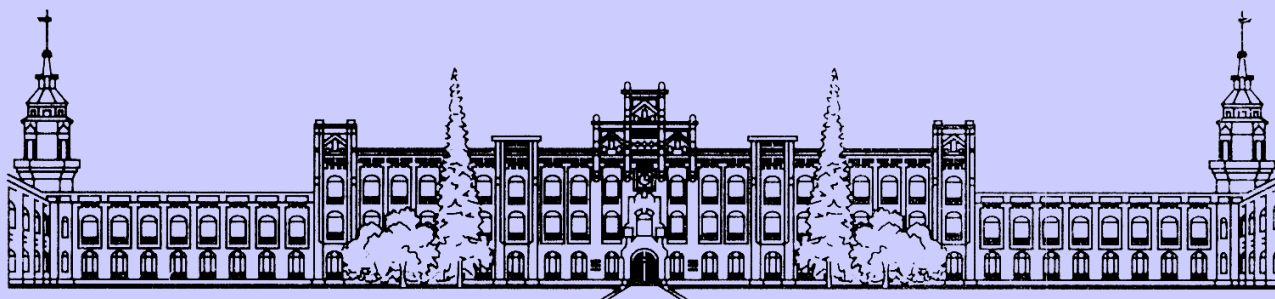**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ**

НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ УКРАЇНИ

«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ

ІМЕНІ ІГОРЯ СІКОРСЬКОГО»

ФАКУЛЬТЕТ ЛІНГВІСТИКИ

UKRAINIAN AND FOREIGN SCIENCE:
YESTERDAY, TODAY, TOMORROW

Матеріали

Міжнародної студентської конференції

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Співголова організаційного комітету:
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Сімкова І. О., д. пед. н., доцент, завідувач кафедри англійської мови гуманітарного спрямування №3, ФЛ, КПІ ім. Ігоря Сікорського

Члени оргкомітету:

Корницька Ю. А., к. пед. н, доцент кафедри англійської мови гуманітарного спрямування №3, ФЛ, КПІ ім. Ігоря Сікорського
Колісник М. П., к. філол. н, доцент кафедри англійської мови гуманітарного спрямування №3, ФЛ, КПІ ім. Ігоря Сікорського
Баранов С. Ю., викладач кафедри англійської мови гуманітарного спрямування №3, ФЛ, КПІ ім. Ігоря Сікорського
Бондаренко О. І. викладач кафедри англійської мови гуманітарного спрямування №3, ФЛ, КПІ ім. Ігоря Сікорського
Тищенко М. А., викладач кафедри англійської мови гуманітарного спрямування №3, ФЛ, КПІ ім. Ігоря Сікорського

Секретар оргкомітету
Тулякова К. Р., викладач кафедри англійської мови гуманітарного спрямування №3, ФЛ, КПІ ім. Ігоря Сікорського

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У збірнику представлено матеріали Міжнародної студентської науково-практичної конференції «Ukrainian and Foreign Science: Yesterday, Today, Tomorrow», яка відбулася у Києві 12 грудня 2019 року і була присвячена досягненням науки в Україні та світі. Матеріали конференції призначено для студентів, випускників ЗВО та усіх, хто цікавиться актуальними питаннями сучасної науки та техніки.

ENGINEERING SCIENCES

ELECTRIC CARS:
FANTASTIC OR STEP FORWARD TO FUTURE

Bilous Oleksandr
Faculty of Radio Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Electric cars are sure taking part in our life and are no longer perceived as some kind of miracle. This isn't about scooters, bicycles or electric mopeds. It's not even about hybrids, it's about real electric cars, which are not inferior to analogues on internal combustion engine.

It's a paradox, but the first self-propelled vehicle was an electric car. It was a wagon with an electric motor. Most sources refer to the fact that the first inventor was Robert Anderson. He built his prototype in 1832-39. And in 1881 in Paris, at the First International Exhibition of Electronics, the first tricycle electric car was already presented. By the way, the first car, which was working on the internal combustion engine, was only built in 1885 by Carl Benz.

Another paradox, electric cars are always faster and more powerful. If we take average values, the efficiency of electric engine is 88-95%, in contrast to 22-42% for internal combustion engines. Correspondingly, electric propulsion systems are more powerful than gasoline, diesel or gas-powered systems. And yes, for those who want to be the fastest and the first, the dynamics of the electric car's speed gain is higher than that of its competitors. This is due to the efficiency and lack of gearbox. In other words, the engine does not need to be spun up. It means that engine uses all the power from the first second if required.

The fact is electric cars are several times safer than their fellow ICE. This is due to the fact that electric cars are so-called "cold" cars. That is, in the "hearts" of such machines there are no processes of fuel ignition. You do not need to carry about 40 liters of combustible mixture with you. It is also worth noting that crash tests show the following: due to such a design feature of the electric car as the absence of an engine in front of the car, the engine in case of accident does not become a killer of people in the cabin. For example, according to the results of crash tests conducted in the U.S. in 2017, the Tesla Model X was assigned the highest safety rating in all categories.

From an environmental point of view, these machines are also the most environmentally friendly of all available options. No fuel combustion - no emissions. We all know that fossil resources, such as oil and gas, are not infinite. Their

extraction is difficult and does not cost our planet for nothing. At the same time, the trends towards clean and renewable energy production are only growing.

The design and economic features of the electric vehicle include the following:

- No engine in front of the passenger compartment. It is much smaller and more compact.

- There are no so many moving parts. This means a much longer service life of the car.

- Due to the use of an electric motor there is no need for consumables such as oil, various gaskets, plugs and filters.

- Quiet operation of the engine.

- Heating of the cabin is carried out by electric furnace. This is fast and economical.

- It is possible to charge both at specialized stations and "at home" from 220v.

- The cost of refueling such machines is much lower and does not depend on fuel importers.

- There are low costs for consumables and maintenance. There is no attachment to the service station.

- In terms of customs clearance and registration of such vehicles, the state makes a concession and carries out this procedure according to the green tariff. By the way, not only our government treats the owners of electric cars with indulgence, this trend is observed all over the world.

Electric cars are one of the most perspective directions of vehicle development. The properties of such machines are constantly growing, and their price is gradually decreasing. The governments of the countries sympathetically treat the desire of their citizens to own such cars. Such a policy is conditioned by the reduction of harm to the environment, decrease in the level of noise, reduction of economic dependence on fuel, increased level of safety. The number of electric power stations and the range of electric cars are constantly increasing. I am talking not only about the Tesla cars. There exist examples of much cheaper and closer to the people. In the Ukrainian market it is possible to find electric cars of such manufacturers as Renault, Hyundai, Mercury, Tesla, Nissan, Smart, Jaguar, BMW and Chevrolet. And soon there will be more and more of them. The area of using of electric cars is not limited to personal transport and is constantly increasing, from special vehicles to public ones.

Basing on the above arguments, the purchase of an electric car is a very good investment.

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SOFTWARE IN CARS

Bondarchuk Evgeniy
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The first automotive software appeared in cars back in the 60s. Thanks to this, the industry has changed dramatically. Today electronics, and especially software, are the main sources of innovation. Automotive software improves reliability with active and passive safety systems such as anti-lock braking systems and Electronic Stability Program (ESC). Many systems for controlling the engine and ensuring traffic safety must ensure that control operations respond so that there is no lag behind the physical process. Therefore, when controlling very fast physical processes, such as controlling the engine or driving dynamics, calculations must be performed very quickly. Automotive software is used in many car variants and even model ranges. Therefore, it should easily adapt to the respective systems. For this, it contains calibration parameters and program cards. Their number in the car can reach several tens of thousands. These adjustable variables have many interdependencies. In addition, the degree of connection of individual systems with each other is constantly increasing. Increasingly, one function is distributed among several systems or computers. For reasons of economy, the ECU often contains microcontrollers with limited processing power and limited memory. In many cases, this requires measures to optimize software development to reduce the amount of hardware required. Software features are application specific. While drive and transmission software has a wide scope, undercarriage software focuses on real-time performance. In comfort safety systems, emphasis is placed on efficiency, i.e. resource consumption, and in multimedia applications in a short time you need to process large amounts of data. As a result, the scope of functions of some ECUs continues to grow. In general, systemic distinctions between various ECUs disappear, for example, in the management of a hybrid drive. Thus, the electronics in cars is becoming more complex. Therefore, the economic component will be a key element in future developments in automotive software and development environments.

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INSKY LIGHT: A NEW LOOK AT THE NATURE OF ELECTRICITY

Chesnytskyi Danylo
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

More than a century humankind carries on a stubborn fight against tones of wires. Radio, TV and the Internet has finally given up. Only electricity, with its powerful meaning for all of us, still depends on obsolete wire-technologies. Even they seem harmless at first glance. They pick up to themselves tons of valuable resources. What is more, the frequency in the network is not suitable for human nature. It is time to abandon the sinking ship of wire-technologies and outrush into the wireless era.

The stagnation of wires communications can be prevented with the help of natural technologies. Wireless transmission and generation of electricity are possible with the help of the electromagnetic processes of the Earth's field. This energy is the pure demonstration of natural electricity and the environment for its transmission. It is only necessary to find a way to extract and transport this infinite energy.

For the first time it is proposed to replace the worldwide network of electrical communications with a new generation of wireless networks. Now this step is more relevant than ever. A resource-oriented one is replacing a resource-consumed economy. This new model requires new ways of extracting and transporting energy, which does not destroy nature but function following its laws.

Fortunately, we have such technology. We call it InSky Light. The network of installations, developed according to the scientific research of the project's team, will be able to extract and deliver electricity to any part of the globe, at any time of the year, with maximum efficiency and without a single centimeter of wire.

The technology is used in the construction of InSky Light plant. One plant is the link of the integral system of wire-free transfer of energy, similar to radio, TV and internet's networks. A single plant is based on a bionic hyperboloid form. It perfectly fits both for generation and transfer of the electric power. Half of the structure is situated under the ground, while the mirror part of the plant rises 20 meters above the ground. The heart of the installation is the inductor coils with different types of windings, which create an electromagnetic wave capable of reaching such antennas hundreds of kilometers away, sharing energy for any consumer in this zone (Kriuk, 2008).

The transmitting and receiving links of the system take part in the process of stirring an electromagnetic field. This bundle of two installations was experimentally tested, proving the correctness of theoretical judgments. 10 W of energy has been transferred over a distance of 10 meters. The efficiency exceeded 184 percent because 18.4 W of electricity came to the destination point. The electromagnetic field feeds the system; it is only necessary to convert its potential into electric current. In addition to this experiment, patents have shown many attempts to scientifically

confirmed this phenomenon, which creates a solid basis for improving and bringing technology to the market (Kriuk, Yatsyshyn, Beldyi).

All things considered, we hope that the full realization of the project will take seven years. The primary goal is to create a minimum viable product in the next three years. This period is necessary for complete testing of the technology, patenting, the creation of project documentation and a research center, where a prototype will be built.

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DATA MINING USING MODERT ALGORITHMS AND DATA STRUTURES

Chornenko Yulia, Lozko Oleksandr
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Wovelets may be a proprietary signal preparing strategy that's getting to be increasingly commonplace within the machine learning community. In specific, Morley wavelets were utilized to anticipate the patterns of the time arrangement of the neural arrange for financial lawmakers, etc. In this article, we talk about the presentation of Morley wavelets to decide the morphology of the components of cyclic time arrangement and unattended data. Making cash time arrangement to uncover covered up meaning in information. In arrange to memorize this time arrangement and frame a comparison between morphologies, this article proposes the execution of a strategy for comparing the control of Balman time arrangement, which extricates the taking after thought processes of time arrangement from a fundamental information set.

We live in forever of data within the heading of a number of a long time. Since any human work is legitimized by data innovation and digitized, it plans a tremendous heap of data, which is getting to be increasingly alluring for all interested parties, such as researchers or businessmen. They are all fascinated by having the opportunity to urge an supreme thought of individuals and things with the assistance of a clear and shrewd investigation of the brilliant center of the information they deliver. An imperative condition for such an intrigued is competitive advantage and the anticipated increase within the benefits of this careful mindfulness. In later a long time, new standards, strategies, and devices have been seen to assist specialists find delicate data. There has been a huge blast of innovative revelations that are inciting a audit of the current state of the craftsmanship in huge information innovation

scenarios. In this way, taking after the highlights of the as of late considered worldview, this work is centered on the think about of more well-known innovations beneath the sponsorship of enormous information with the presentation of high-quality investigation of their information.

With the coming of the enormous information worldview, conventional ways of overseeing information lead to insufficiency in numerous of these scenarios. In specific, OLAP strategies are tirelessly inquiring for noteworthy changes in arrange to offer the proper examination due to the large number of information that has to be learned, as well as their speed and differentiate. In this article, we portray a energetic look plot for huge information, based on information collected by a reasonable reserve funds framework that enhances the information, making a difference clients proficiently and viably investigate the data.

In later a long time, researchers have gotten to be more fascinated by working with expansive volumes of information. Not slightest, it's not simple to discover designs from all kinds of sources of colossal information, employing a adaptable and effective way. In this article, we are creating a cloud information stage for currency information administrations (Discover) and presenting a test framework to assess the execution and convenience of a information cloud. Discover made from cloudy foundation, information center and information entrance. Discover gives high-performance computing, high-quality coordinates money information, troublesome information mining and effective information handling administrations.

Increases to the databases empower clients to develop the expanding measure and complexity of information, information and dispersal of data any day in arrange to guarantee convenient reaction to the danger of activities. In any case, the method of concluding human errands, which direly direly requires mindfulness and following the advancement of information, information and occasions, is still carried out by individuals, not databases and their applications. In this position paper, we suggest KIDS as a show that reflects how individuals fathom issues. We suggest utilizing KIDS as a demonstrate for growing database advances for rotating, self-developing information, information, orders and occasion administration. Our proposition is based on our involvement in making database-based applications that critically direly require comprehensive interaction between application varieties, data, exercises and information.

Effectiveness of civil advancements makes extraordinary sense for financial competitiveness. The most components acting on its increment or diminish, as well as the affect of government conclusions or the devices of political functionaries, are still not clear. The most recent formats are either constrained due to superb unconventional capacities, or since of the little database with a little number of ponders. The reason of this work is considered to be the proposition of an fitting show of machine learning to analyze the execution information of metropolitan advancements. We utilize clustering and relationship investigation, a Bayesian neural organize with locally translated model-independent clarifications, and BreakDown to break down the estimate of imaginative results. Our comes about illustrate, in truth,

that arrangement of machine learning is reasonable for evaluating the status of inventive profiles, for deciding the driving determinants in a cluster, conjointly at the state level, taking under consideration the relationship of information and long-term impacts, as well as the affect of changes on the commitment of advancements (for illustration , with the presentation of the strategy of metropolitan conclusions or inventive arrangement), based on the comes about of developments, contains the probability to require care, and at the same time, the viability of the nation of development dissolves or miniaturizes.

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THE FUTURE OF THE INTERNET OF THINGS

Denysenko Oleksandra
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

According to the latest researches, in the 2020 the Internet of Things (IoT) will overcome a critical point in its development and will become the base of infrastructure almost in every field of activity.

The world-famous Cisco says that the number of 'intelligent' devices in the next 4 years will be more than 50 billion, while the experts of Intel are sure: in the 2030 200 million devices will be connected to the Internet.

Now we see the world, where every kind of device is connected to the Global Network. It makes our lives faster and easier.

The Internet of Things changes the European standards of industries. It helps to create new competitive advantages and methods of production. One of those innovative methods is the conception of Industry 4.0, which was created in Germany in the 2011.

It provides the creation of a new type of industrial enterprises, when constant information exchange takes place at all levels: from production equipment to relations with suppliers and customers, and this process can be controlled from anywhere in the world. Now more than 130 out of 278 German enterprises involved in Industry 4.0, including leaders of the German economy: Bosch, Siemens, ThyssenKrupp, Wittenstein, BASF SE and other companies, including SAP.

Until 2020, Europe will invest about € 140 billion a year in Industry 4.0, but the winning procession of Industry 4.0 is not limited to the Old World: in 2014, the

USA, following the example of Germany, created a non-profit consortium Industrial Internet, led by industry leaders such as General Electric, AT&T, IBM and Intel.

On the one hand, Industry 4.0 logically continues the path from the conquest energy of water and steam (Industry 1.0), the power of electricity (Industry 2.0) and electronic intelligence (Industry 3.0). On the other hand, it provides an opportunity for any enterprise to join modern innovations using global experience.

As technology develops, it becomes more accessible - in the case of IoT, the cost of one smart sensor in just 5 years has dropped from $ 20 to $ 0.5 and continues to decrease.

Owing to this, access to it can be obtained by countries with the most diverse economic structures, and there are more and more industries where such solutions are applied.

If to believe the reports of EMC and IDC, the world is becoming a global digital factory, which by 2030 will produce an unprecedented amount of information - 44 zettabytes.

Despite the complexity of the interactions of smart machines, infrastructure, and data, man remains at the center of this process.

The solution is always up to him, and smart machines and sensors help to make it more accurately and faster: according to SAP estimation, more than 95% of requests in information systems will be executed in a matter of milliseconds, helping to accelerate the development of new products, attract the best suppliers and strengthen relationships with customers. This creates unique opportunities for global cooperation and the development of local industries. This is why IoT is more than sensors and data: in the coming years, it can become an instrument of enterprises 'hyperconnection' to the production process that spans the whole world.

To summarize all of the above, the Internet of Things technology has unlimited potential, which allows both the public sector and business to reach a new level of development. IoT is able to unite industries and states into a single effective mechanism where all participants will be able to achieve their goals. Business will be able to rapidly increase its competitiveness, and the public sector will be able to optimize its work with infrastructure and interact with citizens in a new way.

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DEVELOPMENT OF HYDROPOWER IN ZALISHCHYKY REGION

Dzividzinska Mariana
Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The level of large rivers development of is almost exhausted. Over the last years it has reached more than 60%. There are a lot of rivers in Zalishchyky district, for example Dzhurin, Krynitsa, Seret, Tupa, Khrumova and Dnister. Using potential of Dnister needs serious ecology researching and justification. It is very difficult for implementation, because river has international importance. Dnister is located not only in Ukraine, but in Moldova as well. There are three hydroelectric stations and one pumped-storage hydroelectric station on Dnister cascade, but none of them is in the district, which we consider.

Public join stock company "UKRHIDROENERGO" presented the program building six hydroelectric stations on Dnister in 2015 year. Supporters of this program state that it will lead to electricity production increase, as well as flooding control and collection of water from precipitation to save water resources.

Such statements may seem promising but are they real? Here we will regard the objective reasons to state otherwise. Hydroelectric station is too small to contain flood of a large river. Dnister Canyon National Nature Park carries out researches and calculates time of flood containing and actually it is a short period of time. River flow brings rocks, which stay in the reservoir and after short time we get a swamp with a bed smell. The same situation occurs with reservoir in Kasperivtsi, which is located on river Seret, which is also located in our district. Also, we have a lot of problems with flooding of arable land. But the biggest problem, not only for my point of view, is the destruction of unique species of flora and fauna in Dnister canyon.

It may seem irrelevant since hydroelectric stations are located only in three districts of Ukraine (Chernivtsi, Ternopil and Ivano-Frankivsk), but Moldova also will suffer from building of hydroelectric stations, because Dnister is the biggest source of drinking water for them (Yakovlev, 2017).

A lot of problems with flood control system, with pollution of reservoirs, with flooding of large arable land, problems with destruction of flora and fauna and with drinking water tell us that hydroelectricity may not be Feed-in tariff. Today we can use other types of alternative energy, for instance solar or wind energy and they can give us energy for the whole region.

Actually, today we have huge progress in technological sphere especially in alternative energy. But, in my opinion, we ought to think not only about energy situation today and tomorrow, but we should consider fauna, flora, soil, atmosphere, hydrosphere and other related aspects. We need to leave our Earth to our posterity in the same condition we acquired it from our ancestors.

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AI TESTS

El Baba Nataly
Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Have you ever thought how could people divide technology into ordinary mechanisms and artificial intelligence? Many scientists tried to answer this question and developed different ways to test AI. In this article, I will try to sum up all of them.

The first person, who proposed such a test was Alan Turing. He invented a simple game in which a person had a text conversation with unseen players and evaluated their responses. Based on the answers to the questions, he must determine whom he is talking with: a person or a computer program. The task of a computer program is to mislead a person by forcing him to make the wrong choice. Turing predicted that by the beginning of 21 century, computers with at least 100 megabytes of memory will easily pass the test, but he was wrong. Considering that today`s computers have much larger capacity of memory, only a few have succeeded. Those, that passed it successfully weren`t sophisticated mechanisms, but they cheated (Gender, n.d.).

The first program which succeeded was called ELIZA. It had short and simple script, but it managed to mislead everyone by pretending it was a psychologist, motivating them to talk more and making themanswer they own questions. Another early script PARRY took the opposite approach: it imitated a paranoid schizophrenic, but it also worked perfectly.

The most recent script, Eugene Goostman, was acting like a 13-year-old Ukrainian boy, so his awkward grammar and strange answers could be interpreted as language and culture barriers.

This is the most famous way to determine if a machine has intelligence, but modern scientists have an opinion, this test isn`t relevant xanymore.

Cognitive scientist Gary Marcus is an active critic of the Turing test in its current form. This year, for example, he organized a conference on artificial intelligence, where he called for leaving the Turing test and coming up with something new. Marcus proposed his alternative, which was described in The New Yorker magazine article. He suggests creating a computer program that could watch television shows and videos on YouTube and answer questions about their content –

for example why Joffrey Baratheon ordered the execution of Edward Stark, which isn`t so difficult. Marcus's test goes even further: he suggests to include the Simpsons episode in such a program and let it explain where you should laugh. If a computer can determine and understand humor, sarcasm, and irony, it means that it is as close to intelligence as possible, and maybe possesses it.

There are several tests that are oriented on creative and matching skills. For example test of Lavlace. Ada Lovelace said that creativity is a true sign of intelligence. This thesis is based on the original description of the 2001 Lovelace Exam. Mark Riddle added the conditions of the exam, so the assessment would be fair. According to the description, the computer must create smth. (painting or literary work) in addition to the predefined criteria. Among the criteria may be a description of a character with certain characteristics or a description of the plot. In this case, judges should not evaluate the artistic/aesthetic value of the work, but only if it satisfies all criteria (Alizar, 2014).

The last type is the test which verifies the visual abilities of the machine. They show machine a picture and ask, for example, where is the cup and give several answers. All answers are correct (on the table, on the bedding, in front of the chair, to the left of the lamp), but some of them may be more "human like" than others (a person will most likely answer "on the table" for example) (Prorokov, 2015). This seems to be a simple task, but in fact, the ability to describe where the object is about other objects is an essential element of the human mind. A lot of nuances and subjective judgments play a role here, from the size of objects to their role in a particular situation - in general, context. People do this intuitively, and algorithms usually don`t cope with such tasks.

So, after analyzing all mantioned, we can conclude that almost all existing tests are intended to test skills equivalent to the skills of a 5-7-year-old child (orientation in space, the ability to tell smth, answer questions, create pictures, etc.). Considering that AI can surpass a person in analyzing data, collecting and storing information, and in many other things that rely on the system and Template. But it won`t surpass human skills that require the ability to create and invent.

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AI AS FAMILY-DOCTOR ASSISTANT

Gricaenko Kate
Faculty of Informatics and Computer Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute

Nowadays, the influence of artificial intelligence has increased dramatically as well as the scope of its application. One of the most promising areas of AI development is its use as a medical assistant or as a management system of medical institutions. The world knows such systems as Ada and Watson (Sinhasane,S. 2017), which use an error propagation system for effective analysis and diagnosis of a certain range of diagnoses. However, those systems use high power computing, which depreciates their relevance in Ukraine.

The problem of cardiogram pre-analysis system development for reducing the routine load pressure on the specialist, the cardiologist, is really actual because the pathology of the cardiovascular system is one of the most common causes of death, permanent and temporary disabilities (HeartRythmSociety, 2018). That is why the creation of automatized programs for electro cardio diagram decryption and evaluation is the solution, which can save a lot of lives.

In general, to fulfill the basic remote needs of cardiologists it is necessary to create a system for preliminary electro diagram scans sorting which were received by e-mail. The main criteria for such analysis is recognition according to heart rate deviation from the pulse norm(Datarevenue, 2018).

Thus, the objects of study are expert systems and classifiers. The subject of the study is the cardiogram classifier.

Achievement of the research goal requires the realization of the following tasks: digitization of cardiograms since usually the cardio electro grams are recorded on paper which is hard to analyze electronically; digitized chart preprocessing as it provides with accurate high-resolution data; preparation of data for a neural network which is a critical part in complex data analysis. The next step will be preparation of databases for neural network training since there is no systematic approach to this problem. After the preparation study it is necessary to fulfill the verification. That is to check neural network realization, neural network training, verification of the reliability of the results. Moreover, the development of such a sophisticated and specific system requires special "brain" to coordinate, manage, allocate and maintain it. Thereby, one of the most important steps on the way of realization is creation of the necessary software.

Taking into consideration all the above there is a perspective in development of the system which will perform the preliminary correction of cardiograms system as well as participate in the process as a neural network for reading and analysis of processed images.

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## COMPARISON OF INTEL AND AMD PROCESSORS: WHICH ARE BETTER?

Holubov Ivan
Faculty of Informatics and Computer Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Introduction. The processor market has long been divided by two giant companies with their vision of the ideal processor - AMD is trying to create a niche product with a low price, Intel focuses on top-end, productive processors. Which processor is better, Intel or AMD?

Objectives. The main task is to determine the advantages and disadvantages of Intel and AMD processors, the choice of the best of them for the tasks. This and much more will be described further.

Methods. By analyzing the performance charts of various processors, we can determine the advantages of a particular manufacturer. (Jeyaratnam, 2019)
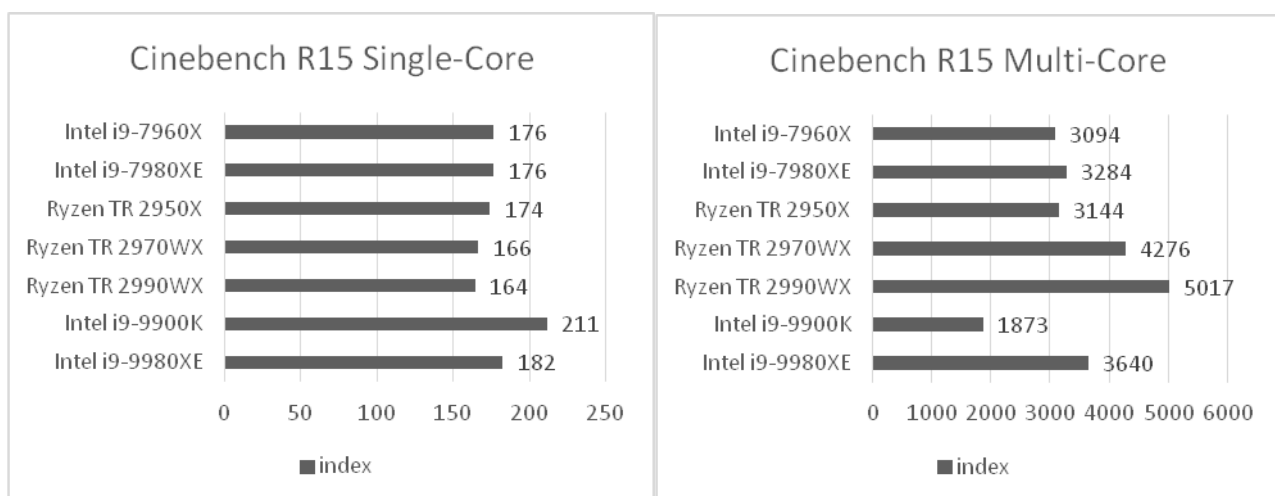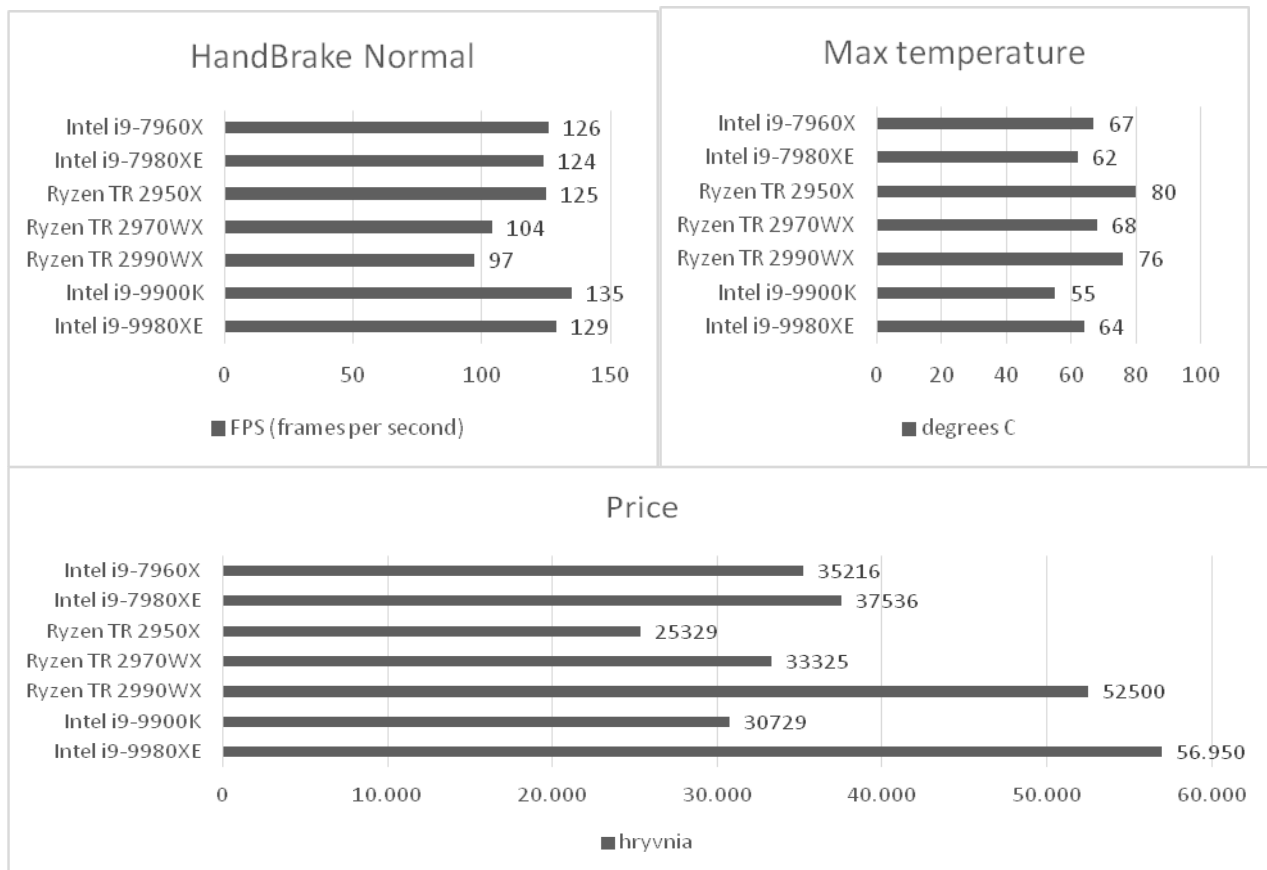
CPU Intel and AMD differ in power. With the same number of cores and clock speed, Intel product performance is higher.

Comparing processors in the category of maximum heating temperature, we can conclude that AMD processors are more heated than Inter, as a result of which they are less efficient in terms of energy saving.

Analyzing the price category, we can conclude that AMD processors are cheaper than Intel processors.

AMD is selling 2/3 chips in the world. It has the best graphics integration, but Intel delivers discrete 3D graphics performance.

AMD has more overclocking opportunities than Intel, especially in the middle price segment. This increases its productivity, makes it equivalent to an overclocked processor of the next level. It turns out savings.

Conclusion. To conclude these observations, differences between modern CPU models of competing firms are already insignificant. So, the best option is to choose a processor based on specifications and cost, not the manufacturer.

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# THE USE OF ARTIFICIAL INTELLIGENCE.

Horbenko Artur

Faculty of Radio Engineering,

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

In the early 1980s scientists in the field of computational theory Barr and Feigenbaum proposed the following definition of artificial intelligence (AI):«Artificial intelligence is an area of computer science that is engaged in the development of intelligent computer systems, that is, systems that have the capabilities that we traditionally associate with the human mind - understanding the language, learning, the ability to reason, solve problems, etc.»

The aim of work is research and follow up what are the most beneficial use cases of AI and make a prediction of progression.

The graph below shows how much money has been spent on the introduction and development of artificial intelligence in various areas of human activity for five last years.
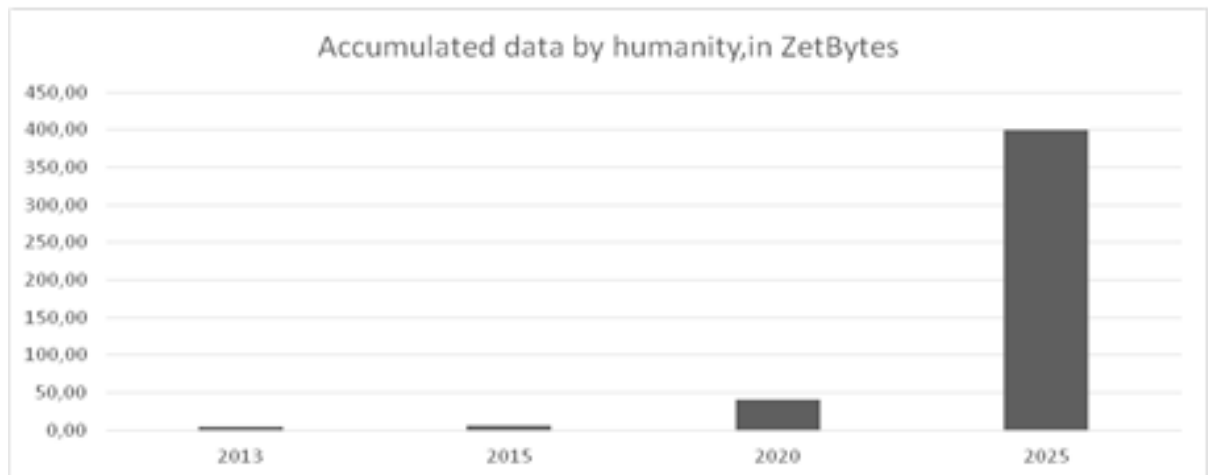
So we got that the first three positions occupy more than half of overall capital.

It is also worth noting that they can be attributed to working with big data. We can assume that this is due to the very great development of social networks and communications. Every day people produce more and more information that needs to be stored and maintained. And information should be easily accessible.

The second graph shows how much data human population produced and will produce until 2025. It is easy to notice that the difference in growth between 2025 and 2020 is so enormous that in comparison with 2013,it looks like people almost did not use the Internet in that years.
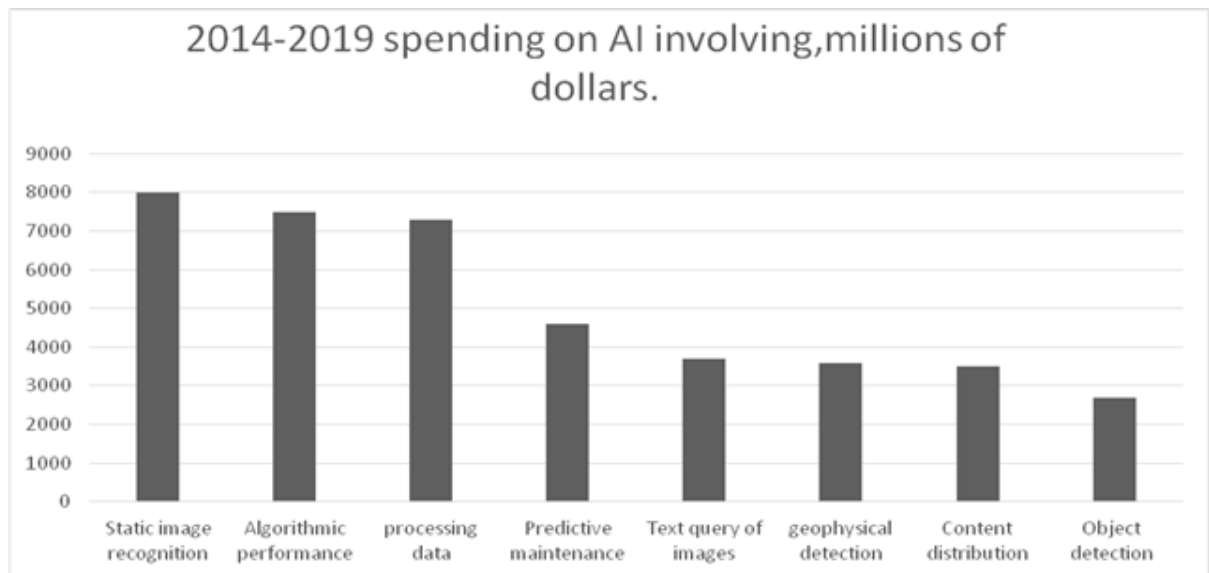
We can assume that this huge growth in data production will only continue.

And just in this case, the use of artificial intelligence can help optimize and speed up operations with big data. Artificial intelligence is able to evaluate existing compression and preservation algorithms. Also, the use of AI helps predict the request for information. Additionally, artificial intelligence is not related to any particular area so it is absolutely universal.

But on the other hand, like all fast-growing technologies, artificial intelligence has its drawbacks:

• The probability of failure. A small error at the initial stages of the action algorithms is further aggravated, leading to serious breakdowns, financial losses, and reduced productivity.

• Separation from the user. Continuous improvement of neural networks can divide the worlds of machines and people

• Reducing the number of jobs. The introduction of artificial intelligence in the production of goods, services, data analysis, research indicators will cause people to replace computers, worsening the economic situation of the latter.

The development of artificial intelligence will go hand in hand with an increase in the amount of data produced by humans. Therefore, the main directions of AI development can be distinguished: processing the information flow, finding patterns in the data for given algorithms, improving existing methods of storing and extracting a large amount of information.

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HOW TO BOOST ONLINE BUSINESS WITH AI PERSONALIZED MARKETING?

Gumnytskiy Volodymyr
Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nowadays the availability of many sales tools, such as SalesForce does not grant that a company would sell its services and products to every website visitor. Those companies have a lot of different sales departments, for example: lead generators, Retention department, Sales Development department, Sales Enablement department, account managers, technical directors, and Assessment department. However even that big number of employees they still cannot keep up with the ordinary market huckster, who has a 100% Conversion Rate.

With the new digital age, Big Data came and disrupted the way big companies work. Millions of users come to them every day and it is extremely hard to figure out each user's personality, thus businesses cannot suggest the most relevant offer to each visitor. In case, these tech giants do not adapt to this data overgrowth, it is likely that they would lose billions of dollars.

Ultimately, there came Machine Learning to help the business to benefit from every customer as much cash as possible. Nowadays, this technology can precisely define every segment that comes to the website, analyzing their behaviour. As a result, adaptive marketing was born. That is the technique to determine every user and personalize his customer experience and commercial propositions.

AI is effectively used in adaptive marketing by global tech companies. The world giant in E-commerce, Amazon has 2.218B visits per month. An enormously large amount of data is a brilliant example for every data science enthusiast. Here are almost perfect predictions and in conjunction with the fact that Amazon's customers give him the authority to bill their credit cards, as a result, there come interesting schemes. One of them is shipping-then-shopping. The concept is that before you have made a purchase, a good that you are willing to buy is already being shipped to you. It is not the only way Amazon uses AI, but one of the most impressive (Agrawal, 2018).

Big Blue also has enough traffic to play in the Big Data game. They use data science to spot hundreds of customer profiles by analyzing behavioural patterns, locations, and visitors' business sizes. For instance, if someone clicks on the "Help" button, then it may be a developer or someone technical, who needs some

specifications on how IBM's products work. In case the website's guest is from Google subnetwork and matches with ICP (ideal customer profile), then he is offered to schedule a consultation with a specialist. Therefore, IBM implements so-called lead scoring. After all, sales increased by 350% (Braun, 2018).

Zalando is fashion E-commerce and it has made a fuss recently when it cut out 250 marketing specialists and started to build in-house MarTech with AI technologies. Aiming to be a leader determines a lot of tough decisions, but afterwards, the reward comes as new progressive solutions included in the company. Main Zalando's MarTech features are virtual shopping assistant that works based on customer's behaviour, visual search, powered with deep learning that enables you to find clothes, you saw on your idol on the social media, personalized customer experience (Marr, 2019).

Template Monster is a marketplace of templates of websites. Referring to its CEO David Braun, they are not successful in the process of data science integration, but they still struggle to succeed. One of the hypotheses they test is to parse CMS web-development jobs on the freelance platform Upwork and show their customer the difference between the Upwork's project royalty and template price. Consequently, every freelancer, who visits templatemonster.com take their attention to the personalized offer and almost always make a purchase (Braun, 2018).

In order to start on the way to adaptive marketing companies should create customer experience maps. That is a vision of what flow customers from each segment have from zero to purchase that is visualized on paper. It is a time consuming work which would bring profit.

A simplified example: let's imagine that we are IBM and we determined that the website's visitor is a student. Consequently, we anticipate that he would go through our education, then we will onboard him on our internship and then hire as a full-time engineer.

After describing each segment, you would get a lot of insights and would be capable of adapting your website. There is a number of ways to get information about clients? You can benefit from (Braun, 2018).

1. Support team data
2. Web analytics reports
3. Interviews with customers
4. Surveys
5. Comments in your blog
6. Social Media
7. Big Data

Finally, let's talk about implementation (Braun, 2018).

1. *Data mining*. You can be the best marketer on Earth but still, you would be able to define not more than 100 ICPs. That is where machine learning comes to help. So, with his help, you would get all uncertain nuances that you will not find by yourself.

2. Machine Learning. The machine starts to process the data and validate or not the hypotheses. That is, after a while, we get thousands of segments that can be defined by our audience and a small sample of people who are the most likely to bring us to our goals.

3. Predictive models. Based on the results of the previous step, the machine tells predicts what we will get after certain efforts. For instance, there is a customer who goes to page 1, then clicks button 3, then does several additional steps than if we show him a 12% discount tomorrow in the afternoon than with the probability of 78% he would convert. And you test it.

4. Clusters of customers. Group these segments into warehouses.

5. Ad units. That is where a human comes. He has to create a bank of requests, chains of touchpoints that would be applied to relevant segments.

6. Behavioral & Communication units. For example, with a software engineer, we talk on one language that cannot be applied to an entrepreneur.

An obligatory condition is to have 20k transactions per one product category.

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DEVELOPMENT OF INFORMATION TECHNOLOGIES IN UKRAINE

Kaduk Yan
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

It is not a secret that Information Technologies have become a very perspective sphere of the world economics in the last 30 years. Nowadays almost every part of human life is inextricably linked to IT. Nearly everyone uses the internet and computers every day. Thus, there are no industries that do not use information technologies.

Over the last decade Ukraine has been ranked among the best IT-developed countries of the world. IT Outsourcing News (2016) reports: "Nearly 100,000 Ukrainian programmers serve thousands of companies as the demand for IT workforce is constantly growing on the global market". Many foreign companies use Ukrainian outsourcing industry to work on mobile, web and software projects.

Because of this the export volume of IT development industries has reached nearly $4.5 billion dollars in 2018.

Ukrainian programmers have also come up with many famous projects. One of them is Jan Koum – IT entrepreneur and CEO of the WhatsApp messenger. When he was 18 Jan has moved to the USA. He started working at Yahoo, where he has become acquainted with Brian Acton. In 2009 they made WhatsApp – the alternative for SMS messages and in 2014 Facebook has bought it for $19 billion. At the moment more than 400 million people worldwide are using this messenger. Or, for example, Alex Shevchenko – the co-founder of Grammarly. He, Maxim Litvin and Dmytro Lider have met during their studying at university. They planned to create a program that would help teach students English, but it was not very successful. So, they decided to change target audience. Grammarly has become a service, that can help people correct grammatical and syntax mistakes. Over 20 million people use this service.

So, the question arises: "Why is the IT sphere so popular in Ukraine?" There are a couple of reasons. The first one is a sizeable salary. Nearly 80-85% of IT companies' expenses are spent on wages of workers. The second one is professional and career prospects. Every university graduate can become a highly qualified specialist in a couple of years of constant work and further education in the IT sphere. Also, Information Technologies specialists get a solid social package and many other bonuses. Not to mention they can easily find a job abroad. Despite the large number of IT workers, it is still a demanded occupation.

The global tendencies and trends in Information Technologies development are:

Data-centers. The need for servers and data-centers is growing more and more recently because of the continuous development of cloud storage services. Many companies use cloud storages to store information in a safe and universally accessible place.

Application of Artificial Intelligence in peripherals. Usually peripheral devices are centralized, which means that the device get information but its analysis occurs on a remote server. Peripherals with AI can greatly improve the speed of the data transferring. These devices would interact, process the information and exchange it between them.

Intellectual environment. The creation of immersive automation systems has become a very popular direction in IT development. The so-called smart homes and offices are turning from dreams into reality. They are the systems of interconnected devices, that enable the remote control of different appliances, such as lightning and heating

Blockchain. A Blockchain, in simple terms, is a system of blocks containing some data, each of them connected to each other using cryptography. But a blockchain has no central authority. It uses P2P network, which means that every person that uses a blockchain receives a copy of the whole blockchain on their device. When someone adds new data to the chain, it has to be verified by all of the

computers in this network. Therefore, a blockchain system is incredibly hard to hack. One of the main uses of blockchain is cryptocurrencies. It allows to make transactions without having to trust third parties like banks. The blockchain technology can replace all of the existing economic and business processes, because of its simplicity and safety. And also, it is completely free.

Quantum calculations. Despite the fact that humanity only recently has started the development in this sphere, quantum computing is a very promising branch of Information Technologies. It utilizes the quantum physics principles such as superposition and quantum entanglement to create the most powerful computers, that can solve seemingly unsolvable mathematic problems in a matter of seconds. Right now, quantum computing is still on the early stages of development, but IT-giants like Microsoft, Google, IBM and Intel have been competing to achieve quantum supremacy - the ability of devices to solve those practically impossible equations. On September 20, 2019, the Financial Times reported: "Google claims to have reached quantum supremacy with an array of 54 qubits out of which 53 were functional, which were used to perform a series of operations in 200 seconds that would take a supercomputer about 10,000 years to complete". Later Google officially confirmed this fact. But other companies argue that Google has not reached the supremacy, because this quantum operation does not yet have a practical use. But it still is a huge achievement in this field, that will move the development further giving humanity the opportunity to create marvelous thing in the future.

Many foreign organizations begin collaborating with Ukrainian specialists to make progress in these directions of Information Technologies. More and more R&D (Research and Development) centers for technological companies are formed and will be formed in Ukrainian cities.

Opportunities and perspectives in the development of Ukrainian IT sphere:

The export volume of IT companies is still growing and it is forecasted to reach $8 billion by the 2025.

The government wants to be more involved in Information Technologies industry using it as an international PR program.

