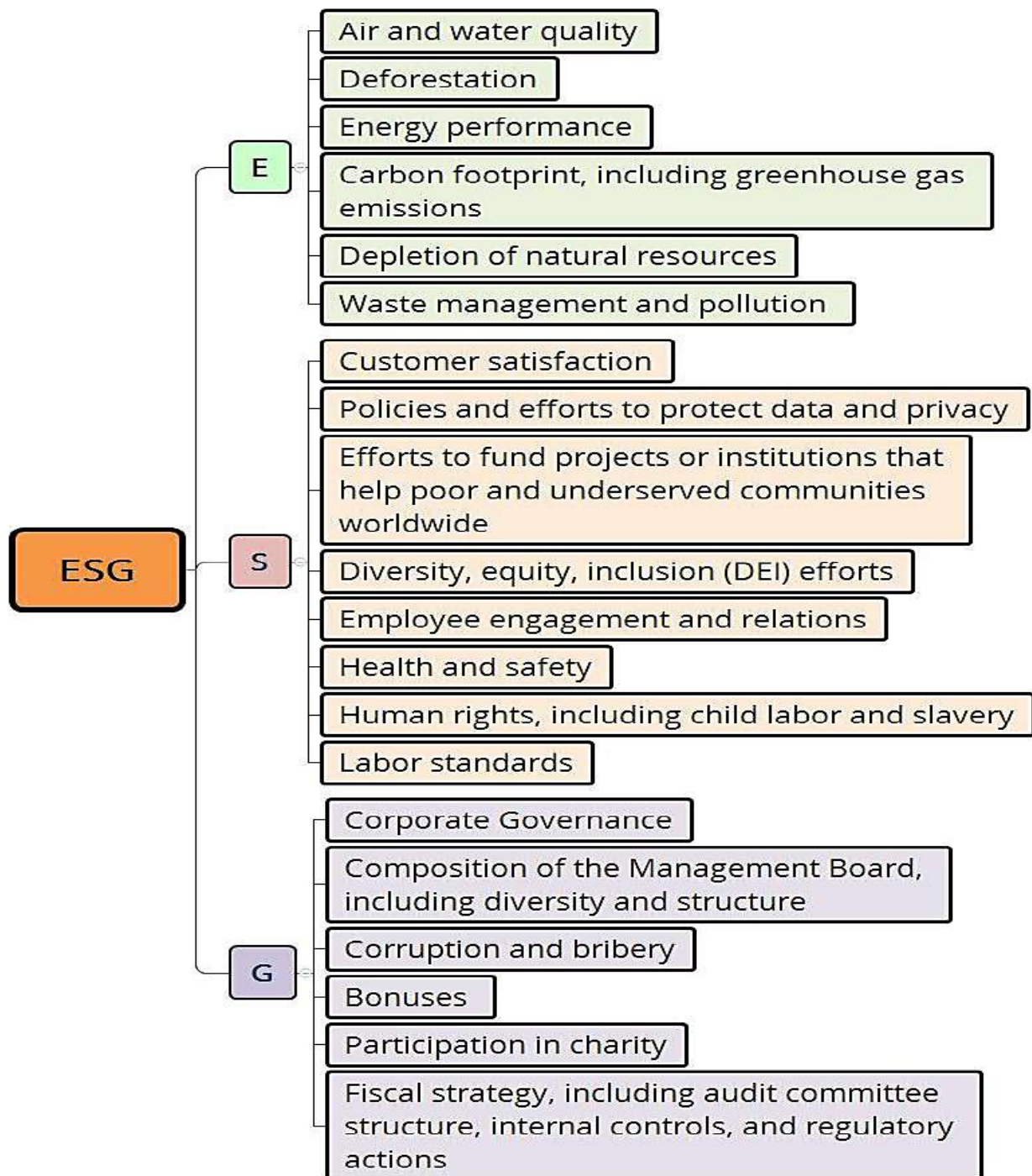
Figure. Popular issues

In Asia, adoption of the ESG policy has been mixed. Japan is a leader in this region: in 2014 and 2015, the Management Code and the Corporate Governance Code were adopted, respectively. China has also shown interest in the issues by introducing the Green Finance Initiative in 2016 [2].

For example, there are organizations for the standardization of reporting and organizations that assign and lead ratings, indexes and rankings. The list is not buried (Table).

Table – Organizations for standardization of reporting and data providers

Organizations for standardization of reporting	Data providers	
ISO is an international non-governmental organization for standardization, the most significant. ISO standard - sets requirements according to which materials, products, processes and services are used.	ESG exclusive	
	Sustainalytics; RobecoSAM; Oekom Research; VigeoEIRIS; Arabesque; Covalence CSRHub.	
GRI – Global Reporting Initiative. A set of interrelated, modular disclosure standards (e. g. GRI 305: Emissions; GRI 302: Energy, etc.).	Specialized	
	ISS/IW Financial; CDP; RepRisk.	
SASB – Sustainability Accounting Standards Board. Standards: industry-specific and related to the concept of materiality. 5 (not three) groups of factors: Ecology, Social Capital, Leadership and Management, Business Model and Innovation, Human Capital. 69 of the 77 SASB standards focus on climate.	Universal	
	Bloomberg; FTSE Russell; MSCI; Thompson Reuters.	
IIRC is a global coalition of regulators, investors, companies, standards developers, accountants. Main results: Integrated reporting standard, "Corporate Reporting Dialogue" and "Better Alignment Project". Features: emphasis on increasing the value of the company through ESG, universal recommendations without a list of specific factors.		

The year 2022 was one of the most critical years for Russian ESG practice. Many forecasts and statements lost relevance due to the geopolitical crisis. For example, one of the ESG directions affected by the crisis was the development of hydrogen energy in Russia. Earlier the aim was to become the largest exporter of this energy resource in the EU, but now the focus will be on the domestic market. In Russia the processes of rethinking the ESG agenda have started.

At first there were fears that separation from Western financial resources would aggravate ESG agenda in the country, but no. The latest surveys of the National ESG Alliance, Skolkovo Sustainability Center, Expert RA confirm that business keeps the course for ESG, although budgets and ambition have slightly decreased and the focus has shifted from E to S.

40% of companies in Russia have reduced their ESG budgets in 2022, 47% have not cut them, according to a survey conducted by Mikhailov & Partners communications company in early 2023. Top managers of Russian companies, representatives of expert organizations, ESG specialists and analysts of rating

agencies took part in the survey, a total of 17,000 respondents [3].

One of the risks in the current situation will remain the lack of access to advanced green technologies. On November 18, 2022, the 27th Conference of the Parties to the UN Framework Convention on Climate Change ended, where representatives of the Russian delegation voiced the opinion that green technologies should not be subject to sanctions. It remains to be seen how far such a norm will be lobbied.

In general, despite the new problems and risks, the year 2022 demonstrates that the agenda continues to evolve. This is evidenced by the following facts:

- Despite the existing concerns, there were issues of green bonds and social bonds, although their volume decreased by about 30-35% compared to last year. These instruments, in particular, were issued by VEB.RF, DOM.RF, Rostelecom, Atomenergoprom, i. e. the largest issuers.

- The volume of bank ESG-credits, according to expert estimates, did not decrease, but perhaps even increased.

- The largest companies, albeit in an abridged form, continue disclosing non-financial reports, which are posted in the RSPP register (the Russian Register of Corporate Non-Financial Reports), in the Interfax system and on the websites of the companies themselves. Moreover, some companies, which did not submit non-financial reports before, started to do it in this crisis year.