The spotlight changes from outsourcing to the IT applications in business.

IT companies are cooperating with Ukrainian universities, giving students opportunities to get first-hand experience with the industry during their educational period and skills that are important for the specialist working in this field.

IT companies are uniting into clusters situated in the biggest cities.

The main threats of the development:

Many companies are not ready for this quick growth because of not fully developed supervising systems.

Educational IT programs are not on a required level. Thus, there is a deficit of qualified specialists, which seriously restrains the development of Information Technologies.

European information privacy law is making the provision of Ukrainian IT services less available.

The Ukrainian taxation changes will heavily affect the salaries of specialists.

The growth of the global IT-market competition.

All things considered Informational Technologies sphere are very perspective for Ukraine. Despite the current difficulties in the market it is still expected to expend and grow more and more. Companies pay more attention to recruiting and support the development of educational IT programs, which in turn provide them with highly qualified personnel. This inevitably leads to growth and improvement in the IT sphere.

IT industry is a significant element of Ukrainian economics. With proper development it can greatly affect the economical state of the country, which means that demand for Information Technologies workers will steadily grow. But because of the nature of the IT it rapidly changes. Nobody can predict the future of IT sphere. We just have to wait and see.

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POWER ENGINEERING: NUCLEAR INDUSTRY

Kirilenko Alexander
Faculty of Radio Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The interest in nuclear physics arose among mankind long before the creation of the first nuclear power plants. So, at the end of the 19th century, the French scientist Henri Becquerel discovered the radioactivity of uranium salts. Over the next years, scientists from around the world continued to make discoveries in the field of nuclear physics, and thereby attracted more and more attention from various technical branches.

In the early fifties billions of dollars were invested in electricity worldwide. This construction boom was caused by the rapid increase in demand for electricity, at a rate significantly exceeding the growth of population and national income. The main emphasis was placed on thermal power plants operating on coal and to a lesser extent, on oil and gas, as well as on hydroelectric power stations. There were no industrial type nuclear power plants until 1969. By 1973, in almost all industrialized countries, the resources of large-scale hydropower were exhausted. The surge in energy prices after 1973, the rapid increase in electricity demand, as well as the growing concern about the possibility of losing independence of national energy, all this contributed to the assertion of the view on nuclear energy as the only real alternative source of energy in the foreseeable future.

The principle of operation of a nuclear reactor can be characterized in three stages.

At the first stage, a controlled nuclear reaction takes place inside the rector thanks to the work of the control graphite rods, during which a huge amount of heat is released. Radioactive isotopes of Uranium Plutonium and sometimes Thorium are used as fuel.

At the second stage, the thermal energy released due to the operation of the reactor is used to heat the water tanks and, accordingly, generate steam which in turn starts to rotate the turbine.

At the last stage, the mechanical energy of rotation of the turbine is converted into electrical energy, which is supplied to the power line.

Benefits of nuclear power:
1. No chemical emissions
2. No need for a lot of fuel
3. No air emissions
4. Take up little space relative to other power plants

Disadvantages of nuclear power:
1. Accident hazard
2. Radiation
3. Complex waste management process

Despite significant advantages, the danger of a nuclear catastrophe scares people too much, especially after the events in Chernobyl. Therefore, some countries intend to halt the development of nuclear energy, and progress in this industry has begun to decline slightly since the mid-90s.

Graph of the share of nuclear energy generated in different countries (in percent):
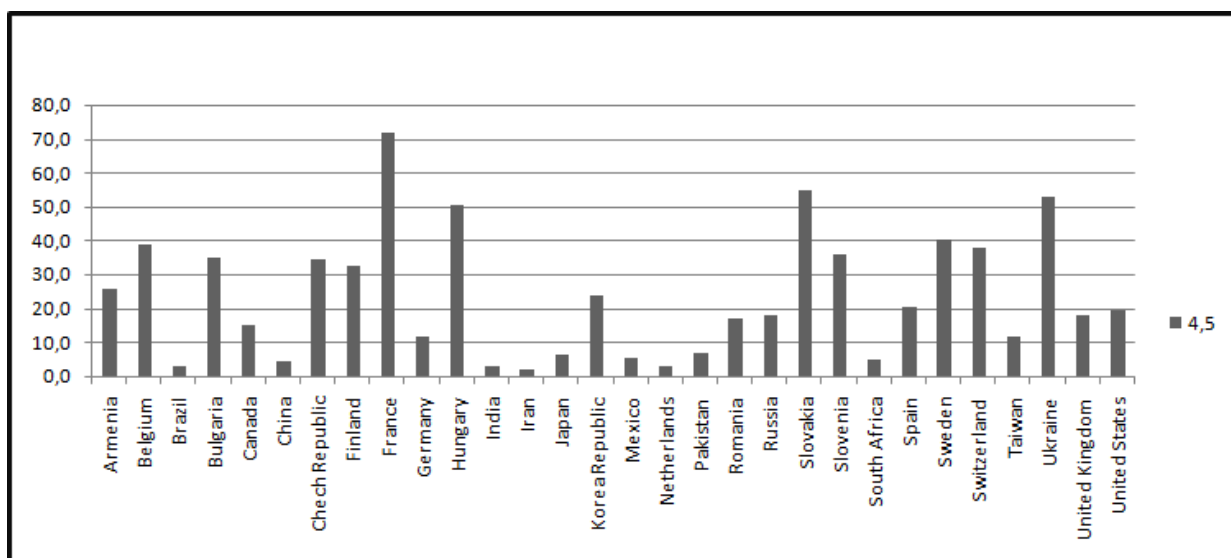
Based on the graphs, we can conclude that nuclear energy is an important component of various countries, but not the most basic form of energy production. Despite this, scientists continue to study nuclear processes and in the near future we can get an even cleaner and more energy-efficient source of energy production, which is called thermonuclear fusion. Its difference from a nuclear reaction is that atoms emit energy not by the interaction of atoms of various substances with each other, but by combining light atomic nuclei into heavier ones.

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MAIN TECHNIQUES AND APPLICATIONS OF FACIAL RECOGNITION SYSTEMS TODAY

Koldovska Yeva
Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Facial recognition means identifying humans by their faces through special technologies. Facial recognition systems point out features and details of a subject's face from a photo or video using biometric methods. It compares the received data with an extensive database of known faces to find a match. Facial recognition is

usually applied to verification of personal identity, but the development of this technology is still in progress.

Generally, there are two main steps of the facial recognition process. Features are extracted and selected within the first step, the second one implies classification of the objects which were obtained. There are different techniques included in these processes, each one has its advantages and disadvantages (Bramer, 2006).

Traditional recognition algorithms can be separated into two crucial approaches: geometric or photometric (Zhang, 2006).)

One of the most commonly used techniques called 3D facial recognition means capturing the shape of a subject's face by using special 3D sensors. It doesn't depend on the amount of light as much as the other techniques and is also able to identify a face from a lot of angles. But facial expressions make it impossible for the algorithm to distinguish faces and work properly.

Another up-to-date trend is Skin Texture Analysis, which examines visual details of the skin and uses them as input data. This technique can even distinguish twins, which is impossible to do with other types of technologies used in facial recognition processes (Bonsor, 2012).

Combination of different techniques doesn't depend on changes in expression that much and works properly for people with mustache, beard or eyeglasses.

Using thermal cameras is an unconventional way of identifying people, which only detects the head shape of a person and works perfectly even without enough light.

There are a lot of possible ways to use facial recognition today. For example, the app called Looksery provides video chats with unique filters altering the look of users. The initial idea was that all well-known image enhancing applications can only work with photos, but Looksery allows AR to videos.

Another famous application – SnapChat - has revolutionized the selfie culture allowing users to use filters in real time.

Nowadays facial recognition plays a great role in ID verification. Such services are being provided to banks and businesses related to cryptocurrency.

One of the most famous applications of facial recognition systems in the world is Face ID, which has a sensor that consists of two parts: one projecting dots on the person's face, another one capturing and reading the pattern.

In conclusion, there are a lot of ways of facial recognition implementation in our lives, and many advantages come with it. Nevertheless, it still has a perspective of growth and further development.

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SAVING LIVES THROUGH EHEALTH TECHNOLOGIES

Komaryn Yuliia

Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The rapid development of medical technologies (such as eHealth) improves the quality of life. Worldwide eHealth program supports universal health coverage and reduces social inequities (World Health Organisation, 2016). eHealth Technologies is a trend in European medicine. Empowering individuals is the global aim of it.

Ukrainian medical reform is the implementation of the experience of eHealth Technologies in Western countries. Ukrainian medical reform (the essence, basic practical innovations, list of registers, implementations, personal information) aims at providing modern medical care to every Ukrainian family from the youngest to the oldest member (Governmental Portal, 2015).

According to the government plan, in five years every Ukrainian family will be able to monitor their health 24/7 thanks to unified system of the fixed and portable eHealth devices. Integrated approach to collecting personal data of the patients will let you know the whole history of treatment of every citizen in any clinic in the world (Governmental Portal, 2015).

Smart small stuff: smartphones and smart-watches that provide health monitoring. Our daily assistants will convert gigabytes of owner information into medically useful records to help predict disease risks and more accurately analyze the causes of any changes.

Cardiogram as a wardrobe item will make life easier for older people: T-shirts and sneakers, bracelets that monitor and analyze the electrical signals in the human body, reporting the heart rate. They will not have to wear uncomfortable bulky devices that can be easily damaged.

The technology will go further for young people: they choose to have a smart implant: tattoo for health monitoring. This is a new level of health care in the 21st century. Such tattoos can become a usual thing in the future the way artificial organs have become today.

Seeing the advance of medical science in present days and looking into tomorrow's medicine we are able to predict that new technologies will accompany a person from their conception to the death, controlling and protecting their health.

Undoubtedly, as a part of human life cycle planning for a new life must be considered. An embryo test will help: a blood test that predicts whether a baby will be born prematurely and identify some pathologies in the early stages of pregnancy.

With the development of medicine, doctors become friends, not the greatest fear of children. The problem of tasteless or too big pills for children will be solved: optional 3D printing to make the process fun for the youngest patients and special components to improve the taste. More complicated procedures such as colonoscopy are also getting more and more comfortable: technology of a mini-microscope capsule that makes it easier for doctors to check for children and babies with bowel problems, no anesthesia is required, the child simply needs to swallow the capsule. Development of non-allergenic artificial food will relieve mothers from problems with children diet.

Next step implies personalized vaccine, which will be able to destroy cancer cells by detecting mutations different for each tumor. Genetic engineering is a way to make humanity resistant to diseases: the first «victim» is HIV.

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THE IMPACT OF SAVING ENERGY ON THE ENVIRONMENT
Kornienko Tatiana, Bespalov Anton
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

In thispaper, we will mention the impact that energy has on ourselves and the environment. It is obvious that saving energy helps the environment. The Earth is running out of natural assets, and we are ruining our planet.

At first sight, it is pretty complicated to see the connection between the environment and the energy we consume. However, it is apparent. When you cut down on using power, you diminish the amount of toxic substances released by power plants, which prevent ecosystems from destruction.

It is supposed that The Earth is a non-exclusive ecosystem. So it is not a surprising that people tend to treat the Earth like it will never be exhausted. Trees

have been cut down and the earth have been excavated in order to get its natural resources. Most of our power stations function because of fossil fuels, which are not only destructive to ecosystems in land and sea but also, disturb the chemical balance of the ocean. I agree that using fossil fuels can be the cheapest ways of producing power while it's so costly to our environment.

But what should we do in order to rectify our generation`s mistakes?

Unfortunately, Scientist do not have univocal answer. On one hand, it is not certain whether energy conservation will amend any difference in total, as it was said constraining climate change to approximately 2°C total warming - people should resolve carbon in the next 35 years, which means a drop in the ocean in comparison to our global problem.

On the other hand, people may get used to living in the way of economy; as a result, our deals will not get worse. Moreover, during this period, some engineers are able to create alternative renewable power-generation, which will totally replace power stations working on coal.

The second problem people want to know the answer about whether it will be easy to refuse from fossil fuels.

No one knows accurately. On one hand, it is proved that the amount of natural assets is enough for us to wholly or at least partly substitute the fossil fuels we benefit from at present.

One argument for this statement is the ability to build some new inventions. At the moment our generation are becoming to be more aware of the latest discoveries and are trying to use them in day-to-day life. Electric cars, for instance, are formidably energy (efficient) than diesel one; while because of them it is possible to drive with power generated from the sun, wind, and falling water. It would be unfair not to mention the invention called solar panel, which will be commonly used in the near future.

On the other hand, there is no proves that investing in no-fossil fuels life will live up to scientist`s expectations. However, we need at least to try.

As I tend to say : start from yourself. You are able to save energy at home. The scheme is pretty easy: consume less energy and pay less. From the small things like changing your light bulbs. To bigger things buying solar panels. These can make a significant difference to the environment as long as giving up using fossil fuels.

To conclude, the aim of this speech was to convey the message that Our resources are finite and need to be conserved. By conserving energy we conserve our resources.

Certainly, we can supply a great deal of reasons for saving energy. Although we should realize the opportunity, which can change climate by shortening the amount of energy we consume — we give up climate change by using alternative energy.

I hope, our generation`s credo will be: Consume less, conserve more

By decision-making to cut down on your energy consumption, you will be able to provide to a better world for your own children.

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NEURONETS: IMPACT ON TECHNOLOGIES

Korzh Anna
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

ANN (Artificial Neural Network), Neuronets is one of the most ambitious areas in field of artificial intelligence. Its essence is made up of the simulation of the analytical actions performed by human brain. In other words, they are facilitated patterns of biological neural systems. Which means, that while creating neuronets, scientists tend to use the masterpieces of the Nature as stencils. Not only human brain, but also the structure of the swarm of bees or the assemblage of rootlets can be taken over as a sample. Simple neural networks are able to solve the classification, recognition and prediction problems.

The main feature of such type of technology is the capability of developing, studying and receiving the experience from the previous mistakes. A self-organizing system by analyzing input data and processing information from sources such as an Internet can produce new programs not only structuring the information, but also producing by itself fundamentally unique result. Earlier such operation of creating something absolutely new was unavailable to artificial intelligence.

Neural network connections consist of neurons and weights. Neurons serve as the driving force of Neural Networks. Without them, the Network would be considered useless. Neurons receive information signals as input, run them through a function, known as the Activation Function, and output the corresponding value. These values are then spread through the rest of the Neural Network via the connection, and run through the same process over and over again arriving at the output layer. Each Neuron is connected to Neural system via a line. These lines contain a special value, known as 'weight.' These weights are multiplied by the input values received from other Neurons. With the help of these 'weights' the Neural Network begins to learn (Gurney, 1997).

Neural networks are used to solve complex problems that require analytical calculations similar to those which are made by the human brain. The most common tasks that neural networks are used for:

1. Pattern recognition. Various objects can be taken as patterns: symbols, images, sounds, etc. Currently, this is the widest application area of neural networks. In particular, this ability is used in Google Images when you are looking for a photo, or

in the smartphone's camera, when it determines the position of your face and highlights it, and in many other applications (Bishop, 1995).

2. Classification – distribution of data by specified parameters. For example, in banking industry, data about people are given to the ANN input and it is to decide who to give credit to and who not. This work can be done by a neural network, analyzing information such as age, solvency, credit history, etc.

3. Making decisions and management. This task is close to the classification problem. The situation characteristics are input to the neural network and then are being classified. As a result, the output of the network should show the solution that it made. Moreover, various criteria of the status of the controlled system are used as input signals.

4. Clustering. Clustering means dividing the set of input signals into classes, while neither the quantity nor the characteristics of the these classes are known in advance. After training, such network is able to determine which class the input signal belongs to. It may also show that the input signal does not belong to any of the selected classes – this is a sign of the appearance of new data that were not in the training set. Consequently, such network can identify previously unknown, new signal classes.

5. Predicting. The ability of a neural network to predict directly follows from its ability to generalize and highlight hidden relations between input and output data. After developing, the neuronet is capable of predicting the future value of a certain sequence based on several previous values and (or) some currently existing factors.

6. Approximation. A neural network is able to approximate any continuous function with accuracy determined ahead.

7. Data compression and associative memory. The ability of neural networks to identify the relationships between different parameters makes it possible to display data more compactly if the data are closely related. The inverse process of restoring the original data set from a piece of information is called associative memory. This ability also allows you to restore the original signal / image from damaged input data.

Neural networks are also used for data analysis, solving optimization problems, finding patterns in large quantity of information, orientation on the land and so on (Lawrence, 1994).

Nowadays this type of technologies is able to make paintings and pictures in any existing art style ever; to beat every champion (person) in any difficult logical game; to record music singles and albums; to act and behave like a person (even pretending the emotions). In other words, neural networks will soon allow to replace human work in most difficult labor activities and will become the useful tool for specialists and managers in a set of areas. How far this artificial brains are going to lead us to we will see in the near future.

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PROTECTION OF INFORMATION SYSTEMS
Kravets Mykola

Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Rapid pace of technological development has greatly influenced every aspect of our lives. Not only are new technologies becoming an integral part of IT-related activities, they are also penetrating into our everyday lives and businesses. As a consequence, there is a huge demand for protection of information systems in different spheres, i.e. social, technical, economic, political, military etc.

Due to recent technological advances, information has become one of the most valuable properties. As a result, information owners have to protect their data from individuals who want to break into computer systems and make a profit from stealing sensitive information. But even if an organization protects its information with state-of-the-art, more sophisticated security, there is still a possibility that the data will be stolen.

Information security is considered to be of great importance for large corporations and businesses; this is especially due to the fact that every protection can be broken down, it is only the matter of time how long it will take. Therefore, the purpose of information security is to make computer systems hard to infiltrate into and bolster data protection to such an extent that by the time a hacker gets around the protection, the secured data will become irrelevant (and there will be no use of stealing the data).

Nowadays information security programs are built around three main objectives which are known as CIA, i.e. Confidentiality, Integrity, Availability.

- Confidentiality means that unwanted users cannot get the protected data. Thus, its purpose is to protect sensitive information from unauthorized access. Access control lists, volume and file encryption, Unix file permissions – all these are the most common means of providing confidentiality.

- Integrity, another key component of the CIA Triad, is protecting data from deletion or modification. It is this constituent that ensures data recovery even if the data has already been damaged or modified.

- Availability, a final component of the CIA Triad, refers to the fact that you can use your data any time you need.

Despite the fact that there is one disadvantage of information security (it is never perfect), there are several main advantages which should be taken into consideration. Firstly, it prevents invasion of privacy, i.e. protects the user's sensitive information from unauthorized access. Secondly, there is a wide range of data protection means (password protection, fingerprint scan, graphic key etc.). Thus, the use of information security can greatly decrease the possibility of sensitive information theft and, as a result, ensure the steadiness of the income of large enterprises.

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BUTTONS TO THE SIDE: GESTURE CONTROL INTERFACES

Kunyk Nelia

Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Introduction. Touch screens quickly burst into our lives and completely changed them, not so long ago, a voice control system was developed. But progress is not stopping... And what to develop now? Gesture Control Interfaces! Touchless gesture recognition happens when a user makes moves in the air, without contacting a touchpad, touchscreen or similar surface interfaces. How often do we face a situation when you need to accept an incoming call or launch an application and your hands are unclean or wet? And this method is very useful in many other areas: in production, medicine, car driving, and others.

Objectives. Our purpose is the development and research in this area of IT because the introduction of such technologies will considerably increase our security, open up new possibilities in medicine and simply make our life easier.

Methods. This goal can be realized with a special glove or by using cameras. The first method of tracking hands to identify gestures has been studied more, but its main defect is the constant need to use and wear a glove. When we use video cameras, the software recognizes the skeletal structure of the hands, dynamic gestures, distinguishes their parts.

Today, gesture recognition is becoming the basis of smart home systems, office automation, and car control. And how can we use gesture recognition in everyday life? We can control all kinds of connected wireless devices using our usual gestures. You change playback or control the camera, adjust the volume, unlock the tablet, look through recipes with various gestures.

Results. A well-known Sony is developing EyeSight Technologies when the Xperia Touch interactive projector displays images on the surface and receives information about your gestures using infrared sensors. The Leap Motion is an invention that OcuSpec is promoting to the masses. Scanning hands and finger motions let you control the pointer by simple hand movements in the air and open a window or launch a program by tapping your finger in a void. Microsoft has developed Kinect, a non-contact touchscreen game controller for the Xbox 360 console. True, it is no longer available.

Conclusion. Research and development of Gesture Control Interfaces is a very important area of the IT industry. A gesture interface is more intuitive and natural than using a keyboard, a mouse or other control devices since users can interact with appliances without touching them by their hands (Dong-Luong Dinha, 2014).

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THE IMPORTANCE OF CYBERSECURITY

Martsynyuk Victoriya
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

We live in the era of technologies and innovations and information. We use smartphones, computers and social media to solve everyday life issues and cannot imagine our life without using information reading devices. Big enterprises and companies store a large amount of important data thus the welfare of large companies depends on how well this information is protected. We should be aware of how to protect our data at home as well as in the office. So, what is cybersecurity? Cybersecurity is a state of protection of systems, networks and programs from digital attacks (Inc, C. S. 2018). It can be accomplished by educating oneself how to work accurately with a device, which links are better to ignore and what types of messages not to open. One should be ready to take some action to ensure cybersecurity. There are different types of cybersecurity threats. The most common are phishing, ransomware, malware and social engineering.

Phishing is the practice of sending fraudulent emails. Phishing aims to get personal information such as credit card number, login and password. A phishing

email may look like a bank warning or a company message and when you click on it, it asks for your personal information (Inc, C. S. 2018). The only way to secure yourself from being deceived is to pay attention to what messages you are opening and not to give any private details.

Ransomware is a type of software created to block access to a computer system until a sum of money is paid (Fruhlinger.J. 2018). Such programs convert the files on the affected computer, making them unavailable, and demand a payment to restore the work of a computer. This usually happens when users use untrusted and unknown sources to download files. Another way to protect your system is to install a trusted anti-virus application software.

Malware is another malicious software created to damage your computer. It makes your device to slow down, it causes a spread of annoying advertisements and your anti-virus program stops working (Inc, C. S. 2018). You may even need help of an expert to restore your computer and repair it.

Last but not least is social engineering. It is a manipulative tactic used to get your personal information. Attackers use various methods to get the data they need. It can be in the form of an email from a friend with a compelling heading, it can be an email asking for help or even a note from your boss or a colleague. They take advantage of your curiosity and trust. Do not become a victim of that. Remember that criminals use different methods to affect your computer system.

In 2015-2017 Ukraine was struck with a number of cyber-attacks which caused unpleasant consequences such as (Sologub, R. 2019):

1. In December 2015 cyber-attacks in Ivano-Frankivsk region led to power cuts in more than 50 transformer stations for many hours.

2. In June 2017 the work of the Ukrainian state enterprises was affected by the virus Petya. Organizations, banks and media were all obstructed by the cyber-attack.

In conclusion, cyber-security is very important, not only for big companies and enterprises but also for individuals as it can affect your personal computer system and private data. There are different types of cyber threats by learning the specialties of which one can prevent cyber-attacks and secure his personal data. Phishing, ransomware, malware and social engineering take advantage on one's trust and curiosity. Everybody should be aware of what techniques cyber-attackers use and be alert. If you are an owner of an enterprise it is best to make a deal with an expert who will make sure the information is well protected and safe.

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ENERGY SAVING
ADVANTAGES AND DISADVANTAGES OF WIND FARMS
### *Melnikov Serhii*

Faculty of Radio Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The principle of operation of a wind power plant is that a stream of wind of a certain strength unwinds the blades of a wind generator. The moving part rotates, transmitting the same rotation to the generator. After that, an electric current forms in the system. Then it charges the installed batteries connected to the inverters. They, in turn, convert the resulting current to normal voltage, which is necessary to power the devices and equipment. To obtain greater amount of power, wind generators are connected to the network, thus forming a wind power station.The station generates an electric current due to wind energy. Industrial and large wind farms consist of several large windmills that are connected to the same network. Their capacity is enough to provide electricity to villages and cities. Small stations produce less power, but even it can be enough to satisfy the energy requirements of a small array.

The graph shows the amount of energy generated for 2019:
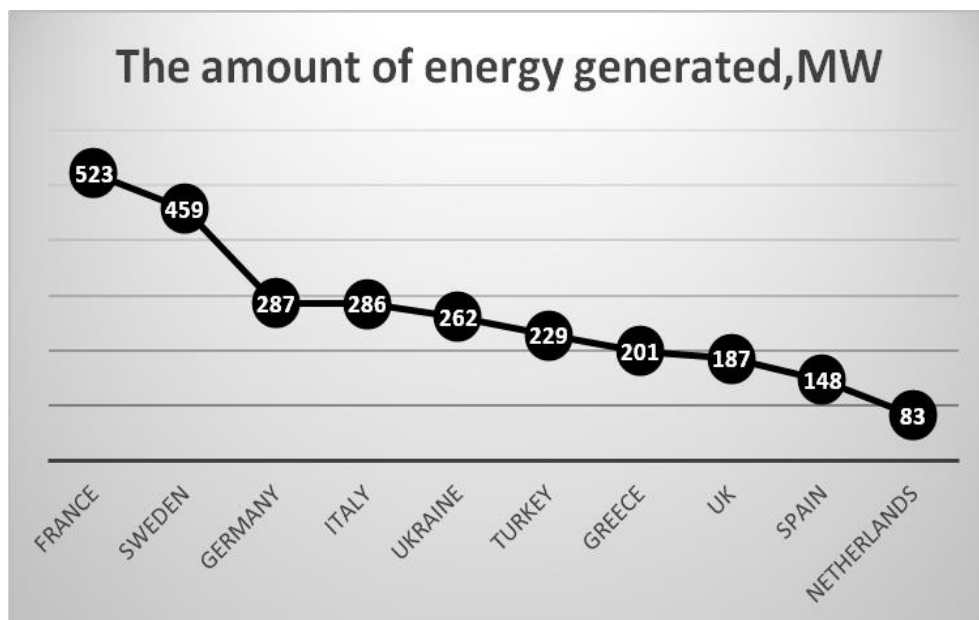
Ukraine ranks fifth in the amount of energy generated. Compared to previous years, Ukraine has generated a lot of energy , because of people who started to think about an environment . Humans install wind farms that feed entire cities, so power plants are an environmentally friendly source of energy.

The advantages of wind farms include:
1) Fuel Independence.
2) A free source of energy is the wind.
3) Does not harm the environment.
4) Environmentally friendly way to produce energy.
The disadvantages of wind farms include:
1) High cost of equipment.
2) Lack of payback.
3) High noise and low efficiency.

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METALLURGICAL INDUSTRY OF UKRAINE
Melnychuk Oleksii
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The industry of metallurgy is one of the most viable sectors of heavy industry in Ukraine. It is accountable for the employment of countless people and makes a great contribution to the energy independence of our country. It consists of non-ferrous and ferrous fields. The primary direction is mining of ores (manganese, chromites), steel, iron smelting and rolling production. Nowadays metallurgy in our country is a major export oriented branch of industry. Approximately 13 % of world's iron ore (105 million tons), almost 9 % of manganese ore (7,1 million tons), and also a considerable share of steel (53 million tons), pig iron (45 million tons) and rolled materials (45 million tons) have been extracted in Ukraine of the '90s. Despite the decline in manufacturing in recent years in the industry, the share of industrial output has increased significantly (20.6%). In particular, in 2008, Ukrainian companies mined 62.0 million tonnes of commercial ore, 2.4 million tons of manganese ore, smelted 28.5 million tons of pig iron, 36.5 million tons of steel and 32.3 million tons of rolled products. The metallurgical complex of Ukraine employs 21.5% of industrial and production personnel. It also accounts for more than 23% of state sales.

Metallurgical production and use of cast iron in Ukraine has been known since the times of Kyivan Rus. In Polesie (Prykarpattya), a coke plant in Donetsk has been melting iron on charcoal in the XIV-XV centuries since 1872. In 1913 more than 120 metallurgical enterprises operated in the country. During the First and Second World

Wars the industry was completely destroyed. In the 50s most of the enterprises were reconstructed and construction of new enterprises started with the use of oxygen processing and silent methods of steelmaking.

Iron, manganese ores, chromites, as in some non-ferrous ones (such as nickel, tungsten, cobalt, etc.) are the feedstock for iron and steel industry. The main type of fuel is coke and natural gas. Limestone, dolomites, clays for furnaces, forming sands are also used in metallurgical production.

Ukraine fully provides itself with its own manganese and iron ores, coke and other related materials. The total industrial reserves of iron ore amount to 27.4 billion tons. The main ore basin in Ukraine is Kryvyi Rih, where 75% of mineral resources are extracted by open-pit mining. In addition to rich iron ores with a content of 50-67%, there are significant reserves of relatively poor ores and black quartzites with an iron content of 23-35%. Enrichment takes place at the Southern, Kryvyi Rih, Central, Northern and Ingulets Plants. Enriched ore is transferred to and from sintering and metallurgical factories. More than 15 million tonnes of enriched ore are delivered to metallurgical plants in Russia, Slovakia, Poland and Hungary.

In Ukraine, more than 90% of rolled steel, pig iron and steel is produced in full cycle mills with annual smelting of over 1 million tonnes. In addition to its main factories, the Iron and Steel Works includes a coke and chemical plant, an agglomeration plant, a power plant, nitrogen flag and construction resources plants. Coke is used as a technical fuel for iron smelting, while coke oven gas is used as a high-calorie fuel for plants and raw resources in the chemical industry.

Enriched iron ore is loaded into blast furnaces together with fluxes (e.g. limestone) and coke. Part of the cast iron that is processed into liquid steel is fed into the special furnaces. Cold steel bars are delivered to the mill where they are being rolled. Some useful materials (such as nitrogen fertilizers and construction materials) can be extracted from the main production waste. In other words, the plant performs all phases of the production process, from mining to the production of finished products.

There are also metallurgical plants that produce only steel, rolled products or ferroalloys. The majority of machine building plants have shops producing steel, castings from scrap and cast iron and for their own needs. The extraction of 1 ton of cast iron takes 1.2-1.5 tons of metallurgical coal, at least 1.5 tons of iron ore, 0.5 tons of limestone and 30 cubic meters of water.

The biggest manufacturer of rolled materials and ferrous products is Prydniprovskyy metallurgical region, producing 95% of iron and 100% of manganese ores, about 50% of rolled products, steel and iron, as well as 66% of steel pipes and 83% of ferrous alloys. Ferrous metallurgy is a major air and water pollutant. Kryvyi Rih accounts for 10% of air pollution in Ukraine. Therefore, it is a necessity to improve the purification of emissions into the atmosphere and switch to a closed cycle of water use.

In conclusion, metallurgy is a complex and strict industry. It provides many benefits to the country that can allow itself to develop it. Ukraine in particular has

managed to develop it to a high degree and it has become an integral part of our country's economy.

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ARTIFICIAL NEURAL NETWORKS
Morkvina Valeriia
Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nowadays artificial intelligence has firmly entered our lives and solves a large number of problems. They are already actively used in security systems, business, entertainment, etc. Moreover, researches in this area are carried out by all leading companies, such as Microsoft and Google.

Resolving issues in the way that human brain does -was the first aim. But with the lapse of time lots of things has changed and people started paying more attention to more complicated activities as computer vision, recognition of the voice, machinery translation, medical diagnosis etc.

ANN is based on a different tied up units, named synthetic (artificial) neurons, which loosely model the neurons in a biological brain. So, the system can be learned to recognize certain patterns and situations and apply these to certain priorities and output appropriate results. The first documented computer model for ANN was created in 1943 by Walter Pitts and Warren McCulloch. Computers of that time simply did not have fast enough processors, so researches in neural networks eventually slowed. However, over time, research was resumed with increasing computing power. And nowadays we can see neural nets everywhere.

Neural networks are widely used in areas such as marketing, science, banking and weather forecasting. For example, ANN are used to predict futures prices and exchange rates. If we talk about science, neural networks are developing very fast here. There are already self-learning cars, where the driver's function is reduced to the function of an observer, as well as drones and robots that can navigate the terrain, move with a minimum of collisions and on any surface. Moreover, neural networks are used to detect TB in elephants and cancer in humans (Bolen, 2017). It is also worth saying that the technology for translating foreign words is constantly being improved thanks to neural networks. In addition, the neural network DeepMind acquired by Google has learned to more imitate the human voice more realistically.

Thus, combining these two technologies, you will soon have no need to know the language to speak with a foreigner, everything will be translated into your native language very quickly.

To sum up, artificial neural networks is a leading theme. This progress simplifies our lives and can also save many lives, helping to heal people and replacing people in high-risk areas.

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RESEARCH PERSPECTIVES AND SOLUTIONS FOR ENERGY SAVING

Moshchytska Olha
Faculty of Informatics and Computer Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute

Energy saving uses less amount of energy to perform the same mission, i. e., reducing energy waste (EESI, 2018). Energy saving brings a lot of advantages: lowering greenhouse gas emissions, reducing demand of coal, oil, nuclear particles and reducing costs of a household as well as positively influencing on economy. Alternative energy is inexhaustible and renewable, it brings no harm to ecosystem, it helps our planet to recover from strong gas and oil pollution. There are great opportunities for improvements in every field of the science, economy, architecture, transportation etc. In this article we will regard research perspectives and solutions for energy saving on the examples of new technologies.

New technologies for energy saving include:

1.Home automation is a set of technologies that are applied for automation and smart home control. These new applications allow efficient management of energy use, provide comfort and safety, both inside and outside the home. With home automation, the goal is to reach the minimum possible energy consumption without sacrificing maximum comfort. Possible applications include air conditioning, lighting, comfort and equipment.

2. Smart cities are raised, at a higher level of scope, as a result of collaboration between municipalities and technology companies. It is a new model of energy

management in cities based on sustainable development and efficiency provided by new technologies and direct citizen participation.

An example of Smart City is Malaga . The Andalusian municipality is planned to be converted into a smart city and promotes renewable energies to achieve energy savings of up to 20% per year (Gomez, 2018).The initiative, headed by Endesa along with 11 other companies, is one of the six most important projects of its kind and has received two awards at the Smart Metering Europe 2011 Congress .

The key to the Smart City project carried out in Malaga is to involve end users in this project. Some of the initiatives that have been launched are the promotion of the electric car, the launch of a small fleet of vehicles and the installation of photovoltaic panels in public buildings.

As you can see there are many good applications of these new technologies that provide not only energy savings but also help the environment.

Many think that by simply turning off the TV, there is no longer energy expenditure. But how wrong they are! It is not enough to "turn off" the machine, it is necessary that the electricity is completely cut off .

The problem is that this sleeping mode, designed for the convenience of users, has ended up becoming a problem, since it wastes such an amount of energy that leads to a great economic loss (EESI, 2019).

This misused energy costs seven billion euros a year and causes 20 billion tons of carbon dioxide emission in the atmosphere. But there is a solution.A lot of electrical devices that currently exist, have a built-in resting device causing the product not to completely shut down. In Spain, for examplethere is a microprocessor that detects when the device is at rest and turns it off completely without the user having to worry (Gomez, 2018).

Moreover, these types of devices have an extra benefit that protects the devices in case of power surges, extending their life. The advancement of technology helps to save energy in homes, helping each person's pockets and our planet as such.

Energy efficiency is the only way to save humanity, our future, ecosystems, wildlife habitats and stop polluting Earth. Everyone can bring their part in mission "save the future", although however it will be impossible to complete it without every human being participating and every clear mind.

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INFORMATION SECURITY OF UKRAINIAN YOUTH IN CONDITIONS OF NETWORK SOCIETY

Mudrak Diana
Faculty of Sociology and Law,
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»

Relevance of the research topic: Ukrainian youth (18-33 years - age range. - Aut.) Is today in a state of threats and challenges from a society called networking. It is about the ratio of moral and psychological and others. Indicators (qualities) of the personality of a young person of Ukraine with a world of information that is socially significant. The theme of war and peace became the leading in human life. It is young people who are on the verge of being attacked by forces trying to destroy physically and spiritually the youth of Ukraine by means of information. Such information is being disseminated today by the media (media and print. - Auth.). It is about the ecology of the individual in a crisis society. The rapid development of information technology and mass media, on the one hand, makes it possible to always be aware of the major current events taking place in the world, and on the other, the space and time of their application becomes a battleground between aggressive forces seeking war and the conscious Ukrainians who determine the fate of the nation, the state. Through social communication - the basis of a network society, youth communicates with peers in certain groups, which reveals the inner world of youth, its aspirations, guidelines, languages, etc. Internet search engines are the key to opening up a world of diverse offers by these search criteria in the form of advertising, messages, etc. (in various forms - graphic, text, etc.). This is a malicious manipulation of the mind of a young man on the path to finding his or her identified place in the information world. In our opinion, it is the highest information culture that should be an obstacle to the spread of information discrimination and manipulation in any form.

The information culture of the individual is formed in the process of youth socialization, as well as other types of social cultures - legal, economic, ecological and so on. At the conscious and subconscious levels, certain social roles and behavioral models are mastered. In particular, we focus on particular threats that are particularly relevant at certain stages of socialization. There is standardization, stereotyping, unification of the mass consciousness, since people "consume" the same information products of a global nature (news, advertising, works of art, etc.); there is widespread promotion of a way of life inherent in the civilization of countries that embody their way of life. National identity is being lost, language degradation is taking place, moral and ethical principles are being abolished, which cannot but affect the legal consciousness - the basis of adequate human behavior in society.The information space now actualizes many of the latent phenomena inherent in modern society, in which the fierce struggle of external and internal nature (the example of modern Ukraine). This phenomenon is hate speech; it does not have a single definition enshrined in national or international law; various international documents

refer to the term hate speech (translated into Ukrainian as "hate speech" or "hate speech"). The hate speech (hatespeech) is a manifestation of discrimination, expressed in discriminatory, inappropriate statements against particular groups or communities or against individuals as representatives of those communities on different grounds - ethnic, racial, national, creed, gender, etc. Such statements are not just insulting, but inciting racial hatred, xenophobia (fear of everything else, their own), anti-Semitism (hostility towards Jews), homophobia (fear of people with homosexual orientation), sexism (neglect, etc.)]. The language of enmity is a tool of manipulation for the purpose of splitting society, it is an element of its destabilization and diminishing of trust in the state. And the biggest mistake here may be to underestimate the negative impact of such phenomena and aggression on the public consciousness.

Young people physically do not have time to thoroughly understand the cultural classics of the world: young people work, study, fight, engage in volunteer and charitable activities, not to mention those who have embarked on a criminal path of survival in a crisis society. From hero to criminal, this is the spectrum of young people's active reactions to the challenges of the information society. Unfortunately, the conditions of a network society do not contribute to the formation of personality integrity: the young man's consciousness is fragmentary; the most appropriate for the young person are values, etc., which are close to her in the individual emotional experience.They should focus on institutions that are called upon (involved) to protect youth information security. The powerful propaganda system of the Russian Federation implements the anti-Ukrainian scenario of youth impact every day. Therefore, the urgent task of the whole system of educational and upbringing socialization of Ukrainian youth remains the daily appeal to the best examples of Ukrainian culture. The Internet makes it possible to instantly evaluate both sources of such information, as well as posts, reviews, etc. them. American children and teenagers are drawn to the text of the Constitution through comics. Thoughtful critical analysis of the best examples of world culture helps to develop the potential of young people. Love for one's neighbor, compassion for the victims, condemnation of enemies, mutual help in difficult parts become (and are. - Aut.) Islands of spirituality. As the Soviet pioneers once experienced the fate of children in Vietnam, Africa, etc., so now do Ukrainian children and adolescents participate in patriotic organizations and cultural activities.

To summarize, it is worth noting that protecting personal information from unauthorized access, copying, modification and use depends not only on security software such as passwords, electronic keys, electronic signatures, etc., but also on the user's awareness of the real danger that is threatening him. personal data. We are used to spending most of our free time on social networks or other online resources, but do we remember that it is at this point that any information about us can be read and stored for future commercial use without any notice or request for permission? Awareness and awareness of the problem make it possible to consciously treat it and have an understanding of how it can be avoided.The Y and Z generations had a

difficult task: to maintain the spiritual core of the Ukrainian people in the face of foreign policy threats and challenges, unstable political, economic and social internal situation; to adapt the external information to the needs of individual development in relation to the development of the individual. Considering the main principle of survival of mankind in the crisis days: "Do not hurt!"; in the individual life apply the principle of optimality in the perception of information of public content: "Think strategically, act tactically!". This means the constant correlation of personal expectations and motives with the environment, taking into account the trends of individual development: "man-nature", "man-technology and technology", "man and art", "man and society", etc.

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THE ADVANTAGES AND DISADVANTAGES OF MODERN TECHNOLOGIES

Musienko Daria
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

As you know technologies play a huge and important role in our everyday life. We can't imagine spending our time without modern devices: we chat with our friends by smartphones, play games on computers, get to a destination place by hover boards or smart bikes. Our presents time differs from past thirty years. However, there are a lot of advantages and disadvantages of using advanced technologies.

Let's talk about advantages. Firstly, thanks to creating washing machines, vacuum cleaners and refrigerators we can spend much less time on household duties. I can even say more: we can spend only five minutes on cleaning all our clothes and dishes. Our food can be stored in freezer for a year or more. So if you want a fresh peach or berries in cold January you can just take it from the freezer, wait for five minutes to get it unfreezed and eat it.

Secondly, we had a huge breakthrough in energy technologies. The development of this field is very important for the whole humanity. There were created and made a lot of electric power stations for producing energy and electricity for the whole Earth. To my mind, energy is the basis of our existence. Furthermore, in modern life some of the most important areas can't even survive without energy.

Thirdly, information technologies with each passing day bring more and more benefits into everyone's life. Phones with four cameras, cars which can be driven without a driver, artificial intelligence which can replace your best friend... This options may have been sounded like imaginary nonsense couple of decades ago. But now it is reality which is not that surprising for us. Moreover, information technologies don't stand at one place, they are progressing with every second. In my opinion, we should be proud of modern scientists who create the special options and devices to make our life better and easier.

But now let's talk about the disadvantages of modern technology. First and main disadvantage, to my mind, is that people become lazy sitting opposite the monitor or smartphone and spending a big part of day checking memes, watching pointless videos or scrolling through the internet. I can confidently describe it with one word "the degradation". It is undoubtedly true that you can search very useful information thanks to the internet, find a job or improve your skills in different sciences or fields. But impressive part of adults and modern teenagers don't use this opportunity, they just waste their precious time. To solve this problem we should spend more time with our friends outdoors communicating with them face-to-face or just take control of our life.

The second disadvantage of technologies is harming the environment. A lot of plants and factories generate production waste. It is very dangerous for ecology and our health. The governments of highly developed countries make everything possible to fix current ecology situation. To my mind, technologies should help us improve conditions on Earth, instead of ruining it.

In conclusion, I'd like to say that we are extremely lucky to live in 21st century. I would like to say more: we are not dying of plague, scurvy or fleas, there are not any huge voracious rats in our smart houses and you don't have to kill your opponent with sword to get a higher position in your job. We should use technologies smartly and extract only benefits from using it. Finally, I consider that it will help us find a balance between real and virtual life.

REVITALIZATION SYSTEM OF PORTRAITS VIA ARTIFICIAL INTELLIGENCE

Obiedkova Diana
Faculty of Informatics and Computer Technology,
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute"

Each of us ever dreamt to see the real face of the character of our favorite book, but could only enjoy his/her illustrations. From day to day, we can observe how, with the help of technological progress, many areas of human activity are developing, and technologies are improving. One of them has reached us: creation a full video of a human, now we just need a picture or photograph. Researchers at machine learning center Samsung AI published a science work on the creation of a

system, complementing this with a row of celebrities, stars and art compositions who have found a new life after using this technology.

To correctly create an animated portrait, the system is managed by 'landmarks'or the sights of the face, for example, a nose, cheeks, eyes, a line of the chin etc. Thus, she captures all the outlines and, as a result, will be able to transfer something else, like texture, color or mustache and so on, to the person's video, adapting the previous picture to new angles. So far, the system only works on portraits, unfortunately. It requires not more one person with at least two eyes. After that, the system will be able to transfer even a certain specified facial expression, for this it will be enough to relocate a video to the model with picture of person, captured from the similar angle.

Previously, there was already a technology with the help of AI that made deepfakes, but it was necessary to come up with algorithms for hours to get a worthy result. Even the author of Deepfakes exclaimed that compiling one video took him nearly 8-12 hours. Unlike the old model, the new one could generate animated pictures immediately and upon entering it was plenty of resources if you convey one photo (Wiggers, 2019).

Moreover, the inventors used a generative-adversarial network, where some examples of the algorithm battle with another. Both the first and the second attempt to delude the previous model and show to that the credibility of his instance. The advantage of the system is that the picture is not released until its authenticity exceeds 90%.

In addition, if system is received several examples of a human, the product is improved. In fact, it's easier to make deal with celebrities who have plenty of photos to compare from different and possible angles. It is believed that to reach the ideal you need to use 32 shots. The generated pictures will be indiscernible from actual photographs of a person, and neither close relatives, nor experts will be able to determine inaccuracy (Zly`gostev, 2019).

In the end, the inventors affirm that the most vulnerable part of the system is the gaze. Since the system is built generated pictures on the landmarks of a person, it does not always convey with accuracy the meaning and mood of a particular look.

In conclusion, the revitalization system of portraits is an interesting original scientific work that solves the urgent problem of our days. It will be widely in demand by the modern user and will receive the approval of the audience.

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THE INTERNET AS THE BIGGEST BREAKTHROUGH IN TECHNOLOGY OF THE XXI CENTURY

Osadchiy Miroslav
Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nobody doubts that the creation of the Web in the 20th century was one of the biggest breakthroughs. However, not many people know how many new things it has brought into everyday life.

The main task is to show how the internet changed our everyday life during the XXI century. There is the categorized list of things that the Web has brought to us.

1. Finding information

The creation of many big websites like Wikipedia, Google, and Yahoo have played a huge role in how we are researching the information nowadays. There are no visible negative sides of such search. You can both use the newly created methods of search, or you can just go online and find the books, which you need for your research (Karen Weider, 2016).

2. Communication with people

If you are living for more than 20 years, you cannot miss the fact that the way people communicate has changed drastically. Humans do not prefer the live communication over the other ways of talking. The social media has brought the ease that we needed so much in the communicating. Now you can text your friends using just your phone, and stay up to date with all their news. All of this thanks to Tim Berners-Lee's creation.

3. Shopping

The way people shop nowadays might seem the same as the one that we could see several decades ago. However, that is only visible when we go to the 'offline' shopping malls, while online we can see the rise of Internet shopping. Such sites as the Aliexpress and Amazon have changed the way we look at purchases over the Web. No more worries about the scammers, you get a warranty, which consists of millions of purchases every day. In addition, if you do not know whether to buy a good or not, you can always find the needed review on it online.

4. Studying

Nowadays the internet is very useful in education. Not only can students cooperate with foreign ones, they also can share ideas and learn about the diverse cultures out there. Parents can also become actively involved in their kids' education by linking their children's school with libraries, homes, and more. Millions of schools around the world are already using this technology to enhance learning (Echo Brown, 2017).

5. Learning foreign languages

If you once learned a foreign language, you would know that the best way to study English (for example) is to speak English. With the help of the internet, you can easily find a foreigner to talk to and to practice your skills. Moreover, you can even

try to search for a native speaker that would be much better teacher, than the common one. Today, it is very important to understand foreign colleagues or business partners and that is the best way to practice.

6. To do business

No news that people are using the Internet to make money. Some people go into the new field of freelance to earn some money with the skills they have without going to the office to work. However, some go even further. They create their business online-based. Such companies are making some good money nowadays, so we can say that creating a web-business is a huge thing that was created only thanks to the creation of the Internet. Internet communication brings teams together across the globe. That is why it is much easier to work effective, because there is no need to be in the same office with the whole team.

Nowadays, the internet has an influence in every branch of our life: communicating, studying, shopping, working, entertaining ourselves, searching for the information etc. This technology made our life much easier. Moreover, the internet can improve it even more drastically in the future. Nobody doubts that it will not take a lot of time.

In the end, it is important to say that without the Internet our everyday life would have been different. People have become linked to the Web, as to a thing that has always been here for us. Sure, nobody knows how much bad influence it has brought into our lives. Although, we have to thank the creators of this great invention for making our lives more interesting.

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AGILE METHODOLOGIES AS INHERENCE IN MODERN PRODUCT IT-COMPANIES

Pobiedimska Sonya, Pavlovska Kate
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

All companies nowadays can be classified in two groups, depending on rules they follow while organizing manufacturing and product-launching processes. It is called *"a methodology"*. All methodologies belong to waterfall or agile. Every IT-company tends to implement agile methodology to their workflow, though some

other companies do not want to change nothing in the company's traditions. There is definite reason for both companies' behaviors.

Waterfall, a stable methodology, has been used by many traditional companies for decades. The name *"waterfall"* was received by the methodology because the team, engaged in development process, begins the following development or testing stage if and only if the earlier steps are completed successfully. Workers mostly stick to the plan and usually do the biggest amount of work in couple of days before the deadline, that makes development process expensive and slow. However, this method can is extremely efficient in big manufacturing companies with sustainable development. Waterfall Model is easy to manage, mainly because the high importance of detailed documentation. Testing process begins only after the development, so changes can be implemented only after all stages are completed. Consequently, chances to find drawbacks when they are impossible or expensive to recast increase.

Waterfall was used by factories over centuries, though due to evolution of technologies and acceleration of life rhythm there has been Agile method created. The main idea was breaking up a project into several stages and involving constant collaboration with stakeholders, repetitive improvement, and iteration at every stage.

Though agile is used for describing a collection of various frameworks, the sequence of development steps stays exclusive. An elementary stage is discussion with the client about what are his expectations about the results of the project. Next stage is called *"sprint"* and contains micro waterfalls inside. Sprints usually last one or two weeks long, though in mature projects they can last one month, but by no means longer. Keywords here are *"planning, executing, and evaluating"*. Weekly estimation is called "retrospective", a team meeting for sharing opinions on what are the results of the sprint and what could be improved. Completing the retrospective, executing and estimating repeat till completion of development.

Despite making an impression of an easy methodology, Agile can be rather highly energy consuming while implementing, while it is more than just a sequence of stages. Teams usually hire a scrum master, which handles implementing agile. Generally, this type of metodology is about *"working smarter, rather than harder and generating more value with less work instead of doing more work in less time"*.

The story of dividing methodologies starts back in 2001, when "*Agile Manifesto of Software Development,"* described the ideology the team should follow. These key phrases explain how project management should be procured.

The Manifesto values declare:
- *People over tools,*
- *Software over documentation,*
- *Customer collaboration over contract,*
- *Responding to change over sticking to a plan.*

Agile Manifesto does not supply concrete agility steps. There exist more than fifty agile frameworks, which holds own sets of terminologies and practices. One of

frequently used agile frameworks are Scrum and Kanban. Small companies also use Extreme Programming or Unified Process, though they require a big amount of work.

Scrum is an iterative methodology, where every team member helps others finish their work if he has already done their tasks before the end of the sprint. Everyone concentrates on completing "user stories" or tasks during a sprint. The biggest feature of Scrum is to produce a potentially shippable iteration of working software at end of their sprint. That increases accuracy to the estimation process. The additional advantage, for which Scrum is also known is certain key roles, such as product owner or Scrum Master, product or sprint backlog, daily standups, and backlog grooming. Summing up, expenses needed for using Scrum can either slow down the project or accelerate it's growth.

Another common framework is Kanban - a visual method, which is about descriptive board with tasks and responsibilities, which are marked as done, in progress or undone. It was created for increasing the speed of implementing changes step-by-step to a project. The foundation of Kanban are four following principles: *"visualize workflow, limit work in progress, focus on flow and continuous improvement"* and main advantage is that the focus of a team is on their current tasks until they are done.

Fortunately, special software platforms, such as Trello and Jira can be used for tracking the working progress and making agile work more efficiently. They are one of key tools which make working process faster and operative.

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IS IT POSSIBLE THAT OUR WORLD IS VIRTUAL?

Rieznikova Victoria, Smuchok Daryna
Faculty of Informatics and Computer Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Today, observing the speed of technology development, it is difficult not to notice that they are becoming closer and closer to the possibility of simulating our reality. How likely is it that the world we live in is not virtual?

Elon Musk believes that the chance of this is only one in a billion (Griffin, 2016). After some time, the games will become so similar to our reality that it will be

impossible to distinguish between them. Artificial intelligence in these games, taught by people, will be more and more successful in repeating human behavior.

"It is quite possible that a certain civilization has already come this way to us, and our world is one of its many experiments," said the great inventorv (Griffin, 2016). There are many confirmations for this by looking at modern games and scientific paradoxes.

Firstly, in quantum physics, the fact of observing a particle can influence its behavior and even influence an already conducted experiment. This is a world famous experiment with two slits (Hamer, 2017). Also in open-world video games. For example, when you walk the streets in GTA 5, where nothing happens to you, even the textures are not loaded, but as soon as you appear there, everything is generated instantly. But looking at the city from a height, you will see everything that happens in it. In fact, this becomes possible due to the greatly simplified physics. Perhaps for quanta the wave state is simplified. Since it is not rational to spend resources to calculate its position at every moment in time to calculate such a small, invisible particle.

Secondly, nothing can move faster than photons in a vacuum. The speed of light is constant. The faster an object moves, the more its time slows down. At the speed of light, time to stop. Drawing an analogy with a computer, the supercomputer's processor is updated 10 quadrillion times per second. And our Universe is being updated a trillion times faster, but the principles are basically the same. Time with a speed increase slows down, since virtual reality depends on virtual time, where each processing cycle is one tick.

At the same time, Irish physicist John Bell proved that bound photons do not have a definite spin before observations. But after trying to measure the spin of one of them, the multidirectional spin is instantly established for both particles. Regardless of the distance between the particles (Vutha, 2019). This violates the laws of physics, but for the process, these particles would simply be controlled by a common program.

Thus, the hypothesis about the virtuality of our world can be comforting because it solves the Fermi paradox and shows that intelligent civilizations are able to avoid self-destruction and technologically reach the creation of their virtual worlds.

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NEURAL NETWORK
Rukavitsyn Kyrylo
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Good afternoon, dear readers! For a long time I was interested in the topic of artificial neural networks and how IT developers were able to simulate the most complex, but still approximate, model of our brain. I was lucky enough to meet the direct creator of the artificial neural network, and I was able to clarify for myself a lot of interesting details on the work of this eighth wonder of the world.

Anton Berdnikov, mathematician − programmer: "A neural network is a complex structure of simple interconnected elements, each of which is able to receive a signal from a large number of donors, summarize it and transmit to a large number of recipients."

It sounds dry and uninteresting, but behind this laconic formulation there arehidden secrets of memories, thinking, and for optimists even the mechanism of our consciousness.

A neural network can be biological or artificial. When in the news we hear that the neural network has learned to colorize black and white photographs, we are talking about an artificial neural network. Because any animal with a nervous system has a biological neural network from worms to mammals. By creating an artificial neural network, we are trying to recreate the characteristics and functions of a biological NS in a virtual environment.

Remember the school physics course, where we analyzed the structure of our world. In our objective reality, the building block of all things is atom. In neural networks, the basic element is an artificial neuron.

An artificial neuron has 3 functions: summation, calculation of the result of the activation function, activation.

In the adder, a signal is received from hundreds, thousands, millions of axons of other neurons through "Incoming mail" − dendrites. According to the internal table, the adder determines the significance or weight of the signal from one or another axon. After that, in the computer center, the result of the activation function is calculated. If the calculated value turned out to be above a certain threshold, a decision is made on the axon (Outgoing mail) to send the signal further. The signal is transmitted from the axon uniformly to hundreds, thousands, millions of dendrites through synapses.

Synapse − Dendrite − Adder − Calculation − Axon − Synapse − Dendrite.

As you may have noticed, a neuron is so flexible that it can support huge amounts of connections with its neighbors, sometimes varying by orders of magnitude. As a result, the calculation speed of incoming signals and the result of the activation function strongly depends on the number of connections (which is faster to calculate, the sum of 10 incoming signals or 1000? − the logic is clear). Therefore, in

neural networks, the balance between the complexity of the system and its speed is important.

What is a synapse?

We all heard about them, and approximately guess what it is. In fact, the synapse is a connection, or rather, the junction of two neurons.

We speak a synapse −   we represent communication, we speak communication, we represent a synapse. For those who love visualization, we can offer an analogue from the movie "Avatar". The synapse is the "Zaheilu" between neurons.

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How does the activation function work?

Imagine a "nerd" schoolboy who was caught reading a book in a corner. A group of bullies begins to tease him, shouting teasers and curses. When a particularly insulting expression is expressed, or because of the number of harassments, the guy's patience will burst, he will suddenly jump up and begin to give out sensitive blows to the confused offenders. The calculation of the activation function occurs in a similar way – a signal from a neuron with high significance (weight) or a lot of weak signals make up a certain bowl, the overflow of which entails the start of the signal in all outgoing flows simultaneously.

How pistachio ice cream is stored in memory and where are the columns?

Before touching on the topic of meaningful work, it is necessary to determine how memory works in a neural network.

A graph (in mathematics) is a collection of points connected by lines. Points are called nodes, and lines are called edges, or arcs. In our artificial neural network, the graph points are neurons, and the edges are synaptic connections between them.

In such an amazing way, all knowledge in our brain is encoded, as in an artificial neural network. Our knowledge is evenly distributed throughout the structure of the neural network.

If Styopa loves pistachio ice cream, Vasya hates it, and Lena treats him neutral, then everyone will have the same concept of the subject, but built on completely different bases of personal experience. In this case, we are already talking about abstract thinking, but the principle of constructing a concept on the structural relationship of elements is an important step in understanding the mechanisms of operation of a neural network.

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How is meaningfulness born

An artificial neural network has "teachers." They can be individual programs, part of the neural network itself, or another neural network. If the teacher is part of an artificial NS, then she is called self − learning.

If the task is mistakenly solved, the program sends a signal of negative reinforcement to the network, which, with due imagination, can be considered a feeling of displeasure. When the decision is right, the signal of positive reinforcement is returned − pleasure, positive. It is to him that the neural network strives.

The principle of carrot and stick is laid down in us by nature itself. We are trying to get away from the bad, striving for the good. The very concepts of good and bad, good and evil − are dictated by the mechanism of the brain. When a branch of neurons interconnected yields incorrect results, the synapse link weakens and then breaks. The wrong graph is rejected at the most basic level. The meaningfulness of the actions of the neural network is given through experience. The system changes its algorithm on the go. In any unfamiliar situation, a neural network does something based on its experience.

Our new owners

The main task of any neural network is to replace a person as an operator of any system. If we are talking about the colorization of photos, then any graphic editor, for example Photoshop, can be the work tool, but our artificial neural network takes over the decision − making functions.

In the old days, programmers sought to develop the perfect tool that people would work with. The trend of the next twenty years is the replacement of the person in this chain with an artificial control circuit.

This is the first publication in a series of articles on the problems of consciousness and artificial intelligence. Waiting for your feedback. Thanks for your attention!

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DATA LOSS: HUMAN ERROR OR MACHINE ERROR
Wojciech Saedek
Warsaw University of Technology, Poland

Recent evidence could suggest that while the technophobes are correct with the first half of their accusation, they may not be so correct with the rest. In fact, recent research (2015) suggests that in more and more cases it is the human being who is responsible for the failure of technology in the world of computers and, specifically with regard to the loss of data. Data recovery expert, the technological doctors and nurses of desktop or laptop hard drives, say the technical breakdown of computers is still the main cause of data loss, although human error in the form of lack of care and even rage is fast becoming one of the main reasons files need rescuing.

However, it is clear that users still have to do more to protect their data. In fact, it may be true that precisely because computers have become less likely to break down, humans have been less careful with using the computers, and have become more responsible than the machines themselves for the loss of data. In fact this has become so strong that when a user feels 'betrayed' by his or her machine, they may react in extreme ways. For example, take the Americans who were so frustrated with his laptop that he shot it in a fit of e-rage. Once they calmed down they realized that there were important files they needed. Amazingly the data recovery expert were able to retrieve them.

One company director would not have lost his company's business accounts if his laptop hadn't accidentally fallen into the bath he was having. Another businessman lost all the notes for his presentation because he left his laptop on the roof before getting into the car and driving off.

There are countless examples of people forgetting them on public transport and in cafes or bars. Experts recommend data be backed up daily or weekly and regular checks are made on back-up systems to ensure they are working, especially, in the case of laptops.

More men than women seem to be likely to try and retrieve the data themselves before asking for help from the experts, which can sometimes lead to more damage to the computer. A user who had problems with his/her DVD drive actually tried to fix the computer with his trusted screwdriver, resulting in the computer refusing to work at all.

To sum up, the user may have little control when the ghost in the machine causes the loss, they have a lot of control over what they do when they use their computers. Technology will always be as good as the person using it, no matter how advanced the technology is at least until technology finds its users obsolete.

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UPDATING ANDROID FROM 9 TO 10 VERSION
Shalabanov Boris

ESC 'Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

To begin with, android is improving its versions every year and making them more optimized and suitable for new features of phones, for example, face ID, fingerprint etc. When you update your phone to the 10th version of android you will see those differences:

The first and probably the main difference is that bottom navigation menu (home, back, list of tasks) will be replaced with a navigation menu (Horbatenko, 2019*)*, which is the same as at the IOS. It has both advantages and disadvantages. For instance, you can easily swipe between running tasks by moving pointer at menu left or right. Moreover, you can hold your finger on the screen and choose which of tasks to open. This menu also lets you open menu with all apps by moving your finger up from the bottom of the screen or close running tasks if you do this at the running tasks mode. However, this function has also some drawbacks in those cases like apps which contain their own bottom navigation menu. When you try to use it, as usual, you can switch tasks by mistake and lose your active state at this one. What is more, trying to open left navigation menu can be very difficult in case it is early version of android and it is not optimized for all user`s finger moves.

The second very important update is that android now contains a full dark mode ("Migrating project to android X," 2018) and can retain battery because those pixels, which are coloured black do not consume any energy. To compare with the earlier version, the dark mode was also enabled there, but it was grey and could not be applied to all android functions.

The third innovation can be very interesting for those people who enjoy listening to music. The tenth version of android provides the opportunity to play music without opening the player ("Migrating project to android X," 2018). All you need is just to open a notification menu and swipe a pointer there.

The fourth major improvement is about security ("Migrating project to android X," 2018). If an app asks you to let it use your location data you can choose whether you want to share your location when the app is running or all the time. It is an extremely important improvement in security because apps now cannot track your location. It also affects battery usage because GPS module won't be working at the background.

The fifth update is that all security and permission options are now at one section at android settings. You do not need to look for the needed option, for example, to prevent one app from using notifications or do it without sound. At the previous versions you weren't able to create notifications without sound for one specific app.

Migrating to android X for android developers is not as difficult as it could be ("Android Developer's main doc," 2019*)*. All you need is to change import directions

of libraries from supported ones to androidX. There could be some difficulties with this, for example, one function at the supported library is called "foo" and at androidX "foo1", but android studio knows all those issues and can deal with this.

Moreover, androidX contains design library by default, so developers can easily use its features like custom snukbar or card view.

To sum up, Google is always making its product better and more useful for users. With every update, your smartphone becomes more and more indispensable for us. Android ten has both positive sides and negative ones, but Google is always working to improve its products.

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BLOCKCHAIN TECHNOLOGY
Skryp Daryna
Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Blockchain is a recently developed technology. It all started when a well-known person named Satoshi Nakamoto built the first application using this technology. He created the cryptocurrency called Bitcoin. It was a successful and profitable project. It was developed using P2P network. In other words, every computer can work as a server as long as it has connection to the network. Thus, all information can be shared between computers without outside systems of control. This technology is free to use by everybody. In addition to this, it is hard to amend the information if it is saved. Moreover, it is misleading to talk that Bitcoin and Blockchain have similar definitions, due to the fact that there is some difference. The Bitcoin is a cryptocurrency developed on the basis of Blockchain. There are also numerous applications built using this technology. Examples of the use of Blockchain are everywhere: financial services, cybersecurity, healthcare, government, industry, transport and tourism, media.

The major aim of the Blockchain is to create your digital identity reference according to public and private keys. The Combination of these keys gives you a possibility to provide safe and independent environment. Thus, people don't have to

be concerned about the ownership of their own assets that are under protection of the digital signature.

There two types of blockchains. They can be categorized into public and private cryptographic ledgers. First of all, the main difference between them is that the first ones are used freely and everyone has an access to them. It is also known that network participants, who use technology of Blockchain, are usually rewarded for maintaining endurance and implementation of mining process. The cryptocurrency is an application that works according to the public Blockchain. The other ones are called private. Enterprises and organizations are the most common users of the private Blockchain. The whole control of the World Wide Web is carried out by the owners.

To put it in a nutshell, how this technology works. The Blockchain is the sequence of blocks placed in a certain order. Every block stores some data together with the mathematical code of its previous block. In some cases, they might be named as blocks. The first block is called Genesis block. The peculiar mathematical code is called hash. Before we go deeper into the information processing in each of the nodes, let us clarify the definition of a 'hash'. It is a type of a string that contains either numbers or characters. It depends on the state of the data. Once it is altered, the specific code will be subject to modification. As a consequence, each of the blocks has an own unique key. That is, this technology is completely secure. There are also particular nodes that approve the process of transaction. In order for a transaction to be approved, each of the nodes should be linked and referred to the hash of the preceding node. These blocks are usually called miners in the bitcoin applications. If the validator does not match the code with the original hash, the linked block will be deleted. Thus, it causes problems for any hacker to change the data in the node.

In addition to this, The Blockchain eradicates the need of third parties, so that the database of this technology is decentralized. Thus, you don't have to pay extra fee for making each transaction. The blockchain data in the digital ledger is not limited to any single location. Therefore it is difficult for any hacker to corrupt information.

Blockchain is one of the technologies that holds the potential to transform commercial industries and change traditional foundations of economy, media, government, healthcare, banking, etc. As a result, there are some issues to solve. They include the complexity of new terms, the lack of network size and speed, existence of transaction costs, human errors and politics.

Blockchain is limited by human errors, its complex definitions and network. Most of these problems do not have such a huge impact. However, they might be tackled thanks to further research.

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ENERGY SAVING TECHNOLOGIES
Suprun Olha

Faculty of Informatics and Computer Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Today, people are finally beginning to understand the seriousness of the problems of conserving exhaustible resources and conserving energy. Almost all the resources used today for energy production, such as gas, oil, etc., are exhaustive and could create a major economic crisis in the future if they end (Sule, 2018). Humanity now faces the task of finding alternatives not only to these resources, but also to the production of electricity that will be more "green"

An important problem in this area is energy conservation. So let's talk about modern technologies and ideas in this direction.

Oak Ridge and General Electric are working on a new refrigerator concept that uses magnets to create cold, also known as the magnetocalorimetric effect. It is an unusual technology that uses thermal energy on the water surface, making it a technology that is environmentally friendly and energy efficient (Lester, 2015).

The Lawrence Berkeley Laboratory is working on the production of new high-insulation windows. They incorporate special sensors and microprocessors to control dimming depending on the amount of sunlight and time of day to provide light and comfort, and save energy and money (Lester, 2015).

Instead of simply setting a timer, modern motion sensors can now detect when the room is not in used to determine whether, for example, the light or fan should be turned off. Hotels are increasingly using this technology, and homeowners will follow suit.

A common but very important technology is solar panels. Batteries, such as a Tesla PowerWall home battery, allow you to store excess energy produced by solar panels for use when the sun is not shining instead of sending that energy to the grid for a few cents per kW (Nightingale, 2016).

These small and humble ideas may seem powerless in achieving the goal of conserving energy, but if you see these technologies being used in large numbers and in every home, you can see a noticeable positive result.

Of course, in order to begin to make extensive use of these energy-saving technologies, people need to be aware of the problem, to be aware of the scale of the problem and to want to benefit the world

And most importantly, it takes a lot of money to implement these technologies, so not everyone can afford to buy such equipment.

If you still want to start saving energy, you don't need too much money, you can just turn off the light when you don't need and other appliances in the house.

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3D PRINTING PRODUCTS IN THE PRINTING
Terpilovskaya Julia, Shevchenko Daria
Publishing and Printing Institute,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The products in the packaging are common things for people. We buy packed products in markets and shops. For us packaging is something easy, isn't it? But we easily tend to forget something. Packaging goes through many stages: design, manufacturing, delivery, the packaging of the product etc. People always want to simplify the process.

3D printing began to apply only in recent years, despite the fact that it has existed for some time. This is because technology is getting cheaper, smaller and better every year. Now 3D printers can function faster and more efficiently than ever before. This improved technology gives the perfect choice for designers of packaging brands and the printing industry. We've all heard that you shouldn't judge a book by its cover, but you cannot deny that appearances matter — at least when it comes to consumer packaging. Technology is getting smaller, cheaper, and better every year.

Although 3D printing is unlikely to become the standard means of packaging production, it can help to change the way in which packaging is perceived, allowing you to create different prototypes quickly and accurately.

Here we have some advantages and disadvantages of 3D printing in the field of printing.

· Rather than prototyping for months or years, as can be done with previous technologies, it can be done in weeks using 3D printing technology. For example, making business cards can take you less time and resources.

· Moreover, necessary design changes (to the shape, or the label content, for example) can be incorporated into improved prototypes within a matter of days. This can be especially necessary for complex layouts, like 3D printed books. A3D printed book is made up of a hundred one-page essays from a hundred visionaries around the world. These people were chosen from various fields such as humanities, science, law, literature, and art (Iftikhar, 2018).

· Ultimately, it speeds up the market entry. There are also tactile books for children, which were also made using 3D technology.

· The companies can make more environmentally friendly packaging using 3D printing. Disposable items pollution is an enormous problem around the world, but with 3D printing, plastic waste can be cleaned, dried, shredded and extruded into a printable filament that can be recycled into a 3D printer for a new desired product. As more sustainable bioplastic materials are used, the adoption of 3D printing in packaging manufacturing may truly help save the environment. Generating less waste is not only environmentally friendly but economical as well (Iftikhar, 2018).

For example, a California company has created 3D-printed biodegradable cups with energy drink ingredients encapsulated within the cup itself (Jovic, 2017). Users only need to add water to produce an energy drink.

· The main disadvantage of 3D printers is their speed. Products are not created by filling out a form with materials, but by layering materials.

To sum up, the tech shows that 3D printing in the printing industry isn't just about on-demand packaging materials. It can also completely change the function of paper products to make it as part of the result. Eventually, it will be able to change everything.

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NANOROBOTS AS A NEW REVOLUTIONARY TECHNOLOGY

Tyshchenko Iryna
Faculty of Informatics and Computer Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nanorobot (nanobot or nanoid) is an autonomous system, that can be compared to molecule in size and can be programmed to perform a specific task. Nowadays, nanotechnology is actively developing, so soon nanorobots will become a reality, and not a hypothetical concept (Berger, 2019, p. 1).

Since nanobots are small, they have to interact with each other. Therefore, researchers distinguish nanorobots that are capable and not capable of self-replication. Those that are not capable of self-replication in our environment, will be created artificially, for instance, on special factories (Modi, 2013, p. 1).

Scientists involved in the creation of nanobots are inspired by biological models, especially their behavior. The most common components of nanorobots are carbon Nano tube, motor, bio sensors and DNA Joints.

The main part of the nanorobots' architecture is motor apparatus. This is the way these systems will move in the environment or through smooth trajectory paths. Another part is their "brain", which will be controlled by a computer. Their body will be constructed with carbon Nano tube-material, that is not harmful to human beings. Different sensors will help them with coordination (Saxena, Pramod, Dayananda, Nagaraju, 2015, p.1).

Furthermore, they can be in different types. The most unusual type is the smallest engine ever created. This engine can work as any other with one difference that it is created from just a single atom.

Another type is DNA-origami based nanorobots. DNA technology is not new and has already been used by scientists to construct biological structures and cells. But this specific technology can also be applied for producing complex components of future nanorobots.

Moreover, we can specify such types as nanoswimmers, that can be programmed to deliver drugs through the bloodstream, bacteria-powered robots, that can direct the growth of cells and even nanorockets – high speed and remote controls robots, primarily used to deliver drugs in special parts of our body (Diamandis, 2016, p. 1).

The main disadvantages of these small devices are their high price and very complicated initial system development. Also, because of their small size they can become a new threat to humanity, if they are not used properly (Saxena, Pramod, Dayananda, Nagaraju, 2015, p.1).

In general, they are manufactured basically for medical purposes. But they can also be used in more specific fields, such as environmental monitoring, energy systems, information storage devices and others.

Doctors have high expectation for these nano and micro-machines. Everyone knows that antibiotics bring harm to our body. Rather than giving a patient an injection that will spread antibiotics all over the body, nanorobots will deliver only a small amount of drugs to the affected part of human body (Strickland, 2007, p. 2).

Nanoids can also be used in cancer treatment, because they can detect tumor cells using bio cancers sensors. Surgical nanorobots can be manipulated via computer by surgeons. It will help them to diagnose illness or to delete affected cells without damaging cell viability (Modi, 2013, p. 1).

These tools can also be new sensitive devices. Equipped with special sensors they can be used in environmental measurement, for example, to detect the

concentration of pollutants or chemicals in the air. For this reason, they can also be used in smart houses technology.

Today many developers are trying to create first nanobot that can be used on people. They have already created some robots, but they are still in testing stage and cannot perform specific tasks. But one day they will totally revolutionize our living (Strickland, 2007, p. 6).

To sum up, nanorobots have all the possibilities to solve the most significant problems of a human being. They will change our life more profoundly than any other innovations and scientific revolutions did. The most crucial impact will be done to healthcare and bio sensing. They will provide us with new effective ways of treatment, and we will not be able to imagine how we could live without these systems before.

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THE POSITIVE IMPACT OF SOCIAL NETWORKS
ON STUDENTS` LEARNING

Vayner George
ESC 'Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute

The phenomenon of social networking has taken today's youth culture faster than light. Nowadays every child, teenager or even adult has their account on one or more of the popular social networking sites ("Social Networking in Undergraduate Education" 2019, p. 2). There are loads of them. For instance, LinkedIn, Reddit, Periscope, Pinterest, Tumblr, Flickr and more ("Social network", 2019, p. 1). Every person chooses the most appropriate one and, of course, finds his/her friends on the

social media site. It has become a routine to have an account there. Users may develop their profiles, chat with friends and strangers and share thoughts, pictures, playlists, videos and so on. If an ordinary man of the 20th century saw that we can send messages through the air he would be really surprised. Social networking sites burst into our lives as fast as the Internet. It appeared almost at the same time.

One of the most important goals of social networking is that it helps to find new ways of solving different problems in science ("Nature Cell Biology," 2018, p. 20). People can simply find everything they need on a specialized forum or site. Social networking sites are a very powerful source of information. Many reporters and editors take information from social networking sites, especially from Twitter, Facebook and YouTube, but, usually, they remake it to make a more interesting title. Also, the government uses social networking sites to catch criminals and scammers. Almost every developed country has its own department called "The department of combat against cyber fraud". In addition, Ukraine also has its department. ("Division for Combating Cybercrime," 2017, para 1). It was impossible not to mention that social networking sites allow people to improve their relationships and make new friends.

The research was conducted in California (Deslauriers, McCarty, 2018, para. 6). Twenty kids, aged 15 years old, were chosen onto this experiment. They were divided into 2 groups. 10 students from each team had to study the same topics and themes in math for a month. The challenge here is that the first part of kids had to carry on the tasks by themselves using YouTube, forums and social media and the second part of them had to study it at school.

After the time expired, students had to take an exam. Almost 90% of self-taught students passed it with an A grade. Unfortunately, only 60% hardly passed it with even a B grade. It was found out that those, who had studied at schools, were distracted by other subjects and classmates. That meant each one of them needed personal face-to-face interaction with the teacher. In addition, self-confidence factor took its place too.

To sum up, I would say that social media is a great breakthrough in our lives. It could be more difficult to live without it. Anyway, sooner or later it would have appeared because people can't live without communication and information. It is better to develop yourself using social media for not to be deceived by a scammer and to improve your knowledge in modern technologies.

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SSD OR HDD?

Yablonovskiy Anton
Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

A solid state drive (SSD) is a volatile memory device, which is based on memory chips. It is actively used by simple users (for home PCs) and large IT-companies (for data centers). One of the most successful SSD models has the read/write speed about 4000 megabytes per second. It is unbelievable!

Advantages of SSD:
1) Solid state drive does not have moving parts, so SSD does not make noise and has high mechanical strength.
2) Equally stable speed of reading data (files open identically fast).
3) Low power consumption (especially important for notebooks).
4) Immunity to electromagnetic influences.
5) Small dimensions and weight.
  Disadvantages of solid state drives:
1) A limited number of rewrite cycles (from 1000 to 10,000 times).
2) High price (if compared to other kinds of drivers).
3) Failure of electronic components (controller and memory circuits).
4) High complexity of data recovery after electrical damage.

Prospects for Using SSD

Soon prices for SSDs will certainly fall, but problems with reliability and rewriting cycles will remain. But not everything is so sad, because if you create a solid-state drive according to other physical principles (FeRam, ReRAM), then you can avoid problems.

A hard disk drive (HDD) is a magnetic information storage device. Today, it is one of the most popular storage devices that are used in many areas of our lives. Data in the HDD is recorded on hard plates (aluminum or glass) coated with a layer of chromium dioxide. The moving head passes 10 nanometers from the plates in which the information is contained. It is this technical moment that allows you to read information that was recorded even 5 years ago without any problem!

Advantages of the HDD:
1) Excellent price / volume ratio.

2)   High reliability.

3)   Hard disk drivers have a great chance to restore information.

4)   The ability to contain a large amount of data (up to 16 terabytes).

Disadvantages of hard disk drivers:

1)   Low mechanical strength and the presence of noise (because HDD has moving parts).

2)   High power consumption.

3)   Large sensitivity to electromagnetic fields.

4)   The speed of reading a file is inversely proportional to its depth.

Prospects for using a HDD

It is unlikely that with the current design, the read / write speed can be significantly increased. But you can always improve the reliability and amount of information.

Output

Each task has its own type of drive. For example, data centers use both SSDs and HDDs (the first is for fast data transfer between servers, the second is for storing backups). For simple users, it is enough to use just a HDD in the worst case scenario; an SSD will come in handy for fast work of operating system.

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USAGE OF DOCKER IN MODERN SOFTWARE ENGINEERING AND DEVOPS

Yankovskyi Dmytro

Faculty of Applied Mathematics,

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

On a day-to-day basis, software engineers reach a point where it is time for their application to be deployed. Shipping software with the desirable speed has never been easy, and as development, teams grow from a couple of people to many departments of engineers, the trouble of communication around delivering new releases only exacerbates. Developers have to understand many intricacies about the environment the product is shipped into and production operations teams increasingly need to comprehend the inner structure of software they ship. These skills are good on their own, but they are difficult to scale effectively as the project grows.

Docker helps to build an in-between layer of isolation in software that reduces the burden of communication in the world of humans.

Before Docker the deployment workflow looked like this:
1. Software engineers request resources from DevOps engineers.
2. Resources are provisioned and handed over to developers.
3. Developers script and tweak their deployment.
4. Operations engineers and developers make the necessary changes to the deployment repeatedly.
5. Additional application dependencies are found by developers.
6. DevOps engineers work to install additional requirements.
7. Repeat steps 5 and 6 N more times.
8. The application gets deployed.
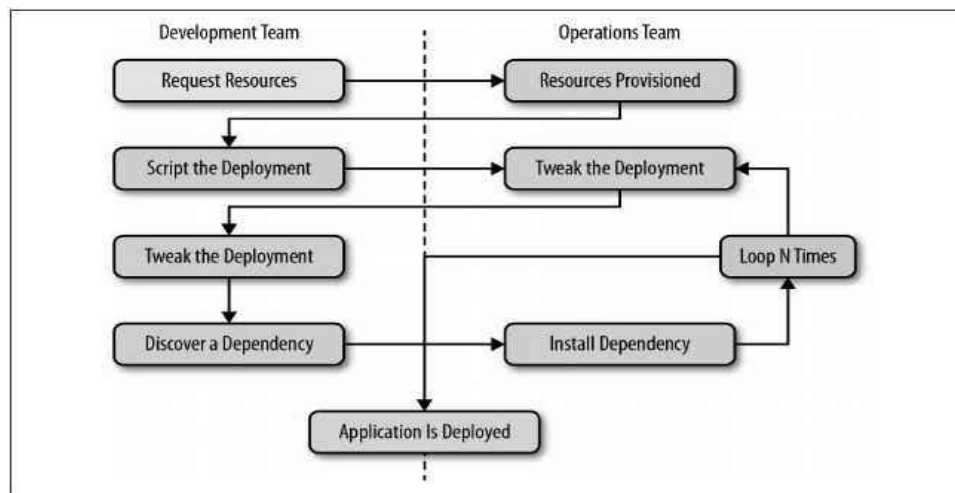
However, after Docker appeared on the scene the procedure started to look like this: 1. Developers build the Docker image and ship it to the registry.

2. Operations engineers provide configuration details to the container and provision resources.

3. Developers trigger deployment (Karl Matthias, 2016, pages 8-9).
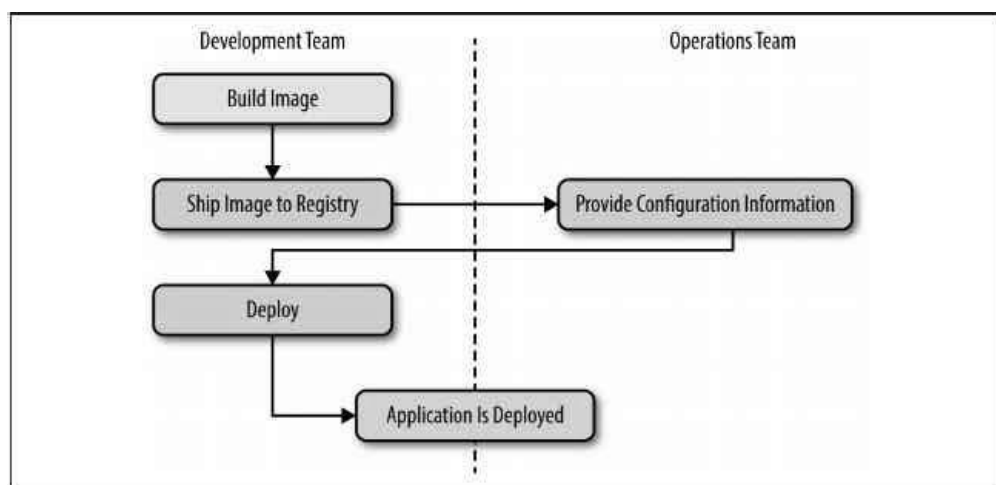
Docker takes your operating system and splits it into many self-contained areas called Docker Containers where applications can run in. It is a lot like a virtual machine, where people would take an OS and divide it into many smaller operating systems, each one thinking that they are running on their system.

The problem with traditional virtual machines has been that it's very heavyweight and it consumes a lot of resources since to operate they make use of the concept of a "guest" operating system, thus you don't want to run too many of them on a single system, otherwise, it gets overloaded.

Docker brings the abstraction introduced by VMs up one more level, such that it allows you to operate at the application level. In essence, it is a command-line tool where you are able to spin up a container by simply typing a sequence of commands.

Utilizing Docker allows structuring your apps by writing code differently. Previously when normally creating a web app, people would install a large number of programs onto the server. After a while, it becomes hard to manage all the installed dependencies. Imagine a situation where you have a website with a ton of software, tools, and installed programs on a certain machine. If by chance you wanted to sell this site to somebody, how would you do that? You would have to sell the server and the lease of the server as well and the buyer would have to pick up the rental bills on the server. The application would be entirely tied to the machine, the server it was on. With Docker, you can contain the website in a container, an image that is essentially the whole application. Therefore, you could redeploy this image on any other server and duplicate the website functionality. You have instructions indicating how to set up a server just the way you need it, so other developers and system administrators will always be able to know how exactly the server is set up, as long as the app is created the Docker way. It gets rid of the world, where different users on different machines have different versions.

Docker promotes the usage of microservices: the idea that you have many different services that each does a single task. This would lend itself very well for scaling. Imagine if your product were to get very big, you might want it contained on its own machine or a group of clustered machines. For example, you could need another server for caching, database server, another server for NodeJs ... It turns out too expensive to provision new servers for every little service you may want to offer. What happens most frequently is you install everything on a single machine and then this machine is overloaded with loads of heavy technology, dependencies get mixed up and soon it becomes hard for the developer himself to recognize what he has got on the system.

With Docker and containerization, you can create separate spaces for each of these services and that allows you to separate your program and establish a similar mindset too, it lets you code in that manner and the great thing is that it scales easily. Docker comes out with a whole set of tools for deploying across many clusters, you can take instances - your micro-services that you have in each container and then allocate many machines to them, specify how many of the resources of each machine

you want, specify rules about how they should scale, what should happen if they crash, etc.

Docker has facilitated making architectural decisions about software and introduced a method of creating robust, scalable applications. It is fair to assume that it has become a vital part of the DevOps stack and integral for supporting app portability.

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AMD RYZEN
Yascheko Evheniy
Faculty of Informatics and Computer Science,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The very first and most important reason why you should choose Ryzen is its price. AMD has a very attractive pricing policy. Its processors with almost the same characteristics as Intel are almost half the price. For example, one of the best AMD Ryzen 7 2700x processors with eight cores and a base frequency of 3.7 GHz and acceleration in Turbo Boost to 4.3 GHz can be bought for $ 350 on Amazon, and the Intel i9 9900k also has eight cores and a frequency of 3,6 and overclocking in Turbo Boost to 5 GHz costs $ 600 already. The difference in characteristics is not so big already, but the price is very different.

In terms of socket Intel is famous for the fact that with each new processor it releases a new   socket, which is absolutely incompatible with the previous one. If Intel users want to upgrade, they definitely need to buy a new motherboard for the new processor. AMD has a completely different approach to this situation and takes care of its users.

As for the architecture, previously, AMD processors did not want to buy because of their low gaming performance. For example, an average processor from Intel with a frequency of 3.5 GHz, AMD processor with a frequency of 4 GHz could defeat the performance of one core. This was a serious problem in games where the performance of a single core is much more important than the overall performance. However, now this is not a problem. Thanks to the new architecture Zen, Zen + and

the expected Zen2 Ryzen, if not better than Intel in the performance of a single core, then in any case no worse.

Due to their low cost, Ryzen processors buy more often than Intel. According to Amazon's processor sales rating, Ryzen 5 2600 is in the first place , Ryzen 7 is 2700x in the second, and Intel Core i9 9900k is already in the third place. You can familiarize yourself with this rating and see that there are quite a lot of processors from AMD.

Another advantage of the AM4 socket is overclocking. You can overclock Ryzen processors on almost all chipsets except the A series. Overclocking is supported by mid-range B chipsets, as well as older X chipsets. And since it is generally not advisable to buy A chipset even for home use, we can assume that overclocking supports all chipsets. While at Intel you have to buy a motherboard with a special chipset that supports overclocking and costs a lot more.

AMD processors have always performed very well in multi-threaded applications. Ryzen processors are no exception. Although we have already partially discussed this in the first paragraph, we repeat again. If you need a good processor for video editing, rendering or other multi-threaded tasks, then Ryzen with its twelve or sixteen threads can cope no worse than Intel, but costs half as much.

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ENERGY SAVING TECHNOLOGIES

Yaschook Sergey
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

One of the most efficient tools to decrease the human impact on the environment is to improve the performance of energy saving technologies. In reality, contemporary energy, based primarily on the use of fossil fuels (oil, gas, coal), has the strongest impact on the environment. Starting from oil and gas production, processing and transportation.

The environmental balance of the planet is negatively affected by the burning of energy resources for heat and power generation.

Energy saving in any sphere is significantly reduced by reducing useless energy wastage. The losses in the field of production, consumption and allocation of electric power show that the major part of losses - up to 90% - falls on the sphere of

energy consumption, while losses in electric power transfer are just 9-10%. That is why the main energy saving efforts are concentrated in the sphere of electricity consumption.

The main role in increasing the efficiency of energy use belongs to modern energy-saving technologies. Energy-saving technologies are a new or improved technological process characterized by a higher coefficient of useful use of fuel and energy sources (FER).

One of the most significant steps in addressing many ecological problems - climate change, air pollution (e.g., CHP emissions), depletion of fossil resources, etc. - is to introduce energy-efficient technologies into the economic activities of both enterprises and households.

There are other ways to use electricity more efficiently, not only in production, but also in everyday life. Thus, smart lighting systems have long been known. The energy-saving effect is founded on the idea that electricity is turned on automatically when needed. The switch has an optical sensor and a microphone. At daytime, when there is a large amount of daylight, the lights turn off. During the twilight, the microphone is activated. If there is noise within a radius of up to 5 m (e.g. stairs or the sound of a doorway), the illumination is switched on and off immediately when a person is indoors. These lighting systems use energy-saving lamps.

LED luminaires provide significant energy savings when compared to ordinary light bulbs (up to 80%) and fluorescent lamps (over 40%). These luminaires can be used to illuminate a wide range of objects: underground pedestrian crossings and parking lots, garden lighting, street lighting, public utilities and emergency lighting.

There are also promising energy-saving projects in the transport industry. U.S. engineers are approaching the production of vehicles equipped with exhaust gas heat exchangers to supply electricity. A heat generator installed on the silencer converts part of the waste heat into electricity, which allows for the operation of the climate control system, music system, etc.

German scientists are developing high-efficiency energy-saving devices required for cars with hybrid engines. The device works with oil on the highway and electricity in the city, thus consuming relatively less energy.

In the home, every user can save power by following these rules:
1. Remove the light bulbs and replace them with modern energysaving lights.
2. Switch off unused devices from the network (e.g. TV, VCR, music center).
3. Use dishes with a diameter of the bottom of the burner equal to or slightly larger than that of the burner, do not use dishes with a cambered bottom.
4. Wash in the washer at full load and select the correct washing mode.
5. Remove limescale from the pot in time.
6. Do not over-dry the laundry, this saves you money when ironing.
7. Try to change the dust packages in the vacuum cleaner more frequently.
8. Put the fridge in the coolest place in the kitchen.
9. Use light curtains, wallpaper.
10. Frequently wash windows, put a little flowers on cills.

All of the above methods and technologies can be used separately or in combination. Whatever energy-efficient technology you use, it must be efficient. In most cases, the use of energy-efficient methods results in a material investment. But there is a simple rule here: once you make an investment and save money for many years, it will pay off more than once. Thus, we take care of ourselves and our loved ones.

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REINFORCEMENT LEARNING AS THE NEXT FRONTIER OF AI

Zaitsev Kirill
'Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nowadays, technology built on top of Artificial Intelligence is the most demanded in the majority of industries. Supplied by corresponding Machine Learning techniques, healthcare, military, autonomous driving and many other spheres made a great leap forward. However, even bigger advancements are expected when intelligent agents, which have in their back-end reinforcement learning techniques, will enter the game.

Reinforcement learning is a branch of AI, which belongs to the class of semi-supervised ML. After providing the agent with a strategy of the environment exploration, it leverages the computational power of a computer and via numerous interactions learns the best strategy to achieve the goal. In computationally complex real-world domains, it produces a dramatic performance increase comparing to standard machine learning approaches.

Initially, the idea of agents solving complex tasks subdivided into two independent branches, namely optimal control theory and learning by trial and error (Lee, 2005). R. Bellman was an evangelist of the former method, which was aimed at the problem of finding the best sequence of actions in a stochastic environment, also called Markov Decision Process. The latter approach, inspired by the psychology of animal learning, avoided analysis of surroundings and learned directly during exploration, following the principles of primary AI. In the 1980s appeared the third thread concerning Temporal-Difference methods, which unify both ideas by creating expectations of the future based on current situation.

All three approaches are based on the law of effect principle developed by Edward Thorndike, which states that satisfying responses in a particular situation tend to occur again in the same setting (McLeod, 2018). According to the principle,

for successful acting in an environment, the agent should possess tools for searching best policies and memorizing its experiences. The latter requirement could be satisfied by using data structures with the ability to map the state of the milieu to the action, made by a learner. At the same time, the choice of the way it learns is based on properties of a particular environment (Dulac-Arnold, Mankowitz & Hester, 2019).

Specifically, a type of learning the optimal policy is chosen accordingly to the prior information of the environment we plan to work with. When rewards for actions are predefined and information about transitions within the environment is given, learning the policy should be learned offline (Amjadi, 2018). Verification of the resulting policy in actual surroundings could reveal suboptimality of the former. To achieve better performance, domain experts use their knowledge and provide the agent with more consistent initial setting. An alternative approach is to allow the agent to explore the world in a model-free fashion and learn a policy directly using algorithms like Q-learning, Actor-Critic or policy gradient (Sanjeevi, 2018).

By advancing the latter framework with deep neural networks, researchers in Google's DeepMind has recently developed several agents, which defeated both individuals and teams in games of chess, Go, Dota2 and StarCraft (OpenAI, 2018). Researchers of the field have generally believed that long-time horizons would require advances new on the fundamental level, such as deterministic policy gradients or hierarchical reinforcement learning. Results of DeepMind's AlphaZero suggest that the current base of reinforcement learning has not exhausted itself yet — at least when these algorithms run at sufficient scale and with a reasonable way of exploring.

Along with successes in closed environments mentioned above, Deep Reinforcement Learning started to be widely used in optimization problems and retailing. Royal Dutch Shell uses it in its oil and gas exploration. DeepMind AI reduced energy used to maintain Google data centers by 40%. In the biggest Chinese company Alibaba, DRL agent was used to improve the online retail environment of the shopping website – from 37 million monthly active users to 617 million ("getsmarter", 2019).

By the power to learn hidden patterns in data and ability to explore an environment in both real world and simulation, deep reinforcement learning agents are able to change the world we live in. Breakthroughs in AI, involving the invention of the unknown materials and constructions, controlling over the military drones and holding a conversation in way to pass the Turing test and many more could now be found at the forefront of research. Majority of them is powered by advancements in the field of reinforcement learning.