- Many companies that received an ESG rating came out to confirm it in 2022.

- All issuers raising money through green, social, and transition bonds met their obligations to post a report on the target use of funds on the Moscow Exchange.

- In 2022, the first transaction with carbon units was made and the first verified climate project appeared. Despite the fact that only 20 carbon units were sold, this event demonstrated the readiness of the Russian carbon market in terms of technical capability and the availability of conditions for its further development.

- The authorities remain committed to the concept of sustainable development: despite the postponement, no decision taken in 2022 does not contradict or cancel the fundamental principles of this agenda. Alongside this, the Bank of Russia has consistently demonstrated its commitment to this agenda and, in particular, has introduced three more new types of ESG bonds into circulation.

- The market for ESG and sustainability services continues to develop. It is now represented by a fairly large palette of master's, bachelor's, and continuing education programs, as well as short-term business courses and seminars.

- The continuation of the Sakhalin experiment, during which the subject must become carbon neutral.

- Continue the course towards carbon neutrality in Russia by 2060

- The head of state's instruction to the government to consider the issue of determining the criteria for classifying investment projects as ESG-compliant [5].

To summarize, Russian ESG policy is not going away. The government, business and various societies understand the importance of the issues at hand. ESG principles will be gradually "prescribed" in the legislative field, becoming binding. Human life and built business models, aimed primarily at hedonistic values and making profits, have already shown the destructive results of economic management,

organized without adherence to ESG principles. Therefore, constraints and counterbalances are needed to encourage responsible business conduct, regardless of whether this is enshrined in the letters "E", "S", "G" or in other Russian terminology.

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EXPORT OF BIOTECH PHARMACEUTICAL PRODUCTS FROM RUSSIA

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Abstract. The results of the analysis of pharmaceutical exports from 2008 to 2022 are presented. If the current growth rate is maintained, by 2030 the number of exports will be 1.6 billion roubles instead of the 3.4 billion roubles planned in the "Pharma-2030". The main growth drivers were biotech pharmaceutical products such as vaccines, monoclonal antibodies and antibiotics. The former Soviet Union countries prevailed in structure of export until 2017. Africa, Central and South America and India have been become new destinations of export.

Keywords: export, biotechnology, medicines, pharmaceutical market.

ЭКСПОРТ БИОТЕХНОЛОГИЧЕСКИХ ЛЕКАРСТВЕННЫХ ПРЕПАРАТОВ ИЗ РОССИИ

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Аннотация. В статье приведены результаты анализа экспорта фармацевтической продукции с 2008 по 2022 год. В ходе анализа выяснено, что при сохранении текущих темпов роста к 2030 году сумма экспорта составит 1,6 млрд руб. вместо запланированных 3,4 млрд руб. согласно программе «Фарма-2030». Основными драйверами роста стали биотехнологические препараты, такие как вакцины, моноклональные антитела и антибиотики. Исследование показало, что до 2017 года экспорт шел в страны бывшего Союза. Новыми направлениями поставок стали страны Африки, Центральной и Южной Америки, Индия.

Ключевые слова: экспорт, биотехнология, лекарства, фармацевтический рынок.

Export of biotech pharmaceutical products from Russia represents a promising branch of the pharmaceutical industry. Biotech pharmaceutical products are produced based on biological processes using living organisms, cells, genes and proteins. They are the most effective treatments for many serious diseases, such as cancer, autoimmune diseases and infectious diseases.

State programs support the export of medicines from Russia, which contributes to the development of the industry. The "Strategy for the Development of the Pharmaceutical Industry of the Russian Federation until 2020" ("Pharma-2020")

notes that the Russian pharmaceutical industry is virtually unrepresented on international markets. The program plans were to increase the export potential of the pharmaceutical industry by 8 times compared to 2008. According to the results of 2020, the volume of exports increased by 3 times and amounted to $1.03 billion. Thus, the task was not achieved [1].

In the state program of pharmaceutical industry development "Pharma-2030" one of the main objectives is to increase exports. According to the document, the export of pharmaceutical products should increase to $3.4 billion by 2030 [2].

Figure 1 shows the change in export volumes from 2008 to 2028. Export volumes of COVID-19 vaccine have been excluded from the total export volume for 2021 (-$1.42 billion), as deliveries have already stopped completely in 2022, although the pandemic situation has not fully stabilized. Production of COVID-19 vaccine in Russia has also virtually ceased due to declining demand [3].
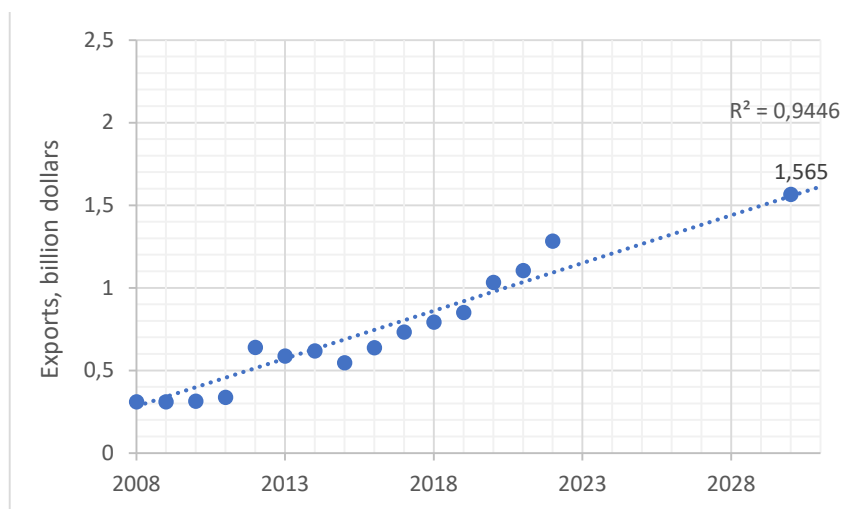

Figure 1. The volume of exports of pharmaceutical products from Russia
in 2008-2028

From 2009 to 2012, pharmaceutical exports doubled from $0.309 billion to $0.638 billion. The average increase in export volumes from 2009 to 2013 was approximately 22 %.

Exports from the Russian pharmaceutical industry has started to decline, reaching a low point in 2015 ($0.545 billion). The Russian economy has been in recession since 2012, which has had a strong impact on exports. In addition, the economic sanctions imposed on Russia in 2014 and the subsequent depreciation of the national currency are among the reasons for the decline. In January 2016, exports started to recover due to the formation of the Eurasian Economic Union (EAEU). Total exports in 2021 were a record $2.66 billion. Even excluding COVID-19 vaccines ($1.42 billion), there is a high volume of exports in 2021 due to shipments of antibiotics and monoclonal antibodies. Despite the sanctions imposed in 2022, total exports are quite high at $1.3 billion. To avoid incorrect estimates, speculation and discrepancies, the Federal Customs Service (FCS) has suspended the publication of export information for 2022 [4].

According to the relationship derived from the analysis of export volumes for 2008-2022, if the current growth rate is maintained, the volume of exports should reach $1.565 billion in 2030. This result is almost twice lower than the desired export

volume in the Pharma 2030 programme. In order to achieve the Pharma 2030 targets and increase exports above the trend line, it is necessary to expand the range of products exported.