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INFORMATICS & INFORMATION TECHNOLOGIES

Zimenkov Dima

Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Informatics incorporates concepts from computer science (CS) and information science in order tackle issues that consider the interaction between humans and information alongside the construction of interfaces, organisations, technologies and systems.(Merjudio, 2017)

This has led to the study of informatics with computational, mathematical, biological, cognitive and social aspects, including the study of the social impact of information technologies.

Nowadays if you want to be a certified specialist you have to know informatics, how to work with the Internet and at least one language of programming. Programming language that's a unit of information technologies. There are three types of programming languages.

First, that's the language of processor, Assembler. BIOS- the basic input-output system is written on Assembler. This language is the hardest language to learn because you want to convert every symbol to 1 and 0 code. For numbers, you have binary code. You are dividing your number on 2 and if you have remainder 1 you write it to your code or if you have remainder 0 you write it to your code. After dividing you convert code and after that you will have the final version of it.

Second, these are the languages of programs, like C, C++, Java, Python, etc. Most programs were written on these languages. Here you have more than only 1 and

0, you have commands which computer understands and does something that you want. These languages were written on Assembler.

Third, this is the language of the web pages, HTML.- HyperText Markup Language. All pages on the Internet were written in that language. In my opinion, it is the easiest language of programming. To write a program on HTML you have to write text in the notebook to create a file and change the type of file to HTML. And if you open it, you will see your text on the page in your browser. Like in the second type of programming language here you have commands to change the interface of your site to add photos, etc.

Information technologies are progressing every day. If in 90s you could learn about the news by the newspaper or radio., than nowadays you can see news on your TV, see on the billboards near the road, see the news on the Internet, see on big TVs at the center of the city or in the shopping centers. You can read the news from the site on your computer or you can do it by your smartphone using Wi-Fi or mobile Internet.

You know informatics if you know how to work with standard Windows programs like Excel, Word, PowerPoint, etc. All these programs have advantages and disadvantages. You have to know the type of file you want to create and which program you would better use to do it, because for example: making the presentation in Word is harder than making it in the PowerPoint.

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SOCIAL SCIENCES

PSYCHOMETRIC TESTING
AS AN IMPORTANT PART OF MODERN LIFE

Beerknius Mihael
Mykolas Romeris University, Lithuania

Employers have always tried to learn as much as possible about existing or potential employees. That's hardly surprising, given that few of people are completely truthful at interviews. If people want the job, they're hardly likely to reveal elements of their character that put them at a disadvantage. At least not intentionally.

Many methods have been used by employers to assess the real characters of their staff. In the 19th century, handwriting analysis or 'graphology' was regarded as a window on psychological make-up and became popular as a selection tool. The 20th century saw the advent of IQ and aptitude tests. These performed better, but were still easy to fool; to raise your apparent IQ, you just need to practice IQ tests (Casini et al., 2019).

The basis of many psychometric tests lies in confusing the subject contrasting many unrelated preferences. It becomes difficult to give the 'right' answer. The responses are then related and analysed, often using a computer program. The personality profile that results is often disturbingly accurate. It's important to use the right type of psychometric test, according to the selection criteria that apply to their circumstances. Each reveals different aspects of the subject, either as an absolute score or as a quotient that compares the subject's performance against those who have previously undertaken the test.

Each type has its own advantages and shortcomings. Almost all are subject to the 'snapshot effect' – they show the subject's performance at that particular moment. Stress caused by interview nerves, motivation to prove a point, or even just an 'off' day can all distort the results. This means that skill in interpretation is at least as important as the sophistication of the test itself.

This form of testing has become increasingly popular in recent years. It generally provides consistent, meaningful results that are relatively easy to collate and understand. An assessment involves electing a committee of colleagues to provide feedback on the subject. This will usually consist of people at various levels: a manager's assessment group could be made up of staff who report to him, peers at a similar management level and the senior management to whom he reports.

Each respondent is given a multiple – choice questionnaire on which they anonymously rate the subject's performance in various situations. The subject is also

asked to rate his or her performance in the same areas. On completion, the responses are mapped to give a detailed picture of the areas that require improvement.

To sum up, the technique appears intrusive at first sight, but when applied simultaneously across several people it is usually accepted with enthusiasm, especially if the results are used positively to everyone's advantage.

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THE EXPEDIENCY OF INTRODUCING EDUCATIONAL REFORMS
Balinska Valeria
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nowadays our country is going through a period of active development of a variety of reforms, one of each is provided by changes in the field of secondary education. One of the main provisions of the program of New Ukrainian School is the development of new textbooks for fifth grade pupils and e-books for the first-graders. In addition, one of the tasks is to create English language courses to improve students' knowledge of this discipline. Let us consider all the advantages and disadvantages of this reform.

To define the expediency of introducing educational reforms.

It was examined the legislation of the European countries on the institution of facultative lessons and its implementation in Ukraine, moreover during the research the methods of analysis, abstraction and comparison were used.

It is important to say that society is going through the evolution process every day. That is why secondary school should prepare children for variety of life situations, grant them incentive to self-development and implementation of their own opportunities in the future. The main emphasis in a new program is done by obtaining students economic and mathematical knowledge that further should positively affect the economy and financially support the country as a whole. One of the positive aspects of the Reformation is that one electronic tutorial could replace countless paper books. That is why children will not be forced to wear heavy bags.

The procedure for creating electives is a sequential involvement of students in learning foreign languages. These activities are optional: each student will be able to attend classes at their own request.

Last years budget of our country significantly reduced and it is necessary to provide a large amount of money on the implementation of this reform. Of course, primarily financial security gets students from big cities. Instead, students from small villages and towns are forced to wait half year for their books. It is given this fact

level of knowledge of students significantly lower than in their peers of cities. At the same time reducing the Arts in the program study can lead to cultural decline of society in the future. Profession of artists, musicians, journalists, translators and teachers could lose their relevance.

Considering the intentions of introducing English language courses, it could be said that these actions will increase the language level of the students and allow children to look at the future.

That is why, considering all sides of this issue, we could state that today our country is not ready for such radical changes. Many well-educated people are ready to make the transformation that we are trying to enact. However, the main purpose of our government is to provide the proposed reforms in future. Quality modernization of education system is able to enrich educational base of country and bring society for a new level of development.

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ON THE ISSUE OF THE DISPUTE IN PARUCIPATION
OF JUDGES IN CIVIL PRICEEDINGS

Batrak Andriy
Faculty of Sociology and Law,
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institut»

In 2017, the Verkhovna Rada of Ukraine introduced new editions of administrative procedural, economic procedural and civil procedural codes. They introduced the institution of settlement of the dispute with the participation of the judge. This procedure is consistent with the worldwide trend of "alternative dispute resolution" in recent years. In our legal system, such measures are "pre-trial dispute settlement." The sole purpose of such measures is to make both parties to the conflict aware of the possibility of a real solution. However, the institute of settlement of the dispute with the participation of the judge has a different legal nature.

Since this phenomenon is one of the novelties of the new editions of the procedural codes, it requires scientific research. What is the legal structure? What benefit can it bring to litigants? Will it be able to gain popularity in our country and bring benefits to citizens in resolving legal issues?

This institute is devoted to Chapter 4 of Section III of the Code of Civil Procedure of Ukraine (hereinafter - the CPC), which is entitled - Settlement of the dispute with the participation of the judge. Having read the rules of the code, it should mentioned that the legislative regulation of this procedure is understandable.

In addition, the Code contains some more detailed provisions regarding the procedure for holding the event and the procedure for terminating such a settlement.

The following methods were used: gathering information of definition of the process, method of analysis and synthesis for documents and articles, the comparison method – while comparing the meaning and its clearness for citizens.

Therefore, it was found that the provisions governing the settlement of the dispute with the participation of the judge are understandable to the average citizen. This institute does not need a broad interpretation. The norms of law in this area are identical with their literal meaning. There are some other benefits of this dispute resolution. If sides will make agreement because of such procedure, they can expect a considerable judicial economy. Firstly, they can save time. The term of settlement of the dispute with the participation of the judge may not exceed 30 days from the date of the decision on its holding. There is also financial saving. The parties will not spend as much on legal aid. Also, in the case of a settlement agreement, the court issues the return to the plaintiff of the state budget 50 percent of the court fee paid when filing a claim (Part 1 of Article 142 of the CPC of Ukraine and Part 3 of Article 7 of the Law of Ukraine "On Judicial Fee"). And such sums can be quite large.

Given these positive features, the question arises: why has this institute not become popular? We have to find the answer to this question in the jurisprudence. You should use the Unified State Register of Court Cases. We have 3951 adjudications for the search for "settlement of the dispute with the participation of the judge" in the category of cases "Civil cases (from 01.01.2019)". Most of them include the decision to start a dispute settlement process involving a judge. Nevertheless, after analyzing the cases, the vast majority of the parties did not reach an agreement. The judge terminated the settlement and continued the trial. The parties themselves may not have wished to resolve the conflict themselves. They are only trying to delay the hearing. In addition, for the time being, it is important mentioned about the lack of qualifications of judges. (Spiridonova, 2018, p. 4)

Often, the settlement of the dispute with the participation of the judge is confused with mediation. Many unqualified lawyers began to name the "settlement of the dispute with the participation of the judge" judicial mediation, and a judge, lead settlement, is a mediator. These processes differ from each other in their essence. The settlement of the dispute with the participation of the judge requires that the parties turn to the judge, who provides them with procedural advice and outlines the prospects of hearing the case. The mediator not only plays the role of procedural supervisor. Despite its independence, it maximizes communication between the parties and assists them in finding a common solution. The settlement of the dispute with the participation of the judge is a judicial tool in civil proceedings. Mediation, in its turn, is a purely non-judicial means. (Shelekhova A., Rubanenko A., 2018)

Finally, I would like to inform about statistics. For example, from January 2017 to September 2018 in the Zarichniy district court of city of Sumy there were consideration 20 civil cases with conclusion of agreement. Total of 20 cases in almost

2 years. Despite its strengths, this institute has not gained widespread acceptance or the desired result in the form of compromise or consensus between the parties.

The only way to overcome this problem is to disseminate information about this legal institute. Ordinary citizens who do not have legal education or legal knowledge are hardly aware of the existence of a procedure such as the settlement of the dispute with the participation of the judge and that the procedure is a good means of procedural economy. Therefore, it is necessary to inform citizens about it. Only when the research institute becomes widespread, it will be able to provide citizens with the positive effect.

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INTERNET ADVERTISING AND ITS BENEFITS

Bondarchuk Yuliia
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

An important component of the social sciences is marketing. Marketing is an activity aimed at achieving the goals of enterprises, institutions and organizations by generating demand and maximizing customer satisfaction. Marketing may seem like a new branch of science, but in fact, the first forms of marketing activity have been found by historians in time, when the commodity (money relations) was just starting to develop. Facts and evidence about promotion are found in ancient Egypt and also in later states.

A new area of marketing is online or Internet advertising. Internet advertising - is a type of advertising, which is mainly on reliable and popular websites (like Google); it is a presentation of goods or services or business on the network, addressed to a mass client and has persuasive nature. The main difference between online advertising and any other is the ability to track promotional contacts. With the

ability to track the reactions and actions of a network user, an advertiser can quickly make changes to a valid advertising campaign.

There are some of the most popular types of internet advertising:

● Display Advertising

Placement of the modern graphics and original text on the website -is the advertising materials for an advertising site.

● Banner advertising

Mostly an advertising which uses graphic methods (images and animations) to distribute the information that is needed on the internet.

● Contextual advertising

This type of an advertising is the one that user sees among the search results based on the search requests or on the web pages that are related to the subject of the advertisement.

Nowadays, Contextual advertising is the type of advertising that wins among others as the most effective for promoting your business. And it's shown only users to whom this information may be interested.

There are few types of contextual advertising:

● Search engine contextual advertising (search results) For example, when users type "to buy a phone " in the search line, besides the results google.com shows them ads for a company that sells phones. Ads can be with any set of words, and shown only to residents of the certain region. Queries can be excluded with the certain words-it gives almost 100 percent results in the target audience.

● Contextual advertising on content sites. This type works like a search advertising. Contextual system serves ads on pages that are related to the subject matter of the advertising. The user studies the site that was offered to him/her according to the topic and if ad text is interested to him/her, the user goes further to the advertised website.

● Geo-contextual advertising shows ads based on the user's location. Respectively, it gives more accurate results, because, when any person decides to choose a restaurant, he/she most likely, interested in the nearby restaurants.

are some rules that advertisers should follow for more successful advertising performance:

● Use only "targeted" requests. You should offer the advertising when you know or understand what a person is looking for. A person could enter a "paint" as the request, but this type of request could be answered by "paint for drawing", "paint for walls" etc., another words with many versions. This was an example of a non-targeted query. The ad will also be shown to people who want to buy paint for drawing and for those who want to buy paint for renovation. So, for most people, this ad will not be accurate.

● For internet advertising, an important advantage is conciseness. Users prefer a concise description of the offer rather than a long description of the all services that company offers.

- It's important be able to use correct keywords on the Internet to pick the right ad title.
- The link in the ad should be required to connect not with the main page of the site, but to lead to the specific page according to the user's request.

One of the most relevant ads is targeted Instagram advertising. The number of Ukrainian Instagram users in 2018 has increased by 50.7% to 11 million, which means that business owners have a large audience for their advertising. Instagram and Facebook use the same user information base to predict what he or she will be interested in, and the advertiser must enter the parameters of the people they want to advertise.

Most often, the following options are available in the Instagram:

- Gender, age, location / residence (selectable up to km)
- The language spoken by the target audience
- Audience engagement (e.g., music, dance, cinema)
- Field of activity (engineer, cook, medicine)
- Behavior (Smartphone or PC users)
- Status (e.g., small business owners), etc.

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EMOTIONS AS A MEANS OF MANIPULATION OF CONSCIOUSNESS (EXAMPLE OF MEDIA INFLUENCE)

Borysenko Victoriia
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

1. Emotional intelligence.

In his book «Wstep to psychoanalizy» (p. 2-5), Sigmund Freud formulated two main points. One of them was the fact that "mental processes are not aware , only individual acts and spiritual aspects of life is aware." It is necessary to start with the fact that mental processes are divided into different types (cognitive, emotional, volitional). We would like to focus more on the emotional ones. These include feelings, emotions, affect and stress.

Emotion is an assessment of an individual's response to a particular existing or potential situation. Therefore, it is logical to assume that emotional psychic processes are inherently different from those of the mind . Last prone to analytical activity when as " emotion " even in its lexical meaning is interpreted as "excitement".

Howard Gardner tried to destroy such idea of «emotion», when in 1983 he declared a model of intelligence, dividing it into intrapersonal and interpersonal types. Afterwards, Piter Solovey expanded the concept of emotional intelligence to

include five major areas. This is described in more detail in the works of the author himself.

In general, now "emotional intelligence" means the ability of a person to recognize own emotions and others, a tendency .

2.   Manipulation and its types.

In his teaching, Herbert Marcuse (according to article) distinguished two types of manipulation :

- hard manipulation is a direct impact on the actions or decisions; for example, if you are threatened with dismissal due to the absence of certain informal conditions;

- subtle manipulation on which the philosopher sharpens his attention is dangerous with his imperceptible action on thought and consciousness; in general, if hyperbolising, then this type include the example of hypnosis (including hypnosis media) .

3.   «Consumer Society» and how it was born.

At one time, French sociologist Jean Baudrillard (video podcast) said that social existence is a system of compulsion for continued consumption.

Speaking now about advanced industrial civilization, it is impossible not to mention its informational component. Information increasingly acquires the character of modern, modified and Ac is co adopts to the different needs of society. They [the needs] , in turn, formed due to culture, norms, habits, traditions, stereotypes and so on. According to Marcuse, in the modern industrial society in the formation of society played a large role in the technical apparatus. Therefore, it is logical to assume that in today's post-industrial society, information plays a major role. So, in this way, we derived a peculiar cycle of information dependencies and needs.

What is the essence of consumerism today? In our opinion, in the illusion of choice. Information feeds create conditions for us to form an opinion about the variety of different consumer products. However , in fact, we have a society conquered by material goods.

The institute of advertising and media plays a major role in this process. It is through these tools that humans (as independent beings with individual needs) create an inert mass with the same desires.

4.   The phenomenon of " Fake it till you make it " and its reverse impact.

This technique is well convinced , mostly designed to combat uncertainty, but sometimes used as a therapeutic method for depression. However, in the case of media influence, the situation is different.

So how it applies to advertising and media space ?

In her book, The Joy of Less (p. 5), Francine Jay wrote: "First of all, I will reveal the main secret to you: owning fewer things can make you happier. Sounds kind of crazy, doesn't it? Every day, every step of the way, no matter where we look, we get thousands of messages to the contrary: buy it and make it more attractive; acquire another and become more successful; become the owner of this - and your happiness will be no limit . " Thus the writer sarcastically condemned modern society

in which happiness is reduced to the concept of property as a greater number of wealth. Symbols and signs of the parallel reality of the media in the form of images convey to us probable emotions and feelings, and program us to certain needs.

For example advertising: it is aimed at promoting the product to the masses. Unfortunately, or fortunately, people are more likely to be affected by affect. Therefore, it is profitable to evoke emotions.

Therefore, having considered in detail the main aspects of this problem, we have as a result an understanding of:

1) the importance of emotional intelligence in the context of the current globalization process ;

2) The danger of propaganda and manipulation in the postmodern era.

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TAXES IN UKRAINE

Borysova Anastasia
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Free transportation, free communal services, and in addition high salaries. People's requirements have not changed for decades. It is understandable why the state pay should for everything.

According to CASE Ukraine, more than 90% of Ukrainians have never paid their taxes (1). That is why they almost do not suspect or fully understand that filling the state budget has a clear source - their own taxes.

Most employees know that there is a quality to the payroll. But in fact, they are more interested in the "net" salary (that is, after tax), and what and in what amount to pay is already the employer's business. Moreover, some cannot even say clearly whether his income is paid in taxes or whether it is a "gray" paycheck.

The whole system of public finances is kept at the small contributions of millions of Ukrainians. This money holds a huge government apparatus, pays for government purchases and pays the bills for all social obligations.

It is the taxes that finance pensions, free education and scholarships, salaries for state employees, and so on. So, if you simply increase the costs of these areas, then money can only be taken from the pockets of Ukrainians.

It is possible to distinguish three groups of income from which Ukrainians pay direct taxes.
- The first group is taxes that are paid into the budget by the employer on the payroll.
- The second group is taxes on individual entrepreneurs. They pay a single tax on their own, depending on the features of the activity.
- The third group is taxes on passive income: bank interest, royalties and more. They pay 18%.

According to CASE Ukraine estimates, about a quarter of the money an employee receives on hand, whether the income is legal or "in an envelope," is also charged to the state by budget in the form of consumption taxes or indirect taxes.

Every time we buy something in a store or receive a service (including utility bills), we pay 20% of the cost of the goods in the form of Value Added Tax (VAT). By the way, VAT was first introduced in Ukraine in 1991.

Tobacco, alcoholic beverages and fuel are also subjected to excise duty. Imported goods are subjected to import duties. Simply put, even if citizens do not pay direct taxes on their income, they are still a "sponsor" of the Ukrainian state.

In Ukraine, the personal income tax is relatively low - 18%. Instead, in European countries and in the United States, the upper limit is 50%. There are countries where the tax rate is higher - for example, France.

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THE IMPACT OF INTERNATIONAL INVESTMENTS
ON UKRAINE'S ECONOMY
Chekh Laura
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Politechnic Institute"

Global investments help economy to overcome the economic problems and achieve it's stabilization. These funds can be invested in fixed assets, which in turn will generate significant profits.

Both theoretical and case studies conducted by leading economists proved that investment is the basis of economic activity, which allows to increase the performance at the macro and micro levels.

Currently, the Ukrainian economy is going through a difficult period. GDP has halved since 1991. This is due to the fact that capital investments are constantly decreasing. Approximately 20 years ago, fixed assets reached a critical level. The state's investment policy has a large part in Ukraine's exit from economic decline. It is not able to develop new technologies and innovate without reliable investment.

GNP depends on the amount of investment. They also affect the competitiveness of the country and its place on the world market. Therefore, the government pays attention to investment activity and its development. As Ukraine is a transition country, it is necessary to consider foreign investment as a vital prerequisite for economic growth. Foreign investors are interested in our domestic products and resources. For example, they are interested in coal, metal, etc. Today about two billion dollars of foreign direct investment is invested in the economy of our country. Many investors are now investing in innovation and developing new startups. However, there are businesspersons who are not willing to take risks. Another disadvantage is that most Ukrainian projects are aimed to the domestic market.

Foreign direct investment can boost our country's productivity. Investments are also often used for business development, as they provide access to foreign capital and address domestic savings. Since 2013, direct investment in Ukraine has fallen significantly. This is due to the depreciation of the hryvnia and the loss of businesses. A large proportion of such shares come from major financial centers and foreign countries. Most come from Germany, France and the United Kingdom.

The major international investors are looking for economically growing countries, as well as having favorable tax arrangements and good trade agreements. However, since 2014, Ukraine has been demonstrating higher level of stability in its institutions.

Ukraine has made very little progress in reducing corruption. This is extremely important for foreign investment. Nowadays, new government is working hard to put an end to corruption, which will help Ukraine to raise its competitiveness and increase performance. The country has also made good strides in banking and taxes. Ukraine has shown a good improvement in the Simplified Business Index. If the state continues to improve its economic condition, the number of foreign investors will soon increase. But it requires a lot of hard work and diligent patience.

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VIDEO ADVERTISEMENT ON YOUTUBE
Chernaienko Yevhen

Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Why YouTube video ads are relevant, and why modern companies need to go from television to the internet.

YouTube is the largest video hosting platform in the world.

The main purpose of online video advertising is to create a company image, promotion of your product, and search for your consumer. A distinctive feature of video ads on Youtube is the interaction between the advertising company and the audience. With site statistics and reviews, the company has accurate consumer information and preferences.

Many new companies have succeeded, starting with advertising on this video hosting.

One is Turf & Needle. This is a company of two young entrepreneurs, back in college, they faced the problem of choosing a mattress: low quality and inflated prices - this inspired them to start their own business and completely change the industry. The strategy was that through video ads, they clearly demonstrated their unique approach. And with the targeting settings, they were able to capture interested users: of those who visit their site, plan to buy real estate, or enter queries like: «Buy mattress» .They started with a budget of $ 50-100 a day, and now they spend half of their budget on YouTube advertising, and this is a great result.

"Advertising on YouTube has been excellent. Five years ago, we invested only $ 6,000 in our new company. Last year, sales totaled $ 100 million. We will make a millionth sale by the end of this year. We believe we can continue to grow our business with YouTube. Our dream comes true! " - Jay Te Marino (Co-Founder)

Trends. Previously, any company wanted to show their ads on television. Thousands of people at home watched it in front of a television screen. However, things have changed, people have started to move more and more from television to the internet, and accordingly the video content they consume there. It is much more advantageous for a company to buy advertising on YouTube than on television, since:

1. Advertising in prime time on television is much more expensive.

2. Reaching More Adults (Nielsen did a Google research. Moreover, it showed that more people are watching video hosting per week) [https://is.gd/IIgPXD]

3. Young companies with a small budget have the opportunity to talk about themselves.

4. We can directly monitor the effectiveness of our advertising, the number of users it has reached, and the information about it.

How does it work?

1. Tell yourself about yourself

Tell potential customers about your business to get their attention. This is easy to do with YouTube video ads.

2. They come to YouTube to watch the video.

Unlike other resources, YouTube is fully dedicated to video. Therefore, its visitors are ready to watch content, including your advertising. And you can choose who to show it to with flexible settings.

3. Show ads when users search or watch videos.

Ads can be displayed on the homepage and YouTube search results, as well as at the beginning of the main video (as television ads).

• TrueView Discovery ads.

Use this format to show ads on the homepage and in search results on YouTube, as well as video related topics.

• Announcement - screensaver

A small 6-second video that is easy to watch on mobile devices. Use this format to show short memorable ads.

• TrueView In-Stream ads

A skippable video ad that appears at the beginning of the main video.

The modern world lives in a frantic rhythm, the Internet takes away more and more time from us; more and more people are turning to the internet every day, and if we want our company to be successful, we have to follow the trend. We need to be where our potential consumer is. YouTube advertising is something that will help our company become famous.

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THE RESOURCE CURSE PROBLEM

Chernov Artem

Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The problem of «resource curse» (paradox of plenty) was firstly used by Richard Auty in 1993 (Stevens, 2015, p. 4). Comparing to the majority of economic terms and phrases, the studied one is new. The discussed curse, along with the Dutch disease, is not comprehended seriously by the hole economist community. This abstract has an aim to explain in what conditions the resource curse exists and to find some possible solutions for it.

Firstly, you have to understand entirely what the resource curse is. This phrase has relation to countries dependent of resources, whose level of institution development is poor. Their export mostly consists of non-processed products. The quality of life is low. Quite often the particular country may have an unstable political situation.

Natural wealth in some materials as petroleum, gas, gold which should increase the economy, has risen the poorness, difference between different social classes, and in general made a certain country to grow slower.

According to IMF the rich-resourced country is the one, whose average resources export in 1962-2014 period wasn't lower than 35% of general export (Kozyuk, 2018, p.71).

Opening the national economy and being involved into global economic processes are important attributes in today's country development. Along with it appears the addiction between national economy and export of certain products, such as natural gas or naphtha to the world's market. Such a direction has its own pros and cons. At one hand, it may cause a tremendous growth of economy, especially after a long-term crisis. From another point, GDP dependence of producing of certain product definitely makes the long-term forecast a great challenge.
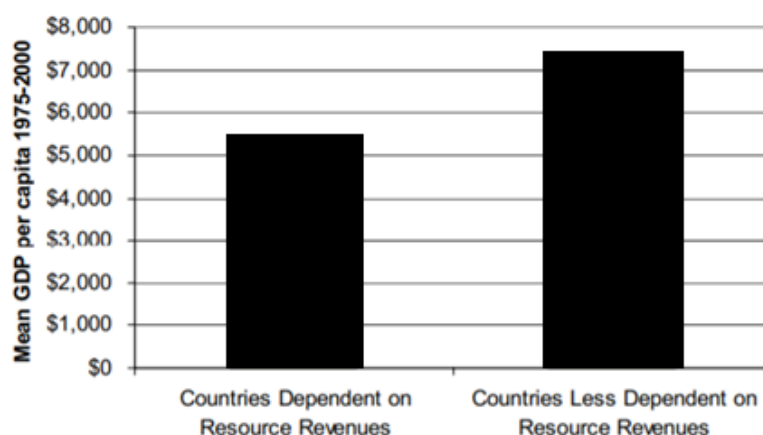
Figure 1. GDP per capita and Resource Dependence

There a lot of countries with the export with big share of one product. It often happens that a small number of private companies benefit from the exploitation of these resources, while public revenues are small or misused and local population remains poor. The profits between companies and government are usually distributed unfair.

By the way, the abundance of natural resources may easily provoke excessive violence because of unstoppable quarrels. The motive is the following: the desire of controlling the resources. The one who rules them, has more opportunities.

Since 1990, oil-producing countries have been twice as likely to have a civil war compared with non-oil-producing countries. Democratic Republic of the Congo, the Niger Delta, Iraq, Angola illustrate this tendency. Petro-aggression, the tendency of oil rich states often instigates international conflicts. It has been observed in some cases, such as with Iraq's invasion of Iran and Kuwait (NRGI, 2015, p.2).
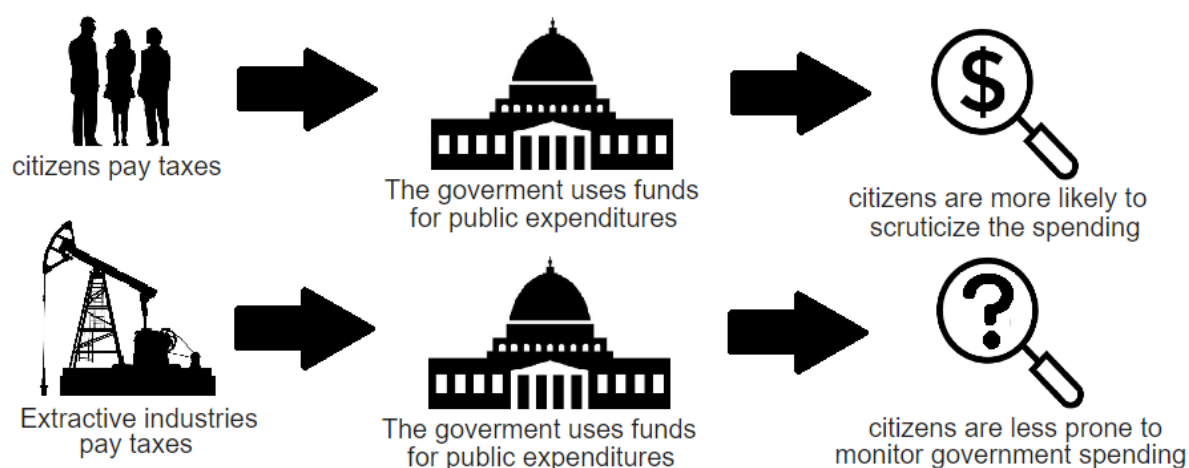
Figure 2. Picture of supervision stimulus in resource-rich and resource-poor countries

The figure 2 shows one more negative effect of paradox of plenty. Citizens are usually prone to study the spending of their taxes. In the case with extractive industries, it becomes harder to control the expenditures.

By the way, when company sells its product, it tries to be payed in cash. It helps to increase the profit from deals. Such actions trigger a chain reaction. I mean, that budget is not filled enough with money. As a result, the particular country has a poor institutional development.

The solution of the resource curse is extremely unobvious and it consists of a set of recommendations that have to be brought to life simultaneously. Here are some of them:

1. There must be created transparency in many areas: in transfers from industry to government, in revenue and expenditure reports.

2.   Develop the institutions that can protect the ownership and can control the usage of the resource wealth.

3.   Develop the service and computer industry, as the demand for them has a rising trend.

4.   Do efforts to overcome the resource monopoly in the country.

5.   Diversification of production.

6.   Processing of raw resources.

To sum it up, the resource curse is the existing, but quite a contradictive one. It injures only the countries, that has developed in certain conditions.

There is a quiet impressive number of countries, where the paradox of plenty takes place: Republic of the Congo, Iraq and others.

This curse strongly effects the economy and prevents it from the stable economic growth in long-term perspective. There are some ways of overcoming this issue, like making the economy more transparent. Following them and other economic and political advices, the country may effectively struggle the resource curse.

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PRODUCT PLACEMENT AS A WAY OF PROMOTION
Chorna Liza

Faculty of Sociology and Law,
National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute`

Introduction. Advertisement is a way to promote products or facilities by using visual aids. Advertising is something that always surrounds us. Our everyday life includes watching serials, films, YouTube or TV. Product placement is hidden version of promotion, so you do not get so annoyed in result of simple ads. It is often recognized as an integral part of TV show, movie. Consequently, companies choose popular motion pictures or TV shows where many products are used and decide to place their brands there with the purpose of establishing them in an imperceptibly manner. Anyway, it is a successful way to promotion. Such a type of advertising can

be more efficient than we can realize. It has just made us unconditionally prefer products even if we do not directly prefer them. For example, when a liked character in film uses a defined brand, we are able to start to automatically identify it as a way to indirectly experience character's life. (Geraschenko, 2015)

Objectives. The main task is to consolidate the knowledge about product placement in social media and to analyse the legal issues of such type of promotion.

Methods. The following methods were used: gathering, method of analysis and synthesis for defining the factors, which cause linking them to the overall situation, the comparison method.

Results. Product placement has been confidently growing as a marketing technique and nowadays majority of firms intensively use it to promote their brands. The product is remarkable, though often not the focus. However, it refers almost impeccably to the context. 60% of audiences feel more positive about brands recognized from a placement. (Tisenkova, 2016)

Producers should understand the necessity of being careful about using any product in a way that viewers can figure out that the manufacturer approves of the products qualities.

Conclusion. All in all, product placement can succeed companies, because of viewer`s confidence and willingness to be closer to favourite characters in films. Consequently, government should deal with all aspects of this marketing technique.

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ONLINE EDUCATION AS A WAY TO LEARN A FOREIGN LANGUAGE

Danylova Vita and Kostuk Darya
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Education in the 21st century is an important part in everyone's life. The Internet has been successfully integrated into all spheres of life and took not only entertaining but also an educational function. We shape ourselves as individuals when we are getting a variety of knowledge. When we enter the university we strive to gain relevant knowledge. But sometimes students lose interest in learning, because

of boring and complex program, misunderstanding with the teacher, not a good teaching of the required subject. In recent years, online education is becoming more and more popular and has already become a trend.

In general 'online education is a flexible instructional delivery system that encompasses any kind of learning that takes place via the Internet. Online learning gives educators an opportunity to reach students who may not be able to enroll in a traditional classroom course and supports students who need to work on their own schedule and at their own pace.'[1]

The main benefits of online education are:

- accessibility (To start studying you simply should to have access to the Internet. No need to go to another city or abroad - you can study at home in comfortable conditions. Learning in this format is accessible to everyone, regardless of age, health, social status or affluence. In fact, online education is a model of perfect learning: all people have equal opportunities and rights.)

- mobility and flexibility (Learn online comfortably: you can study at a convenient time and virtually anywhere. You don't even always need a computer, as video lessons are now 100% adapted to mobile platforms. Everyone can organize their own learning space and develop a convenient schedule..)

- less cost than courses or tutors (It is not necessary to spend money to get new knowledge - there are many free courses available on the Internet. It's very convenient: the only thing you spend on education is a bit of free time. And if you do not like the course, you can leave it at any time without saving money.)

- increasing concentration (some students report better concentration in online classes due to the lack of classroom activity).

- improving your own professional skills (Even experienced professionals may from time to time improve their skills or acquire new skills that will help them improve their job market position. Appropriate diplomas and certificates are not always provided, in some cases only the knowledge acquired will have to be satisfied. But if the certificate was still obtained, then it can be safely added to the resume.)

Among the most popular applications that help you learn English are the following: Duolingo - Learn Languages for Free, Memrise: learn languages free, Words, Linguage and BBC Learning English.

Dualingo is the most popular application that helps you learn English. The learning process is played in a playful way. You have your own pet this is an owl. You must feed and dress him. You can do this by completing tasks and improving your English level. With each level, the tasks become more complex. When you give the wrong answer, you lose your life.

Memrise is an application that allows you to learn up to 44 words per hour. The main thing in the app is memes. They help to memorize material much better by training different parts of the brain. There are thousands of videos and audios, various tests, auditions.

Words is an application that is perfect for expanding your vocabulary. It contains over 40,000 words and 330 lessons. The first lessons are free. You can work offline and create lessons yourself.

Linguage is an application that looks like a game. Your very own cute little lion who always wants to eat. It can only be met when you pass different levels. There are plenty of media (movies, books, songs, and videos) to help you learn English.

The BBC Learning English is an application that combines many lessons. There are quizzes, transcripts and video lessons. they can be viewed with subtitles. New tasks can be observed every day. New words, videos and audio recordings appear.

Online schools is also an important factor that facilitates learning a foreign language. It helps to learn English anywhere and anytime. You have an opportunity to choose teacher and course that you like the most.

- Academic English (Coursera). One of the most famous educational projects for everyone to listen to is offered by the best universities in the world. You will receive weekly lectures and homework (you will be required to do so, otherwise you will not be certified). The only caveat is that the same students will check your assignments. Interestingly, some of the material has already been translated into Ukrainian.

- STARLINGUA. Individual or pair English lessons via Skype. The STARLINGUA technique allows you to pass one level of language in 3 months. You schedule the classes yourself, and any questions about the organization are solved by your personal manager. Study materials are free of charge, you can also pay back the rest of the course or freeze your account indefinitely.

- Academic English (Skyeng). Studying for the UK program for a variety of tasks: learning English from any level, working with an accent and vocabulary at an advanced level, English for communication, business and travel, preparation for exams (EDI, IELTS, TOEFL, FCE). There are 4 express courses available: interview preparation, business correspondence, air travel and intensities for all levels. Classes are held on the Vimbox platform. Emphasis on conversational practice - more than 50% of the lesson is devoted to it. In your spare time, you can improve your own language by visiting conversation clubs and completing tasks in the Skyeng mobile application.

- EnglishDom. Learn English at levels: from beginner to advanced, or choose a specialized course in English for communication, business, IT and other professions, for travel and exam preparation (EEO, IED, IELTS, TOEFL, FCE). The methodology is based on the Oxford and Cambridge materials, the lesson is held in a digital textbook - our own online platform - with video calling and constant access to the training material.

So, online education is a very interesting and modern model of learning, which hundreds of thousands of people in the world have already used. It helps to get the

knowledge in the form available to us. This can be a variety of applications, programs, courses. An online school allows students to study remotely.

Important to remember that education should be cool, trendy and beautiful. Education is very responsible and you should always remember about it.

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PROSPECTS FOR LEGALIZATION OF GAMBLING IN UKRAINE

Denysenko Denys, Parkhomenko Rostyslav
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Gambling has been officially banned since 2009, but it continues to thrive in the shadows.

In 2009, inspections of Ukrainian gambling establishments began as a result of a fire in one of them. After that, on May 15, the Parliament passed the law "On the Prohibition of Gambling in Ukraine". The authors claimed that in 2009, there were 25,000 dependents in cities with a population of 500,000. And 75% of clients of such establishments were students and schoolchildren. After the law was adopted, they were banned from issuing their licenses, they were already revoked and casinos closed. The fine for violation - 8 thousand minimum wages, or about 33 million UAH. In 2011, the Parliament also banned online casinos, regardless of the country in which its servers are located.

After the ban on gambling institutions, the gambling business has not disappeared at all - it just went into the shadows, and the revenues were accrued to the budget. Casinos and gaming machines continue to work illegally, in particular under the banner of state lotteries, Internet cafes and computer clubs.

Former Minister of Finance and now NSDC Secretary Oleksandr Danylyuk in 2018 estimated the revenue to the state budget from casino legalization at UAH 5 billion annually.

Danylyuk explained that money from legal casinos and slot machines could be invested in health care, sports and culture.

September 29, 2019 A draft law on the legalization of gambling in Ukraine is approved, which provides that gambling will be conducted exclusively on the

territory of hotels, on gaming equipment using software that complies with international standardsThe current President has said that legalizing gambling will help remove illegal gambling establishments from the country and allow new hotels to be built.

«Gambling machines will become smaller, according to this bill, ten times compared to what is currently in Kyiv. The first stage is a casino in five-star hotels, where licenses will be very expensive to sell at competitions, "the President said.

Benefits of gambling are:

1.   The implementation of such a project will bring money to the budget.

2.   Increase the number of tourists who will come to the country and to the specific region where the hotels will be.

3.   Resolves the problem of occupancy of five-star hotels in the off-season.

Disadvantages of gambling are:

1.   Gambling is problematic in terms of the country's image. For example, in Georgia today they try to approach the casinos more rigidly. For example, do not place them in hotels near schools or kindergartens.

2.   Many Ukrainians are aware about game addiction nowadays.

The prospective territories for the development of this infrastructure unit can be considered:

1.   Kherson region. There is an undeveloped area, which is defined as the territory for the construction of hotels, pensions, etc. If at this site to build 5-star hotels with casinos, Turkish investors will be glad. They have very tight restrictions on gambling, so they are constantly looking for new markets to invest.

2.   Black Sea coast. The casino attracts people on vacation. Playgrounds come as an additional entertainment to the sea, the beach. Therefore, you can consider the south of Odessa region.

3.   It is also possible to consider unpopular among tourists of the region, which will increase local income of these regions: west and north of Ukraine.

First of all, hotels are needed in Odessa, Kyiv, Lviv, as well as in Kherson region, which will be able to show the prospect of further development of this industry in Ukraine.

The government proposes to create a new special regulator - a commission for the development and regulation of gambling. It work will be coordinated by the Cabinet of Ministers.

The commission will be a collegial body, comprising its head and six members. The chairman and members of the commission will be appointed by the Cabinet for four years.

The commission officials will have the right of access to the territory and to the premises of the gambling organizers and their gambling halls. Representatives of the commission can be fined for violations of the law, will have the right to access information.

The State Tax Service will also have an on-line system for controlling game equipment. Other controlling bodies will also have access to data on accepted rates and payouts.

The European Union has a positive attitude to online casinos, especially to the large taxes that go to the budget. Many countries within the EU are perhaps the most famous jurisdictions for obtaining a gambling license: Malta, Curacao, etc. There are no strict prohibitions on the operation of online casinos, but there is only a small set of rules and restrictions.

Having analyzed the previous Ukrainian and world experience, it can be concluded that legalization has both advantages and disadvantages.

The President's decision to legalize gambling is reasonable and perspective, but we also need to deal with illegal gambling establishments, online casinos and pseudo-lotteries, introduce restrictions and tight controls. Moreover, professional treatment programs for Ukrainians suffering from gaming addiction should be developed and introduced all over our country.

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PROCESS OF IMPROVEMENT OF THE AUTOMATED SYSTEM OF ELECTRONIC CUSTOMS IN UKRAINE

Dilna Diana
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

One of the prerogatives of the EU-Ukraine Association Agreement is the strengthening of economic and trade relations, which will lead to gradual integration

with the EU internal market. Therefore, research aimed at the development and improvement of customs procedures is of particular relevance. At the same time, they are an integral part of cooperation and mutual interest in all spheres, including trade.

The relevance of this topic in their studies covered such scientists and practitioners as S. Kolyada, T. Melnyk, O. Dyachenko, I. Muratov, I. Mesecha, O. Desyatnyuk, V. Ryboy, T. Stal, etc. who not only theoretically described the main trends in the development of customs procedures, but also provided practical implementation of customs control. However, issues related to the effectiveness of customs regulation, the prospects for further development of the customs-business partnership and the creation of favorable conditions in the business sector for conducting foreign economic activity require more detailed study.

For the further strategic development of the State Customs to be carried out, a process of improving customs procedures must take place. Ukrainian customs should comply with the principles of transparency and objectivity, implement the best practices of European countries, promote the investment attractiveness of our country.

The introduction of an electronic declaration procedure, which is actively supported both by the state and by the FEA subjects, has become a significant step in Ukraine's integration into the EU. At the present stage, the customs legislation of Ukraine makes it possible to use electronic declaration without any restriction by all interested enterprises registered with the bodies of revenue and duties, and allows to submit an electronic declaration in all customs regimes. The declarant only requires the presence of an electronic digital signature. Today, the share of electronic declarations is about 95%, which is in line with European practice (Likarchuk, 2015).

One of the main innovations in the simplification of customs procedures should be noted the introduction of a single window system in Ukraine, which occupies almost one of the main places in the practice of customs clearance in many countries of the world - Japan, Singapore, USA, Senegal, European Union countries, as it facilitates customs simplification. Trade formalities and procedures (Stal, 2013). The Single Window system enables two parties to the customs control to exchange information about a product that moves across the customs border of Ukraine and creates transparency of this process. All types of control (customs, sanitary-epidemiological, veterinary-sanitary, phytosanitary, environmental, radiological) are carried out by electronic data exchange. Thus, instead of the seals and stamps of the state authorities, the electronic documents are affixed in the common database on paper documents. One of the advantages of this system is that all control bodies, which reduces time and costs (Fedchyshyn, 2016), carry out the inspection of goods simultaneously.

In the practical activity of many countries of the world an automated system - "Electronic Customs" is introduced. It is through this system that high quality and efficient work is possible in today's globalized world, that is, to resolve all economic ties without using paper arrangements (American Chamber of Commerce in Ukraine, 2019).

Given the problem of corruption "schemes" that directly related to customs controls in Ukraine, the question of introducing an electronic system also arose. It was with its help that it became possible to carry out customs control in a transparent and effective manner, to improve the work of the fiscal authorities, and to expand the customs-business cooperation. The introduction of this system has become a difficult time requirement in the customs field, but an objectively necessary reality, without which the full implementation of state customs in Ukraine is impossible today.

Therefore, based on this issue, the Cabinet of Ministers of Ukraine approved in 2008 the Concept of Electronic Customs (Verkhovna Rada of Ukraine, 1994-2019), which today functions as the Unified Automated Information System of the State Fiscal Service of Ukraine and provides for control over the continuous flow of information from the FEA subjects. The main purpose of such a system is to "digitize" the customs, that is, to refuse to use paper documents and to translate all communications between the declarant and the customs in electronic form.

However, there are also incomplete processes in this system that adversely affect the work of the customs service, as well as create problems in the development of business. Therefore, the following recommendations can be identified to improve and improve customs regulation, prospects for further cooperation with the EU, and favorable conditions in the business sector (Zeldi, 2018):

- Reducing the impact of human factors in customs clearance through automation of decision-making processes, the use of random division of personnel between sections of customs clearance and customs declarations between personnel.

- Further creation of electronic services for business;

- Proper automation of customs clearance. For example, most of the export declarations (in the absence of comments from the ACAUR) can be completed in fully automatic form within 1-2 minutes;

- Further integration of customs and tax information resources, first of all, with a view to further developing a risk-oriented approach to customs and tax matters, as well as the construction of integrated analytical subsystems;

Therefore, having carried out a detailed analysis of the formation, development and functioning of the current stage of a single automated system of customs administration of Ukraine, we can identify the main areas of improvement of this system. The task of the state in the field of e-customs should be the processes of exchange of electronic information on customs issues in order to speed up customs clearance, increase the likelihood of the data obtained and reduce the level of corruption in state bodies.

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AN INTERACTIVE APPROACH TO IMPROVING INVESTMENT LITERACY

Fomkina Kira
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The economy has always been in a sharp focus since understanding real current state and problems is the basic condition for further development and prosperity. Having analyzed relevant recent studies, we can conclude that experts outline the following key problems of the modern financial sector of Ukraine:

- Low level of legislative and regulatory code regulating of the financial situation;
- Low public confidence in financial institutions in the country.

In December 2018, a statistical survey was conducted by the NBU to determine the level of financial literacy. It was attended by 2,007 Ukrainians aged 18 to 79 years. It should be noted that according to the OECD survey and rating system,

Ukraine's overall financial literacy index is 11.6 (out of 21). This score consists of assessing knowledge by the following criteria:

- Financial (theoretical) knowledge;
- Financial well-being;
- Use of financial products;
- Demographic changes in the country.

According to the data provided by the NBU, the lowest level of financial literacy is evident in the age group of 18 to 24 years. Attitudes towards financial issues among Ukrainians are also low, namely:

- 33% of the population aim to save their resources;
- 18% but do not have enough resources for savings;
- 8% do not agree that money exists to spend it.

Out of 2,007 people 1,846 believe that money exists to meet their urgent needs and not for investment and savings. Moreover, Ukrainians are not interested in obtaining information about investment objects, namely securities. This is explained by the urgent problems of the financial sector of Ukraine, which have been mentioned earlier.

The NBU's annual surveys on financial literacy, financial inclusion and financial well-being in Ukraine show a regression in the knowledge of Ukrainians (4.0 out of 7), which is the lowest in European countries and in Ukraine overall, as compared to previous years. These studies most vividly illustrate the problems faced by ordinary citizens and give impetus to reflect on the solution to this problem.

Similar difficulties are inherent in every country, and there are many works written on this topic. In his books Napoleon Hill highlights the problems of ignorance as a result of lack of desire, ability to plan and perseverance in persons that are enriched and have their own business (these are covered in additional chapters and sections). Hill provides the reader with advice and motivation to act, but does not insist that the main problem is lack of financial knowledge. The main impetus for action and the accumulation of knowledge is the motivation from the cases described. The problem of financial and investment literacy is also covered by Robert Kiyosaki in his books. He believes that the main problem with American society is that people are not aware of financial flows. As a possible solution, Robert created a training game for two age categories (for school-age children and for adults who already have or are about to start their own businesses). Kiyosaki emphasizes that the game form is better perceived information and there is a willingness to implement the acquired knowledge.

Consequently, research and books on this topic focus our attention on the emotional component (regression of knowledge, motivation and play component). Summarizing all of the above, it was decided to develop a game that aims to improve knowledge in the operation of stock exchanges, securities buying and investing. An interactive approach to increasing investment literacy is one of the most effective ways of influencing human consciousness, since the brain is best able to perceive

information under the influence of emotional factors. In addition, group games influence the development of social and critical thinking skills.

This game is a development based on William Sharp's University Investments textbook. "Investments" from the 5th edition gives the most accurate understanding of the investment environment, securities buying and selling, operation of stock exchanges, investment value and price, valuation of risk and risk-free securities, analysis of treasury securities and ordinary shares and more. The aim of the game is to be as close as possible to the real market and at the same time to simulate the possible effects of an investor or investment environment.

Conclusions:

- According to the research, the financial knowledge and well-being of the Ukrainian population is low;
- There is a lack of knowledge and trust in the state;
- The inability of the state to convey information on investment activities in the domestic market;
- Low level of interest among the population.

Consequences:

- Courses, conferences, lectures should be developed and created to promote financial literacy.

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LEGAL STATUS OF THE CONSUMER (SUBSCRIBER) IN THE INTERNET PROVIDING AGREEMENT

Fuksman Daniil
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The World Wide Web is a sophisticated and multifunctional technical tool that has become a mass social phenomenon. There are specific relationships between manufacturers, consumers and owners of various resources - servers, sites, e-mail addresses, domain names, etc. The content of these relationships is formalized by the agreement on the provision of Internet access services (Internet service agreement). The ISP has so far been poorly researched in terms of the scientific definition of the specifics of relationships that arise from its existence and practical application. The latter statement also applies to the legal status of the consumer (subscriber) in the Internet service contract.

According to the Law of Ukraine "On Telecommunications" a subscriber is - a consumer of telecommunication services, who receives telecommunication services under the terms of a contract, which stipulates the connection of terminal equipment owned or used to telecommunication networks. In turn, the consumer is "a legal or natural person who needs, orders and / or receives telecommunication services for his own needs." (The Law of Ukraine "On Telecommunications", 2003).

Thus, the consumer (subscriber) is a natural or legal person who directly uses the services of the provider and pays them in accordance with the established procedure. The subscriber can be both an individual consumer, as well as entire enterprises, institutions, etc. having their own local area network (corporate subscriber). To connect to the network, the subscriber must have certain technical capabilities, namely, equipment that is connected to the telecommunications network in order to provide access to a specific service or services (end equipment). The main feature of the subscriber (consumer) is the receipt of the service, in our case from Internet access, for his own needs.

The last trait, despite its standardized form, by which the legislature excludes the possibility of profiting from, so to speak, intermediary activity by a potential consumer, is of great importance. It is undeniable today that despite the rapid development of Internet technologies in Ukraine, a certain number of those wishing to gain access to the World Wide Web cannot do so, even in the presence of the final equipment. This is due, first of all, to the lack of balance between supply and demand, not in favor of the latter (especially in remote areas). This can be exploited by some enterprising Internet users who, in the presence of some technical knowledge, formally concluded an agreement with an operator (provider) to provide Internet access, offer other potential consumers, on the basis of an arrangement (usually verbal), to provide access to the Internet, of course, on a fee basis .

Thus, the following situation arises - in fact, the Internet access service is provided not by the provider or the operator, but by the consumer who has entered into an internet service contract with them. Although from the moment this consumer begins to lease his line to other users and make a profit for it, he, by law, ceases to be a subscriber (consumer), to be exact, he is not. This raises a number of problems related, first of all, to the protection of consumers' rights, and the interests of the state are violated, since a person actually conducts business activities without having the appropriate permission, does not pay taxes and, in general, sanctions cannot be applied to it. provided for by telecommunications legislation. The only way out of this situation is to wait for the saturation of the Internet communications market.

In practice, there are other definitions of a party to an Internet service contract, namely from the consumer. For example, a number of ISPs use in their local documents and sample contracts, along with the notion of a subscriber (consumer), such a formulation as "user" or "client". The latter is intended to mean "an entity or individual who has expressed a desire to enter into a contractual relationship with an enterprise (Internet Service Provider), in accordance with the rules providing for connection to a telecommunications network of end-user equipment owned or used,

and the provision of services and additional services. " Moreover, these concepts are predominantly characteristic of economic relations rather than legal ones and are generally used in international instruments. This situation requires regulatory regulation.

As with the ISP, the "Rules for the provision and receipt of telecommunications services" are not consistent with the issue of identifying a consumer of telecommunications services, namely the provision of Internet access services (although the definition of "Internet access service"). Again, one of the draft Rules, unlike the current ones, contained the concept of "Internet access service consumer". It could be "a legal or natural person who needs, orders and / or receives Internet access service" (The Law of Ukraine "On Telecommunications", 2003).

Summing up, it should be noted that despite significant changes in the legislative activity on the legal regulation of the telecommunications sector in Ukraine, many questions remain unresolved today, and others, even after the adoption of the Law on Telecommunications, have no clear answer. The latter to a certain extent concerns the legal status of the consumer (subscriber) in the Internet service contract.

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INDEPENDENCE AS A KEY FACTOR IN THE DEVELOPMENT OF STATEHOOD

Gordiichuk Oleksii
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Independence is one of the key system-forming categories statehood, as well as a factor of sovereign power, the people and the state system, in as a whole.

As a philosophical category, independence is a category of being and knowing, that determines the presence of objects and systems of its own origin, which is not defined by them external environment and does not depend on the existence of other objects and systems. Availability the values of objects and systems determine their specificity and form the necessary condition diversity in the world.

In this way, independence can manifest itself in different social relationships, from independence of citizens from one another to independence of the state within international relations. In all the diversity of the elements of society independence factors are displayed, and for the state apparatus, as obligation and possibility of existence in the world. Without getting real recognition of the state as an independent international no further fate is possible in the community. Because independence is it

recognition of the existence of their own beginning in objects and systems, recognition of them self-worth. This is expressed through the parameters and properties through which external pressure on the state is possible.

So for obtaining an independent state, apart from the standard features of the state, is necessary the condition for gaining independence is the presence of internal impulses that have autonomy in the implementation of actions, as well as, the possible moment that puts the further existence of the state itself is precisely when these internal ones factors have sufficient strength to outweigh the external pressure.

The Ukrainian struggle to win an independent state is remembered instances where we had most of the factors to gain our independence, but they could not cope with the external pressure that led to the destruction of the people ideas.
And having gone a long and thorny path, people and power have all the factors Independence was able to obtain Independent Ukraine 30 years ago. Independence is an exceptional value received by the people.

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STRATEGY «MADE IN CHINA-2025»: MAIN ASPECTS AND DANGER
Hladkyi Vladyslav, Katsyuba Andriy
Faculty of Sociology and Law
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Today, the PRC can be called a major player on the geopolitical map of the world alongside the US. After the 2008 financial crisis, the Chinese government thought about minimizing the dependence of the country's economy on other countries. The result was a "made in China 2025" plan, which in our view could be main in the development of politics and economy around the world during the 21st century.

Although China is one of the leaders in manufacturing, it is still dependent on foreign technology, equipment, qualified workforce. In order to get rid of this dependence, the Chinese government has developed a "made in China 2025" plan, which has started working since 2016 (Serdechnyi, 2017). The plan provides development of such 10 sectors as information technology, automated machinery and robotics, space and aviation technologies, marine and high-tech shipping, modern railways, vehicles and equipment operating on green energy, power equipment, agricultural technology, new materials, biopharmaceuticals and advanced medicines (TLKMedia, 2019). It also supposed to creation of 15 large innovation centers of the state, creation of ecological productions, improvement of product quality (Serdechnyi, 2017). In general, the strategy is aimed at maximizing innovation in the manufacturing sphere of the PRC economy, which could raise the quality of products

produced in China to the level of the leading countries in the world by this indicator, and subsequently and outperform them.

However, the realization of this strategy poses a threat to the global economy. For example, experts have expressed fears that the US-China trade war could turn into a global trade war, the consequences of which are unpredictable for the global economy (Atasunczev, Makarov, 2018). Also, it is possible that if the strategy is successfully implemented, China will be able to influence the economy of almost all countries of the world, while their impact on the economy of the PRC will be minimal, which will make China an absolute leader on the geopolitical map of the world, and this will most likely lead not the best consequences.

On the whole, this strategy is quite breakthrough and for the Chinese economy it will be just a fantastic step, after which China may well win a trade war with the US, as well as bring the country's economy to the level of their economy and even outstrip it. But what happens next, and how this will benefit the Chinese government, will have an impact on the further development not only of the economy and politics, but of the whole of human history.

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INVESTING IN INNOVATION. STARTUPS AND ECONOMIC MIRACLE

Huziei Tatiana
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

"Investing is a way to gain financial freedom. Money should work, it's meaningless to keep them," said the founder of the "Israel Investments" Foundation in Ukraine, Yushchenko Gennady Yevgenovich in his recent interview.

After analyzing the activities of domestic venture funds, it will be possible to determine the stage of this economic course in Ukraine. The largest part of net assets

as of 30.10.2018 is presented with such branches as construction and agroindustry. They exist only for the implementation of short-term projects or individual financial schemes under the assets of one person. Consequently, the entry of foreign investors into a venture fund is not expected. Accordingly, there is no entry of foreign investors. (Chaban, 2005, p. 36) Typically, ultimate co-owners are influential Ukrainian businessmen or national deputies. Although in 2018, Ukraine has improved last year result in the Global Innovation Index by 7 positions, the transparency and utility of investing in innovation, which guarantees economic growth and the inflow of foreign capital into production, remains questionable for foreign investors.

It will be easier to outline clearly the further possible direction of Ukraine's development as a promising arena for the implementation of international corporations' projects on the example of a stable Israeli economy, which already has the status of a start-ups country. Isolation helped Israel become self-sufficient, so that it would act soon in the world market along with its leaders. The history of the venture capital development started with the Yozma government program; in 1993, 10 specialized funds were established. Each of them was represented by three parties: an Israeli investment company or a bank, a foreign venture capital fund and an Israeli venture capital investor. The ratio of investments at first was 1.5:1 (for example, with every $9 million committed by partners, the state added 6 million), then — 2:1. 10 funds of the program, attracted more than 200 million dollars with the support of state funding. Over the 5 years course, all of these funds have been redeemed, and they currently manage 3 billion capital and invest in hundreds of Israeli companies. By 2009, the number of such funds had already exceeded 200. (Senor, Singer, 2018) As for Ukraine, recently, on November 7, 2018, the Cabinet of Ministers approved a decision to launch the Ukrainian National Startup Fund (UNSF), with a budget of UAH 50 million. Of course, with such a capital, the development of the startup industry remains questionable, so Ukraine needs a lot of foreign investment.

Even on this background, according to a study by the Ukrainian Association of Venture Capital and Direct Investments, national start-ups collected almost $2 million in international crustfinging platforms during the first 7 months of 2017. At the beginning of this year, Ukrainian startups launched 35 campaigns at Kickstarter and Indiegogo sites, and 83% of the projects successfully collected the necessary amounts of money. All these facts demonstrate domestic innovations as perspective and competitive in the world market.

Returning to Israel, let's look at how innovation itself influences the country's economy, in particular the living standards of the population. Israel's startup-ecosystem is the second one in the world after the United States, and the scientific infrastructure is 5th one. As for the protection of investors' rights, Israel has consolidated itself to 9 positions in the international rating, while Ukraine is on the 70th place. What is the secret of an Israeli economic miracle, and what does Ukraine miss for its achievement?

The effective development of Israel's startup industry lies in such factors as high quality education system, transparent tax policy, preferential taxation, well-structured investment legislation, sustainable macroeconomic indexes (stable ratings, A, and A + from Fitch, S&P, Moody's), as well as high level of trust in the industry. Israel is second only to the US in the number of high-tech companies (it is called the second Silicon Valley). Today, in Israel, despite its isolation and remoteness from large markets, open subsidiaries, factories, research centers of almost all high-tech corporations in the world (Motorola, IBM, Intel, Microsoft, Google, etc.). Motorola's first mobile phone was designed at the Israeli branch of Microsoft, and Microsoft developed Windows NT and XP operating systems there. On one of the local high-tech Mirabilis companies, a convenient communication technology via the Internet was developed — "ICQ". Due to the development of their economy and business reputation, they persuaded foreign investors that they were able to fulfill their promises. And the question of the catastrophic risk of doing business in a country under constant war threat has gone to the background. Google offices were opened in Israel during the 2006 Lebanon War, the R&D center in Haifa did not stop even during rocket bombing. Therefore, no military status or aggression is capable of stopping the rise of the high-tech industry in the country.

According to one of the indicators that clearly illustrates the effectiveness of the economic policies impact on the quality of life, the HDI, the Ukraine's ratio in 1990 was 0.690, and in 2016 it rose to 0.751. Compared to Israel, whose rate in 1990 already exceeded our present, Ukraine, of course, falls behind its level, which is now at 0.903. However, it should be noted that the growing rate of Ukrainian HDI is today one of the most intense in the world. (3)

The main factor that slows down the development of the Ukrainian start-up industry is the lack of venture capital and market participants. Undoubtedly, this trend is progressing, but for a steep rise it is necessarily for the state to invest heavily in the market — at the same time not directly in start-ups, but in funds. Drawing a parallel, investments into venture funds are investments in roads. If there are high-quality roads, then cars go along with them, and entrepreneurs in their turn create these cars without risk. Attraction of investments into our venture funds, state support, all this stimulates the improvement of business conditions and the rapid development of this industry. As for Israel, the government not only promotes, but literally runs a red carpet for investors. So recently, the corporation announced its decision to invest $6 billion in the construction of a new plant in Israel, and to continue its activities in Israeli territory until 2030. According to Economy Minister Naftali Bennet and Finance Minister Yair Lapil, the past two years, these two ministries have dedicated themselves to working with Intel on signing this agreement.

In the Ukrainian investment sphere, the same problem is always observed. With the perfect technical component, weak marketing and business development drag most companies down. It is impossible that there are no skilled marketers and financiers in Ukraine, but until the techies will perceive them as an extra "ballast" in

the team, nothing will change. Therefore, the first changes must take place precisely in the minds of the funners, in the culture of creating and developing a new business.

Anyway, it is impossible to completely take Israel's experience for Ukraine, as each country has its own special economic and political climate, mentality. Therefore, it should be clearly understood that it is sensible for Ukrainians to import only some elements of the huge Israeli startup ecosystem. Israel's economic miracle makes believe that Ukraine's rise is quite possible if we implement well-balanced and effective reforms in all spheres of life, in particular education and economics.

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INTERNET ADDICTION

Khaleska Yelyzaveta
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Excessive Internet use is a growing social issue, which is being highly debated all over the world. Nowadays, the availability of the Internet is changing our lifestyle and introducing the new problem – Internet addiction disorder (IAD).

The term "Internet addiction" was introduced by American doctor Coldbren. It referred to unbridled desire for the Internet. Nowadays, the Internet-related behavioral problems are described in various terms, including Internet addiction disorder, pathological internet use (PIU), problematic Internet use, excessive Internet use, Internet dependence, compulsive computer use and virtual addiction (Gregory, 2019).

Researches distinguish five major types of Internet addiction:
1) sexual addiction is the desire to visit porn sites, discuss sexual topic in chats;
2) passion for virtual communication and virtual dating;
3) financial need – regular purchases and participation in online auctions;
4) information overload – Internet travel, database search;
5) game addiction – video games (Doom, Dota , Star Craft)

Internet addiction is officially recognized as a disease. Symptoms are compulsive need to spend time on the Internet which results in mental and physical

exhaustion, irritability, sleep disorders, absent of concentration, pain in the eyes , back pain , irregular nutrition.

According to the recent statistics, 54 % of users aged 13 to 23 spend on the Internet 1 - 3 hours daily. Other 31% of users spend 4 - 6 hours. More than 45% of respondents cannot imagine their lives without a personal computer or smartphone.

According to the recommendations of children aged 7 – 10 should spend at the computer 45 minutes a day, children aged 11 – 13 years - twice a day for 45 minutes and adults – three times for 45 minutes (Shvets, 2017).

What are the causes of Internet addiction?

The first reason is the unrealizability of person in the real world. On the Internet, we can be anyone: beautiful thanks to Photoshop, clever thanks to Google. This the opportunity to get better without any effort, attracts the attention of users.

The second reason is lack of attention from relatives, friends. Person is convinced that he or she does not need anyone in this world and looks for new friends with similar problems in the virtual world.

So, take care about yourself and your loved ones. Remember: real life is full of bright colors, interesting events and great memories. Enjoy your life every second!

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THE INFLUENCE OF ANTIMONOPOLY POLICY OF A STATE ON NATIONAL ECONOMY

Koval Dariia
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The need for state intervention in the economy is evidenced by the entire world experience. The state has always regulated economic processes through its special role in society. But at first this interference was due to its own origin and the necessity of withdrawing in its favor a certain part of the funds for the maintenance of the state apparatus. Such withdrawal and redistribution required the state to create appropriate legislation that would guard the state's interests and determine the duties of all members of society. Theoretical concepts of the role of the state in the economy have a rich historical basis.

In Ukraine, when it comes to what depth of regulation we need, the discussion often turns into an ideological confrontation between two camps: liberals and supporters of dirigism (statism). The first point is that the free market is something

without which it is impossible to overcome the economic problems of Ukraine. Therefore, they advocate state intervention in market processes as little as possible. The others are convinced that the market economy is inefficient at its core, so without the help of the state, the national commodity producer is doomed. Both have arguments from the history of other countries.

Another problem: our liberals and dirigists are so committed to their beliefs that they tend to idealize certain phenomena and overlook their shortcomings. For example, liberals argue that the supposedly free market is almost a panacea for all social problems. But it is not. The market is a nuclear reactor of economic development. At the same time, this trait of his is the direct cause of social inequality, because he gives the richer and more efficient more and the poor less. There are a number of such side effects, such as the formation of monopolistic corporations in the market.

Monopolies, the process of monopolization of the economy have significant negative consequences:

−   first of all, monopolies suppress competition and this is important driving force of economic progress;

−   secondly, they are able to increase profits by reducing the volume of output and increasing its price;

−   thirdly, they tend to slow down scientific and technological progress;

−   fourth, subject to predatory use of natural resources and environmental pollution;

−   fifth, ruin small and medium-sized businesses;

−   sixth, monopolize the media (press, radio, television), with which they affect the consciousness of the population in the direction they need;

−   seventh, they put pressure on governments for illegal benefits and privileges.

Antimonopoly policy is a set of measures developed and implemented in many countries of the world, aimed at stopping, preventing and limiting the activities of monopolies, as well as the creation of appropriate legislation (Bazylevych, 2007).

In the conditions of market transformation of economy of Ukraine the question of protection of competition, prevention of abuse of the market power of monopolistic structures is especially actual. The creation of a competitive environment, protection of legitimate interests of entrepreneurs and consumers, regulation of monopolies contribute to the formation of civilized market relations, improving the efficiency of the national economy and is one of the components of antimonopoly activities of the state.

From the command and administrative system of the USSR, the Ukrainian economy inherited a high level of monopolization. In the course of market reforms in Ukraine, the majority of monopoly structures were eliminated. In-depth structural de-monopolization was carried out in many sectors of the domestic economy.

Antimonopoly policy and antimonopoly legislation are not intended to prohibit or eliminate monopolies. There is an understanding in society that monopoly as a factor of profit growth cannot be destroyed. Therefore, the real task of the Antimonopoly policy is to put the activities of the monopoly under state control, to exclude the possibility of abuse of the monopoly position. K. Marx in the middle of the last century came to the conclusion that the emergence of monopolies requires state intervention (Studopedia, 2019).

The main purpose of this intervention is to protect and preserve free competition, which is threatened by monopolistic tendencies. It is possible to formulate such goals specifically: restriction of monopolies, support and assistance to small business, protection of consumer rights.

Therefore, it can be argued that Ukraine today has a legislative framework and organizational basis for the implementation of effective state competition policy. However, life and the deepening of market transformations constantly create new problems in the field of competition policy, which require new approaches to their solution. Therefore, the issue of limiting monopolies, support and development of economic competition should continue to be an important element of the economic policy of the state.

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BUDDHISM IN THE HISTORY OF CHINA IN THE IV-VI CENTURIES
Kyrylenko Vladyslava
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

After the fall of the dynasty, Han K. split into 3 states, but the awareness of the need to maintain a single irrigation complex at the proper functional level and the need for joint defence against its warlike neighbours, as well as the mental sense of ethnic unity of each other, initiated a political unification through the country 280, Emperor Sima Yan of the Jin Dynasty. The stabilization prevented, however, invasions by militant neighbours (Huns, Bullets, Tabgachs and others), which caused the Jin empire to lose control of the Yellow River and existed only within the Yangtze River. The territory was divided into two parts: the dynasties of "barbaric" origin ruled in the north, the process of ethnic-demographic, economic of aboriginal peoples (Yao, Miao, Mano, and others) followed in the south under the conditions of domestic instability of local Chinese dynasties (Kochetov A.N. (1968). Buddhism.).

Next emperor despaired of the cult of the Han traditions, which promoted the spread of Buddhism here, which brought preachers from India and East to the "Middle Country" (Learn Chinese Now. (2016). Chinese Buddhism Explained | Learn Chinese Now.).

It was at this time that the enlightened Confucian Dao- an became fascinated with Buddhist teachings and soon became his brilliant connoisseur and preacher, the first "patriarch", founder of the monastery. Tao- an has introduced an exemplary monastery charter, the only Shi family sign for Chinese Buddhists.

The next Chinese preacher, Hui Yuan, also a former Confucian and Taoist, founded the cult of Amito- pho, the patron saint of Pure Land. At the same time, he is the founder of the Jing- tu Zong School, the Pure Land School.

Particularly popular was the worship of the female hypostasis, that is, Guan-yin. Refusing to marry, the girl went to the monastery. After much abuse on the part of her father, she met Amito-pho (the patron saint of Pure Land) and became a Bodhisattva of Guan-yin.

The founder of the Vision of Mind School, one of the most important in Chinese Buddhism, is the Indian monk Bodhidharma who migrated to China in the early sixth century. The followers of the school did not attach much importance to the literature. The principle of this school is self- understanding, mental focus (Religions and Society in China. (2017). Buddhism in China: Introduction.).

For the Ciao- Mann school, the only way to grasp the truths of Buddhism is to know and study canonical literary sources. Book instructions, household duties, and clear action are all about achieving the truth.

The basis of the teachings of the Tantra school is the belief in magic and the magical value of everything mysterious. But the most famous school of Chinese Buddhism is the "Chan" school, later borrowed from Japan under the name "Zen". The founder is Bodhidharma. The name "Chan" comes from Sanskrit and translates as "silent concentration".

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PSYCHOLOGY AS A WAY TO FIND HAPPINESS

Lanovenko Andrii, Germanchuk Alina
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Each person wants to reach their goals and everyone chooses his life path and his lifestyle. Someone thinks that to reach a goal and to be lucky you need to be lucky, someone believes in fate, someone believes that you must fight during your life to be a successful person. But a lot of people aren't lucky, they have really complicated life path and they have succeeded. During our life path we face with millions of people who play important roles in our lives. If you want to reach your goals you must understand who you are and what you want from this life and be able to negotiate with people. And here psychology appears.

Psychology is the science of behavior and mind. It studies the laws of the emergence, development and functioning of the psyche and mental activity of a person and groups of people. It is present in every field of activity. Psychology, as a science, has a very interesting and long history of development. For many years psychology has changed and improved by different famous philosophers such as Aristotle, Plato, Confucius, Laozi and now we see and know it as it is. Psychology is directly related to a huge number of other sciences, especially biology. This science is very unpredictable, because everyone is unique and has his own characteristics, so everyone needs an individual approach.

A lot of people, who can't solve problems on their own, turn to psychologists to seek help. But not always psychologist can help, because everyone has its own organism and unique worldview. You have your own principles, standards and norms, which can be not understood by others. This way you can become your own psychologist and then you can help yourself. Even successful and rich people sometimes aren't happy. It is due to they can't find their meaning of life. A lot of businessmen have lots of money, but their job is very boring for them. Your job or hobby must be your cup of tea and you should do what you love and love what you do.

After you understand who you are and what you want from this life you can move on. The main thing is to find yourself. "I don't know what's worse: to not know what you are and be happy, or to become what you've always wanted to be, and feel alone." ― Daniel Keyes.

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RESEARCH ON SEXISM IN UKRAINE

Levadnia Nadia

Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

In Ukraine, often the word feminism has a negative connotation, and what is sexism, some are even afraid to ask.

Men deny sexism in Ukraine, women do not notice it. According to a survey conducted by the Razumkov Center, 48% of women and 52% of men believe that there is no gender discrimination in Ukraine. 58% of women also believe that there is gender equality in Ukraine.

A woman should wear a deep neckline, short skirt and high heels in order to attract a man. Like men, they must earn well and be manly.

This is a clear division of gender roles and specific features. And it really applies not only to women but also to men. "Why are you dressing as a girl?", "Be strong, you are a man!", "Do not be a girl!" - these are the same manifestations of sexism.

Domestic violence remains the single most egregious violation of women's rights in Ukraine. Every year, about 600 Ukrainian women die due to the domestic violence, according to the Ministry of internal affairs. In 2017, the police received more than 110 thousand calls with the information about domestic violence.

Three women suffer from domestic violence in Ukraine every minute, said the president of La Strada of Ukraine Kateryna Levchenko. Last year, more than 150,000 people requested to law enforcement authorities and to the hotline for being bulled at home. However, this is only 10-15% of the total number of real cases.

Despite the amount of domestic violence in Ukraine, the problem is mainly in the shadow. As the matter of fact, 68% of Ukrainian women do not consider humiliation as act of violence. Only 49% of women are abused, and 56% are raped. These are the results of a survey of the Ukrainian Institute of Sociological Research.

Women in Ukraine earn in average 28% less than men. These are the data of the State Statistics. In addition to work on the shoulders of a woman false homework, which is considered to be "feminine" - cleaning, cooking, caring for children, said Director of the Center for Social and Labor Studies Nina Potarskaya.

Gathering information from 217 countries, the researchers calculated that homework and family care takes a woman 23 years of life.

Women have a minority in power. According to an analytical report from the Council of Europe Commission on Gender Equality 2017, Ukraine is in the group of countries with the lowest representation of women in power.

In the early 1990s, there were 2.2% women in the Verkhovna Rada, now there are 12%. In countries of EU, there are twice as many women in parliaments (29%). And in Sweden, Finland, Spain - over 40%.

There is a very clear tendency in Ukraine: the higher the authority, the less women there. As a result of the recent national elections, 46% of women were elected to town and village councils. There are only 28% of women in power in regions. In the councils of big cities and regional centers - 15%. And in parliament even less - 12%. Only 6% of women in Ukraine hold ministers and deputy ministers seats

According to experts from the World Economic Forum in Davos, the world will be able to overcome the gap in employment and payment for men and women in 170 years.

If anyone else doubts whether there is sexism in Ukraine, just remember how many times you have heard the phrase: "the boss yelled at me - apparently, she is on her period".

In conclusion, sexism is not only about words it is also about the effect that it creates upon individual. Sexism in Ukraine is widely spread everywhere - in advertisement, talk shows, politics and everyday life, and not only women but also men suffer from it. We must all strive to avoid it. This issue should be resolved regardless your gender, status and your country.

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A SENSE OF HUMOR IN OUR EVERYDAY LIFE
Liubchenko Myroslava
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Everyday life is full of petty worries and sometimes not at all petty problems. Therefore, it is important not to take them to heart and learn to abstract from them. A

sense of humor helps people in this. What is it and how does it help us in difficult periods of life?

A sense of humor is a psychological feature of a person, which consists in noting the contradictions in the surrounding world and evaluating them from a comic point of view. If person has a sense of humor, psychological defense mechanisms work more efficiently. A lot of people believe that it is impossible to cultivate a sense of humor. Yes, not everyone knows how to joke, but this skill can be developed. There is also a theory that in the human body there is such a "cunning" muscle that is responsible for humor, and it can be trained. Why is it important to be able to joke?

Different circumstances happen in our life, and sometimes humor is a good tool for resolving a conflict or tense situation. This skill helps a lot when you meet new people, or in any awkward situation. A person with a sense of humor quickly and easily makes contact with other people. If a person has a sense of humor, it is much easier for him to live than for someone who does not have one. Without knowing it, people are more attracted to people who know how to joke, and do it very skillfully.

There are various forms of humor: paradox, irony, oxymoron, wit, parody, satire, sarcasm and so on. Humor has various literary forms - a joke, a monologue, a dialogue, a story, a pun, a witty answer to the communicator, an aptly said aphorism and so on. Also, humor can be represented in graphic form - caricature, drawing, photo, etc. But all these ones are united by the fact that their goal is to make laugh, relax, but in no case offend.

Humor must be intellectual; in that case it is really humor. Therefore, it is important to develop, broaden your mind, read a lot of literature, and your humor would conquer a lot of people.

Many people think that joking is easy, but this is not the case. For professional comedians, everything looks very simple, but when you need to come up with a really good joke, you understand that it takes a lot of time. You need to choose a topic and find a way to make fun of it so as to make fun and not offend the audience. It's difficult to keep this line, but it's worth it!

There are some tips to help you make a good joke:
- you have to know the basic rules of comic;
- you have to study practical information, which includes methods, techniques and ways to develop a sense of humor;
- the joke should be funny for the audience, in the other case people will not appreciate your efforts;
- the joke should be short and capacious.

Also, humor has many other functions, in addition to the main goal - to entertain people. There are cognitive function (humor is interpreted as a means of knowing the world and assimilating ideas about it), therapeutic function (the ability of humor to console a person in his disappointments and failures) and educational function ('healthy' humor is a measure of moral development).

Humor also has a beneficial effect on human health. Daily "doses" of laughter have a positive effect on heart health as much as exercise. This conclusion was made

by Dr. M. Miller from the University of Maryland School of Medicine. During the first experiment, 20 healthy volunteers were shown two films - one humorous and the other stressful. After viewing, the participants in the experiment examined the structure of blood vessels. It was found that after watching a humorous movie, the average blood flow increases by 22%, and after watching a stressful movie it decreases by 35%. It was also found that during laughter in our body, special chemical compounds - endorphins - are released. The action of endorphins is like a mild form of euphoria, and it can act as an anesthetic. Healthy laughter relieves muscle tension, calms nerves, also treats hypertension and boosts immunity, it is an excellent way to combat stress and even helps to lose weight!

To sum up, a person with a sense of humor is always more attractive than those who are reluctant to joke or do not utter or perceive jokes at all. In any case - at work, in business, in family life, even at important meetings - the relevant subtle joke will set you apart and make a good impression. Therefore, learn, develop and joke!

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POPULATION INCOME AND ITS SOCIO-POLITICAL DIMENSIONS

Lobanova Yelyzaveta
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The quality of life and living conditions are one of the indicators of the country's development. They are directly related to the economic policy of the country.

Population welfare is a multifaceted phenomenon. It is characterized by the totality of all conditions of society that arose because of production, distribution, exchange and consumption. There are several factors to assess the well-being of the population. One of which is household income.

Income is money (or some equivalent value) that an individual or business receives in exchange for providing a good or service or through investing capital. Income is used to fund day-to-day expenditures (Kagan, 2019). The main forms of income are salary, property income, entrepreneurial income, and social income.

Salary is the income of employees for a certain period of working time. This is the reward for person's performance. Property income is the percentage for land using, other natural resources, rent and capital income. Social income is usually

attributed to pensions, scholarships, subsidies, social benefits, including cash and non-cash benefits. The entrepreneurial income is formed with the help of funds obtained during entrepreneurial activity.

The main sources of this income can be both legal and illegal economic activity (Fig.1).
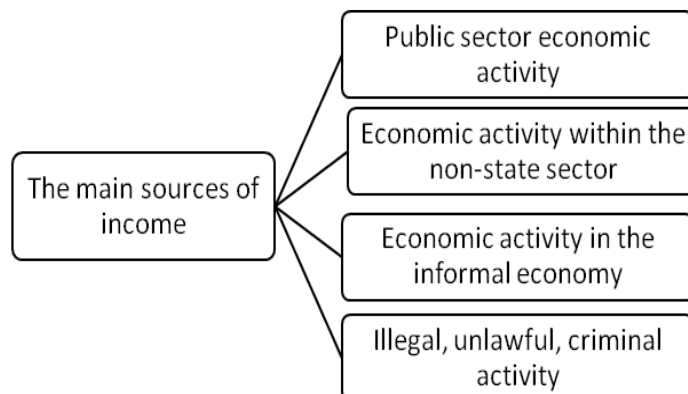
Figure 1. The main sources of income

The main features of this classification is that in developed countries, the share of people who are employed in informal economic activity is 3- 5% of the economically active population, and in transition to the market economy countries, the same share reaches 30-50% of the economically active population. In Ukraine, for example, this figure reaches 45-60% (State statistics service of Ukraine, 2019).

In addition, we may use following classification to characterize household income. (Fig. 2)
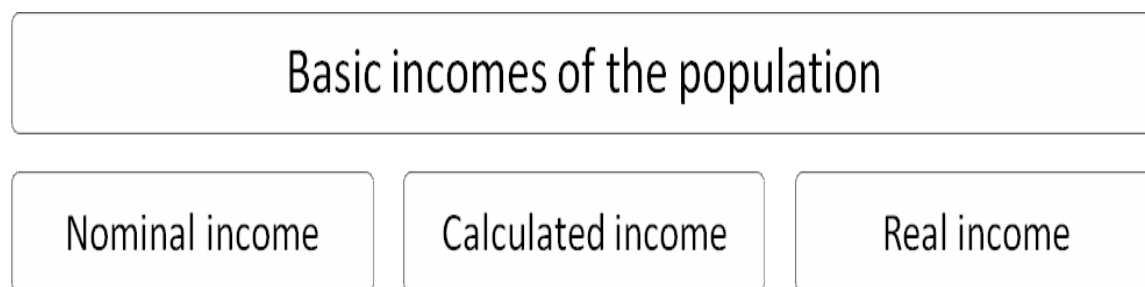
Figure 2. The classification of the income

The first category describes monetary income, which is not cleared of the effects of inflation, the second category describes monetary income that is adjusted for inflation and the third shows income excluding taxes.

There are many types and methods of income classification, but the main characteristics can be represented by the following scheme:
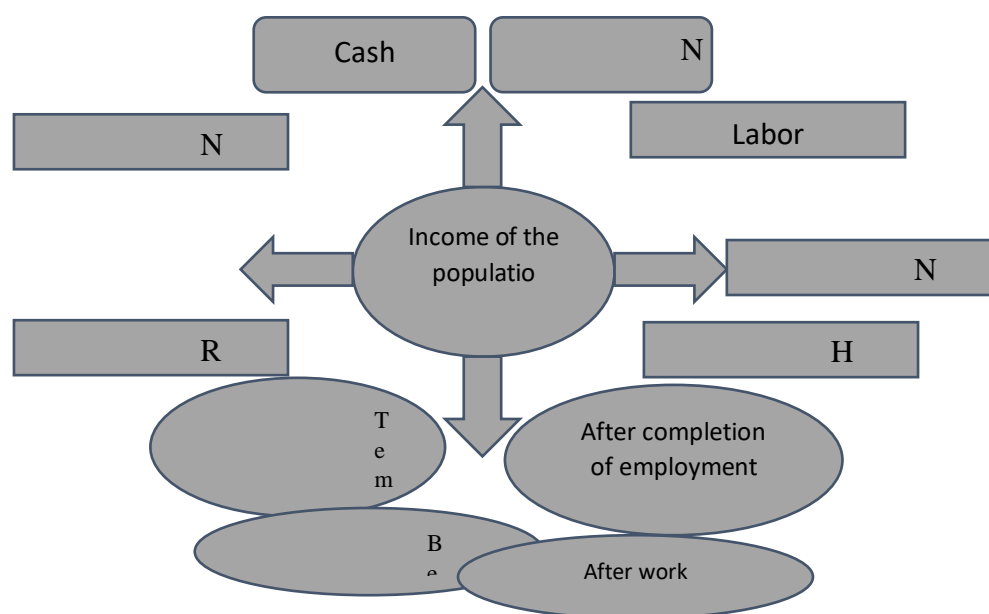
Figure 3. General classification of income

> ➢ **Socio-political dimensions of income**

Aggregate income is the main indicator of the financial support of the population and sums up all types of monetary income, as well as the value of the natural income received from the personal household and used for personal consumption. In addition, the total income includes the cost of free services received at the expense of state and local budgets and enterprise funds - health care services, education, subsidies for housing, transport, food, etc. (Fig. 5)
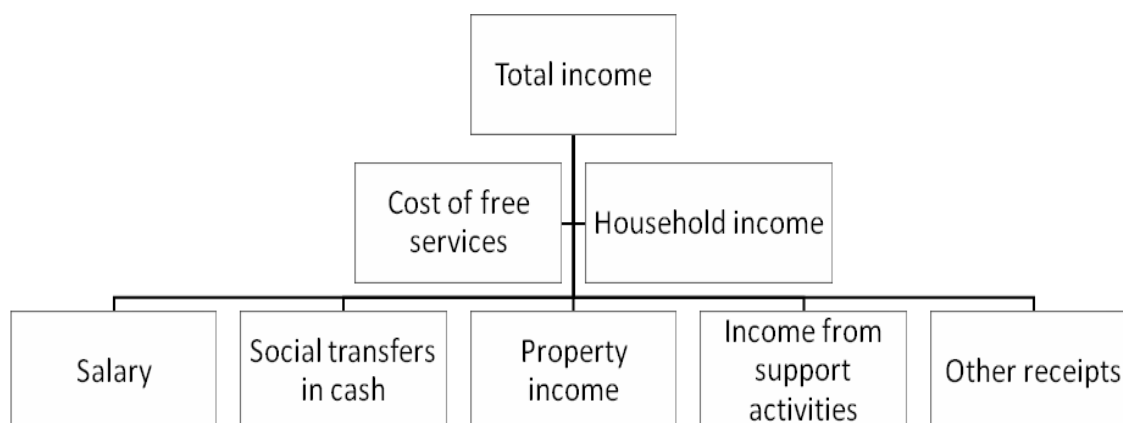
Figure 3. Classification of total income

Social benefits (or social transfers) are transfers made (in cash or in kind) to persons or families to lighten the financial burden of protection from various risks. They may have monetary and natural forms and be can be obtained from government

and non-profit organizations (professional, religious, charitable, etc.) to the population (The National Institute of Statistics and Economic Studies, 2018).

The goods and services provided to individuals at the expense of the state budget at no cost are called natural transfers. These include pensions, social benefits, scholarships, insurance benefits, and reimbursement of expenses for the disabled, compensation for the repressed.

Another important category is property income, which includes income from the sale of real estate and early compensation. They also include deposits with credit institutions and banks, interest on deposits, payments of income on government and other securities of the National Bank and credit institutions.

Income by the population is always accompanied by inequality. The main causes of income inequality are differences in ability, education and training, professional benefits and willingness to take risks, inequality of ownership of property and monopoly in the market, as well as luck, communication, misery and discrimination.

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PROBLEMS OF PREPARATION OF LAWYERS IN MODERN LIFE
Magdych Vladislav
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The uniqueness of the profession in the field of jurisprudence lies in the combination of high professionalism and legal culture, imbued with a deep awareness of professional and civic duty, comprehensive analysis of the information received, formulation and analysis of their own hypotheses, creativity and inevitability of nature, to have originality, social responsibility, fairness, perseverance, humane attitude and respect for the person, willingness to give competent help often in extreme conditions, to carry out a moral-legal communicative interaction that is in accordance with the principles of democracy and humanism.

The twenty-first century has a dynamic development in all spheres of society and is called the century of communication. The processes, accompanied by an increase in the volume of information flows, have actualized the role of

communication and communication aspects as a strategic resource and factor for creating systems in the development of the national legal system, an effective mechanism of interaction between the state and society (Semenog, 2015).

The complex life situations that are solved by lawyers, the high complexity of the legal procedure, the features of abstract thinking and the terminology of legal communication imply that legal work should be performed only by specialized specialists.

At the turn of the 21st-21st centuries, the Ukrainian state has set itself the need to move to a new stage of development - the information society, which in turn will allow to increase the level of public welfare, to achieve reduction of the number of threats in the sphere of national security, to involve citizens in the development of the information society. To ensure this, an effective system of human rights for the free acquisition, dissemination and use of information in different spheres of society should be created as a more important and necessary condition for democratic development.

The complexity of implementation and construction of this system lies in the absence of an effective mechanism for protecting information relationships. The practice of applying information law indicates that there are obstacles and violations of information rights in ensuring the information security of the individual, society and the state.

Against this background, and in recent years, one of the most debatable and urgent problems of Ukrainian law is the lack of effective mechanisms to combat offenses that arise in various spheres of human life. For this purpose, there is a so-called institute of legal responsibility, the importance of which for the protection of the rights and freedoms of citizens, protection of public relations in Ukraine is confirmed by the intensive development of the legal framework, which took place in the last decades, as well as the wide practice of its application (Volkova, 2014).

By analyzing scientific sources and examining the experience of law professors in training students, they were able to express problems. The needs of society in communicative professionals and the real state of competence of future lawyers and their readiness for professional activity. Communicative competence of future lawyers in the process of studying special disciplines and insufficient theoretical substantiation of this process, potential capabilities and the need to build the content of special disciplines, taking into account the dynamic changes in jurisprudence and state, psychology, pedagogics and lack of communication skills.

Al in all, the choice of the topic of the study led to overcoming and correction of problems, the solution of which is to change the pedagogical conditions of formation of communicative competence of future lawyers in the training process. Important factors in the legal field are the selection of the right sources, updating of the national education strategy of Ukraine, developing practice in the formation of skills of future lawyers, and ensuring further employment.

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STUDYING FOREIGN LANGUAGES
Melnyk Lyudmila
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

It is necessary to know several languages, besides my native language. If a person knows many languages, the more possibilities he has. Scientists proven that learning foreign languages contributes to better memory. Some people learn language because they need it for work, others - traveling abroad. Nowadays languages now play an important role: we are living in a time when links with different countries and peoples are increasingly developing. In any profession, knowledge of a foreign language may be necessary. Companies are beginning to work more closely with companies in other countries. And to do that, they need foreign-speaking staff. It does not matter what career you choose if you are fluent in a foreign language - for you it will be significant advantage for you. From all the world languages English stand out. It has become the most important language in the world, the language of political, scientific and trade relations. This is the language of computer technology. Many scientific literature is written in English. Every qualified person needs to know this language.

Unfortunately, the system of learning English in educational institutions has hardly changed in the last decades. Nowadays, the main method of learning a foreign language is grammatically thematic: the topic, vocabulary and related grammatical material. Therefore, the main purpose of any method of learning a foreign language is the ability to apply the acquired knowledge in practice. In order to master English, it is necessary to determine which technique is the most appropriate in this case. The result depends on how you gain knowledge.

It is found that the interactive form of work has significant advantages over the frontal and individual forms: in groups, students are involved in collective creative activity, meaningful communication and interaction, division of labor between group members; mutual training and mutual control is carried out.

Particular attention is given to interactive teaching of writing and reading. Interactive language learning in higher education should develop the ability to discuss, analyze and test each other. The modern model of the reading process

focuses on the interactive communication of the reader and the text. The teacher should submit a text and organize assignments to help students understand it. The text should be correctly selected, the tasks should correspond to the type of the text, type of reading, the level of language training of students.

There are such innovative approaches to learning foreign languages:

- *Lebanon Method.* Offered by a French psychologist, sociologist - English is taught in parallel reading of texts in the native language, then in a foreign language.

- *Schechter method.* The main way of learning through which language is mastered - live communication with its speakers, the gradual acquisition of the speaker's language skills.

- *David's method.* It became widespread in the late twentieth millennium thanks to the proliferation of electronic devices: audio lessons made it possible to learn grammar, increase vocabulary.

- *Zamyatkin's method.* It involves repeatedly listening to the text in English, replaying it numerous times.

Each technique is based on a comprehensive perception of all aspects of the English language

Consequently, foreign language learning will be effective thanks to the integrated use of the latest innovative technologies and depends on the teacher's ability to apply a humanistic approach to learning, on understanding the need to abandon the authoritarian teaching method.

The process of learning a foreign language is not an automatic insertion of educational material. It requires intense mental work of the child and his own active involvement in the process. This can only be achieved through active learning through innovative educational technologies.

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COLOSSUS OF RHODES
Miezientsova Eva
Faculty of Sociology and Law,
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute

I think, it is no secret to anyone that the basis of our European civilization was Ancient civilization. In turn, ancient civilization is represented by the history and culture of Ancient Greece, which, in comparison with other ancient societies, was based on qualitatively different foundations in economic, political and social relations.

The achievements of the ancient Greeks astounded the minds of that time and continue to amaze us - people of the modern world. Hellas is the progenitor of modern poetry, astronomy, dramaturgy, medicine. There were laid the foundations of a philosophical understanding of the world, art and architecture.

Greeks were able to create one of the seven wonders of the world of the period of Antiquity - the Colossus of Rhodes - which is considered to be the embodiment of the craftsmanship and grandeur of Greek sculpture and architecture. About which further we will talk.

Colossus of Rhodes: As you could already understand by name, the colossus of Rhodes stood in the port island city - Rhodes. It was a giant statue of the ancient Greek god of the Sun - Helios. The giant sculpture of Helios towered off the coast of the Aegean Sea in the 3rd century BC. (today the outskirts of Greece).

Residents erected a large-scale monument to the god Helios for the fact that in 304 he saved Rhodes from Tsar Demetrius I, the heir to Alexander the Great. At the sea gates in 290, the figure of the patron saint of the island was partially made of metal, which the army of the defeated ruler threw.

The erection of this monument for 12 years was worked by the then-famous master - Hares. His task was not only to think over the image of the statue, but also to find the latest technical solutions for its embodiment. If at first the inhabitants of the island ordered him an 18-meter giant, then they changed their minds and demanded to create the Colossus twice as much.

Construction: The sculptor decided to make the statue out of clay, encircling it with bronze sheets from the outside. And as a frame, stone pillars connected by iron hoops were used - therefore, outwardly, it looked very much like a human skeleton.