According to the official website of the FCS, group 30 "Pharmaceutical products" includes the following commodity groups (Figure 2):

- 3001 – Substances of human or animal origin;
- 3002 – Immunological products, vaccines, toxins, microbial cultures and similar products;
- 3003 – Medicines, not in prepackaged form or in a form suitable for retail sale;
- 3004 – Medicaments, not in prepackaged form, in retail form;
- 3005 – Wadding, gauze, bandages and similar articles, impregnated or coated with pharmaceutical substances for retail sale;
- 3006 – Sterile medical articles and other articles not included in other groups.
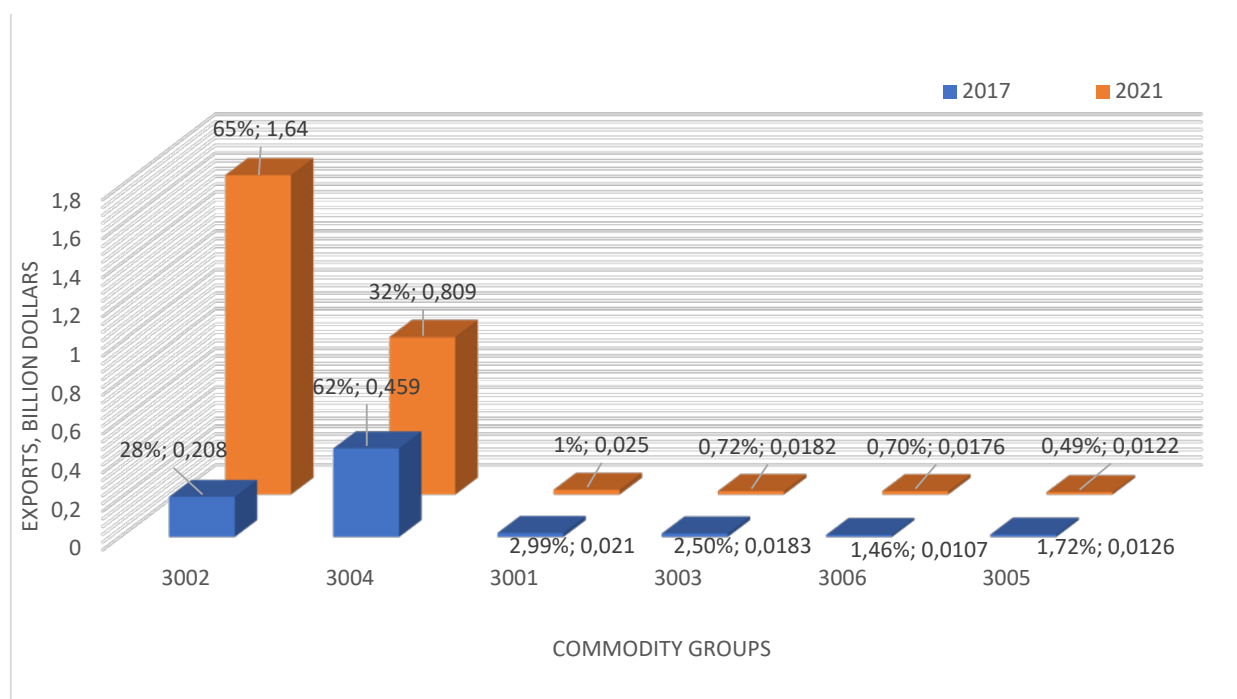

Figure 2. Export structure of pharmaceutical products by group for 2017 and 2021, in billion dollars

Russian pharmaceutical companies supply a wide range of biotech pharmaceutical products to the international market, including medicines for the treatment of cardiovascular, neurological, endocrine, immune and oncological diseases. Importers of Russian products are mainly from the EAEU and other former Soviet republics.

Every year, new countries are added to the list of destinations for domestic medicines. Since 2019, the biotech company Biocad has been supplying Avegra (INN Bevacizumab) and Hertikad (INN Trastuzumab) to Iraq. In 2020, Biocad will supply Acellbia (INN Rituximab) to the Dominican Republic. Biocad is Russia's largest manufacturer of biotech medicines and exports its products to an extra 30 countries. The top five countries receiving Russian vaccines from COVID-19 are Argentina, Kazakhstan, India, the United Arab Emirates and Mexico. According to Federal

Customs Service statistics, they account for higher 60% of all deliveries in monetary terms. The main export destinations in 2021 are shown in Figure 3.
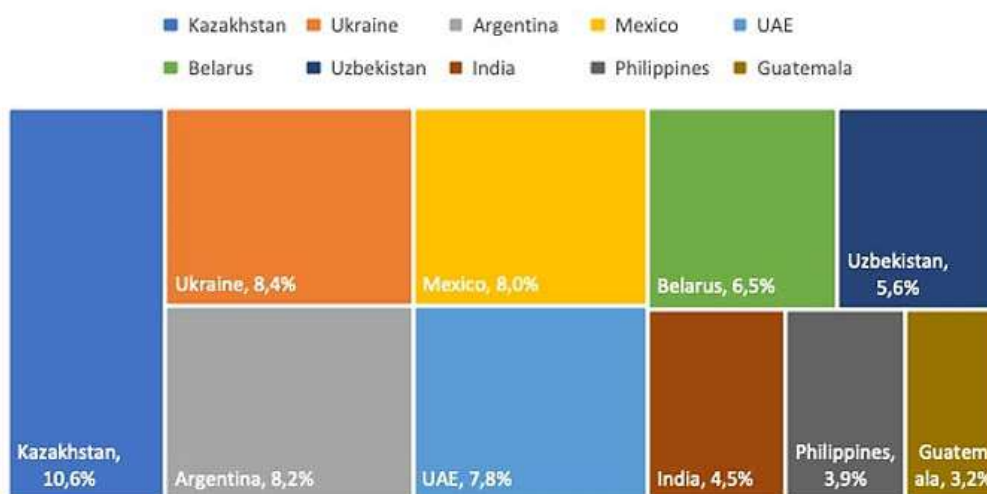

Figure 3. Main export destinations in 2021

Shipments of finished pharmaceuticals in 2022 (excluding shipments to the EAEU) were mainly to Lithuania, Uzbekistan, Vietnam, Azerbaijan, Mongolia, Turkmenistan and other countries. The main buyers of active pharmaceutical ingredients were Nicaragua, Morocco, Finland and several other regions.

Vaccines for diseases specific to certain regions are in high demand. For example, countries in Africa (Sudan) and the Middle East (Lebanon) buy domestic yellow fever vaccines produced by the Chumakov Research Centre. M.P. Chumakov Research Centre. In Nicaragua, vaccination against influenza began in 2014 with Grippovak from the SPbNIIVS FMBA Research Institute of Vaccines and Sera. This demand for Russian vaccines explains the growing share of biotech medicines in total exports.

The best-known pharmaceutical exporters from Russia are Biocad, R-Pharma, VERTEX, the Research Institute of Vaccines and Serums (SPbNIIVS FMBA of Russia) and Grotex (Solopharm). They produce a wide range of medicines, including antibiotics, antivirals, anti-allergic, anticonvulsants and various others.

However, the export of biotech pharmaceutical products from Russia faces certain difficulties. One of the main problems is the high production costs associated with the use of modern technologies and the lengthy process of developing and testing them. In order to export, it is necessary to conduct clinical trials of their medicines abroad, which is quite difficult and costly. A strong marketing strategy is also essential for increasing sales. Prescription medicines are mostly exported and promoted only through medical representatives. Companies must carefully study advertising and promotion laws in foreign countries and incur additional advertising costs, which is key to the success of many Big Pharma medicines [5].