The Colossus was created on an artificial hill. On it, the workers and Hares set up stone pillars, two of which were fixed with bronze parts, became the torso and legs of the figure of God, and in the third they placed the cloak of the statue.

The sculpture was installed from the base, because the hill where the builders were was constantly increasing. The population of the island could not see the progress of work and saw the Colossus 36 meters high when the craftsmen removed the embankment.

Hypotheses: To this day, information about exactly how the statue looked, included in the list of "Seven Wonders of the World", has not been preserved. More

or less detailed memories of him can be found in the records of Pliny and Filonius; other authors of those times mentioned sculpture in their notes in passing. Therefore, there is no information not only about how the statue looked, but also where it was exactly installed.

There are many hypotheses in this regard:

1)Many agree that the right hand of the statue was attached to the forehead, and not stretched out in a gesture of blessing, as the canons of that time demanded - if it were done differently, the hand would not last long, and would break off under its own weight.

2)It is questioned (but not refuted) that the statue of Colossus of Rhodes was on the coast, since it is rather difficult to erect the embankment on the shore, like the sculpture itself, due to the changing weather conditions at sea. She has the right to exist, because at one time at the bottom of the harbor the brush of the sun god was found.

3) Another version suggests that his legs were widely spaced, one foot on one side of the harbor, the other on the other, and under them floated sea vessels. Despite the fact that this hypothesis is one of the most popular, this option is unlikely, since one shore is four hundred meters from the other, and the Colossus, for all its grandiose sizes, would simply not have enough leg length.

Ruin: The monument of the era did not last long. In 220 BC a crushing earthquake destroyed the legs of the statue, causing them to break in the knees and the figure fell. But the fallen destroyed Colossus was impressive in scope. There is evidence that not everyone could cover the thumb of a figure with two hands. Other countries sympathized with the inhabitants of Rhodes and offered financial support for the reconstruction of the Colossus. But the islanders were afraid of Helios's indignation, which the seer had warned about, and refused to restore the gigantic wonder of the world.

Over time, the wreckage has been lying on the island for almost a thousand years, until due to the crisis, some parts of bronze and metal were not melted. Later, the Arabs captured the island and according to one legend, the remains were sold to a wealthy merchant who took them to Syria.

Recovery: Today, scientists want to revive the Colossus. The structure can be created from luminous parts up to 100 m high and erected on the spot where the statue was supposedly standing. The price of such an idea reaches 200 million euros, but most of the amount is already ready to allocate German art critic Geert Hof. A giant statue can get a second modern life.

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MODERN INFORMATION TECHNOLOGIES
AND THE REFORMING OF CIVIL PROCEEDING

Migunova Natalia
Faculty of Sociology and Law,
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute

Today, it is difficult to deny the fact that information technology is playing a big role in the society. This is due to the fact that nowadays it is difficult to imagine modern life without technologies, which facilitate the creation, use and sharing of information. Therefore, they have a primary purpose - to facilitate the accomplishment of tasks and solve the problems of many people. Ukraine, awaring the importance of information technology, is confidently moving forward in the direction of building a new information society. In this society, an important element is the transformation of human spheres into electronic form. One of such area is civil proceeding. In Ukraine, since 2011, it has started to use elements of electronic justice. Information technologies were introduced aimed at the exchange of electronic documents between the court and the participant of the trial, payment of court fees online, as well as obtaining information on the results of the trial through the official website of the Judiciary of Ukraine. It is extremely important for the improvement of e-court that the Single Judicial Information and Telecommunication System (ESITS) becomes operational.

The main task is to implant modern technologies to do tasks and functions of civil justice, to accelerate the justice process, save time and money. This all above stated is the basis for the reform of civil justice. Changes in the legislation of Ukraine have been introduced for the proper functioning of the ESITS. As already mentioned, in 2017 a new version of the Code of Civil Procedure was published, with significant changes and as a result the article about ESITS appeared. In particular, in Article 14 of the Code of Civil Procedure, we can see new opportunities in the field of civil justice, such as filing lawsuits online, the ability to receive court decisions, summonses and other documents electronically, as well as to record the trial and the participation of litigants in the court video conferencing meetings. (CPC,2004) However, these legislative provisions are not put into practice due to the lack of proper functioning of the ESITS. The government does not allocate sufficient funds to facilitate the proper functioning of the ESITC. Therefore, the state should pay attention to the importance of this system and plan to include in the State Budget for the year 2020 the funds for the electronic justice system (ESITS)in order to ensure the creation of a single state register of executive documents as a component of the ESITS. The implementation of information technology in civil justice will greatly speed up the justice process, improve the work of courts and judges, help save time

and money, and make justice as accessible and transparent as possible. Moreover, the launch of the ESITS will deprive unscrupulous participants from delaying the trial and abusing their rights.

To sum up, Ukraine, as a modern state, should not forget the importance of information technology in the reform process; allocate sufficient funds to implement new changes.

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THE PLACE OF JUDICIARY IN UKRAINE

Monarshuk Anastasia
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Judiciary in a democratic rule of law is, in its essence, a manifestation of the power of the people and is included in the system of democracy as an independent branch of state power, which ensures the resolution of conflicts that arise in society on the basis of law. The main purpose of the judiciary is to protect the person from any arbitrariness, both from other members of society and from the unlawful actions of the state, its bodies and officials. Without such activity, the state cannot be considered legal.

The presence of an effective judiciary is one of the most important features of a democratic, rule of law state and at the same time one of the prerequisites for the formation and development of modern Ukrainian constitutionalism. So in today's world there are two main judicial systems: competitive and investigative. The first is characterized by the fact that the main dispute takes place between the parties (lawyers), and the judge makes a decision, analyzing their arguments. In the investigative system, the judge pre-examines the documents and makes decisions in accordance with legal rules. The Constitution of Ukraine states that justice in Ukraine is exercised exclusively by the courts (The judiciary in Ukraine, 2019).

In Ukraine, there is a single judicial system consisting of courts of general jurisdiction, with the highest court being the Supreme Court of Ukraine and the Constitutional Court of Ukraine. All functional areas of judicial activity, that is, forms of implementation of the judiciary, can be summarized in such legal category as "judiciary." In this case, the system of courts of general jurisdiction is quite branched and heterogeneous in both their specialization and structure. This fully meets the requirements of Art. 125 of the Constitution of Ukraine, which states that the system of courts of general jurisdiction in Ukraine is organized according to the principles of territoriality and specialization.

Unfortunately, in Ukraine we have a situation in which the facts of pressure on judges, their bribery, interference with the activities of the courts have become

systematic and frank. Judges should make their decisions completely independently and be able to act without restriction, without undue influence, incitement, pressure, threats, direct or indirect intervention, regardless of whose reasons and for what reasons (Halaidenko, 2010, p.3). The new government is trying to remedy this situation and has recently introduced competitive selection for the desired profession, but for some reason it is not working properly (The center of political and legal reforms, 2017).

Therefore, given the current volatile situation in our country, it is extremely important to know our rights, to follow order and to help other people find the truth in various complicated cases, which is the main purpose of judicial activity.

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HOW TO DIVERSIFY ENGLISH CLASSES WITH BEGINNERS

Nesterenko Katia
Phylology department,
T.H. Shevchenko National University "Chernihiv Colehium"

Having analysed my six-year experience as an English teacher in elementary school, I came to the conclusion that it is difficult for pupils to listen to a teacher and do monotonous exercises for 45 minutes. Based on this empirical experience, we have formulated some tips for teaching foreign languages to small children:

1. Colourful design of the lesson is a real lifeline for children in the learning process. Use more colours. Bright colours are important not only for elementary school. Use colour chalk or markers, make inspirational posters with your pupils and place them in a classroom, create zones devoted to different topics. In addition, allow and encourage pupils to use the notebook in a variety of colours. It is proved that colour associations allow a child to absorb and memorize the material better.

2. Encourage pupils to perform creative tasks.

Let your pupils do the tasks using the format that appeals to them the most. For example, suggest different formats of homework. For example, prepare a presentation, make a small movie, draw a comic book, a poster, make a collage. Such tasks will make pupils wonder how they can express themselves in classroom work and broaden their outlook.

3. Use motivational posters to work in the classroom.

If you are not afraid to diversify the learning environment and go beyond the traditional educational process, then you can decorate your classroom with modern motivational posters on the educational theme. This will enable you to use a visual analyser for your pupils to help you remember the material better.

4. Use games in English lessons.

Elementary school children interact with the world playing. Game is a way of reality understanding, a way to test oneself. However, unfortunately, when a child comes to school, teachers forget about that, although games and drawing are typical for children of this age.

Snowball is one of the most common types of lexical games. Its advantage is that this game can be used in the study of any topic. The game is designed to activate the vocabulary of pupils on the topic studied, to train memory and attention. The teacher says, "I have a grandmother" and asks the first pupil to repeat what he said and add his word: "I have a grandmother and an uncle". The game lasts until each participant says the entire chain of words.

5. Conduct each lesson as if you were conducting it for the last time.

Pupils feel good when a teacher gets ready for each lesson as best he / she can, comes up with interesting tasks and tries to be the best teacher. Be sincere with your pupils, and they will be sincere with you. Remember that you are not allowed to be a teacher only at school. You should be a good example for everybody everywhere.

So, summarizing our empirical experience, we formulated a number of tips for organizing English for elementary school pupils, and came to the conclusion that the teaching profession is similar to the profession of a screenwriter, who has to prepare the script of his lesson every time.

INNOVATIVE TECHNOLOGIES IN LEARNING AND TEACHING ENGLISH

Ohorodnik Anastasiia

Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

English is the language of international communication; it has been a way of understanding for many people for centuries, the most widespread in the world, especially accepted as a second language, namely non-native. Today it is not possible without English. We see the expediency of using English in different areas of life. Time has proved that there is no substitute for it. Therefore, in order to feel like a fully intellectually educated person who is able and willing to participate in intercultural communication, is able to solve her language tasks, to function comfortably in the social space, it is necessary to learn English for all generations.

Nowadays, it is generally accepted to acquire elementary knowledge of this language in kindergarten, to improve it at school, to consolidate its studies at

university, to use it at work and to be fluent in English. At the same time, this system has been formed for more than a decade, so to improve the learning process; humanity uses all new methods, methodologies, opportunities, technologies, innovations.

The innovative approach provides a positive motivation to gain knowledge in the subject promotes interest in the language, stimulates language activity of students. Learning English is not possible without practice, it plays a major role. You will never learn English unless you speak it, a turning point when you begin to think English and not translate the necessary considerations in your head. It is a sign that the person really speaks the language. Everyone without exception is afraid to start saying foreign words to people because they are sure they sound funny or wrong.

One of the main objectives of the study is to create a comfortable environment to overcome this barrier, to open up the abilities and creative expression of students, where an atmosphere of trust and respect prevails. Of course, this is not easy.

It is possible to use both mini — projects designed for one lesson or a part of it and large projects that require a long time to complete them. Projects can be individual and group projects. In later stages of study, we may use scene rendering.

It is important to start learning English from what is the most interesting to students. At the first meetings, it is advisable to conduct classes with a relaxed atmosphere, not loaded with grammar material, for example, to prepare individual projects for the description of their families, friends, hometowns, favorite places, hobbies and to demonstrate them, possibly using presentations, photos, maps.

A lesson on the theme "Travel to London" suggested the situation: students won a trip to London, want to know more about the sights of the capital. The project type is mixed because there are signs of research, creative and role-playing projects. The first group staged a landing on the plane. The flight attendant made a landing, greeting the passengers, asked them to present a ticket, go to the cabin, serviced them during the flight. Others, who were given the role of passengers asked to drink water, juice, tea, listen to music, order lunch. The second group on arrival at the hotel was sent to an English family for further accommodation. The participants of the third group went to the shop, and the fourth — to have dinner at the cafe (Okoneshnikova, 2017).

This assignment helps students better prepare for real situations that may arise in foreign countries, understand the rules of dialogue, monologues, develop oral language skills, establish group contacts, as the task requires group work. Students can tell fictional stories by illustrating selected pictures, maps, cafes, routes, houses, sights. In order to familiarize students with the history of the United Kingdom, we can conduct a similar lesson. Divide them into four groups and let them prepare a story about the relevant part. Students will develop both speaking and listening skills.

Society is changing, people's needs are growing, and at the same time they are causing the emergence of new global processes leading to dramatic change. An example of this phenomenon is the beginning of the information age. Humans have met their needs to freely transmit, receive information, and have instant access to

knowledge that was difficult or impossible in the earlier epochs of human development. The first electronic computers were created in the last century, today smaller ones are available to us, but much better technological devices whose functionality and capabilities have increased hundreds of times. Innovative technologies today help us to develop our information and communication skills, including the availability and ease of learning foreign languages.

Another innovative way to learn English is to use an interactive whiteboard. It engages students, promotes creative growth, their views are always glued to it; it is easier to speak to an audience as it is possible to bring their ideas and new knowledge with illustrations, diagrams, video, games.

This screen, which everyone in the classroom can see, takes student interaction with the teacher to a new level. Before the audience, working with the board, there is one person, and thanks to its size, everyone feels themselves as participants in the unfolding process (Yarasheva, Ibragimova, 2014, p. 36).

Most recently, children have been forced to learn poor English from teachers who may have never spoken to native speakers, using dictionaries in which the pronunciation of words was simplified, as it is quite difficult to find the necessary combination of letters of your native alphabet that could accuracy to convey the desired sound of a foreign language. Today the situation has changed. We have no difficulty in hearing how to pronounce the necessary English word anywhere, anytime. All we need is a phone and internet access, though a basic English-language transcription dictionary can be downloaded and used off-line. And this is just a part of what innovative technologies give.

Computer training programs are designed to improve the skills of vocabulary, pronunciation, comprehension of dialogue, the processing of grammatical phenomena through various sites, where materials are sometimes posted by real professors of English universities, who undoubtedly give correct modern true knowledge. For young children, there are fun programs where the necessary rules for learning are presented not with plain text, but with illustrations, videos, sometimes in the form of poems and songs. For older children it will be unusual and useful to browse English news and blogs. In addition, mobile applications typically require users to register in order to provide information on the number of new words learned, grammar rules, stability in classes, their weekly ratings and user-driven levels. This is a good motivation for all people of all ages.

Students can participate in testing, quizzes, competitions, competitions held on the Internet, participate in chats, establish and maintain business connections and contacts with their peers in English-speaking countries. The computer is a very convenient thing, it will explain to you, as many times as it will need, never show that it is annoyed or bored.

Therefore, the introduction of innovative technologies into teaching and learning English is an irreversible process because our society is changing and needs are growing. It is thanks to the latest technologies that the English language is spreading all over the world, modern people do not imagine their existence without it,

teaching and learning real English are becoming more accessible, easier, more interesting and effective.

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MAKING SENSE OF BITCOIN AND ITS FUTURE

Orlov Yevhenii
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Four periods can be clearly distinguished in the relatively short history of cryptocurrency. It began with the launch of bitcoin in 2009, after which two dominant platforms appeared: the Mt. Gox and the anonymous Silk Road site. Both made a lot of noise when they collapsed in late 2013 - early 2014. The Bitcoin exchange rate dived from $1000 to $300 and remained at that level for the next two years.

In 2014-2016, the activity around cryptocurrencies, in addition to bitcoin, began to develop in two directions. First, Ethereum and other platforms have converted digital currency into a mechanism for decentralized applications and services. Secondly, governments and companies were so excited about distributed registry technology that they added a special layer to the open bitcoin network that restricts the right to process transactions. These were not the days of Bitcoin, but the blockchain.

In 2017, the pendulum swung the other way and the cost of bitcoin and other cryptocurrencies suddenly soared. Initial coin offering (ICO) and crypto assets trading are in fashion. In December 2017, the Bitcoin exchange rate rapidly approached $20 thousand, and the total value of the cryptocurrency in circulation amounted to about $ 750 billion. Millions of small investors around the world invested in it, hoping to receive countless profits. Coinbase's mobile client quickly became the most downloaded application on the App Store.

But at the beginning of 2018, the market returned to normal. Bitcoin fell sharply below $8 thousand. Financial regulators have begun tracking down fraudulent and infringing ICOs, Korea and China have banned them completely. Surprisingly, the Bitcoin bubble did not burst, unlike in 2013, but rather deflated relatively

gradually. This is explained by the fact that cryptocurrency holders, convinced of the absolute superiority of this form of money, continue to hold it, while ordinary investors would have long been rid of coins, which would have provoked a panic.

Do analysts portray a bright future for Bitcoin? The situation on exchanges is heating up. The financial forecast surprised not only the owners of bitcoin wallets. Bitcoin was declared dead about 89 times, and was also called a failed financial experiment. The strife in the network led investors to throw money at any company. The idea that the resource would be cost-effective did not matter, everyone cared about growth only. Take for example Facebook, which was launched on February 4, 2004. Could it achieve something without ups and downs? What about Uber? And what will experts say about collecting all of the information from Google? They think it is still too early for forecasts on bitcoin to be made. Cryptocurrency Bitcoin is 7 years and it has experienced a large number of ups and downs on the exchanges, trust and neglect. Despite all this, people invested huge amounts of money in the so-called empty space, in the idea. In 2014 and early 2015, investing in bitcoin was the easiest way to make a profit on the network. The Bitcoin system is growing and its perception is changing. Old exchanges go by the wayside. The next stage of exchanges, such as Coinbase, is already more serious about regulation and security. Millions of dollars were spent on specialists analyzing the financial activities of the company, as well as those who will be able to manage the main operations. Moreover, the number of network users and the number of transactions is growing immediately.

What experienced analysts are sure of is that the future of this cryptocurrency is bright, prosperous and quite promising. It will take years to achieve the software that the creators expected. "Bitcoin can be compared to the 1992 Internet era. And now cryptocurrency Bitcoin is experiencing its "early years". The basic principles of TCP/IP are ready. Now, experts are working on an HTTP protocol that is used by many computers.". As soon as the entire infrastructure is ready (which may take decades), we will see really serious programs, created specifically for bitcoin. But, so far we can only say that the technology is at a development stage.

Developers are trying to make a search engine for 21 Bitcoin Computer, similar to Google, which will charge a minimum fee in bitcoins to fulfill the request. In the near future, perhaps companies will pay users for using their data using bitcoin wallets. All of this seems unrealistic, but experts say that such a convenient system will become automated soon. Bitcoin is far from perfect. It has many shortcomings, which over time begin to appear. But call it dead or say that it is easy to replace any new project with a naive and shortsighted mind. Maybe someone will come up with something new, but still it will be aimed at other needs. All the same, everyone will remain faithful to the pioneer.

Bitcoin is still too young. It's worth recalling that it took Facebook more than 10 years to launch the system, which can reach and contain billions of users. In order to have a real idea of the potential of bitcoin, we must look through decades, not in months or even in years. Fortunately, cryptocurrency is on the right track.

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TECHNIQUES IN ENGLISH VOCABULARY LEARNING
(ON PERSONAL EXPERIENCE)

Panchuk Victoriya
Phylology department,
T.H. Shevchenko National University "Chernihiv Colehium"

Despite the progress in the development of foreign language teaching as a science, there are still many problems in practice at school. Many teachers use different methods, but do not use the latest foreign language teaching techniques, particularly while teaching vocabulary.

As practice has shown, the most popular home assignment is when a teacher asks pupils to learn 20 new words for tomorrow's dictation. The main problem for students is how to learn the words, memorize their meaning, spelling. In addition to English, children have other subjects that they should study. That is why, having summarized my own experience of learning English, I decided to formulate some techniques for mastering English vocabulary.

The first way to memorize English vocabulary is to identify the association.

For example: skull – skull (because "scalp"), palm – palm ("palm", here you can think of open, like fingers, palm leaves), heel - heel ("Achilles, Achilles heel"). As I experimented with teaching children, I noticed that they were beginning to become interested and come up with their own associations in one word or another. And it was a great progress for everyone. Especially for those who didn't know a word.

Secondly, you should not just teach and write a dictation, but repeat it many times, be sure to spell it out, and play games with these words. For example, let a pupil draw this word in different ways, write it, and paint or paint something. It is advisable for the teacher to print out the word and picture that illustrates it and to show the children that they remember its visual image.

Third, for a child to learn a certain word well and not forget, it should be used in sentences as often as possible, repeated in each lesson. As experience shows, many children have seen a word more than once, but do not know what the word means because the teacher can prompt or say and move on because, as they say, they have a program and they cannot stop. However, without proper demonstration and

explanation of the word and its subsequent use in the exercises of the child, it is almost impossible to remember it.

To prevent the child from wanting to learn words after independent work and not get a bad score, it is better to carry out in the form of tests. For example, insert a word: one column contains an English word and another – its translation. As I experimented, I noticed that children had better scores than when they wrote dictation.

I hope that teachers will be able to take the time, stop and explain, show how to work with new words to remember them. By using these methods, children will know more words and be able to speak English fluently.

BUY OPINION: HOW BRANDS AFFECT PUBLIC CONSCIOUSNESS ON INSTAGRAM

Arina Paun
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Brands buy advertising for different purposes such as increasing sales for a particular product or recognition among consumers. Due to the excess of advertising campaigns trying to sell actively their products, ad blindness has emerged. Advertising blindness is a decline in the effectiveness of a particular type of marketing communications. The user quickly recognizes already familiar banners and immediately rejects the information (often at the subconscious level).

Brands are actively seeking and considering new strong channels for communication with consumers. Nowadays, the audience does not need to impose an opinion, since the majority of consumers prefer to decide on their own.

On Instagram, any sponsored content must be posted with the appropriate designation. However, users see cliché phrases, so brands have decided to take a different path. This will help native advertising.

Native advertising is a type of advertising when its demonstration is not noticeable at all and is perceived by the user as a naturally occurring process. Such type of an advertising is perceived as a recommendation and does not provoke rejection. It is common for Instagram.

How do brands implement such a campaign? A specific product is sent to certain bloggers. The brand's PR manager negotiates with bloggers, provides a layout and conditions for advertising. For example, let us consider a particular example - face cream. It requires figures with such themes: modeling, skincare and cosmetics testing, a healthy lifestyle, fashion influencer. We collect the list and create a newsletter.

First, the product should flicker in Stories as a simple everyday face care item. A blogger should arouse interest in this product among subscribers. In addition, in the end, talk about him in a full-fledged post or story: you can even highlight

shortcomings, but not affecting consumer choice. Be sure the product should flicker for at least a month. Otherwise, you will not get the trust of the audience. When a thing becomes a part of everyday routine, consumers do not have information rejection.

How to get rid of brand manipulation? Analyze information. Check the brand's certificates, availability of documentation about the declared products.

Native advertising is not evil, but if brands try to impose an unnecessary product, then we should think.

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FEATURES OF MANAGEMENT OF INNOVATION PROCESSES AND INNOVATION IN ENTERPRISES

Pertseva Tetyana
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

In the modern world, the competitiveness of an enterprise both in the domestic and global markets is increasingly determined by the effective use of innovative technologies. To reduce the cost of products and services rendered it is rational to use innovations in various processes taking place at the enterprise. It should be noted that the effective application of innovations is impossible without control, the security of which has its own characteristics.

Innovation is a change, providing increase of efficiency of a process or the creation of a new product. The company must properly manage all changes in order to reduce the risks and to minimize additional costs (Rakhimov, 2016).

The innovation process is a process for the preparation and implementation of innovative changes, which consists of several key stages, each of which required operative management.

For the effective management of innovation process need to go through the following stages:

1) analysis, identification of inefficient processes is not enough;
2) search for solutions to identified problems;
3) analysis of the effectiveness and possibility of implementation of each proposed method;
4) selection, decision-making on implementation;
5) drawing up a project plan;

6) project management for key parameters (cost, time, deviation);

7) organization of the test the created innovations;

8) the decision on the implementation of the created innovations.

At each of these stages there should be detailed analysis of key qualitative and quantitative indicators that will allow to properly manage related risks. To create information base for the analysis should provide feedback and effective communication between departments, to solve a variety of tasks within the project (Balakina, 2016).

It is important to note that the project management by exception appears to be key in the management of the innovation process. This is due to the fact that every innovation process is associated with uncertainty.

In the management of innovative process may arise the following problems.

First, under uncertainty difficult the forecasting of expected performance (Saksina, Babenko, 2013). This is due to the fact that every innovation process is specific, so to build an accurate model for the prediction quite difficult.

Second, the cost of the project may change due to the need for additional work. Thus, it is necessary to plan the formation of reserves for contingencies.

Thirdly, it is difficult to immediately build an effective system of "Innovation – Enterprise – Environment". For the effective management of innovation process is necessary in the early stages to ensure data relationships. Special attention should be given to the relationship of the enterprise with the external environment. To the external environment include not only suppliers but also buyers of the company's products, competitors (Rakhimov, 2016).

Thus, we can conclude that the management of innovation processes and innovation in enterprises has its own characteristics that must be considered to maximize efficiency. In planning the implementation of innovations in any process on the company in advance think of ways to solve the above problems. This will minimize the risks.

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HOW DOES RECICLING AFFECT THE ECONOMY?

Petruk Yevheniia
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

For decades, humanity has accumulated waste. Also, gradually came the realization that we needed some significant changes, because due to the current situation, the damage is caused not only to the environment, but also to the health of many people. After all, this even led to a change in economic approaches.

Nowadays, there is a clear downward trend in waste volumes. The most developed countries strive to recycle all the waste that is only possible to recycle. Recycling, which literally means "the second cycle", is the process of converting waste into new materials or objects. There is a transition from overconsumption and new production to reuse and recycling. In other words, the system of consumption and the functioning of the economy is changing, the world is moving to the circular economy.

The principle of a traditional economy is "Take, make, waste", and the circular one is guided by the so-called concept of 3R – "Reduce, reuse, recycle". In particular, waste-free technologies are being introduced. Actually, that is what most people consider as a garbage, in fact, is secondary raw materials, the vast majority of which can be redone and converted into a new item.

Nowadays, recycling is considered not only as a way to save the virgin raw resources, it also supports economy. Recent reports and investigations outline that recycling: enables manufactures to be more cost-effective providing them with feedstock; creates new jobs; reduces the costs on garbage disposal and reduces energy consumption (New Jersey WasteWise Business Network, 2015). Furthermore, it has a great potential. Current researches reveale that recycling can bring a threefold increases in revenue per ton as landfill disposal and almost six-fold increases in employment by creating new positions. For instance, an EPA study found that every 10,000 tons of materials recycled supports nearly 16 jobs and $760,000 in wages (United States Environmental Protection Agency, 2018).

Analyzing the world's most successful examples of smart waste management, one cannot fail to mention Sweden and its success in resolving this issue. This country is leading in the practical implementation of waste-to-energy technology.

About 2.5 million tonnes of waste is burned annually to generate electricity or heat. There is a plenty amount of "waste" power plants and refineries in the country. They provide energy to about one million families. For example, a city like Malmo takes up 60% of its energy from waste. 99% of the country's garbage is used either as fuel for power plants or as raw material for production (Espreso.tv, 2018).

Sweden is so successful in recycling its own garbage that it lacks it. Therefore, they started importing it from abroad. The country imports garbage from Norway, Britain, Germany and other countries. In this case, the Swedes do not buy this waste: on the contrary, other countries pay them for the use of their waste (Hinde, 2019).

Overall, to live in the better world we should understand how important it is today to ensure the circulation of waste: not to throw waste away from your eyes, but to recycle and reuse it. This understanding is important both: for economics and ecology.

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PROBLEMS OF PROTECTION OF INTELLECTUAL PROPERTY RIGHTS IN UKRAINE

Putiy Karyna
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nowadays in Ukraine there is a significant development of science, in particular mathematics, computer science, automation, etc. Undoubtedly, this is the reason for the increasing number of inventions and utility models. It is clear that each of these inventions must be protected at the legislative level. It should be noted that Ukraine is at a stage of development now, and therefore it is too early to speak about full perfection of legislation in the field of protection of intellectual property rights. Therefore, we can speak about certain problems and gaps in the legislation of Ukraine in this field.

The main task is to identify problems and gaps in the Ukrainian legislation in the field of protection of intellectual property rights.

In our days, one of the most widespread problems is that young inventors are unaware of the protection mechanisms and procedures for protecting ownership of inventions. Another equally important problem is that the legislation of Ukraine still does not meet international standards in this field. It should be noted that at the international level, Ukraine is accused of low standards of intellectual property protection precisely because of the lack of clear and complete legislation regulating relations in this field and which can be a guarantee for inventors (Orlyuk, 2011). Lastly, it is important to mention the imperfection of the judicial system in the consideration of intellectual property cases, the lack of qualified judges with in-depth knowledge in this field, and the dynamics in the legislation, which also that have a negative effect on the level of protection of intellectual property rights in our country (Matviychuk, Pilipenko, & Ustimenko, 2014).

Most European countries have introduced specific legislation in the field of protection of intellectual property rights, which acts as a branch of civil law or as a separate area of law. The introduction of security documents, which are aimed at protecting both the inventors 'and end-users' rights, is becoming more widespread. Considering the practice of the countries of the European Union, in my opinion, Ukraine should take this experience with its further introduction into the system of national legislation (Ennan, 2012).

Thus, today there are quite a number of problems in the field of legal regulation of relations in the field of intellectual property in Ukraine. Moreover, the legislation of Ukraine in this field not only meets international standards, but also contradicts the civil law of Ukraine. So, this factor is a negative "anchor" that does not allow the institute of intellectual property rights to develop in our country.

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MOTIVATIONS OF PRIMARY SCHOOL PUPILS IN STUDYING ENGLISH

Rozderii Ilona
Phylology department,
T.H. Shevchenko National University "Chernihiv Colehium"

English is gaining in popularity every year, and the question is how do you want your child to learn a foreign language? The problem of pupils' motivation in learning a foreign language in lessons and in extracurricular work remains to be explored. The effectiveness of foreign language teacher's educational work depends to a great extent on the knowledge and consideration of the age-specific psychological characteristics of pupils.

Just like studying any subject, the child needs motivation, because without encouragement we will not get the desired result. The teacher should make the children themselves want to learn a foreign language, that is, to open a new world for them. The main thing is not to lose the motivation, which usually arises in the students at the beginning of studying the subject. The foreign language lesson should be such that children do not feel the passage of time.

Motivation is possible if the educational process has the following characteristics:

a) new information – the strongest motivation arises in children when information is new to them and they did not know anything about that before;

c) autonomy – to enable pupils to act independently;

d) taking into account age-specific psychological characteristics – positive motivation in schoolchildren can be created through competitions. From my own experience, I can say that motivation is one of the key points in learning a language or any other subject. The teacher is obliged, at least, not to deprive the student of his desire to study. For example, children have a desire to learn a foreign language, but they are unable to do so. They note that their peers are the best in the field, and because of this they give up. In such cases a teacher is needed to support and motivate.

Here are some tips to help your teacher create a sense of accomplishment in children and thus motivate them to learn the subject.

First, you can never make fun of pupils. Apparently, everyone remembers how the whole class humiliated a classmate when something went wrong. It happened mostly at the board, when the child is confused and does not know what to do. The calm reaction of a teacher is extremely important in such cases.

Secondly, it is necessary to involve the whole class to the work, and not 2-3 students who have understood the material, because the main task of the teacher is to teach everyone. Even the most complex English grammar forms can be presented in such a way that children have a certain association with it.

Next tip: you should always think what you say, because children often misunderstand the teacher's words. For example, when a teacher tells a student that you are falling behind the class (keeping in mind that you should spend more time studying the subject), he often interprets it as being the worst, and he does not need to learn a foreign language at all.

Therefore, motivation plays a crucial role in learning a foreign language. In addition, the main purpose of a teacher is to motivate pupils not only to study the subject, but also to know the joy of opening a new world.

GENERAL SEMANTICS: SANITY OF HUMANITY
Rudytsia Yehor

Faculty of Informatics and Computer Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

General semantics studies human reactions and attitudes towards the environment. It represents the way of emotional therapy, which consists of theoretical and empirical (practical) approaches. General semantics (GS) learn the language that we use. GS does not tell us about any certain language, like English or Ukrainian, but the structural components of the linguistic system that we use attempting to represent our feelings verbally.

The general semantics was introduced at the beginning of the 20th century by the scientist Alfred Korzybski, who stated (1933) that "General Semanticists are obliged to evaluate, to analyze, criticize the products of "science" at a given date" (p. 20).

Modern language system in GS is called an "A-system", because of Aristotle, who had excellent analytical abilities, and using the Greek language he systematized the methods of statements, which he labeled logic. Primitive structural metaphysics was the philosophical rationale for Aristotle's system. This language as a system is transmitted from generation to generation.

The major problem of this A-system is that our everyday language is a subject of interpretation. Because of the A-system our attempts to communicate do not reach an understanding. That is why we do not talk to people, but we talk "on" people.

The response of the nervous system to certain events in the GS is called the Semantic Reaction, in other words, it symbolizes a person's psychological response to certain events that he abstracted into his nervous system.

There are many areas of research in GS. Some of them study the responds of our nervous system, others study the systematization of statements.

The main studying areas in GS are:

1. Mechanism of "Time-binding".

"Time-binding" is one of the most important aspects for understanding in General Semantics. This section is based on the fact that people can accumulate the experience of past generations, not living their lives, but having those achievements that humanity has already reached. Global research in this area was carried out by a scientist L. Strate (2011), who released a book about "Time-binding".

2. Abstracting in the nervous system.

Before talking about the theory of abstracting in the nervous system, it is important to introduce the term called "identification". In GS the Identification means equality between two different objects, feelings, memories, or semantic reactions.

We live in a complicated, constantly changing world, so the equality of two objects, feelings, memories, or even semantic reactions is impossible, because our experience is changing constantly.

Any information (feelings) about objects outside of our skin that we feel, perceived with our sensors enters the nervous system and abstracts as well as accepts a certain semantic attitude depending on the person's experience. The feelings perceived with our sensors are called "low"-level abstraction. The abstracted information about objects outside our skin are called "high"-level abstractions.

Active research in this area took place at the beginning of the last century, which was facilitated by such scientists as I. P. Pavlov (1928), C. Judson Herrick (1928).

3. Abstracting with the Structural Differential.

In the Structural Differential we have 3 levels:

a) "Event"-level, means the submicroscopic process with an infinite number of characteristics.

b) "Object"-level, means the object that human can sense, in other words, the object that our nervous system has abstracted from the "Event"-level. "Object"-level has a numerous but finite number of characteristics.

c) "Label"-level, or description-level, means the description of a unique situation (object) that we have abstracted in our nervous system.

The Structural Differential was introduced by Alfred Korzybski in 1925.

4. Multi-order terms.

This section of general semantics explores terms that can take on a different level of abstraction (depending on context).

Such words do not represent any information without the given context. Examples of such words: true, false, love, hatred, difference, structure, reality, cause, meaning etc.

Multi-order mean, for example, that we can feel "hatred" about "hatred", or we can do "false" statement about "true" statement.

5. Higher-order abstractions.

Higher-order means, that if we have a statement-description about some object (first-level abstraction), we can do another statement about previous statement (second-level abstraction).

We can continue to create the abstractions of "higher" level indefinitely. And that is the important point of science and of the Time binding mechanism as such.

Alfred Korzybski in his studies relied on mathematical models introduced by scientists B. Russel and A. Whitehead in their fundamental work named "Principia mathematica" (first publication: 1910) to study higher-order abstractions. And scientists still use those mathematical models in their inquiries. The ability to increase the level of abstraction is where we get the understanding of difference between people and animals. For an animal, an ordinary-object is all that an animal knows about it. A person can accumulate knowledge and share it with others.

Today we live in a synthetic world, because we are surrounded by advertising and propaganda. As GS provides a methodology for studying the structure of language, knowledge in this field can prevent many unnecessary sufferings and semantic shocks.

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THE BEST AGE TO LEARN TO DRIVE

Sargsyan Katerina
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

This may seem like a simple question but there is an unexpected difference between legislative requirements in different countries and a large number of differences at the national level.

The New Zealand government decided to raise the legal age to sixteen, proposing to increase it and force it to 17 in the future. The changes could be due to the fact that the death toll was 60 percent higher than in neighboring Australia. Unfortunately, changes in legislation did not go very well in rural areas, where there is almost no public transport and parents are forced to chase children when they want to go somewhere.

According to statistics, the largest number of accidents will be in the first year of the driver's work. Scientists claim that it does not matter whether the first year is fifteen, sixteen or seventeen. However, a lot of research has been done in the United States and the results show that age is a major change.

Studies have shown that there is a part of the brain that helps control impulsive behavior and warns us of imminent danger. Interestingly, there is evidence that for many years they are between the ages of sixteen and eighteen and therefore a new driver at the age of seventeen or eighteen years will be safer than a new starter at the age of sixteen, teens can sometimes be more careless and reckless and their fast-paced character can sometimes reinforce them when they fasten their seat belts and drive. The statistics are scary, but understandable. 16-year-old drivers are more dangerous than any other teenage driver.

One interesting conclusion is that accidents accompany a teenage driver more often than when he or she drives alone. If there are two or more passengers, the risk of fatal accidents for drivers aged 16 to 19 is more than five times higher than alone. Maybe it's just because they are distracted by the presence of other people in the car, or maybe this is because teens are more likely to take risks and violate speed limits when traveling with their friends, as they want to show off and drive fast.

Whatever the reason, the discovery has led to the introduction of a system in many states, known as "phased licensing rules," when sixteen-year-olds are not allowed to transport other teenage passengers, ride at night, or travel alone until they drive certain number of passengers.

In the UK, where you need seventeen years to get a temporary driver's license, parents believe that this helps lower the standard among young drivers. Traditionally, British parents usually took their children to practical driving lessons and these practical exercises will help young drivers gain confidence and experience. The British Driving Standards Agency suggests that students have forty-five hours of professional lessons, plus another twenty-two hours of private practice. However, a recent study shows that today's young motorists take an average of 29.9 hours of professional training before taking and passing an exam and 27 percent of young drivers say they did not practice with their parents at all (Official website of Ukraine "Verkhovna Rada).

As a conclusion, in many countries there is debate about what the best age is to become a driver. In general, due to terrifying statistics, there is a growing sense that age should be raised. As more and more young drivers are on the road, the debate will undoubtedly continue.

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PSYCHOLOGICAL ORIGIN OF STRESS AND ITS CONSEQUENCES
Satanovska Katherine
Faculty of Biomedical Engineering,
National Technical University of Ukraine «Igor Sicorsky Kyiv Polytechnic Institute»

The word "stress" is very common in everyday life. Everyone who uses this term invests in it some of their content and interpretation. Even Selye said that when you ask a few random people what is stress then you will probably get as many answers. The same potentially stressful influence in some cases will cause strong negative reactions, and in others - or nothing, or even something nice. We respond to stress also in different ways. For instance, someone in the moment of acute stress turns red and feels an attack of unrestrained hunger, and someone pales and loses his appetite.

The main task is to collect psychological knowledge about such a phenomenon as stress, which allows organisms to adapt to different forms of environment due to the universal complex of neurohumoral reactions.

For the first time the body's response to stress was described in 1932 by psychologist Walter Cannon, who called stress a "Fight response" or "escape". Stress is a tense state of the human body, both physically and mentally. In his seminal works

Selye considered the role of strength as crucial for the development of stress. And for such forces he gives the terms: "injury", "intoxication" or «noxious agent» (malicious agent) of any nature. Stress is not a "painful condition" at all, but a way by which the body fights unwanted actions. Sometimes stress can be beneficial because it helps to use the body's resources when needed. But excessive stress leads to exhaustion, which can cause physical and mental illness. Very often people go to the doctor complaining about physical diseases, while the real cause of their condition is stress. The most painful and dangerous is the traumatic stress that results from such life-threatening events as wars, natural disasters, car crashes, criminal violence, etc. Currently, scientists determine eustress (positive stress, which is combined with the desired effect and mobilize the body) and distress (negative stress with undesirable harmful effect). Eustress produces the activation of cognitive processes and processes of self-consciousness, understanding of reality, memory. Distress that arises in the work environment tends to spread. Psychological manifestations of adaptation syndrome by G. Selye, was named psychological stress. In addition to the term "psychological stress", terms like "emotional stress" and "psycho-emotional stress" are also used in the literature. Most often, emotional stress is understood as negative affective experiences that accompany stress and lead to adverse changes in the human body. In the future, it turned out that unexpected and strong positive changes could also cause typical stress characteristics in the human body. Consequently emotional stress means a wide range of mental phenomena, both negative and positive. According to some foreign experts, 70% of the diseases are related to emotional stress. More than a million people die every year in Europe due to stress-related cardiovascular system disorders. The main causes of these disorders are emotional tension and interpersonal conflicts in the family. These factors disrupt the function of the mechanisms of homeostasis. In recent years, researchers at Houston Medical School (USA) received conclusive evidence that stress can cause disruption of the genetic apparatus by increasing the possibility of cancer diseases occurrence.

It is known that it is almost impossible to avoid stress in all spheres of life (family, professional, interpersonal). Stress-resistant individuals are able to deal with stress quickly and to mobilize their mental activity to the level of adaptive behavior. None-stress-resistant people are being disoriented, they panic and feel despair when face with stress. Selye offered some tips to prevent and deal with stress. Firstly, keep your focus on the bright sides of life. The best way to reduce stress is to get distracted. Secondly, remember that there is no recipe for success that is suitable for everyone. We are all different, our problems are also different. Even after a devastating defeat, it is best to deal with depressing thoughts using memories of past successes. It helps to establish faith in yourself. Each variety of achievements has its own top, strive for it and be satisfied. Do not forget to appreciate the joy of true simplicity of life.

To sum up, stress is a very common problem among people of any profession, gender and social status. Stress may cause many pathological conditions and

dangerous diseases. Therefore, researches in sphere of prevention and treatment of stress is a leading topic.

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COMMUNICATION EDUCATION
Savchenko Viktoriia, Surovets Darina
Institute of Publishing and Printing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Communication is the direct and hidden transmission of information by various methods and types of communication to the recipient or group. The main characteristic of communication is the understanding between persons of communication.
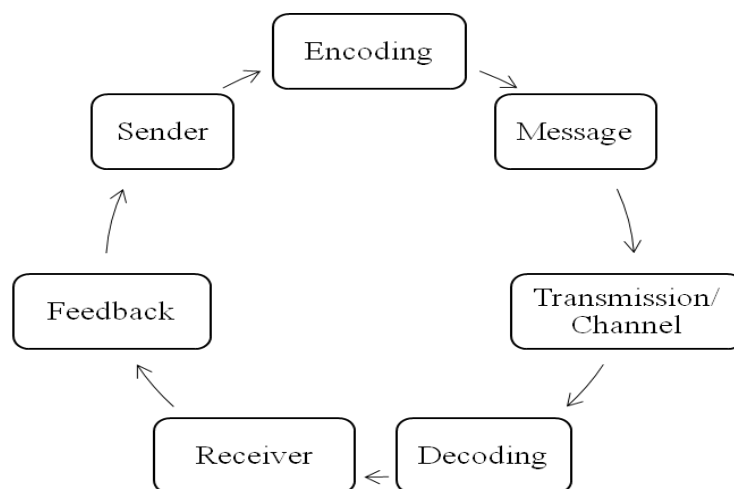
In the diagram below you can see what makes the conversation a communication.

There are two main types of communication that effects every channel of communication with the world :

- verbal;
- non-verbal/interpersonal communication;

But they have also further ramifications. That is why we can consider verbal communication from the two more sights, it is oral(face to face and distance) and written communication. Also, communication based on style and purpose can be divided into formal and informal types of communication. Oral communication use

speaking and sing language to transfer information. This is the communication which employs the spoken word, either direct or indirect as a communication channel. This verbal communication could be made on a channel that passes information in only one form i.e. sound.

Written communication happens through any word written or often written sign which refers the languages uses in any medium is called written communication. Our expression, opinion, cooperation, communication, emotions can be shown without spoken words, conversation and written languages, but with signs, colors, body language or any facial expressions. All this characteristics can be summed in one term – non-verbal communication.

Formal communication carry out in special circumstances where people should use professionalism and certain vocabulary for better understanding and clarity of conversation.

Formal conversation is a sign of rigorous surroundings. For example : office, interview, conferences, school, university, state programs etc.

Commonly informal style of communication is used in rural life. Informal communication can be used in other cases of interaction which do not carry out special circumstances and rules of communication.

```
                        Types of
                       communication
            ┌──────────────┴──────────────┐
      Based on                        Based on style
    communication                     and purpose
      channels                    ┌────────┴────────┐
   ┌──────┴──────┐             Informal          Formal
 Non-verbal    Verbal
                  │
                  ├──── Written
                  │
                  │                      ┌── Face-to-face
                  └──── Oral ────────────┤
                                         └── Distance
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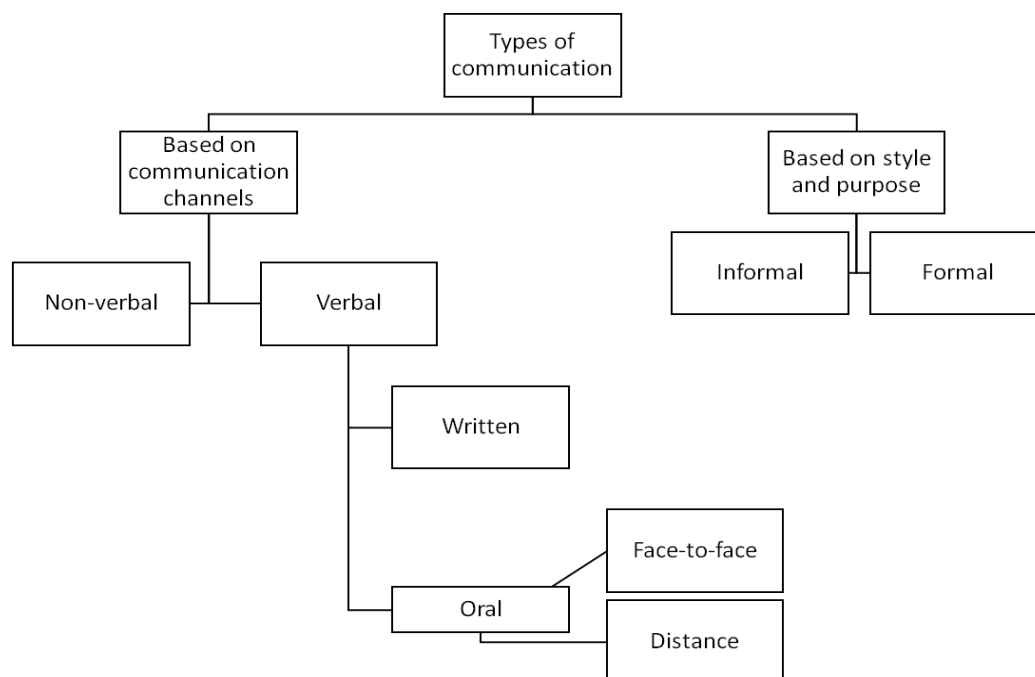
Every day we face with communication. Especially in working time. Nearly every profession needs communication. No matter whether you are working in your office or making interviews on the streets having good communication skill is essential.

The least but not the last is communication skills:

1. absorbing, sharing ;

2. understanding information;
3. respecting each others;
4. using revenant knowledge;
5. great listening skills;
6. negotation skills.

There are some main points of profession communication:

1. Oral communication or spoken (it is the process of communication in which you verbally convey the information, ideas etc.)
2. Written communication (it is the process of communication in which you coney the information writing on paper or e-mail)
3. Non-verbal communication (it is the process of communication when we use information that can be seen).

What is communication studies?It is a simple study of how to communicate. It is a process in which we get to know about world and society.

STUDY INTERESTING SUBJECT	PURSUE EXITING CAREERS	DEVELOP NEW SKILLS
• Communication theory • Language and Human conduct • Social Process • Rhetorical Theory • Persuasion	• Market reserch Analyst • Public Relations Manager • Advertising Manager • Marketing Director • Communications Director	• Perceptiveness • Active Listening • Reading and Writing • Speaking • Problem Solving

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IMPORTANCE OF INLUENCER MARKETING FOR BRANDS

Shakhraiuk Vladyslav
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Today humanity cannot imagine life without social media. We spend our time on Facebook, Instagram, Twitter, YouTube and other applications consuming different types of content. According to research conducted by Glovalwebindex, it takes on average 2 hours and 22 minutes every day. And that is the reason why marketers have started to use these platforms to promote their products.

Nowadays social media are oversaturated with advertisements and brands should find the solution how to attract more clients despite this oversaturation. This is a reason why marketers use brand influencers. Brand influencer is a famous person who has same ideals and motivations as a brand and has required targeted audience for company. Foreign enterprises started to use them 10 years ago but it gains popularity a few years ago because of growth of Instagram. For example, according to research of NeoReach, this social medium brought together 300 million users on December 2014, now a number of users exceeds 1 billion. If we talk about quantity of advertising posts, it has grown from 1,1 million in 2016 to 4,4 million in 2019 but average earned media value has declined from 7,65$ per 1$ spent on influencer in 2017 to 5,20$ per 1$ spent in 2019.

Influencer marketing is not targeted advertisement for a few reasons. Firstly, for influenced marketing companies use stars or bloggers with more than 10 thousand of followers, depending on a product. It should be these category of blogger/stars where through fans want to be similar to them and as consequence followers will buy clothes/accessories/gadgets which influencer has. For example, Russian office of Reebok signed a contract with rapper Oxxxymiron because they want to promote their clothes to youth that support urban culture or in USA marketers of Lyft (carsharing app) partnered with thousands stars as Snoop Dog (33 million followers) or not very famous artist like Maggie Baugh (90 thousand followers but with high engagement). This decision has reached all social classes and as consequence, Lyft became most mentioned brand in 2018. Secondly, in total, price of campaign with influencer could be lower that big quantity of targeted advertisement. Thirdly, with good influencer brands increase their brand image.

At first sight, it could seem very expensive method but it is good value for money. According to research, if we make a campaign focused on engagement, we will see, on average, an increase of ROI (Return on Investment) in 8 times. It means for 1$ of investment we are going to receive 8$ of revenues.

In conclusion, influencer marketing is important charge for brands because of two aspects – efficiency and profitability. In addition, this type of marketing allows differentiating between competitors and taking away their parts of market share due to correctly selected influencer that create competitive advantages.

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ONLINE COURSES AS A NEW WAY OF EDUCATION

Shevchenko Ilya
Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv PolytechnicInstitute"

The modern world is full of things that make our life easier and even more efficient in some ways. As we all know the Internet is considered as the biggest and greatest technology of all times. Nowadays we can't imagine spending at least one week without the World Wide Web. Every day we surf the web, scroll through all the photos on Instagram, we listen to the podcasts, read online books and we also study online. Online courses are all over the web. You can study almost everything you want, wherever you want. The only things you need are the internet connection and your device. More and more courses appear every day and the number of universities that provide such education only increases. And we can clearly see that there is a strong connection between the Net and the online courses.

However, we were wondering if the Internet was that factor, which had given birth to the idea of education with the help of a computer. To answer this question, we should get back in 1960. Despite the fact, that the technology of online network had not been realized yet, the University of Illinois in the US created the Intranet for its students. So at the beginning of the second part of the 20th century, some learners had the opportunity to use special machines with studying purposes. There were a number of linked computer terminals where students could find the information they needed and even listen to the recorded lectures (Peterson`s.com, 2019).

9 years later in 1969, the US Department of Defense founded ARPANET, which allowed multiple computers to communicate on a single network. But the real breakthrough was done in 1990 when Tim Berners-Lee invented the "network of networks", that was called the World Wide Web (Andrews, 2019).

Since that time the online courses have been changed a lot. In 2019 there is a vast majority of courses on different subjects and with different purposes. More than half of all courses are free and available to everyone and everywhere. There are some

companies such as Khan Academy, LinkedIn Learning, MemRise, edX, which provide courses and certificates from different top universities all around the globe. But as the number of courses rises, the new questions appear. And it seems that the main one is: "How to find the interesting and the most suitable course personally for you?" I would like to give you a few tips that might be helpful in choosing the right course. Firstly, decide the subject you are really interested in or which you want to discover more. Secondly, decide when exactly you will do this course, in other words, choose a few free hours a week, which you are ready to spend on studying. The last one, don't be afraid of quitting the course, it`s normal if the subject you thought you would be interested in, became boring and useless. Nevertheless, don't give up and find the next one and try again.

A lot of money and work are invested in online courses, even though the quitting problem is still alive and as the statistic shows, about 93% of the students quit their courses. What obstacles appear in the learners' ways and how to avoid them on their own path of online education?

There are some main reasons that make student quit: the course is too boring; it is not clearly structured; the course is too theoretical; in the most of the cases the online courses are not compulsory (Tauber, 2019). So what is the right way of studying online to finish a full course? Use all those tips which were given above to select the right course and here are a few more:

- Before enrolling the course read its description, comments and search the information about this subject on the Internet to understand what it is really about;

- Don't be afraid of hard work. Although the online courses are not compulsory, they teach you as well as the university teachers do;

- Try to enroll in the courses that were created by the top education companies and top universities to study modern information and use all the privileges that are allowed to use;

- Enroll in a program that teaches both what you need to know and how to use that knowledge in a real life (Birnir, 2019).

Taking everything into consideration we can come to the conclusion that online courses will give you the opportunity to expand your knowledge and to become a more educated person.

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PROBLEMS OF SOCIAL ADAPTATION OF PEOPLE WITH DISABILITY

Shevtsova Anastasia
Faculty of Biomedical Engineering,
National Technical University of Ukraine"Igor Sikorsky Kyiv Polytechnic Institute"

Walking, vision, hearing, speaking – it is the base vital set of necessities for everybody. Legs, hands, eyes, ears – it are a tools for embodiment of these necessities. After losing one of the body parts, the person becomes disabled. For today, the problem of inconvenience in the public places in the cities and villages for the people with disabilities is relevant and painful. Absence of comfortable infrastructure makes impossible safe life of people with disability in Ukraine. Unfortunately, the number of handicapped people grows up with every day. Government tries to create comfort terms for life, but in most cases this actions is unadvised and bring new problem. For example, installing high ramps that does not meet of the wheelchair makes it impossible for people with disabilities to move around the city.

The main tool for improving people`s life with disabilities is creating committee of human rights protection. Primary objective of this committee is providing comfortable environment, monitoring of social work with social adaptations, which includes adapt an external environment for persons with disabilities.

There are a few projects in Ukraine, which allow people with limit possibilities to feel themselves comfortably and safely. For instance, «Open4U»- the socialization and communicational program for people with disabilities; «Roby-Dobro» - implementation of vocational guidance, realizes the opportunities of professional orientation and practical training, and also assists social adaptation and improvement of socially-household skills aims to improve quality of life for people with the special necessities.

In any case, we can notice upheavals and changes in this sphere. However, it is not enough for convenient and pleasant existence of handicapped people.

To sum up, I want to say that on the way to improving the level of life, not only for people with limit possibilities, but of people in general, must be considered important things: their needs, capacity and adaptation to the environment that surrounds them.

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GENDER INEQUALITY

Shmorlivska Anastasiia, Brek Anastasiia
Faculty Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

What is `gender rights`? Gender is a category that reflects social gender, socially conditioned construction based on biological differences between men and women. Gender equality - equal human rights between men and women in labor, family and another legal relations, as well as the equal role in society in general, overcoming sexism and other forms of discrimination.

There are some aspects of gender inequality
1. Whether there should exist a man and a woman for each other;
2. What responsibilities and rights they have;
3. Whether moral and spiritual guidelines are always adhered to in life;
4. Who owns it family guidance; whether marital relationships remain strong.

Also, Gender discrimination is an integral part of gender inequality. Although gender equality is enshrined in Ukraine legally, gender inequality is still relevant and the questions remain: why is gender differentiation occurring and what underlies it?

Traditionally, there are two forms of discrimination: inequality, which is in legislation, and informal inequality, rooted in social traditions, customs and beliefs.

The problem of creation marriage. The main reason of misunderstanding between men and women are objects of a built-family nature. According to statistics, 70% of families are broken down, despite this, only 30% young people want to create the family.

The situation in Ukraine. Analyzing the situation in Ukraine, it can be argued that the problem of gender equality is practically present all areas. In May 2015, a survey was conducted among Ukrainian students (total number of participants 260) regarding gender inequalities and gender stereotypes. According to statistics,

it can be concluded that the majority of respondents support gender stereotypes and gender inequality, as well as

consider the ideal image of a woman who does not meet the conditions and mechanisms of the modern society.

Gender rights after Euromaidan. Gender rights of women become bigger since 2013. Because Ukraine changes every day. Country is reforming, trying to become a really democratic state, with a developed society, clear rules and effective mechanisms for ensuring justice. A lot of organizations have many projects about

rights of women. All of them will be realized in 2020. But, it is still a problem that needs to be addressed.

According to Radio Svoboda there are the most common violations of women's rights in Ukraine:

1. Domestic violence – is one of the worst human rights abuses. Unfortunately, 90% of the victims of violence are women and about 600 of them die in a year. Gender stereotypes have a significant impact on violence

2. Low pay – Uktainian earn 28% less than men, according to the National Statistics.Iin addition, women still have to work at home, clean, cook and care for children, and this hard work is not paid.

3. Gender stereotypes – it is the main reason of domestic violence. «Woman only for cooking and child caring». We live in stereotypes, they are everywhere in advertising, talk shows, politics and our everyday life.

4. Also, women occupy a very small part in management

To sum up, we can say that in Ukraine, as in the whole world, there is discrimination against both men and women. Equality between women and men should become a reality in a new democratic Ukraine, which plans to join the European community. Factors that prevent women from achieving equality in society need to be identified and measures taken to reduce and prevent gender discrimination.

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ECO-FRIENDLY – BRAND OR VITAL NEED

Sybyrka Yelyzaveta
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nowadays, scientists disturb very important thing – ecology. All energy and resources of world go for solve the problem of nature and help to our Earth. The biggest problem that not everyone wants to change himself and his attitude to the environment.

Therefore, I want to tell you, how all of you can easily help and become eco-friendly without stresses.

First, every season, you buy many clothes and every day you want to be different. Nevertheless, you never think about, where these clothes will go after you. All things that you throw out are impossible to recycle, because cotton or textile organizations cannot use again and solve it as a new. However, famous brands find ideas how they can change this trend. For example, the worldwide Levi Strauss & Co invented way out of the situation.

The clothes they collect will be transformed into things like toys, materials for buildings. Moreover, it is that last thing — transforming old jeans into new ones — that is a great opportunity to help ecology. They began to use a circular economy (Weardonaterecycle, 2019).

A circular economy is an approach based on the secondary processing of practically any commodity. By development and further introduction of innovative business models, it will be possible to guarantee that technical and biological materials will continue to "participate" actively in an economy, but valuable supplies and natural resources will be stored (The Waste and Resources Action Programme, 2019).

Levis has come up with how they can introduce this economy in their polit. They understand that they can recycle and repair a pair of jeans and have a sidetrack (Weardonaterecycle, 2019). Every shop of company accepts old clothes and shoe of any brand, which a company after processes jointly with the partner I: co. The collected things grow into an insulant for buildings and new fibers for clothes. To 2020 Levi's hopes to put right processing of the old jeans in new. As a result, people will be interested in this, because it will be cheaper than buy a new pair of jeans and it will be out of famous brand.

Timberland and producer/distributor of tires Omni United, to produce the line of tires which can be regenerate in a sole for a shoe by the end of term of their service. Shoe and bus industries are the largest users of untilled rubber. Such tandem guarantees therefore, that will be burned out on an order less than tires or will appear on a dump. That is it works: the threadbare tires of Timberland Tires return salespeople, when users found them replacement. Exhaust overlays leave on a factory, where from them do a rubber crumb, whereupon convert into sheet rubber and send Timberland. The there got raw material is mixed up with composition for a sole. Therefore, we can have a qualitative pair for all season (United States Environmental Protection Agency, 2019).

Consequently, all popular brands have to promote eco-friendly concept and create conditions, where people will want to influence the nature positively. I am convinced, we all should start with ourselves.

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PRINCIPLES AND PRACTICAL APPLICATION OF THE THEORY OF BROKEN WINDOWS

Sokhatska Sofiia

Faculty of Applied Mathematics ,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The Broken Windows Theory - is a criminological theory originally coined in 1982. It was George Kelling and James Wilson who presented the first publication on this theory. However, the theory most likely originates in some researchers conducted in the 1960s by psychologist from Stanford Philip Zimbardo. The gist of "Broken windows" lies in its title. Let us consider for instance a building with one broken window. A lot of people walk by, some of them looking at this view may think: "One window is already broken and no one cares. So if I broke another one, I won't be punished." And he breaks it. And then the chain reaction starts. The more windows are already broken, the more windows may be broken. And in the end, all glass in the building becomes destroyed. But this statement is not only about buildings. We may find confirmations of theory in our everyday life. Someone threw a candy wrapper past the garbage can, a pile of thrash starting to appear on the ground and transform to general street pollution. And, as in the example with windows and glass, the visible signs of offences lead to the appearance of more and more serious crimes and the general decline in living standards.

But any theory will always have critics. Broken Windows is no exception. Not wanting to accept the statement, the opponents of Kelling and Wilson repeatedly put forward counterarguments in the spirit of "We are not like that, we are different." According to their logic, there is no connection between a cigarette butt on asphalt and country crime rate. A similar demagogic boom prompted enthusiasts to conduct a series of experiments confirming that the theory works flawlessly.

The first experiment was carried out on a street with many shops, in front of the wall of the house, where people who come to the shopping park their bikes. Near this wall, there was a bright, conspicuous sign prohibiting drawing on the walls. At first, the wall was clean. The experimenters hung on the handlebars of each bicycle (there were 77 in all) a piece of paper with the words "We wish everyone happy holidays!" And the logo of a nonexistent sporting-goods store. Researchers have witnessed the actions of cyclists. There was no urn on the street, so a person could either throw a piece of paper on the ground, or hang it on another bike, or take it with

him so that it could be thrown away later. The first two options were considered as a violation of the norms, the third - as their compliance. Of the 77 cyclists, only 25 (32%) behaved uncivilized. Then the experiment was repeated, in the same weather and at the same time of the day, after preliminary painting the wall with graffiti. This time, 53 out of 77 people (69%) thrown the litter away. The revealed difference has a high degree of statistical significance. Thus, the violation of the ban on painting on the walls turned out to be a serious incentive that provokes people to violate another generally accepted rule - do not litter on the streets.

The second experiment was to determine whether the theory of broken windows is valid only for generally accepted norms or whether its effect extends to local rules established for a particular situation or place. Researchers blocked the main entrance to the car park with a fence, in which, however, a wide gap was left. Next to her was a sign "No entry, 200 meters to the right", as well as the announcement "It is forbidden to fasten bicycles to the fence". The experiment was again carried out in two versions: "the order is kept" and "the order is broken". In the first case, four bicycles stood a meter away from the fence, not fastened to it. In the second case, the same bikes were fastened to the fence. From a secluded place, the experimenters observed how the citizens who came to pick up their cars would behave: they would go around the fence or climb into a hole. The result was positive: only 27% of car owners crawled into the hole in the situation "order is kept", and 82% in the situation "order is broken".

The third experiment was carried out in an underground parking lot near a supermarket, where there was a large and well-noticeable poster "Please return the trolley taken from the store". In the situation of "order", there were no trolleys in the parking lot, and in the situation of "out of order" there were four trolleys. Researchers prudently smeared their pens with fuel oil so that visitors did not have a desire to use and return them. The same pieces of paper as in the first experiment were attached to the machines. The result was similar: in the first situation, 30% of drivers threw a piece of paper on the ground, in the second - 58%.

The fourth experiment resembled the first, with the difference that the signs of "violation of the norms by other people" were now not visual, but sound. In the Netherlands, were the experiment took place, the law allows the use of firecrackers and fireworks only in the New Year weeks. It turned out that cyclists are much more likely to throw pieces of paper on the ground if they hear the sound of exploding firecrackers.

In the fifth and sixth experiments, people were provoked to petty theft. An envelope with a transparent window protruded from the mailbox, from which a bill of 5 euros was clearly visible. The experimenters watched people passing by, counting the number of thefts. In the situation "the order was observed" the mailbox was clean and there was no garbage around. In the situation "the order is out of order" or the box was painted with meaningless graffiti (experiment 5), or rubbish was lying around (experiment 6). In the situation "the order is observed", only 13% of passers-by (out of 71) assigned the envelope. However, 27% of passers-by (from 60) stole the

envelope from the painted box, and the scattered garbage provoked 25% of the people (from 72) to steal.

The researchers concluded: according to the level of capability to violate the established rules, people can be divided into three categories:

1. Those who in any situation tend to violate social norms.
2. Those who will never cross the line of what is permitted.
3. Those who hesitate, that is, can follow a bad example but will refrain from breaking the law if order reigns around.

The third group was the largest. Hesitation is the dominant of any society. They are always in the wings. Thanks to them, there is a risk of chaos even where the perfect order is brought. An encouraging relationship has been established: if someone starts to insert glass into broken windows, there will be significantly fewer intruders. The change in the criminal situation in New York in the 80s of the last century is vivid proof of this.

The example of New York in 1990 starts the popularization of the theory of broken windows because people began to notice its effectiveness in practice. It all started with the measures that the new administration of the New York Metro resorted to. They inherited painted trains, crushed turnstiles, a mass of fare dodgers and piles of garbage. The first steps were repainted cars. Before they were covered with graffiti. The new authorities considered these arts a "symbol of the collapse" of the entire metro and declared the battle to the underground "painters". The next step towards order was the application of penalties to those who didn't want to buy a ticket. They were not just caught, but put to shame at the edge of the platform in full view of all passengers. Then the stowaways were sent under escort to the police station. As a result, those wishing to drive for free were significantly reduced. Gradually, the subway became a "paradise island" in the "total hell", as gangster New York was called at that time. Then the head of the subway was promoted and became the head of the city police. The new sheriff turned New York into one of the safest places in the USA. With the recession of the crime wave in this metropolis, the theory of broken windows lost many of its opponents.

Other studies, however, could not detect a direct link between the conduct of such a policy and a lower crime rates in this city. The decrease in crime occurred not only in New York, but also throughout the US, and even in those cities where such a policy was not applied. Among other possible causes, in addition to the fight against petty offences, the following were mentioned: a 39% reduction of the unemployment rate in New York in 1992-1999 and more intensive use of arrest of persons committing more serious crimes compared to the 1980s.

As a conclusion, I must say that the theory of broken windows is rather ambiguous and the appropriateness of its use should be checked more thoroughly, however, it is impossible to deny the fundamental principles of the theory that we see every day.

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ISLAM - A RELIGION OF TERRORISM OR PEACE?

Veselska Veronika, Solovey Svitlana
Faculty of Sociology and Law,
National technical university of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Islam is the one of the directions of human civilization the 21st century, a system of beliefs and political practice, material and spiritual culture. Islam today is one of the largest and influential world religions. Muslims make up one sixth of the world's population, and the total number of Muslims in the world has exceeded 1 billion people.

Islam is a relatively young religion that originated in the early seventh century during the intense social and political struggle, the rapid destruction of the primitive order, and the formation of an early class society in the Arabian Peninsula. At the same time, there was an intensification of the struggle between two world empires - Byzantium and Iran. It can be argued that the emergence of Islam is related both to the influence and development of monotheistic religions - Christianity and Judaism, and to the evolution of the religious consciousness of the tribes in the Arabian Peninsula. A strong impulse to change this consciousness was given by a real historical figure - the Prophet Muhammad.

At the early stage of the existence of the Muslim community, the doctrine of the five "pillars" (important points) of Muslim dogma (arkan ad-din) developed. The main "pillars" of faith in Islam are: 1) confession of faith 2) performing salah - a five-time prayer; 3) fasting (sawm) during the month of Ramadan; 4) payment of religious tax (zakat, sadak) 5) pilgrimage to the "sacred places" of Islam - Hajj. Hajj also included worship of the grave of Muhammad in Medina,and prayers in anoher historical cities. (Religion: Study Guide. 2nd ed. / Ed. Mozgovoy L.I., Buchma A.V., p. 74).

According to the predictions of religion experts, in 2070 Islam will become the most widespread religion on the planet, and religious tradition will influence Islamic countries for a long time because Islam is the religion, law, morality, lifestyle and

culture of Muslims. Presumably, in the next century society will face an increase in the already considerable power of Islam, its second wind.

However, in modern society there is a stereotype of the tendency to terrorism of people professing Islam. A significant role in shaping this stereotype was played by the media, which often portray Muslims as aggressive terrorists.

The critics of Islam believe that it destabilizes the world peace, but in fact the words "peace" and "Islam" come from one linguistic root and therefore do not contradict each other in Arabic. Each prayer of a Muslim ends with a call for peace. The word "peace" is spoken when they greet each other, and thus express the desire to live in peace. Muslims want to create a better world, preserve dignity, equality, enjoy universal brotherhood. To give an example of Surah 16, verse 90: "Verily, Allah calls for justice, good works and support for relatives. It forbids the abominable, the filthy and the wicked. And He teaches you ... " (Leshan V. Yu. Fundamentals of Religious Studies: Textbook).

In general, Islam is a socio-psychological, and often ethno-psychological, pattern that forms a certain stereotype of behavior, a stereotype of thinking even in people who practice this religion. Finally, Islam is not only a religion but also a philosophy, its own special ethics, a way of life and a whole host of household habits. Islam is not only morality, but also law - civil, criminal, state. Islam is not only a reduction of the religious duties of a Muslim, but also the concept of the supreme power and the regulation of different relations of property.

The religious laws of Islam do not allow premeditated murder. Suicide is also forbidden.Typically, people who call themselves Muslims and take part in terrorist attacks are guided not by the Koran but by the guidance of those authorities who pursue their obscene goals. Islam, like other world religions, stands in a position of peace towards all people, regardless of their religious, social, political and other identities.

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INTROVERTS AND EXTRAVERTS

Shpak Iryna

Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The fact that each person has his or her own style of life, work, relaxation is visible as soon as you enter the building. Some people are drawn to the environment and, it seems, to always be in the company of like-minded people. Others are much more effective in working in a relaxed atmosphere. At lunchtime, some people prefer to read, while others meet colleges at a cafe. The way you prefer to work,

communicate and recharge your batteries says a lot about your personality type. So we are going to find out about types of personality on an extrovert-introvert scale.

First of all let s bring to light what does "introvert" and "extrovert" mean. This typology of personality, created in the 1920s by Swiss psychologist Carl Jung. Jung believed that each individual could be characterized as primarily focused on internal or external. The energy of introverts is directed to the inner world and the energy of extroverts is directed to the outer.

According to Jung, there are no "pure" introverts or extroverts. Jung compared these two processes to the work of the heart — a rhythmic change in the cycle of contraction (introversion) and extension (extroversion). However, each individual is more inclined to one of these orientations and acts predominantly within it.

For optimum well-being, both types have different levels of external stimulus needs. Introverts feel good with less stimulation. They are comfortable when they are in the company of a close friend can leisurely savor a glass of wine or alone to solve a crossword puzzle, read a book. Instead, extroverts enjoy the extra possibilities of interacting with the world: they are eager to meet new people, ski down the mountains, dance or sing their favorite music.

However, the main question remains unclear — why does a person become an extrovert or an introvert? Do they differ at the physiological level? And why do we all belong to one of two types in one way or another?

German psychologist Hans Eysenck in the middle of the last century popularly assumed that extroverts had a constant low level of excitation. Excitation means the degree of readiness of body and mind to react to stimulation.

This figure varies for all of us throughout the day (for example, when we just woke up and after having a few glasses of water) and in different situations(doing sports in the gym increases the attention, while the monotonous voice of the lecturer in a warm audience soothes and makes you sleepy).

Hans Eysenck suggested that extroverts have a little lower initial excitation level. As a result, they need a few more effort to reach the level that is normal for other people. So extroverts are in need of the company, new impressions and unusual or risky experiences. On the contrary, people who are high-profile introverts perceive things that to others seem only pleasantly stimulating or interesting, over-stimulating. That is why they seek quiet conversations on important topics, leisure time alone and surprises without surprises.

According to the theory of free qualities, we obtain certain personality features (for instance, the propensity for introversion) either at birth or in the process of cultural development, and at the same time we can fight and fight against the true "I" in favor of "key individual projects". Therefore, introverts can pretend themselves as extroverts to get the project they consider important, for the people they love, or for all that they really appreciate.

Introverts and extroverts sometimes feel hostile to each other, but research shows that they can offer a lot to each other. Extroverts need to know that introverts (who often seem to be contemptuous of everything superficial) can feel happy if they

are drawn to some fun place; and introverts, who sometimes seem to think that their passion for discussing problems turns them into boring creatures, must understand that in this way they give people the opportunity to discuss serious topics.

However, it is important to remember of who you really are. Because one of the most important thing is your emotional comfort and there is nothing wrong with being an extrovert or an introvert. You are a unique personality, and any concept that divides people into groups carries about a description only of a small part of your multifaceted personality.

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LEARNING ENGLISH: HOW TO START AND NOT GIVE UP
Stechenko Kateryna
T.H. Shevchenko National University "Chernihiv Colehium"

Nowadays, when more and more people see themselves as citizens of the world, to know at least one foreign language is especially important. In Sweden, for example, most well-educated people can read and speak four or five foreign languages. While learning a foreign language you know more about history and culture of a nation, you broaden your horizons and train your memory. Moreover, use the opportunities provided by modern technologies of learning languages: Internet, TV, Dictaphone etc.

Many people want to learn English, but for some reason they come up with many reasons why they are not able to learn English. Some of the reasons are the lack of money or time or using the excuse "I am going to start next week" for everything. Others begin to learn English, but then they just give up after a while.

The reasons may be different. Some people lose their desire when they reach a certain point where everything seems complicated. And someone thinks that he doesn`t need English and that in general it won`t be useful in life and also stops learning English.

So then how can a person overcome laziness and start learning English? It is a really actual question for many of us.

It took me several weeks to overcome my laziness in learning English. Therefore, I have a little experience in this case. At first, I had some difficulties, but then I created my own system of learning English. There are some tips on how to do it easily:

1. The first thing you need to do is to create a schedule for yourself, according

to which you can learn English. Indicate on which days and how many minutes a day you would like to devote to classes. You can devote at least 5 minutes a day to learning English. These short classes will be also useful. And you should admit that 5 minutes of learning English could be spent by everyone. In this case, you will not get tired at all, and you will be happy to learn English in the future. Each time you will learn English language more and more and it will become more exciting. Then this process will get you completely hooked.

2. Find interesting materials in English. It can be anything: an English book, video tutorials, audio, in general, anything you like. You can also learn a list of irregular verbs, as irregular verbs are very often used in spoken English.

3. The third thing you need is to follow your schedule, bring it to automatism and then you do not have to force yourself to learn English. You will, do it freely and naturally without thinking what to learn. Like, for example, when you dress or get out of a bed in the morning.

4. Then, write a short list of phrases that motivate you to learn English. For example:

• Learn a foreign language if you want to do much better than just get by.

• If you make an investment in your learning, it will pay off immediately and for the rest of your life.

• If you become fluent in English, you will keep up with the bilingual high flyers.

5. Don`t hesitate to ask for help. If you don't understand something, you've got to ask someone. Ask your teacher, classmates or friends for help.

To sum up, if you want to learn English, just overcome your laziness. Learning a foreign language is not an easy thing. It is a long and slow process that takes a lot of time and efforts. Set your own goals and reach them.

THE INFLUENCE OF GESTURES ON OUR LIVES
Tarasenko Anastasia

Faculty of Sociology and Law,
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»

Gestures are an integral part of our lives. Every day we unconsciously commit them because they accompany our speech. Even when we lie gestures, give us away. Gestures are part of our nature.

Initially, society was born on gestures. With the help of them people exchanged information because they still did not perfectly speech. They are negotiated, exchanged experiences, transferred traditions.

Nowadays, the situation is as follows. People realize the value and importance of gestures both in everyday communication and in business: business meetings, interviews, etc. We are starting to study this branch of psychology more and more.

How gestures affect the outcome of a conversation and how to make it profitable for yourself. There are many courses and books on the study of this "art".

Also, some gestures are inherent in different types of professions due to some circumstances. There are different poses. Consider a gesture of superiority and confidence (a raised head, a chin is exposed; hands are laid behind the back, palm on palm).

For example, officers without weapons constantly take such a pose, while swaying slightly on their socks in order to visually increase their growth (Pease, 2018, p. 146).

In contrast, the armed officers did not have this habit. They were more likely to lay their hands on the belt. This emphasized their authority.

Also, politicians and public figures began to carefully think through their actions in public in order to escape from incidents. They study and think through their behavior in public and their impact on it.

For example, Princess Diana always looked from under the sun; it is not surprising that the world immediately took her side in the divorce proceedings (Allan Pease, 2018, p. 187).

A bowed head and a look of sullenness is one of the symbols of humility. This is an exclusively childish gesture that encourages parental feelings in both sexes.

As a result, we can say that through our movements our emotions and thoughts are transmitted. We put certain messages into gestures.

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THE PROBLEM OF VIOLENCE IN THE LIFE OF A CHILD.

Tsaruk Kateryna
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The problem of child abuse is very urgent all over the world. If you look at the situation in our country, it is easy to imagine what place this problem occupies in the society. Cases of violence pertaining to social services, child services are only a small part, but in most cases these situations remain hidden, unnoticed and about 90%.

Violence is an action against the will of man with the use of physical force, power, threats. According to the type of activity, there is violence against the child, which leaves an irreparable trace in her personality and destroys the psyche. Such a child is not able to become a mature man, which means he cannot take responsibility for himself, start a family, find himself. There are three main forms of violence: the first is physical violence, there is also psychological, and the third type is sexual.

Physical violence - infliction of physical injuries on the child, damage to health, disruption of development or, as a last resort, loss of life. Physical violence is associated with psychological. In some families, light strokes, cursing, humiliation is the norm for raising children. Most often, parents say they do nothing wrong, "we were raised so well and we grew up like normal people." Then the parents complain that apart from the cry and the slap, the baby doesn't understand anything! And it turns out that the adults themselves, without knowing it, broadcast to children the following: "Violence is the norm, and violent interaction between people is normal." So, they first form the position of victim or tyrant. And when a girl marries a tyrant husband, she continues to play in her childish scenario of relationships with her father, while experiencing incredible suffering.

There are families where there is no physical violence, but widespread psychological violence that "hits" sometimes more than a slap in the face. The effects of physical violence are easy to see. After all, no one can hide a broken arm, a bruise under the eye, a burn, or a swollen lip. Psychological abuse, manipulation, bad behavior, and emotional assault leave a mark on the person. Humiliation, insults, devaluation, dissatisfaction with the emotional needs of the child are the main manifestations of psychological abuse. This can be very successful and well-informed in families. Parents of teens often complain about why they do not value adults, cheat, do not understand ... Psychological abuse is devastating and shortening one's life path for one very specific reason: often close people, those you trust, and often even love, do it with you.

Another form of violence is sexual violence,in which an adult or teenager abuses a child for sexual pleasure, stimulates or uses it for sexual stimulation. Another form of violence is sexual abuse, in which an adult or teenager abuses a child for sexual pleasure, stimulates or uses it for sexual stimulation. It involves direct sexual contact between an adult or an elderly person, indecent exposure (genitals, etc.) of a child or child to satisfy their own sexual desires, intimidation or sexual abuse, solicit or coerce the child to engage in sexual activity, to show pornography or to use a child.

Violence has a special place in children left without parental care. Violence goes through their whole life, from birth, and even intrauterine. As a rule, these are children from asocial families (alcoholics, drug addicts), where violence is simply a way of life. Growing up in a dysfunctional family, the child is facing family abuse very early. For the most part, such a child is placed in an orphanage, which differs from a disadvantaged family only in that the child's basic needs for food, clothing, training, and housing are met. However, the needs for love and banal sincere parental care remain open to them. And she does it with the help of aggression, of deceit, but not with the help of love. Therefore, the main task of foster parents is to accept the child through the adoption and residence of her past.

Violence against children exists in all countries of the world and social groups, does not depend on income and ethnic origin, takes various forms, often occurs under the cover of law and the state.Child abuse is a real threat to the development of

society. After all, the abuse of children further shapes them as socially maladapted people, unable to create a full-fledged family, to be good parents, and also to be a source of violence against their own children.

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THE ROLE OF SOCIETY IN HUMAN LIFE

Tymchuk Inna
Faculty of Sociology and Law ,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute

From birth, people are surrounded by other people. What is the role society in human life? Famous philosophers and sociologists have interpreted the role of society for a person in different ways. For example, according to Plato, society is an association of people who need each other to meet their needs. Aristotle called man a "political animal" in the sense that only people are able to voluntarily unite in society. E. Durkheim regarded society as a spiritual reality based on collective ideas.

Society defines the worldview of human. Our worldview. It influences how we treat the world around us. And it helps us to find our place in it. We take this from our surroundings from childhood - from parents, teachers, from books, from our own experience or social relationships. It is also under this influence that we determine our priorities in life. Different types of society form different worldviews depending on culture, religion, traditions. That is why every person is unique. Society enables us to meet our needs. Society orients us to what we should want and to strive for in the social order. Some approve ways of achieving them, others condemn them, but their very existence has a reason for it. Society controls our behavior through the rules of morality and government. It seeks to maintain its stability, and therefore punishes those who violate these rules. Society makes us go to school, go to college, start a family, go to work to get the benefits it gives in return. These are certain guarantees and security - money, an opportunity to continue, get medical help.

And I would like to admit that society to some extent tempers us and adapts to life's realities. At the same time, it supports and gives us the confidence and strength to live fully in society. So, we can say that society is our native home, which both gives and demands. It is a complex system of rights and obligations, opportunities and limitations, incentives and penalties. It is difficult to imagine how a person would live outside society.

As a conclusion, we can say that society is our native home, which both gives and demands. It is a complex system of rights and obligations, opportunities and limitations, incentives and penalties. It is difficult to imagine how a person would

live outside society. We are able to adapt to the conditions of life in society and can change them radically. So let's go because we make history every moment.

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'GENERATION Z' MOTIVATION IN COMMUNICATIVE COMPETENCE FORMATION

Tymoshenko Danylo
Phylology department,
T.H. Shevchenko National University "Chernihiv Colehium"

Nowadays, there are many problems, which scientists have been solving for a long period of time and push their limits in order to reach a decision. Also, there is a huge need in innovative ideas which can change the approach to teaching pupils. These approaches will help them in their self-development and reach their goals, aims, dreams in a certain sphere of occupation, life. They will help to come up with the new conception of teaching pupils and can help them even make their own contribution in the development of science which can lead us to better and lighter life. Moreover, it helps find themselves in life and their sphere of occupation which is essential in our life.

We have chosen the problem of motivation for pupils who are in the seventh and eighth grade. From our point of view, motivation is a crucial component in order to reach goals, aims, dreams, social development, to become a person in the society and make own life path to success. Motivation is a vital part in the sphere of occupation, life of a person, which can help in their achievements that will help to be proud of themselves and be happy of what they are doing in life.

Firstly, we would like to state the meaning of the word 'motivation'. It is of Latin origin and means 'movement'.

Motivation is a strong desire in the activities of people, which can help the person to achieve desirable aims, goals, and dreams. If we mention motivation in scientific sphere, so it can direct the person help our society to develop and make a contribution in the history of our country or even the world. It helps people to be happy with their achievements in life and do their best in order to make their intellectual and cultural horizons wider.

Secondly, we think that the formation of speech competence is the crucial component in the English language. We would like to state the meaning of the word

of competence. Competence is an efficient and knowledgeable person in the certain sphere of occupation.

In our days, we have to mention that there are a lot of pupils who have not decided what they would do for a living and what subject they could connect with their life. So, we consider that one way of dealing with it creates the open class for pupils in the seventh and eighth grade. The aim of this class will be explaining why the English language is so important nowadays. The topic of this lesson may be "Why the English language is so important and how it will help us in our modern life?". The teacher must explain the topic in an appropriate way and ask pupils some questions about their impressions, opinions in the end of the open class. Consequently, pupils may change their point of view and have an interest in trying to gain knowledge of subject for their aims after this open class. We would like to mention that the English language is difficult and require a lot efforts to gain it in the right way. The teacher aim directs interests of pupils in the right way and do their best in order to help them.

Furthermore, we think that it will be a good idea if the teacher creates the test in which he should write the questions with open answers for pupils. The test must include questions which will help the teacher to find out interest of them. Then, the teacher must analyse all tests of pupils and come up with approaches to each pupil in the class.

Moreover, the teacher should demonstrate how the English language will help them to deal with their intentions in form of the game or individual work with pupils in the next lessons. As a rule, there a lot different units in books of pupils where they can find interesting information for their interests, hobbies. But If they do not find units for their interests, the teacher can provide all the necessary information from own sources of information.

We live in the digital world where people have a lot of opportunities to consume information and find it with a little efforts. In our contemporary life, children use their gadgets in a day-to-day basis. There is a statement of children who were born in period of technological breakthrough .These children who were born in a period between the second part of nineteenth and the second part of twentieth years are called "the generation Z" also known as "Generation M, Net generation, Internet generation. So, we think that the teacher can find some interesting information or offer different kinds of games which they can download to their gadgets, videos on Youtube which can help them to develop the interest and motivation in pupils for speaking and learning the English language. Teachers can organise the web-conferences with students abroad and pupils can try their efforts with them. It will provide the great opportunity for them in order to gain the experience of speaking with native speakers. Also, they can come up with some exercises which are include dialogues or It can be a topic which pupils should discuss in pairs and make their own opinions about it.

To sum up, we believe that these ways will help pupils to form the motivation and gain the speaking competence in the English language that will help them in their life.

HUMANISTIC PSYHOLOGY
Velichko Alina
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Humanistic psychology is a direction in psychology whose subject matter is a holistic person in his highest manifestations specific to a person, including the development and self-actualization of a person, his highest values and meanings, love, creativity, freedom, responsibility , autonomy, experiencing the world, mental health, "deep interpersonal communication".

Humanistic psychology was formed as a psychological trend in the early 1960s, and contrasted on the one hand with behavioralism, which was criticized for the mechanistic approach of human psychology by analogy with animal psychology to regard human behavior as completely dependent on external stimuli, and on on the other hand, psychoanalysis is criticized for the idea of one's mental life that is completely determined by unconscious drives and complexes. Humanities representatives try to develop a completely new, fundamentally different method to know a person as a unique subject of study.

The main methodological principles and determinations for humanistic tendency are as follows:

- a person is holistic and must be studied in its entirety;
- each person is unique, which is why the analysis of individual cases is no less justified than statistical generalizations;
- a person is open to the world, someone's experience of the world and himself in the world is the most important psychological reality;
- human life must be seen as a single process of formation and man;
- a person has the potential for continuous development and self-realization, which is part of his nature;
- a person has a certain degree of freedom from external determination because of the meanings and values that he guides in his choice;
- man is an active, intentional, creative being. The most important representatives of this area are

A. Maslow, W. Frankl, S. Buhler, R May, F. Barron and others.

A. Maslow is known as one of the founders of the humanistic tendency in psychology. The most famous for him was his hierarchical motivation model. According to this concept, a person is shown sequentially from birth and guides his growing seven needs classes:

1) physiological (organic) needs, such as hunger, thirst, sexual desire, etc.;

2) security needs - the need to feel protected, to get rid of fear and failure through aggressiveness;

3) the need to belong and to love - the need to belong to a community, to be close to people, to be recognized and accepted by them;

4) the need for respect - the need for success, approval, recognition, credibility;

5) cognitive needs - the need to know, to understand, to explore;

6) aesthetic needs - the need for harmony, symmetry, order, beauty;

7) the need for self-actualization - the need to realize their goals, possibilities, the development of myself.

According to A. Maslow, this motivational pyramid is based on physiological needs and its higher needs, such as aesthetics and the need for self-actualization, the highlight. He also believed that the needs at the higher levels can only be met if the needs for the lower levels are first met.

V. Frankl believed that the main driver of personality development is the pursuit of meaning, the absence of which gives rise to an "existential vacuum" and can lead to the saddest consequences, including suicide.

Humanistic psychology is a direction in Western (mainly American) psychology that recognizes personality as the main subject, as a unique integrated system that is not given in advance, but an "open possibility" of self-actualization that is only related to man. In humanistic psychology, the main objectives of analysis are: higher values, self-actualization of personality, creativity, love, freedom, responsibility, autonomy, mental health, interpersonal communication.

As a philosophical basis, humanistic psychology is based on existentialism. The Manifesto for Humanistic Psychology was a book published by R. May, "Existential Psychology" - a collection of articles presented at a symposium in Cincinnati in September 1959 as part of the annual conference of the American Psychological Association.

Various areas of psychotherapy and humanistic pedagogy have been built based on humanistic psychology. The healing factors in the work of the humanistic psychologist and psychotherapist are in the first place the unconditional acceptance of the client, support, empathy, awareness of internal experiences, stimulation of choice and decision-making, authenticity. However, humanistic psychotherapy with apparent simplicity is based on a serious phenomenological philosophical basis and uses an extremely wide range of therapeutic technologies and methods. One of the basic beliefs of humanist-oriented specialists is that every person has the potential for improvement. In the presence of certain circumstances, a person can use this potential independently and fully. Therefore, the work of a humanistic psychologist is primarily aimed at creating favorable conditions for the reintegration of personality in the process of therapeutic encounters.

Humanistic or Existential Humanistic something, the direction in psychology was developed by C. Rogers! "F. Perls, W. Frankl.

Their most important methodological position is that human destiny is to live and to act, to define the fate, the concentration of control and decisions lie with the person himself and not with his environment.

The basic concepts in which this direction of psychology analyzes human life are the idea of human existence, decision making or choice, and the corresponding action that eases fear; The concept of intentionality is an opportunity that states that a person who acts in the world must be clearly aware of the influence of the world on him.

The task of the client and psychologist is to fully understand the client's world and to support him in making a responsible decision.

The revolution, which in practical psychology is associated with the work of C. Roger, consists of the fact that he began to emphasize the person's responsibility for his actions and decisions. The core of this is the belief that every person has an initial desire for maximum social self-actualization.

The psychologist maintains the mental state of health of the client, allowing the person to come into contact with his inner world. The basic concept with which psychologists work in this area is the attitude of a certain client. Working with the client's world requires the attention and listening skills of a high-quality psychologist and empathy. The psychologist must be able to work with the contradiction of the real and ideal image of the 'I' of the client and establish a relationship with the client. In this process, the psychologist must seek congruence with the client during the conversation.

The methodological positions of humanistic psychology are formulated in the following premises:

1. Man is whole.
2. Not only general but individual cases are valuable.
3. The most important psychological reality is human experience.
4. Human life is a simple process.
5. A person is open to self-realization.
6. People are not only determined by external situations.

Based on humanistic psychology, various areas of psychotherapy and humanistic pedagogy have been built.

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LEGAL REGULATIONS OF THE URGENT PROBLEM IN UKRAINE
Velychko Diana
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Modern society lives so busy and fleeting life that not everybody is concerned about global problems of our Earth. But not thinking about anything doesn't mean non-existence this issue. It's not surprising that there are a lot of questions in the modern world which should be solved immediately to avoid the world catastrophe.

One of these questions is an ecology problem. If we look around us, we'll realize that everything especially water, air, soils are so polluted. Furthermore, deforestation, global warming effect, smoke and also exhaust every day, every hour, every minute, every second are approaching the humanity to disaster more and more. Moreover, we should remember that not only humanity suffers because of this issues, animal world as well as plant world are suffering more and more.

Environmental problems are one of the main reason of increment of deadly diseases in the world and also in Ukraine. Doctors say that such diseases as cancer, tuberculosis, anemia, weak immunity is a result of a sharp deterioration of the environment. People who put irresponsibile to ecology, put irresponsibile to his or her health in general.

Unlike Ukraine, environmental problems is a top priority for EU countries since there is environmental pollution cause the increasing of mortality. Foundation of environmental policy in economically developed countries is maximum security compliance with environmental standards at all stages of the activity of environmental users. European countries are more interested in finding solutions of these issues that is why there are more useful laws in this countries about ecology protection (Naydenko, 2017, p. 627). Furthermore, the European Union wrote more than 200 agreements about environmental protection. A lot of scientists and politics are working to achieve such following objects: saving, protection and emproving the environmental quality; human health protection; rational use of natural resources and any more.

Ukraine is an agrarian country and that is why the question of introducing the experience of EU countries on fertilizers and pesticides becomes relevant. The use of fertilizers has a negative impact, as fertilizers can get into groundwater and make it unusable. In addition, in case of violation of the technology of application, fertilizers are entering the air nitrogen and other contaminants and soils may be unsuitable for agriculture (Naydenko, 2017, p. 631).

Nowadays there are some legal regulations of pollution prevention in Ukraine. In our country the following laws are connected with the Water Code, the Forest

Code, the law "About Environmental Protection" and some more. But this package of laws is insufficient to superintendence the ecology situations in Ukraine.

To sum up, we should think about our future and take care of nature. Only then we will have a chance to meet with our future.

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TRENDS IN LEGAL REGULATION OF PROTECTION WHISTLEBLOWER IN UKRAINE

Vod'ko Yuliia
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

In Ukraine, the term "whistleblower" is revealed in the Law "On Prevention of Corruption". Whistleblower is a person who assists in the prevention and counteraction of corruption, as well as provided that the information is reliable, reports a violation of this Law.