But, despite the fierce competition and difficulties in the global pharmaceutical market, Russian biotech companies are continuing to develop and expand their production capacity, enabling them to increase their export volumes. Companies must continue to invest in research and development of new medicines to increase their competitive potential in the global market. It is also necessary to develop

international cooperation in biotechnology in order to participate in international research projects and acquire access to the latest technologies and knowledge.

Overall, the development of pharmaceutical exports from Russia represents a promising industry that could become one of the country's major sources of economic growth. The most promising areas appear to be the development and export of vaccines against infections characteristic of the regions of the importing countries, since a large scientific and practical base has been accumulated for the production of immunoprophylactic preparations, as well as the expansion of exports of modern medicines produced using recombinant DNA technology, such as monoclonal antibodies, insulins, blood coagulation factors.

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THE POWER OF TIMELESS SOVIET ARCHITECTURE

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Abstract. This article examines the historical aspects of Soviet architecture as well as its direct impact on Eastern Europe and other foreign countries. All of this helps the author identify the three main components of the significance of this architecture for modern society.

Keywords: Balkan countries, Eastern Europe, panel system-buildings, Soviet Union, Soviet architecture, socialism.

СИЛА БЕССМЕРТНОЙ СОВЕТСКОЙ АРХИТЕКТУРЫ

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Аннотация. В данной статье рассматриваются исторические аспекты советской архитектуры, а также ее непосредственное влияние на Восточную Европу и другие зарубежные страны. Все это помогает автору определить три основных компонента значения этой архитектуры для современного общества.

Ключевые слова: Балканские страны, Восточная Европа, панельные дома, Советский Союз, Советская архитектура, социализм.

What do buildings constructed during Soviet era mean to us? For most people living in Russia, Soviet architecture is usually associated with the panel high-rises. These constructions have a huge variety of species, but they look very much the same. During the thriving time of the Soviet Union, such buildings were an innovation, and the new gorgeous neighborhoods had become a home for many Soviet families. Now, looking through the prism of modernity, it seems like only a gloom, depression and hopelessness are still living in these grey apartment blocks. Sometimes it seems that such architecture cannot be relevant, even for an art history. It is ordinary-looking, pretty common, and it gives the impression that the architect did not put their heart or any idea. But even so, such constructions have become ingrained in our way of life and have turned into an iconic phenomenon.

Then the question arises: why are such unremarkable houses more renowned than the architectural masterpieces of the Stalinist era? The answer is simple. Panel

block of flats is the most popular type of buildings in Russia. According to researchers, 49 % of all residential development in Russian cities are the conventional panel apartments [1]. However, it is important to note that unique structures of that architecture are not only typical for the countries of former Soviet republics. The similar buildings can be found in Eastern Europe, as well as in some Balkan countries.

The period of development of Soviet architecture from 1917 to 1932 can be characterized by two trends. The first is the stage of architects` creation of new extraordinary projects, experiments and theoretical developments, as practically there were no major urban planning works before 1926. The second stage is directly related to the growth of construction, the emergence of new towns and the development of industry.

The new ideology, communism, could not be established on the old architectural grounds. Therefore, an active reorganization of day-to-day life started in a socialistic way. Plans were drawn up for the orderly development of major cities such as Moscow, Leningrad, Kiev, Baku, Yerevan and others. It was also the time, when it was made possible to put all of sketches on paper into practice. The excitement, freedom, dreams about the constructions of the bright future – these feelings were imbued with a new architectural trend. In this regard, the style of Soviet architecture was created. It had three main origins: traditional architecture, rationalism and constructivism. Like the Soviet ideology denying the old imperial regime, constructivism denied classical forms, declaring war on the traditional art.

The perfect example is Mosselprom building, which is considered a monument to Russian constructivism and avant-garde. It was Moscow`s first skyscraper, built in 1925. At the time, the eleven-story construction was reckoned the tallest in the capital. It was just like that until two residential complexes for party functionaries were built in the capital of the USSR in 1931. One of them was House on the Embankment, which was one of the largest structures for housing at the time. The second one was House of the Dynamo Society. The project envisioned the creation of two symmetrical seven-story installations with fourteen-story towers, which were connected by a passage at the level of the upper floors. However, the only one building came true. The most interesting part about this building is that creation has been implemented in the new style of "proletarian classics", invented by the chief architect himself. It is necessary to note that the most prosperous projects developed for the capital of the Soviet Union were also embodied in other cities of the Soviet republics. Thus, in Kharkov (Ukraine) was created an architectural ensemble on Dzerzhinsky Square (now Freedom Square). The group of buildings consist of the Derzhprom (the State Industry House), the House of Cooperation and the House of Projects. Many architectural and engineering innovations were introduced during construction for the first time in history, and that makes these pieces of architecture so special. In addition, the State Industry House still counts the largest building in the world, created in the style of constructivism (Figure 1).

Figure 1. The buildings of ensemble on Dzerzhinsky Square (Freedom Square). Kharkov, Ukraine. 1926-1932

Figure 2. Government House in Minsk. Minsk, Belarus. 1934

The largest building in Belarus at that time was the nine-story Government House in Minsk, built in 1934. This architectural creation is still considered one of the best monuments of constructivism (Figure 2).

The search for new ideas was not without creative failures. For instance, Communal House of the Textile Institute is not only known as a monument to constructivism, but also as an example of a failed social experiment. This building is one of the most radical architectural embodiments of the principle of communal life, expressed in a rigid organization of the living environment. The idea of such dormitory was utopian and failed miserably. Altogether, community collectives were popular after the revolution as they dealt with all domestic matters. However, as the material situation of the workers gradually started improving, interest in this form of dormitory began to wane.

As a result of the development of industrial production in accordance with the five-year plans, the progress of urban population growth continued on an increasing scale. The demand for rapid settlement required accelerating the pace of construction, which was achieved by using the simplest building schemes and designs. At the same time, the speedy methods of construction structures, mechanization of heavy and labor-intensive work began to be put into practice. During this period, a rational layout was defined, and the composition of the premises for buildings of different purposes was established. Due to this, it became possible to build houses in a flow-speed method: specialized construction crew sequentially moved from one object to another as the relevant work was completed. It was like a sort of conveyor, subject to a joint work schedule. The urban planning was setting new records. From 1928 to 1940, more than 200 cities emerged [2].

After 1932 the high-rise brick buildings with elevators and two-family sections were common mostly in big cities (Figure 3). However, low-rise buildings still continued to appear, but in smaller towns. Such buildings gave an opportunity to put them into operation very quickly, which was crucial when there was an utter distribution for housing. Some of the structures were also made of cinder block, but there were not many of them in the pre-war times.

Figure 3. The residential house built in 1937. Kiev, Ukraine

From 1931 to 1933 the competition for the design of the Palace of the Soviets was held. Soviet and foreign architects presented many drafting of various styles for the contest. The final development of the palace was executed in 1935, but it was never implemented due to the construction was suspended by the outbreak of war. However, all this led to a change in stylistic orientation of Soviet architecture. The new architectural politics of the 1940s-1950s promoted the formation of the state monumental style. This architecture is often referred to the "Stalinist Empire" after Joseph Stalin, the leader of the Soviet Union at the time. The Communist party started to deny former architectural trends, thereby depriving architects of the right to individualism in their drafts. That is why the constructions of the Stalinist era are usually considered in the context of the totalitarian architecture of XX century.

In order to quickly implement a wide program of housing construction the factory production of prefabricated wooden houses and standard parts was created. The lack of sufficient building materials (bricks) and qualified construction staff caused the development of low-rises. Therefore, the series of buildings with the simplest construction and economical layout of the apartments began to prevail. For instance, the 228 series were widely used in housing construction in Ukraine, Belarus and Estonia (Figure 4).

Figure 4. The residential building of the 228 series. Maardu, Estonia

In 1948-1949 the construction of two-thee-story residential buildings in Moscow was stopped as uneconomical for big cities. This was also facilitated by the strengthening of the industrial base of the erection, which allowed in 1947-1948 to start mass construction works of four-eight-story structures according to common projects. Firstly, it happened in Moscow, then in other major Soviet cities. Further development of constructing technology allowed in the early 1950's to increase the number of storeys in residential buildings up to ten. Generally, they were built according to individual design. And despite the fact that these buildings did not play a major role in the housing stock of the cities, such an architecture most fully reflected the whole essence of the prosperous Soviet nation (Figure 5).

Figure 5. The residential house built in 1950s. Tbilisi, Georgia and Tashkent, Uzbekistan

The victorious end of the war changed the international position of the Soviet Union. Having become the recognized leader of the world community, the Soviet state began to spread its influence in Eastern Europe, the Balkans and some Asian countries. The socialist countries had to demonstrate all the advantages of the socialist system. It was at that time when the active implementation of Soviet architecture in other countries happened. In Bucharest, for example, the House of the Free Press and the Palace of the Parliament were built in the "Stalinist Empire" style. The Mogamma government building was erected in Cairo (Figure 6). And in China and North Korea the construction of buildings in the spirit of Stalinist architecture continued for many decades after Stalin's death. And in China and North Korea, construction of buildings inspired by Stalinist architecture continued for many decades after Stalin's death.

Figure 6. The Mogamma. Cairo, Egypt. 1949

In 1955, at Stalin's suggestion, **the Palace of Culture and Science** was constructed in Poland (Figure 7). The building was modeled on the so-called "Stalin skyscrapers" as a gift from the Soviet Union to the Polish people. It is essential to note that the high-rises themselves were conceived so that their proportions and silhouettes should be original, and not to repeat the examples of skyscrapers known abroad.

Figure 7. The Palace of Culture and Science. Warsaw, Poland. 1955

After Stalin's death and the revelation of his personality cult, the destalinization of Soviet architecture started. At the All-Union Conference of Builders, held in 1954, the First Secretary of the Communist Party Nikita Khrushchev accused architects of irresponsible spending of the people's money on opulent and non-functional structures. A year later, "the decree On the Elimination of Excesses in Design and Construction" was issued. The main goal of the reform of the mid-fifties was to overcome the housing crisis as quickly as possible. At the same time there is a search for a new architectural style, which was later strongly influenced by the architecture of the United States and the Federal Republic of Germany [3, p. 39]. As a result, Soviet architecture resembled modernism. This is where the story of panel system-buildings commenced.

The panel system-buildings of the Khrushchev period ("Khrushchevka") returned at a faster pace and were mush cheaper than brick ones. However, they were originally conceived as temporary housing. The construction usually looked like this: prefabricated apartments were lifted by cranes and precisely set in place with the help of automatic devices. Thus, five-story houses could be assembled in 15 to 20 days. It is important to note that the accelerated pace of housing construction often led to the fact that the finishing work was not always carried out in accordance with the architectural design. The area in the apartments was minimized to saving. Nevertheless, it was a great opportunity to have a separate place, especially for those who lived in communal apartments and dormitories. The very first "Khrushchevka" was built in 1958 in Moscow's Cheremushki area. This part of Moscow is considered experimental, since the several types of projects were realized there almost simultaneously. Later on, the basis of these multi-format experiments architects developed a series of five-story buildings which were improved versions of the first ones (Figure 8).

With the adoption of the new standard of construction, soviet architects began to design new or improved ready-made series of buildings. New pieces of soviet

architecture are usually called "Brezhnevka", because they were built when Leonid Brezhnev was the leader of the USSR. The reason for the launch of the new projects was the increase in people's complaints about the quality of housing. Such a building, in fact, was a compromise, because it was considered worse than constructions of the Stalinist era, but better than ''Khrushchevka''.

Figure 8. The most common series of "Khrushchevka" (1-464). Tallin, Estonia

In the 1960s through the late 1980s, the series of Brezhnev panel system-buildings were wide-spread. They were built not only in the cities of USSR, but also in other socialist countries. The unique series of houses had been developed for some Eastern European countries. In Prague, for instance, the buildings of VVÚ-ETA series were realized (Figure 9).

Figure 9. The buildings of VVÚ-ETA series. Prague, Czech Republic

During the Brezhnev era, some extraordinary buildings in Belgorod were constructed. For example, The Western City Gate (The Genex Tower) that was built in 1980 or the Caraburma Dwelling Tower ("Toblerone House") appeared in 1963 (Figure 10).

Figure 10. The Western City Gate (The Genex Tower) and the Caraburma Dwelling Tower ("Toblerone House"). Belgorod, Serbia

It is important to mention the Democratic Republic of Germany, which had more panel system-buildings than any other socialist country. There were so many of them that one out of three residents of the Eastern Germany lived in such a construction. In general, four different Brezhnev series were developed in there, but the most common was the Wohnbauserie 70 (WBS 70). This series accounted for 42 % of the housing stock in East Germany, and it was similar to the 125 series of buildings erected in the USSR (Figure 11).

In 1950, the city of Stalinstadt (Figure 12), named after Stalin's death, was established in East Germany. It was the first socialist city on German. Now the city is called Eisenhüttenstadt, but it is still a museum of Soviet architecture.

Figure 11. The buildings of WBC 70 series. Magdeburg, Germany

Figure 12. Stalinstadt (Eisenhüttenstadt), Germany

All of the previously mentioned, makes us realize that the real power of Soviet architecture lies in several things.

First of all, due to this architecture has been able to penetrate many countries, it has the ability to bring people together. The seemingly unattractive panel buildings have become a cultural treasure not only in Russia, but also in many other former socialist countries. All of this happened because of such architecture often causes the nostalgic effect in those who have encountered it. When you live in a residential building like this, it's about the similarity of experience that evokes empathy and memories. It's almost the same as if you saw some old toy, and you remember that you had one just like it, and you have warm feelings. Such feelings can't be related by those people who have ever lived in such places.

Secondly, Soviet architecture has enormous power from a historical perspective. The article clearly shows what this art form went through to become what we know well today. People sometimes underestimate the scale of the influence

of the USSR on the architecture of other countries [4, 5, 6, 7]. Any Soviet building, even "Khrushchevka" and "Brezhnevka", should exist as monuments to Soviet era. How sad that instead of restoring a huge part of Soviet constraints the Russian government considers tearing them down.

Thirdly, Soviet architecture gave modernity new construction technologies. The most successful models of residential buildings from the Brezhnev period are still being built. For instance, the "П-44" series can be cited. Thirdly, Soviet architecture gave modernity new construction technologies. It is also worth to be noted that modern types of panel-system buildings continue to be developed not only in Russia, but also abroad.

In conclusion, I would like to state that most Soviet-built constructions are now in a state of disrepair. Instead of restoring such unique monuments of architecture, most of them are considered to be demolished. The situation is a little bit better abroad. In Germany, for example, most of the panel-systems were improved: the area of the apartments was expanded, the elevator is embedded, and the facade was painted in bright colors (Figure 13). The first Soviet panel block of flats in Germany also underwent restoration, but it didn't lose its original appearance.

Figure 13. The renovated panel building. Leinefelde-Worbis, Germany

The contradictory example can be the residential complex of skyscrapers "Rudo" in Belgorod (Figure 14). The architectural composition includes three unusual residential towers. Now all of three buildings are in a deplorable state. The problems started back in the 1990s, but in 2013, the concrete blocks began to fall out of the building. So far, the Serbian government has not taken any measures to improve the condition of these wonderful buildings. And now, due to budget savings, the world may lose such an important element of architecture.

Figure 14. The residential complex of skyscrapers "Rudo". Belgorod, Serbia

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ADVANTAGES AND DISADVANTAGES OF ARTIFICIAL INTELLIGENCE IN BUSINESS

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Abstract. This paper explores how artificial intelligence can be used in business and then discusses the pros and cons of implementing it. At the end of the article, a general conclusion will be formulated comparing the advantages and disadvantages.

Keywords: artificial intelligence, business, areas of use, computerization, loss of jobs.

ПРЕИМУЩЕСТВА И НЕДОСТАТКИ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В БИЗНЕСЕ

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Аннотация. В данной статье исследуется, как искусственный интеллект может быть использован в бизнесе, обсуждаются плюсы и минусы его внедрения. В конце статьи сформулирован общий вывод, в котором сопоставлены преимущества и недостатки.

Ключевые слова: искусственный интеллект, бизнес, области использования, компьютеризация, потеря рабочих мест.

The development of artificial intelligence (AI) has recently moved to a new level. More and more companies and organizations are changing their development strategies and paying attention to the introduction and development of AI.

Nowadays, artificial intelligence is used in various fields: from the entertainment and gaming industries to business and science. AI can significantly speed up and improve many processes, as well as bring a new level of intelligent analysis and decision-making.

One of the most accessible types of artificial intelligence that anyone can use from home is neural networks. Neural networks are one of the types of AI developed on the basis of modeling the structure and functions of the brain.

There are various types of neural networks, from simple models to more complex and deep neural networks. They are used to solve various tasks, such as image classification, speech recognition, sound synthesis and text generation.

In general, the use of neural networks as an accessible artificial intelligence enables people with little or no special knowledge in the field of machine learning and programming to use the capabilities of AI to solve problems and improve the quality of life.

In this article, we will consider how artificial intelligence affects the business environment. We will recognize how AI affect the business of individual entrepreneurs, and how they affect the business for large enterprises. What are the pros and cons of the introduction of artificial intelligence in this area. Based on the results of the analysis of advantages and disadvantages, we will try to conclude whether it is worth using artificial intelligence in business and what consequences this decision may entail [1].

What is artificial intelligence?

Many people still imagine artificial intelligence as something from the future. In fact, artificial intelligence has already been implemented in many companies, and recently ordinary people can use artificial intelligence using various neural networks. To go further, we need to define artificial intelligence.

AI is the simulation of human intelligence processes by machines, especially computer systems. Artificial intelligence is currently used as an auxiliary tool for various processes. It cannot completely replace a human.

Where is AI used in business [2]?

AI can process and analyze data arrays much faster than the human brain. Then the artificial intelligence software can come back with synthesized courses of action and present them to the human user. That means, we can use AI to help beat the possible consequences of each action, simplify the decision-making process, analyze huge databases. All this will significantly increase the speed of the enterprise, and therefore increase its competitiveness in the market.

There are 4 main areas in which AI can be used in business:
1. Sales
2. Marketing
3. Customer support
4. Accounting

Below we will reveal each of these points.

Sales. AI automation has a positive effect on business sales. Referring to the data, it can be concluded that with the use of artificial intelligence, companies may reduce the time of product promotion, for example, with the power of phone calls by an average of 60-70 %, and therefore increase the customer base and reduce costs (including employee salaries) [3].

There are several possible ways to use AI in sales:

Mailing. With the help of AI, you can send thousands of emails to potential customers and at the same time adjust the content of messages in just a few clicks. Even the text of this message can be automatically generated using AI. Therefore, the introduction of this system to the company is very profitable.

Market Analysis. With the help of artificial intelligence, which can analyze a huge amount of data, you can assess the market need for a particular product and then make a sales plan for the company. This will be much more effective than analyzing the market "manually" because it will take much more time.

Pricing. Neural networks can be used to optimize pricing. Machine learning algorithms can help determine the optimal prices for a company's products based on an analysis of the competitive environment and market demand.

Marketing. The introduction of AI is due to the efficiency of finding niches for business. And since any business starts with marketing, which in turn begins with the research of a certain market and competition in it, the speed of decision-making really matters.

Some possible ways to use AI in marketing:

Trends. AI can be used to automatically analyze large amounts of data and identify trends in customer behavior. For example, companies can use neural networks to analyze social media to understand which types of content and messages are most effective for attracting new customers and retaining existing ones.

Design. With the help of neural networks, you can easily create any design on request: for example, a company logo or the design of advertising booklets. Most of the design work to attract the attention of a potential client can be shifted to neural systems. for example, the currently very popular Mildjorney can generate any photo you want and you can even make adjustments to it.

Advertising. Companies can use AI in marketing to improve advertising campaigns. For example, neural networks can be used to predict customer preferences based on their purchase history. This can help companies create personalized advertising campaigns and marketing strategies.

Customer support. AI-powered customer support can improve efficiency, reduce costs, and provide a better customer experience, making it a valuable tool for businesses looking to stay competitive in today's market.

Several possible ways to use AI in customer support:

Chatbots: Chatbots are AI-powered virtual assistants that can handle multiple customer inquiries simultaneously. They can resolve common queries, escalate complex ones, and help customers navigate through the website. Chatbots can provide 24/7 assistance, ensuring that customers receive prompt responses, leading to increased satisfaction.

Personalization: AI can use customer data to provide personalized support, offering tailored solutions and recommendations based on customer preferences.

Natural Language Processing (NLP): NLP can help businesses understand customer queries and feedback more accurately, allowing them to provide more effective support.

Accounting. AI can help businesses streamline their accounting processes, improve accuracy, reduce costs, and make better-informed decisions. By leveraging AI-powered tools, businesses can optimize their financial operations and stay competitive in today's market.

Some possible ways to use AI in accounting:

Automated Data Entry: AI-powered tools can automate repetitive bookkeeping tasks, such as data entry, categorization of expenses, and bank reconciliations. This not only saves time but also reduces the likelihood of errors and enables accountants to focus on high-value tasks. This can save businesses a significant amount of time and money, freeing up staff to focus on more complex tasks.

Financial Reporting: AI-powered tools can assist in generating financial reports quickly and accurately. By analyzing financial data, AI can generate reports in a fraction of the time it takes for humans to do so, reducing the workload of accountants and improving efficiency.

Financial Forecasting: AI-powered predictive analytics can assist businesses in making data-driven financial decisions. By analyzing past data, AI can identify trends and forecast future financial outcomes, allowing businesses to plan and make informed decisions. This can improve decision-making and reduce the risk of financial losses.

We have analyzed the main uses of AI in various business processes. But it is worth talking about the advantages and disadvantages of introducing AI into business, as many questions arise about the possible loss of jobs, the mistakes of artificial intelligence and the availability of its use.

Let's start with the pros:

1. Increased Efficiency. With the help of AI, a campaign can perform various tasks on analytics, calculations, prediction, and so on in a much shorter time

2. Improved Accuracy. AI helps to reduce or even eliminate the error factor in various business operations

3. Cost Savings. Artificial intelligence can help enterprises reduce costs by automating processes, reducing the need for manual labor and optimizing resource allocation.

4. Improved Decision-Making. Thanks to the ability to review large databases in real time, as well as the ability to analyze past experience, AI can become an excellent assistant in this

The advantages turned out to be a conclusion for all types of services that AI can provide to business. But we have hardly touched on the disadvantages of using AI yet. We will reveal them below and make explanations to each of the points:

1. Price. It is worth noting that the price plays an important role. The introduction of artificial intelligence costs a lot of money (we are talking about AI that work with large databases). Expenses are spent on the implementation, training, maintenance of the system, as well as on possible retraining of personnel. All this requires time and additional expenses. It is difficult to say the exact cost of a specific implementation, because the price depends on many factors, such as the purpose of use, the volume of the database and much more. But already now we can conclude that the price can range from several tens of thousands of dollars to millions in such huge corporations as Google, for example. Therefore, for small and medium-sized businesses, AI cannot become an assistant at their early stage of existence due to the immediate high cost.

2. Difficulty in use. Artificial intelligence entails the complete or partial digitalization of all business processes, and therefore requires more computerization

and trained personnel. Again, strong changes and costs, unfortunately, will not be possible for small companies due to strong costs that profit may not be able to cover.

3. Loss of jobs. Goldman Sachs - founder of Goldman Sachs Bank in the USA, which is one of the largest investment banks in the world. He assumed that more than 300 million jobs could be lost due to the development of artificial intelligence [4]. Some workplaces may be fully or partially automated. He suggests that administrative workers and jurists will suffer the most. This wave of computerization can still bypass the rest of the professions. Of course, these changes will mainly affect countries with developed economies, but sooner or later "progress" will reach countries with transition and developing economies. Large companies are now competing in the speed of implementation and development of AI. For example, Mark Zuckerberg recently announced that META will develop its own neural network [5]. Based on all of the above, we can make a micro-conclusion that, of course, global changes are underway in the field of artificial intelligence, which will certainly affect the number of jobs.

To sum up, AI in business has both its pros and cons. We can draw attention to the fact that mainly global changes will affect about 15-20 percent of the population so far, which is of course a lot. But it is worth noting that during the first wave of computerization, when the first computers just began to appear and they began to be introduced into various work processes, there were also many rumors that people would not have workers and so on. In fact, the world has rebuilt, people have rebuilt and the machine of progress has moved on.

AI currently provides many business opportunities. Unfortunately, many of them now receive only large corporations that have a sufficient budget to master the new technology. But even for small businesses, there are many neural networks that can facilitate doing business even at early stages.

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FEATURES OF TRANSLATING CHINESE FIGURATIVE EXPRESSIONS INTO RUSSIAN AND BELARUSIAN

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Abstract. The aim of the work is to compare the similarities and differences between Belarusian, Russian and Chinese sayings. The relevance of the article is that there are a large number of proverbs in the world, which have different sources and cultural connotations, they also vary greatly in structure. They are used to interpret, evaluate and express a subjective attitude to the world.

Keywords: figurative language, proverbs, sayings, proverb translation strategies, cultural correlation, cultural differences, etymological analysis, understanding and interpretation of phraseological units.

ОСОБЕННОСТИ ПЕРЕВОДА КИТАЙСКИХ ОБРАЗНЫХ ВЫРАЖЕНИЙ НА РУССКИЙ И БЕЛОРУССКИЙ ЯЗЫКИ

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Аннотация. Цель работы – сравнить сходства и различия белорусских, русских и китайских поговорок. Актуальность статьи заключается в том, что во всем мире существует большое количество пословиц, которые имеют разные источники и культурные коннотации, структуру. Они используются для интерпретации, оценки и выражения субъективного отношения к миру.

Ключевые слова: образный язык, пословицы, поговорки, стратегии перевода пословиц, культурная корреляция, культурные различия, этимологический анализ, понимание и толкование фразеологизма.

Figurative language is a way of expressing oneself that does not use a word's strict or realistic meaning. Common in comparisons and exaggerations, it is usually used to add creative flourish to written or spoken language or explain a complicated idea.

Utilizing figurative language is treated as the true art of speech since applying relevant figurative devices enhances the intended message, implements more complicated meaning, adds clarity or vividness in a verbal communication. It allows

using words beyond their original literal meanings intending to engage the audience, provoke an emotional response, and create a more intense and focused message. It consists of different types and makes full use of literary devices.

Depending on the situation, different options can be used to achieve the desired effect on an audience or readers. Knowing and understanding how this phenomenon works in different languages is also essential for translators since figurative language is not needed in official documents but its relevant translation is vital in fiction books and in a live conversation. The message meaning can be improved by applying the right strategy. The term 'translation strategy' has been used by various translation scholars to describe different kinds of textual transformations used by translators. Other terms that have been proposed for these or related concepts include techniques, procedures, shifts, operations, transfers, changes, or methods. In translating the figurative language, not only requires the knowledge of the language and culture of both source and target language, but also choosing the appropriate word and translation strategies.

This article discusses the translation and comparison of figurative language in Chinese, Belarusian and Russian languages. Three aspects of figurative language were selected, mainly proverbs, but also phraseological units and idioms.

The methodology of the work is based on working with Chinese, English, Russian and Belarusian dictionaries of phraseological units. In the research the following methods were used: theoretical analysis of the literature on the topic, comparative and descriptive methods, etymological analysis of set expressions.

Proverbs exist in any style of presentation and permeate the entire language, they are, as it were, out of time. Indeed, no matter what time we live, proverbs and sayings will always remain relevant, always falling into place. And today, the development of globalization promotes cultural exchange between different countries, and they are reflected in all aspects: in the economy, science, technology, culture, education, etc. The language of a nation can reflect the natural environment, customs, history and culture of the people.

Chinese proverbs (yànyǔ, 谚语) are one of the deepest legacies of the traditional culture of China. Most proverbs are arisen due to the traditions, customs and beliefs, many originated from folklore folk tales, everyday life of ordinary people or were created on the basis of various realities and facts of Chinese history. A very large group of Chinese proverbs are the statements of Chinese emperors, philosophers, writers and poets [1].

In most cases, Chinese proverbs are complete expressions and consist of 4 or more characters. Despite such a small number of hieroglyphs, sayings carry a deep meaning, which is to some extent intertwined with moral values. Of course, it is almost impossible to derive the meaning of such a saying only with the help of the translation, because behind most Chinese set expressions there are small or big stories, without knowing which, all the beauty and meaning of the phrase are lost in the non-obviousness or imaginary simplicity of images.

In addition, Chinese proverbs sound coherent in our native language, but in translation we can convey them either in boring prose or equivalent in meaning. For example, 欲速则不达 [yù sù zé bù dá] basically means don't try to walk before you can crawl. The Belarusian equivalent of this idiom is "хто ціха ходзіць, той густа месіць" Everyone knows that the Russian language is very rich, so you cannot choose only one translation option. There are dozens of different proverbs that mean the same thing. In this example, depending on the situation, at least 4 equivalents can be applied: "всему своё время", "не лезь вперед батьки в пекло", "поспешишь – людей насмешишь", "спешка нужна только при ловле блох".

Cannot fail to mention that it can be also called like (chéngyǔ, 成语), Chinese idioms which have the following specifics: a relatively constant structure, integrity and indivisibility of meaning [2]. They give the Chinese language depth, flexibility and charm. 一箭双雕 [yījiàn shuāngdiāo] means to kill two birds with one stone, "адным стрэлам забіць двух зайцаў".

Cultural differences, the nature, including geographic location, climate and environmental conditions, contribute to the formation of culture. Belarusian and Russian culture is very different from the Chinese, especially the food culture [3, p. 123].

Despite the fact that potatoes are considered the most stereotypical product for Belarus, bread has long been the most important meal in the house. According to this, dozens of sayings have appeared, for example: "хто ў неба глядзіць, той без хлеба сядзіць", "хто працаваць рады, той будзе хлебам багаты.", "будзе хлеб – будзе і песня", "не той багаты хто мае срэбра и злата, а той хто хлеб мае".

Due to the proximity of Russia to Belarus, climate and the main foodstuffs are similar. All kinds of cereals, cabbage, bread, butter, vegetables and fish – all this is enshrined in sayings: "где щи да каша, там и место наше", "кашу маслом не испортишь", "лук от семи недуг", "без хлеба и медом сыт не будешь". This type of statement is often perceived superficially, which is a mistake, since, for example, the conventional expression "без костей рыбы не бывает" which came from fishermen, means not only the non-existence of a fish without a skeleton, but also take a deeper meaning. The idea is that in any business you cannot do without difficulties, and in order to succeed, you need to learn how to overcome them. In this case, in order to eat the fish, you must first clean it from the bones.

And in most regions of China, especially in the south, rice is the main food product, and therefore a rather large number of phraseological units have been formed on this basis: 巧妇难为无米之炊 [qiǎofù nánwéi wúmǐ zhī chuī] without rice, even a skilled hostess cannot cook porridge; 茶余饭后 [cháyú fànhòu] at the rest of the time after drinking tea and eating food (in free time).

Everyone who is familiar with world geography knows that most of China is located in the temperate zone, subtropical zone. The winter is very cold and the summer is very hot. It is rainy in spring and autumn, the weather is unstable: 天无三日晴，地无三里平 [tiān wú sān rì qíng dì wú sān lǐ píng] there is no sun for three

days, the ground is not flat for three miles, the meaning of the saying is that the weather is changeable and rainy, and the mountain roads are indented. 春雨贵如油 [chūn yǔ guì rú yóu] spring rain is as expensive as oil. Spring is the period when overwintered crops begin to turn green and ripen. They need a lot of water and therefore rain is very valuable at this time.

Belarus is used to rainy and relatively not hot summers, mild winters. Autumn and spring are characterized by unstable weather, which is reflected in idioms, for example: "будзе дождж – будуць і грыбы", "кастрычнік зямлю балоціць, а лес залоціць", "лета з камарамі, зіма з пірагамі", "колас добра не спее, калі сонца не грэе".

In Russia, for the most part, agriculture and rural economy depend on the weather: "весна да осень, на дню погод восемь", "когда поле жнут да косят, то погоды не ждут и не просят", "худое лето, коли сена нету", "что летом родится, то зимой пригодится".

Since the adoption of Orthodoxy in Rus', many proverbs related to religion have appeared in the Russian language. The omnipotence of the Almighty is emphasized in such proverbs: "кто рано встает, тому Бог подает", "на Бога надейся, а сам не плошай", "Бог дал, Бог взял". Most believers in Russia and Belarus profess Christianity in the form of Orthodoxy, where God is considered the most important representative and source of goodness: "Бог бачыць з неба, што каму трэба", "Бог не папусціць, свіння не ўкусіць".

It is worth noting that God and goodness are inseparable. The very concept of "good" is associated with what is "good", and "evil" with "bad". This opposition is the philosophy of the people's mentality. Proverbs talk about the constant struggle between good and evil, that good always triumphs over evil. Kindness inspires, makes stronger and tunes in to understanding and sensuality. Evil, on the contrary, is accompanied by negative emotions and diseases. "От добра добра не ищут", "нет худа без добра", "добра ищи, а худо само придет".

In China, the main religions are Buddhism and Taoism, in the philosophy of which it is believed that the categories of good and bad are in the closest interdependence. There is no absolute good, just as there is no absolute bad. In every evil deed there is at least one small good deed, and in every good deed there is an element of evil. Ancient Chinese philosophy contains doctrines such as the theory of natural good, the theory of natural evil, and the union of these theories. The ultimate goal of these theories is to promote harmony. 善有善报 [shàn yǒu shàn bào] one good turn deserves another; 良言比财富珍贵 [liáng yán bǐ cái fù zhēn guì] kind words are more precious than wealth; 不要赞赏钱财，而要夸奖善良 [bùyào zànshǎng qiáncái, ér yào kuājiǎng shànliáng] do not boast of silver, boast of good.

Therefore, methods for translating set expressions depend on the environment in which it is used. Depending on the specific situation, the following methods are mainly used when translating Chinese idioms into Russian and Belarusian languages:

1. Formal correspondence.

Due to the similarity of people's thinking, even in the distance of thousands of kilometers, thoughts and morality often coincide, respectively, there are full or partial equivalents. This can be seen in the following examples: 万事开头难 [wànshì kāitóu nán] says that every beginning is difficult "лиха беда начало" / "цяжка пачаць, ды лёгка канчаць"; 活到老，学到老 [huó dào lǎo, xué dào lǎo] one is never too old to learn "век живи, век учись"/ "што жывем, то вучымся, будзем вучыцца, пакуль смерць лучыцца".

2. Image replacement.

The Belarusian language also has a number of phraseological units, the meanings of which are similar to Chinese expressions or exactly the same, but different images are used due to different cultures and lifestyles. 爱屋及乌 [ài wū jí wū] he that loves the tree, loves its branches "любіш ездзіць, любі і саначкі цягаць".

一言既出，驷马难追 [yì yán jì chū, sì mǎ nán zhuī] the literal translation is "the word flew out – you can't catch up with the four horses", which is similar in structure to the Russian version "слово не воробей, вылетит – не поймаешь". The mention of a sparrow is associated with an oral folk-poetic tradition, in which a sounding word (song, speech) is often compared with a bird's flight. What has been said cannot be unsaid "сказанае слова за хвост не зловіш".

3. Descriptive translation.

In situations where the phraseological unit does not have an appropriate analogue in the target language and is not subject to literal translation, the translator may resort to descriptive translation or apply translation commentary. However, such a translation deprives the phraseological unit of its figurative-associative properties. [4].

From the above, we can conclude that between Russian, Belarusian and Chinese phraseological units in all respects exist differences and similarities. As shown by a comparative analysis, differences significantly more due to the huge dissimilarity in linguistic and cultural systems. Proper understanding of this diversity will effectively help translators overcome many difficulties which they encounter when translating.

The features of Russian, Belarusian and Chinese phraseological units are as follows: the stability of the constituent components, the integrity of the meaning, the diversity of the syntactic function and the elegance of language styles. Only a Chinese phraseological unit often consists of four or more characters, and Russian and Belarusian proverbs are not as strict in terms of the number of words.

In the process of translating, many difficulties arise due to discrepancy in parts of speech, syntactic structure, culture and habits, rhetoric and geography, history, religious beliefs and habits of the countries. To overcome these difficulties, the translator must make full use of the basic idiom translation method and be flexible in choosing suitable translation methods or mixing different methods together for a particular situation [5]. Some translators only focus on the superficial meaning of the idiom and only translate it verbatim, but metaphorical meaning cannot be ignored.

For example, the Chinese idiom 囫囵吞枣 literally means "to swallow a date with the pit without making out the taste". But this phraseological unit has a deep meaning "to accept something indiscriminately, without analysis".

Summing up, it should be mentioned that all over the world there are a large number of proverbs that have different sources and cultural connotations, and also vary greatly in structure.

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