The international definition is different from the Ukrainian one, it is broader, and describes an accuser as a person who provides any information about an activity that is illegal, unethical or incorrect, and is carried out in a private or public organization. Correspondingly exposing corruption by international definition is the disclosure of information about illegal activity or abuse that harms or threatens the public interest.

The Parliament of Ukraine approved the bill No. 1010 on amendments to the Law of Ukraine "On Prevention of Corruption" concerning the whistleblower in the second reading and as a whole. Today this topic is extremely relevant as it could become one of the solutions to the enormous problem of Ukraine (Article of ZIK TV channel, 2019, 1).

The main task is to analyze the world practice of legislative regulation of the legal status of the whistleblower in order to effectively implement it in the legislation of Ukraine.

In this article, it was examined the legislation of the USA on the institution of whistleblower and its implementation in Ukraine, moreover during the research the methods of analysis, synthesis, abstraction and comparison were used.

As stated in the explanatory note, amending the Law of Ukraine "On Prevention of Corruption" there is the definition of the legal status of the perpetrators of corruption, their rights and guarantees of protection. It is also provided

circumstances for detection of information on corruption, normalizing the order of disclosure of corruption by the exponent and released from the legal responsibility of the perpetrators of corruption for disclosure of information on corruption or corruption-related offenses. It is ensured state protection of the perpetrators of corruption, in particular the protection of their labour rights.

In case of violation of these rules, in accordance with Art. 60 of the Civil Procedure Code of Ukraine, the defendant is responsible for these violations.

Another change to the law provides for the right of a corruption perpetrator to receive a reward. However, the reward is only provided when the scale of corruption is at least 5,000 living wages - now it is 9.6 million hryvnias. At the same time, the reward for exposing corruption will be 10% of the scale of corruption (cash or item), but may not exceed 3,000 minimum wages, i.e. UAH 12.5 million (Article of ZIK TV channel, 2019, 2).

There is a defamation law in the USA, and more than 1,000 organizations have been created to protect whistleblowers. According to it, citizens have the right to file a claim on behalf of the government for the return of funds stolen in a result of contractual fraud. Regarding the report on corruption schemes, which will be proven, a citizen could receive a reward of up to 25% of the scale of corruption. At the same time, the award decision reaches half of all corruption reports, and the introduction of appropriate legislation has allowed at least $ 35 billion to be returned to the US budget in 35 years.

Whistleblowers could become an important tool in combating corruption, provided they are properly motivated and protected by the state. Apart from the fact that it can be a very profitable business, the most important thing is that Ukrainian national security depends on it. It really depends on whether the people empowered with power can tell something about the same power.

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EARLY PREGNANCY

Voikovska Valeria

Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Adolescent puberty occurs before they are ready to become parents. Teenage pregnancy is the pregnancy of a girl who has not yet become an adult in legal and medical terms. In most developed countries, the pregnancy of girls aged 14-18 is most often unplanned and therefore leads to abortions. Only 10-15% of teenage pregnancies end with childbirth.

Early pregnancy is a health threat to both the baby and the mother. The body of a young mother withstands double load - accelerates maturation itself and bears a baby. Because of physiological features, pregnant teens are more likely to suffer from anemia (anemia) during pregnancy, so special attention should be paid to eating well, resting and having the right day. The tendency to rapid fatigue of the nervous system should also be added to the features of young women in childbirth. Sometimes it can cause unnecessary irritation, insomnia, and sometimes it can lead to depression.

In most cases, unplanned pregnancy occurs among adolescents who live in poor socio-economic conditions because they:
- have no money to buy reliable methods of contraception,
- have a low level of education,
- are more likely to be raped,
- are more likely to experience forced sexual intercourse.

We do not know the true indicators of teenage pregnancy, because in many countries around the world, the problem of unplanned pregnancy is solved without notice from other people, quite often through criminal (illegal) abortion.

In adolescents under the age of 18, 38% more likely to have an abortion:
- serious bleeding;
- uterine rupture and breakthrough with surgical instruments;
- complications caused by anesthesia (respiratory disorders, heart rhythm, liver dysfunction, allergic shock);
- local inflammation after the procedure (inside the uterus, fallopian tubes, in the abdomen);
- thrombosis.

The most common complications of pregnancy are the following:
- high blood pressure, preeclampsia;
- premature birth;
- intrauterine growth retardation;
- low birth weight.

Also, many teenagers become pregnant as a result of accidental communication from unknown or unknown partners, so they have a higher rate of sexually transmitted infections, which is dangerous for the unborn child.

Teenagers are more likely to abuse alcohol, smoke, and take drugs.

Due to the lack of material financial and psychological support for teenage mothers, a very large number of such women suffer from depression, among them a higher suicide rate

Probably the main issue in pregnancy at 16 is the decision whether to leave the baby or not. Having a baby or giving birth to a baby just because he or she was conceived at the wrong time? Unfortunately, for many teenage girls, this choice is not easy. Despite the support of parents and the desire of a loved one to become a father, a young woman has the right to make her own decision, which is often a manifestation of fear and selfishness.

In order to avoid many problems that arise during the development of teenage pregnancy, it is necessary to tell about the situation of close people. Parents have the right to know what is happening to their baby. After all, it is they who are responsible for the life of their minor daughter in the position. The confusion, shock and indignation of the relatives after such news will soon pass, and moral and material help will remain and will accompany the expectant young mother in the most difficult moments of pregnancy.

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CURRENT INSURANCE PROBLEMS IN UKRAINE

Volkova Kateryna
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Insurance is one of the most important processes in the life of everyone and the economy of the country as a whole. It allows people to protect themselves and their property from possible negative factors and to receive financial compensation for certain damages or any other damage. However, it is a rather complex and extensive system, which, unfortunately, is not well developed in Ukraine. The most developed kinds of insurance in our country in a couple of recent years are homeowners' insurance, buildings, vehicles and the worst developed health insurance. (Vysiatytska, 2018, p. 32)

It is because of the complexity of this system that many scientists have studied it for many years. The most famous researchers of the functioning of insurance activities are the following domestic scientists: V. Alexandrova, N. Basilevich,

L. Vnukova, O. Gorbach, S. Zaruba, O. Osadets and others. The important research of insurance activity is also covered in the works of such foreign scientists: E. Brigham, A. Ginsburg, M. Zaitseva, V. Kovaleva, V. Sukhova, T. Fedorova, D. Hampton, R. Yuldasheva. (Sukach, 2016, p. 213)

Insurance in Ukraine is really suffering and far behind the insurance in western countries. For example, in Ukraine the insurance coverage is approximately 3-5%, while in Europe this figure reaches more than 95%. (6) In our country, only classic insurance is being developed - CASCO (vehicle insurance), life insurance, property insurance, which are rather compulsory types of insurance, while health insurance is in its infancy stage. (Horodnichenko, 2017, p. 570) Considering all this information, the situation on the Ukrainian insurance market is unfavorable, caused by a number of factors, among which are the following:

- imperfect legal framework;
- low demand for insurance services for legal entities and individuals, which is caused by the unstable economic situation in the country;
- low level of insurance payments, which automatically makes this business unprofitable for population;
- low level of competitiveness of insurance companies in Ukraine;
- low earnings of the population of Ukraine and inability to pay for insurance services;
- poor awareness in all the positive aspects of insurance activity, which is caused by insufficient information;
- use of various shadow strategies, illegal maneuvering of various insurance operations;
- weak foreign economic relations of Ukraine with other countries in the field of insurance;
- mistrust of the population to insurers and uncertainty of one hundred percent insurance payment. (Sukach, 2016, p. 231)

Most of these problems are triggered by the desire of insurance companies to make the most personal income, rather than work for the sake of the prosperity of our country's population. This is the main reason that slows down the development of the domestic insurance market.

Taking into account all the negative factors affecting the insurance activity in Ukraine, the number of insurance companies in recent years has tended to decrease. For example, taking into account statistics taken from 2014 - 2019, as of December 31, 2014. There were 382 insurance companies operating in Ukraine, of which only 57 had life insurance business, as of June 30, 2019 - there are only 249 insurance companies, of which 26 had life insurance business. That is, losses are significant and they are noticeable, but, despite such a decrease, premiums of insurance companies are increasing, which again confirms the focus of insurers on personal profit (Tab. 1).

Table 1. Performance indicators of insurance companies in Ukraine (4)

	2014	2015	2016	2017	2018	2019
Number of insurance companies	382	361	310	294	281	249
Life insurance companies	57	49	39	33	30	26
Gross insurance premiums, mln.	26767	29735	35170	43432	49368	52742
The share of gross insurance premiums in GDP, %	1,7	1,5	1,5	1,5	1,4	1,4
Net insurance premiums, mln.	18593	22355	26463	28494	34424	37798
Share of net insurance premiums in GDP, %	1,2	1,1	1,1	1	1	1

The conditions of Ukrainian insurance market is not in the best period, but it still has a chance of life and upswing. However, it is necessary to do a great job of the government, insurance companies and even the population of Ukraine. To improve the situation on the Ukrainian insurance market, the following measures should be applied:

- modernization of the work of insurance companies and introduction of the latest technologies to attract customers;

- encouraging the population to offer insurance services by means of interesting and unknown proposals;

- ensuring the reliability of insurance payments, which will generate public confidence definitely;

- the desire to work for the benefit of the population, creating favorable conditions for insurance that are accessible to everyone;

- creation of a rating system and introduction of rating agencies to cover and disseminate information on the popularity of various insurance companies and the state of competition between them;

- elimination of illegal maneuvering of insurance operations and absolutely "transparent" activity. (Panchuk, 2019)

Therefore, it is safe to say that the development of the domestic insurance market is possible, but with the improvement of the insurance system itself, the creation of new agencies and government agencies to control and cover the results of insurance activities. In addition, the development of the insurance market in Ukraine should be facilitated by the state, as crisis management and stabilization of the wages of the population can provoke a significant "jump" upwards and the rise of the Ukrainian insurance market.

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THE PHENOMENON OF THE FIRST IMPRESSION
(According to E. Goff man)

Volkova Alina

Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

In the everyday life of each of us there is always an interaction . We get to know the new individuals who make our first impression . The first impression is a special psychological and social phenomenon that influences the emotion in the human system and forms its evaluative judgment.

This phenomenon has its own peculiarities. As a primary feature we can consider the influence of external factors on the formation of the evaluative judgment of the individual with the person with whom he first interacts. These external factors include appearance , posture, gesture, expression. In terms of appearance, Francis Bacon wrote: " The best characteristic of a person is his attractive appearance." This idea is valid because people believe that if the wrapper is attractive, then its composition is also not worse. It has been found that a good, not squat posture is a testament to a person's self-confidence, his inner attitude to himself.

Considering E's theory . Gough mana, he shares our Speel k ents at the "laying on first impression" and the ability to make a first impression on someone. Each individual is special, so someone pays considerable attention to the first impression, and someone judges the person for his subsequent actions, regardless of how he showed himself for the first time. It all depends on stereotypes. Communication subjects always have a certain set of qualities for human assessment. These qualities are formed during my upbringing. Later on dating, we try to attribute them. This process is called " stereotypiza tion ." For example, for someone, evidence of aggression can be expressed in words, and someone imagines aggression as physical violence (Hoffman, 2000).

In sociology, there is a method of symbolic interactionism , which Gough Man considers "dramatic approach." This is one approach that involves people's lives as a play in the theater. That is, when communicating with people, we have a role to play, we do not want to be impressed by our surroundings. E. Goff Man distinguishes from these two types of expression. The first is signaling means (verbal symbols and their substitutes) that are purposefully used by an individual to communicate certain information to others. For example, this is manifested in what we offer on our first acquaintance. The second type of expression contains a wide range of actions of the individual, who inadvertently indirectly issue it, bringing to the environment information that confirms his verbal statements or refutes them. Such actions constitute involuntary expressive behavior. A social example of two types of expressions is the boy's attitude to his girlfriend. For example, during a conversation, a guy tells her how much he appreciates it, and when a girl tells important information, he is playing a computer game (Kolodyazhna, 2019).

In order to possess the art of first impression , to create a certain image, it is necessary to be able to manage it. On this basis, Goff Man introduced the concept of " self-representation ." The concept ' s amoreprezentatsiya " is has long been known to the world, often used in English-language studies. Hoff Man distinguishes it as a separate subject of social and psychological research, unlike other scholars, and explains it as a means of organizing interaction with other people in order to achieve their goals. That is, when communicating with individuals, we set ourselves a specific goal that we want to achieve and try to achieve it through the first impression method. To do this, we correctly self-represent ourselves at the first meeting . Hoff Mann identifies three components of self-representation :

1) the self-presenter (awareness of the goals of self-presentation, adequacy of self-esteem, confidence);

2) one who samoprezentuyutsya ;

3) that samoprezentuyut .

If we study the above components in detail, it will enable us to successfully and master the technique of managing the first impression art, that is, self-representation .

There are many types of people who are wrong about this technique. Goff Man highlights some of the mistakes that occur. First of all, if you look at it in terms of

dramaturgy, then people just start overplaying it. And as everyone knows, when replay occurs, the role becomes strange and unclear.

Also common mistakes are loss of control over the situation. For example, the loss of muscle control over one's body (sneezing, snorting , etc.) All these mistakes greatly affect the further interaction between people and spoil the first impression. Of course, not everyone pays attention to this, but in most cases the opposite has been proven.

Therefore, the phenomenon of first impression is one of the main components of human interaction. It has its own peculiarities and structure, the main of which is the self-presentation by E. Goff man. He tried to raise this problem in detail and to reveal the nuances for mastering the technique of impression management.

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THE REASONS OF FRENCH REVOLUTION
Volosozhar Darya
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The history has known many revolutions, which brought new political systems to the rebellious countries. However, French revolution is one of the most famous and brand new. It accused by three main reasons. They are economic, politic and culture one.

First and the most significant of them is economic reason. The government of those days was not able to pay the dept. During Louis XVI reign, the French credit risen up from 8 billion to 12 billion luries. In addition, king did not spent his money on army or building strong economic system or etc. Instead of this, he lived extremely luxurious life. In addition, Louis XVI introduced a tax of 5% for all strata of the population to cover the lack of money (Kenneth, 1994).

Second reason is government and its politic. The government did not accept any new reforms for taxes. For example, the law about including nobles in list of taxpayers. Instead taxing noblemen, the adopted laws raised up the bureaucracy in the country. Therefore, instead of making commoners life easier, the government raised taxes (Faccarello, 1994).

The last reason to start the revolution was Age of Enlightenment. This period is known for bringing new and word-class artists. In addition, this era brought ideas of quality among people. As well as this, American Revolution showed that Enlightenment ideas about how government should be organized is possible to make

real. American diplomats was keeping company with French intellectual class. This contact inspired revolutionaries (Palmer, 2014).

In the end, I would like to mention that French revolution was huge step to humanity to move on and change the worldwide economic and political systems.

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PROBLEMS OF FOREIGN ECONOMIC CONTRACT

Yurina Ann
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The development of economic activity of any country inevitably leads to the need to enter the international level. Only serious interaction with other participants in market relations can ensure the effective development of the national economic system.

Foreign economic activity is a leading component of economic activity in the country. It aims to create the necessary conditions to ensure the integration of our country into the world economic space.

Foreign economic agreement (contract) – is an agreement of two or more subjects of foreign economic activity and their foreign counterparts, aimed at establishing, changing or termination of their mutual rights and obligations in foreign economic activity (The law «On Foreign Economic Activity», 1991)**.**

The guarantee of the success of the foreign economic transaction is the correct preparation of the foreign economic agreement. It will also simplify the process associated with customs clearance and the movement of your goods across the border of Ukraine.

This agreement, like any other contract, must contain the essential conditions specified in the law (Economic Code of Ukraine, 2003, article 180). Therefore, for this type of contract such essential condition is the subject, price, duration of the contract. All of these conditions must be listed up.

The success of one trade operation and the entire enterprise depends on how well the contract is drawn up. There are some risks that should be addressed during

concluding a contract. Parties often do not care about them or do not know about them, which causes problems and complications when carrying out economic transactions.

The first problem is the difference in translation. It sounds very trivial and that is why subjects usually do not pay much attention on this aspect. In bilingual agreements, it is often the case that after lengthy negotiations and revisions, the translation versions are inconsistent and have significant differences. In addition, the possibility of a translator error should not be overlooked. There are also often quite different perceptions and meanings of the same (or similar) terms. Therefore, it is necessary to check the consistency of the translations carefully, especially as regards the interpretation of the essential terms and conditions, as well as their identical understanding by both parties. In addition, the contract should spell out the priority of one of the translations in case of discrepancies.

The second major problem is the determination of the country whose law will apply in the event of a dispute. The matter is, contractors often ignore when drawing up contracts the definition of jurisdiction, the law of which they will apply to regulate relations between the parties. In addition to the above, it is necessary to describe in detail which law of the country should be applied in one or another disputed situation or in case of conflict or differences between the laws of the countries.

To sum up, it is important to mention, there are many other problems and this list is not exhaustive. It is important to understand that it is difficult to anticipate and minimize all risks. In most cases, it is the lawyer's job to verify the correctness of the agreement. If there is a risk in the transaction, it must be taken into account when drawing up the contract. Al in all, the more detailed and literate the contract will be, the less problems there will be in the future.

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THE STATE OF MODERN ECOLOGY AS A RESULT OF THE IMPACT OF CIVILIZATION AND WAYS TO PREVENT ENVIRONMENTAL DISASTER

Zdanevych Diana
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The theme of ecology has become widespread in modern life. It is very important to solve social-ecological problems in modern society. The ecology

situation getting worse and worse, due to people's activity and the question is if people will be able to survive. Modern technologies do harm the environment and negative impact in whole is obvious. It should be emphasized that so far in domestic and foreign literature the problem of understanding the state of modern civilization through the interdisciplinary organization of knowledge has not become a subject of special study for scientists and philosophers.

The main task is to research social and natural principles of creation of different technical devices, systematize knowledge so that scientists and engineers would be able to anticipate the results of their activities. (Madows, (2011).

The theoretical and methodological basis of the study was the dialectic method, general methodological principles of development, analysis and synthesis, systemic and concrete historical approaches. Historical, scientific, historical-philosophical, philosophical, methodological, socio-ecological and noospheric developments of both domestic and foreign researchers are used. (Hansen, 2015)

The results of the study and their scientific novelty are determined by the fact that, social ecology is presented as a new interdisciplinary field of knowledge. What is new here is the understanding and presentation of social ecology as an independent form of understanding the state and prospects of technological civilization, which has its own subject area, language, methods and research tools. The main conclusion is that the transformation of the human environment must correspond to its adaptive capabilities. (Diamond, 2018).

To sum up, in this research is the substation of social ecology as a new form of theoretical understanding of the state of modern civilization. The main conclusion is to prevent an impending environmental catastrophe, the resolution of the basic contradictions of the existing civilization is required. The need for this process is due to the fact that the problems generated by the techno genic type of progress turn out to be a direct consequence of the contradictions that lie at the very core of existing civilization.

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DEMAND IN ECONOMICS

Zhluktenko Anna

Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Demand is the determining driver of effective economic activity. It influences the prices for services and goods and supply. Let us consider the definition and key notions related to it for better understanding of the concept.

The desire to receive a specific product eventually evolves into a person's need. If this need can only be met by paying for it, then the consumer has to manage the desire and receive less than the desired one, thereby revealing the demand for the product. Therefore, we can define demand as the need of a potential buyer to purchase the goods for the funds earmarked for that purchase. Having analysed the relevant researches we could outline that demand reflects:

1) the buyer's interest for a certain product, the desire to buy it in the certain amount;

 2) the ability to pay for the purchase at prices within the "affordable" range;

From these properties, the demand volume may be shaped. Demand volume is the goods' amount that buyers are ready to buy in a given period at the certain price (Amadeo, 2019).

Researchers and practitioners note that demand is influenced by price and non-price factors. Non-price factors are known as non-price determinants. These factors are considered to be vital as they can change the amount of sold products or services irrespectively to their price.

Non-price determinants are:
• number of consumers;
 • market size;
 • fashion, seasonality;
 • inflation expectations.

These determinants may change the demand, but only within particulate acceptable price range. Demand is also sensitive to the following price factors:
• prices for goods' and services' ;
 • prices for substitute products;
 • the income level in a society (Agarwal, 2019).

The Law of demand is one of the fundamental as it explains consumers' choice when price changes. Law of demand states: *the higher the price, the smaller the volume of demand*. This law reflects the main tendency - to reduce the volume of purchases with rising prices for goods in conditions where the buyer's financial capacity is limited by a certain limit.

To model the relationship between price and quantity (according to the Law of demand) economists use demand curves. The demand curve shows the amount of goods that can be sold for a certain time and price. The more elastic the demand, the higher the price can be set for the product.

Demand elasticity is the reaction of the market to the lack of goods, the possibility of replacing them, the price of competitors, lower prices, the unwillingness of customers to change their consumer habits and seek cheaper goods, improving the quality of goods, the natural increase in inflation and other factors (Shivman, 2019).

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PAPER MONEY: HISTORY
Zinchenko Halyna

Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The use of money is interesting to not only numismatists and historians, but to people who want to know why some things appeared in our world. When and why did paper currency appear and what were the consequences? Let us try to answer these questions.

People have been using paper money for more than 13 centuries. The first users were the Chinese. Before that, copper coins were used, but the amount of valuable metals (silver and gold) markedly decreased in the production of coins, from 94 to 0.02% and as the result money passed from valid status to fiat status. Fiat or fiduciary money is a currency that is accepted by the state as legal tender. They are not backed by any material values and, in fact, are based solely on people's confidence in its ability to buy something (Agadzhanov, 2016).

One more problem that humankind encountered while using coins was their weight. People had to go to the market with kilograms of coins, which was inconvenient. Therefore, the demand for more convenient currency arose. After several attempts, people came out with paper money solution.

Paper money has a long history of failing. Countries like China and Iran faced with the problem of inflation and the rejection of paper money. However, France suffered the most, with a three times trying to introduce paper currency. Once, they simply filled the country with paper currency, having squeezed out coins and thereby bankrupted their country. As a result, within 12 years, the franc (monetary unit) depreciated by 99% (Goldenfront.ru., 2018).

Almost all Western countries actually print "toy" money, since money is printed randomly. Governments are changing the structure of paper and complicating the printing process. Nevertheless, even the limited validity period of banknotes does not impede the activities of counterfeiters.

There are three world versions of the depreciation of paper currency, excess output, loss of public confidence in the government, and demand for gold as world money (Amadeo, 2019).

Nowadays, we are approaching a new wave of technology, namely the transition to electronic currency. A global monetary future is still evolving, but radical changes are inevitable.

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SYNERGY EFFECT IN BUSINESS ENVIRONMENT
Zinchenko Diana
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The law of synergy is the properties of an organized system that exceed the simple arithmetic sum of the properties of the components.

Synergies are created by attracting a large amount of knowledge, practical experience, examining a large number of alternatives and creating information links between the participants. It is shown maximally in case of psychological compatibility of employees of the department. The manager should know that the synergistic effect does not occur with any set of components, so he should identify the required structure of components and their characteristics.

It is difficult to predict the conditions of synergetic effect in advance, and it is not usually measured nowadays. However, it can be identified by a number of criteria (Barone, 2019):

- A favorable social and psychological climate in the team, development and support of traditions and values of the organization;
- High level of technology and labor discipline;
- Growth of labor productivity, loyalty of employees to the company's managers;

- Constant demand of products;
- Strengthening of technological and organizational discipline, etc.

For any system (technical, biological or social), there is a set of resources in place where its potential will always be either significantly greater than the simple sum of the potential of its resources (technology, personnel, computers, etc.) or significantly smaller.

Even with a clear separation of labor and good specialization, it is common that some part of the individual task of one specialist can be performed more professionally by another specialist. The coordinated exchange of such parts of the common work can remove the mutual "crawling" of potentials, give positive synergies and increase the overall efficiency. Therefore, an increase in the overall potential of the organization is equivalent to the new resources purchased, and a decrease in the overall potential is equivalent to the actual loss of a part of the former resource by the organization.

As is known, one of the elements of any system is communication: administrative, functional and personal. Formation and selection of connections is an important task of a manager. In addition, the manager should form the technological system of his organization, which is based on:

- Similarity of used raw materials, materials and technologies;
- Integration and cooperation of production;
- Use of advanced technology

For successful realization of the law of synergy there are a number of methods: "questions and answers", "conference of ideas", "brainstorming", "case study" (Ugriumova, Blinov, 2015), etc.

"Question and Answer" is the easiest method. Its realization can be partly formalized with the help of a computer by creating an information base of questions of three levels:

- The questions that have practical answers and specific results are known - these are past experiences;
- Questions that have answers but not enough practical experience in their realization;
- Questions that are asked about new problems and not yet solved.

The method of "conference of ideas or brainstorming", which is based on the stimulation of the process of thinking at the level of consciousness, is very promising. The technology of this method includes the following stages:

- Training the generation of collective ideas on predetermined problems;
- Studying the possibilities of the participants of the training;
- Discussion of proposed ideas.

"Case method" is based on discussion. Each specialist, relying on his or her own competence, evaluates the proposed solution and perhaps improves it. As a result of a deep professional analysis of each side of the solution options reveals the best, and perhaps formulated in the debate, absolutely new.

So, in order to survive in a challenging competitive environment, it is necessary to be able to identify, build up and gain positive synergies from the combination and cooperation of labor force and tools, to combine work, to integrate industries, production and services.

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THE PROBLEM OF RACIAL DISCRIMINATION.
Zinchuk Daria

Faculty of Sociology and Law,
National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute"

The term "race" appeared in European science in the XVIII century and became very popular. The division of people into races was based on the obvious signs of their appearance. Sometimes they were called by skin color: black, white, yellow and red races.

But in the XX century scientists found this theory to be pseudo-scientific because these races cannot be clearly delimited and they are composed of people with different genetic characteristics. However, this theory took deep roots in people's minds and the problem of race discrimination became real in our society.

The International Convention on the Elimination of All Racial Discrimination (1965) became the first document of international law in this sphere. Ratified by Ukraine in 1969, the Convention prohibits discrimination based on race, skin color, descent and national or ethnic origin.

During The Second World War the problem of racial and national discrimination was really great. Everybody knows about German Nazi groups who killed and tortured millions of Jewish people in different European countries and Soviet Union. But the problem of racism was not only in Europe. There are a lot of examples in the USA too and one of them is a book, which contained the list of the certain places which black skinned people could visit (Hate crime recording and data collection practice across the EU, 2018).

Malcolm X, was an American Muslim minister and human rights activist who was a popular figure during the civil rights movement. He is best known for his controversial advocacy for the rights of blacks. He has been called one of the greatest and most influential African Americans in history. Malcolm X told people about

racism and underlined, that it was not only problem of the black and the white, it is brought bloodbaths to every nation. The struggle against racism led to the emergence of the term "Hate crime" (Malcolm X: Life and Death 1925-1965).

Unfortunately, there is some racial discrimination in Ukraine too. This problem is more obvious in small cities and villages, but there are still some cases also in big cities. For example, in 2018 in Odessa there was an incident with a family from the Republic of Chad. A group of six Ukrainian people saw this family walking along the street and started to call them "monkeys", "niggers" and "black animals". It was disgusting. There are about forty different hate crimes in Ukraine every year.

All in all, racism has a big criminogenic potential due to such factors as a low level of income among the population, illegal migration and political instability. In my opinion, schools and universities should educate children and students to have tolerant and respectful attitude towards all people, regardless of their skin color, nationality, origin and gender. So Ukrainian government need to work in a proactive advanced manner and pay special attention on the experience of European countries and the USA. The problem of racism cannot be solved without systematic actions. Everyone should start with himself, change his attitude to this global problem and think about possible solutions.

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PROBLEMS OF YOUTH EMPLOYMENT

Zolotareva Elizabeth
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Nowadays one of the most pressing problems in the field of employment in Ukraine is youth employment. According to the Law of Ukraine "On Promoting the Social Development and Development of Youth in Ukraine", the state guarantees youth equal with other citizens, which are connected with the right to work, promotes the creation of youth centers of work and other guarantees that form a real opportunity for young people to use the whole set of labor rights. However, the highest unemployment rate among young people is observed, which, in turn, leads to negative social and economic consequences in the country. Youth unemployment is a problem we must tackle. Firstly, we need to consider the root causes of this unemployment.

The first reason is the most common mistake of entrants when choosing a higher education institution and. Young people choose the future profession due to

their parents or just go with a friend for a company. That is why parents can spend a lot of money for 5 years of study. Young people who only study for the sake of diploma are not competitive in the labor market in the future.

The second reason is the backwardness of the educational system of higher education institutions. According to statistics, the education system of Ukraine is now 30 years behind. This means that the graduate who is currently being trained in educational institutions is out of date and unnecessary in the labor market. It is also a problem of theory-practice because there is mainly theoretical knowledge but practice is limited.

Another equally important reason is the stereotypes of popular and unpopular professions. In this case, the young people choose professions that are considered prestigious in society, such as a lawyer, economist, journalist, programmer and so on. That is why many candidates apply for one job and less popular professions suffer from labor shortages.

And the last of the main causes of youth unemployment that there are not favorable working conditions and as a result many young people go abroad to seek a better destiny. Unfavorable conditions include: low wages and limited resources (Yaroshenko, 2004).

Considering the above, we can give some ways of solving youth unemployment in Ukraine:
- ✓ Increasing the economic level of the country;
- ✓ upgrading of the educational system of higher educational institutions;
- ✓ fight against stereotypes about popular and unpopular professions;
- ✓ comfortable and favorable working conditions;
- ✓ improvement of legal and regulatory frameworks;
- ✓ formation of effective mechanisms of state support for youth in the period of its social formation and development;
- ✓ orientation of young people to choose the right profession.

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NATURAL SCIENCES

UKRAINE ECOLOGICAL DISEASES

Bendetskyi Yevhen
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

One of the most sensitive spheres of life for each person is ecology. It directly affects our health and quality of life.

The global environmental situation is deteriorating, so much of the global community's efforts are being made to preserve and improve the environmental situation.

Following an emotional speech at the UN summit by 16-year-old Swedish eco-activist Greta Thunberg , who blamed world leaders for not combating climate change, the world spoke about solving environmental issues.

As long as the attention of the media and society is drawn to the global, I would like to remind you that Ukraine is simultaneously suffering from several environmental threats, each of which could be a disaster.

There were several surveys among university students, youth and city residents about environmental issues. Here are the results of some of them.

Rubbish. Among all the problems irregular garbage collecting, littering streets of the city and green areas, lack of sorting infrastructure and shortage of waste incineration plants are often remembered.

The problem of garbage is "visible": people face it daily, that is why it bothers them the most.

Air quality. Gas contamination, smog and air pollution are other problems, which are spoken today. Particular attention is paid to it by people who recently moved to Kyiv. According to citizens, the situation is worse in the future, with new dwellers number of private vehicles will increase and it will increase air pollution.

The air quality measurement system is a mystery to most locals. Some of them are unsure of existence of measuring at all.

People say they are interested in learning more about air pollution levels if this information will be provided in an accessible form, such as part of a weather forecast. Some citizens recalled that during the fires in the peatlands around Kyiv, air pollution was reported in the news. However, deciphering these metrics is difficult. It is not clear to people what effect a particular content of a substance has on a person's health. That is why not all participants are confident that they would trust the official numbers.

The problem of air pollution is invisible - it is actualized when Kyiv wraps with smog. To raise awareness of Ukrainians on this topic, it is suggested to:

- interpret indicators, for example, using a "traffic light system": green means no harm to health, yellow means little damage, red means danger to human health;
- provide practical advice on how to act when the concentration of harmful substances in the air is high;
- provide information on the causes of contamination, such as the activities of specific plants.

However, people do not always believe that the authorities will do something to improve air quality. In their opinion, due to corruption and business ties with the authorities, no real steps will be made. This confidence further demotivates them from looking for information about the city's air condition.

Other problems that are often mentioned are the deforestation, poor quality of drinking water and climate change.

Culture, indifference and low awareness often become causes s environmental problems.

The lack of public policy is the second most frequently mentioned cause of environmental problems. Here people include corruption, lack of an effective system of punishments, lack of necessary infrastructure for sorting and recycling, low-quality public services work and lack of support for environmental initiatives. Moreover, they name reluctance of businesses to implement new environmental technologies.

There is almost always a debate as which of these reasons is primary and most important: absence of proper public policy or domestic practice in society. For example, young people say that "move" the responsibility on the authorities is wrong, changes should start with themselves, because the state does only what is requested from the public. However, some people cannot agree with this statement.

Sometimes people want to practice environmental behavior daily. This is influenced by the surroundings and by popularity of certain practices among acquaintances. However, students agree to change their behavior only if it does not cause significant inconvenience or bring economic benefits, such as saving personal money.

Separate garbage collection at home is the most obvious way of eco-behavior for locals. Some of them have been practicing sorting, but some notices that taking garbage for recycling is too difficult or impossible in order to absence of special facilities. People often remind an opportunity to take the bottles into special machines, as in some EU countries.

Reducing plastic consumption. Most of the people you ask practice or consider such behavior as not taking plastic bags in shops, using string bags or eco-bags from fabric.

Buy coffee in your thermo cup. Some citizens are already practicing this behavior and are generally positive about this. At the same time, not all students like this idea, although disposable coffee cups that clutter the city they don't like either.

Less use of a private car, more - public transport and bicycle. Students tell, that they are not ready to refuse cars in the future. They also say that they do not try to use public transport more often, because it is uncomfortable and some people consider that it is not prestigious. On the other hand, most of the citizens are trying to use fewer car trips around the city, choosing instead bicycles and public transport, because of their environmental friendliness.

A device for collecting air quality data may be installed. Most of the citizens agreed to establish such a device, but they don't want to pay for it. People simply do not understand the benefits of such a device and what they can personally do with the information they receive.

Instead, there will always be those who are ready to buy the device on their own or to collect money with neighbours.

Buy or use second hand clothes or things. This idea was negatively perceived by most people, but some support it. This practice is associated with poverty: buying used things is not prestigious and shameful. The exception might be vintage or designer clothes, deliberately made from used things. On the other hand, the offer to recycle your belongings or to reuse them is usually perceived positive.

Choose a train or bus instead of a plane. This idea usually surprises people. Most have not heard of the harmfulness of air travel and do not believe that airplanes are more dangerous to the environment than other types of transport.

Paying more for energy saving when buying new devices. Personal benefit is important for people, because devices that saves energy are more economical. In the groups of eco-activists significant number of people already practicing this behavior. Economy and environmental friendliness play a role in their choice of technology.

Insulate homes, install heat meters, use energy-saving lamps instead of ordinary, to regulate the temperature in the room, such ideas have always perceived positively, most of the citizens are practicing something from this list.

Partial ban on the entry of private transport that use diesel as fuel into the city centre. Students take this idea neutral. They are sceptical of this innovation because it will lead to a riot of drivers and possibly a traffic collapse. Instead, some of them say that banning entry of any transport into a city centre is a necessary step to improve air quality.

On the other hand, people speak about the improvement of the public transport system in the city. They named as the most important problems the lack of necessary routes and the lack of rolling stock. Solving of these issues could encourage citizens to use public transport more. Among other things, people also mentioned the idea of opening a car park near the metro stations, creating a system of bike paths and promoting electric vehicles.

Not everyone is ready to be involved in solving environmental problems on more than on a daily level. Some respondents believe that environmental actions are now "out of time" in Ukraine. And others are convinced that environmental problems are related to economic ones and must be solved together.

Some locals are theoretically prepared to even block the streets, but also protest in front of government agencies or near polluting plants.

Students notice that they are ready to participate in environmental protests if they will trust organizers and they will see real results. Flashmobs and eco-actions during festivals seem to be the most interesting for them.

Most of the interviewed people are ready to sign e-petitions. Even though they do not consider them effective.

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MICROROBOTS FOR BIOMEDICINE

Brodnikova Yelyzaveta
Faculty of Biotechnology and Biotechnics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Microrobots are the future of medicine altogether. With their help doctors can easily treat such deadly and often incurable oncologic diseases. All scientists and doctors of the world dreamed of creating microscopic robots that could deliver drugs and carry out operations inside the human body, without any injections and surgical interventions. By persistent effort, these dreams were realized. Scientists have developed biocompatible robots whose length is not more than a millimeter. They can

take countless different forms depending on environmental conditions. Thanks to this, controlling the micromachines with a magnet, they can perform the following functions: moving, capture, transfer. They can even travel through narrow blood vessels without losing speed and maneuverability.

Microrobots are the smallest soft machines with electronic systems built into them, with which they can change their properties. For example, if they encounter a change in the viscosity of the fluid around, they change their shape to the extent that they maintain their speed and maneuverability without losing control of the direction of movement.

Microrobots are made from nanocomposite hydrogel. This biopolymer combines two different components in itself. Namely, synthetic elastic proteins and graphene sheets. Also, drugs that need to be delivered are added to this gel. Next, all this is enclosed in a capsule of gelatin. For the treatment of cancerous tumors, a 20-micron particle of magnesium is coated with a layer of gold, and then a biopolymer with a capsule.

This experiment was performed on mice with cancerous tumors. When the microrobot reached its goal, it was lit with a strong infrared light. This led to the heating of gold and the release of the drug from the capsule. Thanks to the magnesium particle, hydrogen bubbles are formed that allow the capsule to move around the tumor, gradually releasing the medicine.

Also it was tested on models of bone cancer by scientists at the Columbia School of Engineering and Applied Science. Microrobots isolated doxorubicin within 10 days. This is a drug that is used against malignant tumors. Bone tumor growth was limited. At the same time, lower chemotherapy toxicity rates were recorded, only 1/10 of the standard dose.

Doctors have not yet conducted trials with people, but experiments are planned in the near future. However, more research is needed, for example, to find out what side effects can cause the introduction of nanorobots into the human body.

Microrobots are a useful and very necessary invention, which in the near future will be able to save millions of lives. Despite their sophistication, these cordless micromachines are cheap and easy to manufacture so they can be thrown away after use, what potentially increases their usefulness in medicine where cleanliness is needed. Further developments by scientists are also successful; perhaps soon we will be able to abandon injections and tablets in the form in which they are now.

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EVOLUTION IS THE DEVELOPMENT SOURCE OF SCIENCE
Frantsuzonok Illia

Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The whole history of mankind consists of a huge number of attempts to achieve the goal. In attempts to satisfy needs, a person develops by finding something new and inexplicable. By asking questions or finding the unprecedented, we open a new path to an improved future. Thus, each scientist seeks to unravel the mystery of various phenomena or unravel the knot of the meaning of what is happening. Obviously, paying attention to our surroundings, we gain the ground for further reflection.

For a long time, nature has evolved in countless attempts, now we can only observe the results of successful experiments, namely those adapted to the survival of creatures. Thus, paying attention to animals, we can borrow elements for new technologies. Thanks to this kind of curiosity, an idea is born that grows into research, and then into another discovery. A vivid example is the soundproof rooms that arose due to the design of owl feathers. Also, the cloning of starfish served as an impetus for the cloning of sheep, and lobsters can see through objects, it is this ability that serves as the basis of the technology of fluoroscopy. The ability of an elephant trunk to stretch in any direction and grab whatever it wants was used by scientists when developing a robotic arm. In addition, the Word2vec algorithm will help us in processing the obtained data. Thanks to which, based on the known discoveries, we will be able to combine our knowledge.

There is still a mass of amazing examples that are the cause of modern technology, but more importantly we'll think about what else we can learn by observing the world around us. Evolution is a great opportunity to develop in all possible directions, it will give us new knowledge that we will try to use in a direction that is advantageous to us.

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THE ROLE OF LAUGHING
IN MONITORING THERAPY DURING STRESS
Hakkarainen Erkka
West Finland College, Finland

Endorsement of the proverbial wisdom about laughter's health-giving properties arrives from India, where local doctors have instigated a trend medical 'laughing clubs'. Ankrah et al. (2018) propound a mirth-inducing posture technique derived from yoga, set up the Priyadarshini Park Laughing Club and produced a seminar paper on the healing benefits of laughter. Concerned at rising levels of stress they observed in their patients, their aim was to take steps to alleviate people's high levels of anxiety.

Since then, more than a hundred laughing clubs have been rapidly established after his model right across India.

Members of the clubs meet in groups of up to fifty, where after limbering up and breathing exercises, they egg each other on into extended bouts of hilarity. This is achieved not through the telling of any jokes as such, but through the sheer infectious nature of laughter. Within moments of the first member emitting a snigger, the entire group are simply beside themselves.

For instance, one of the patients was told by his grandchildren that he was noticeably less grumpy after four months of laughing practice. And he even developed a soft for their barrage of jokes.

Practiced gigglers learn how to produce a repertoire of different styles of laughing and the health benefits claimed are numerous. As well as loosening inhibitions and boosting self-confidence, Veitch & Arkkelin (1995) say it is also good for breathing, as an aid to giving up smoking, and can alleviate hypertension, arthritis and migraine.

In 2007 was organized a World Laughter Day at the Bombay Racetrack and 10,000 people turned up. While the laughter techniques have been formalizing, American research (2011) has shown that laughing lowers blood pressure, reduces stress hormones and boosts immune functions. It also triggers the release of endorphins, the body's natural painkillers, and fosters general spiritual sunniness. So, this has encouraged American doctors to prescribe laughter to gloomy patients and laughter therapy is growing in popularity.

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THE RESEARCH OF MARIANA TRENCH

Hladkyi Yaroslav
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

People have explored only five percent of the seabed, which still remains one of the greatest mysteries on our planet.

The highest point of the earth - Mount Everest (8848 m), the deepest – Mariana Trench . However, if we know a lot of interesting facts about Everest, then the hollows in the Pacific, except that it is the deepest, is not known to most people. Despite the fact that the oceans are closer to us than the mountain peaks and even farther away from the planets of the solar system, humans have explored only five percent of the seabed, which still remains one of our planet's greatest mysteries.

The Marian depression has a characteristic V-shaped profile with very steep slopes. The bottom is flat, several tens of kilometers wide, divided by ridges into several almost closed sections. The pressure at the bottom of the Mariana depression is more than 1100 times higher than the standard atmospheric pressure, reaching 3150 kg / cm2. The temperature at the bottom of the Mariana Trench is surprisingly high thanks to hydrothermal springs, nicknamed "black smokers". They constantly heat the water and maintain the overall temperature in the depression at about 3 ° C (National Geographic, 2019).

The first attempt to measure the depth of the Mariana Trench was made in 1875 by the team of the English oceanographic vessel Challenger during a scientific expedition across the oceans. The British discovered the Marian depression quite by accident, during the regular measurements of the bottom with the help of a lot (Italian spinning rope and lead cargo). With all the inaccuracy of this dimension, the result was striking: 8367 m. In 1877, a map was issued in Germany, marking this place as the Challenger Abyss. The measurement, made in 1899 from the board of American coal Nero, has already shown great depth: 9636 m. In 1951, the bottom of the depression measured the English hydrographic vessel "Challenger", named after its predecessor, informally called "Challenger II". Now with the help of an echo sounder the depth of 10899 m was registered. The maximum depth indicator was obtained in 1957 by the Soviet research vessel "Knight": 11 034 ± 50 m. remembered. However, it is said that when the testimony was removed, no change in environmental conditions at different depths was taken into account. This false figure is still present on many physiographic maps. In 1959, the American research vessel Stranger measured the depth of the gutter in a rather unusual way for science - using deep-sea

bombs. Result: 10915 m. The last known measurements were made in 2010 by the American vessel Sumner and showed a depth of 10994 ± 40 m. (Thomson, 1885).

It is still not possible to get absolutely accurate testimonies even with the help of the most modern equipment. Echo sounder prevents the fact that the speed of sound in water depends on its properties, which are differently manifested depending on the depth. The photo shows the most durable bodies of submarines after testing at maximum pressure.

Recently an autonomous unmanned underwater vehicle (ANPA) was developed, capable of operating at a depth of 14 kilometers. This leads some to conclude that ocean scientists have discovered a depression deep in the Mariana Ocean in the oceans.

The existence of the Mariana Basin has long been known, and there are technical possibilities for bottoming, but in the last 60 years only three people have been able to do so: a scientist, a military director and a filmmaker. During the entire study of the Mariana Trench (Marian Trench), two vehicles were lowered to the bottom with people on board and four times (as of April 2017) automatic devices. By the way, less than people have been to the moon (Oskin, 2017).

The main inhabitants of the Mariana Trench (Marian Trench), living at the bottom, it is a barophilic (develop only at high pressure) bacteria, the simplest creatures of foraminifera - unicellular in shells and xenophyophores - amoeba, reaching up to 20 cm in diameter and living. Foraminifera was able to obtain a Japanese automatic deep-water probe "Kaiko" in 1995, immersed in 10911,4 m and took soil samples.

Larger inhabitants of the gutter live throughout its thickness. Life at depth made them either blind or with very developed eyes, often telescopic. Many have photophores - the organs of the glow, a kind of bait for prey: in some on long shoots, like a fishing rod, and in others so in the mouth. Some accumulate a glowing liquid and in the case of danger, give it an enemy like a "light curtain" (Knapton, 2017)

Since 2009, the depression is part of the US Conservation Area Marian Trench Marine National Monument, covering an area of 246,608 km2. The area includes only the underwater part of the gutter and the water area. The reason for this action was the fact that the Northern Mariana Islands and the island of Guam - in fact, American territory - are island boundaries of the water area. Challenger Abyss is not included in this zone, as it is located in the ocean territory of the Federated States of Micronesia (NOAA Fisheries, 2019).

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EXPLORATION OF SPACE: YESTERDAY, TODAY, TOMORROW

Holoborodko Alina
Faculty of Management and Marketing,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Some few decades ago, space flights were considered merely a subject of science fiction – and now they are a reality.

It all started with the first sputnik. On October 4, 1957, the first baby moon (artificial satellite) was launched into space. It was circling the earth and sending its first message to the astonished humankind. It provided necessary scientific information.

The sputniks were only the first stage in space research work. Then followed space rockets and spaceships.

A series of biological experiments carried out in heavy spaceships proved it was possible for animals with a nervous system similar to man's to remain for a long time in orbital flight.

April 12, 1961. The world was startled by the message: „Soviet man in space! "

A powerfull multi-staged rocket launched from the Baikonur Cosmodrome started into orbit the „Vostok 1"spaceship with a man on board.

The Soviet pilot-cosmonaut Yuriy Gagarin piloted the spaceship. Yuriy Gagarin made only one revolution around the Earth, but his trip was man's first flight in space (1).

Valentina Tereshkova's space flight has shown that women can join men as equals in exploration of space.

„Mankind will not remain on earth forever", said Konstantin Tsiolkovsky, the founder of astronautics (2). Man can and will live in space.

All of mankind followed with admiration the outstanding experiment in space-the joint flight by the Soviet ship „Soyuz 19" and the American ship „Appolo". For the first time in history has the docking of the spaceships of two countries been effected and many important experiments carried out. The flight by the USSR spaceship and the USA spaceship a with Alexei Leonov and Valery Kubasov, Thomas Stafford, Vance Brand and Donald Slayton on board opens up new prospects for joint work by different countries in the peaceful exploration of outer space.

Now astronautics have become so commonplace that in everyday life we do not even realize that we watch television programs through satellite dishes, we make telephone calls through satellites, listen to weather-compiled satellite-based weather data, and receive satellite images of natural disasters.

By the beginning of the 21st century, hundreds of people were in space. Man landed on the moon, automatic devices have visited many planets of the solar system, asteroids and comets. Modern works and artificial intelligence are already actively used in space exploration.

In recent years, dozens of planets have been found, powerful telescopes peeking into the depths of space for more than 10 billion light years. We cannot imagine our life without space. That is why many countries are launching their own space programs today, and private space exploration has begun in the early 21st century.

In 2001, the first space tourist Dennis Tito went into orbit. Moreover, the owner of the largest motel network Robert Bigelow plans to open the first orbital hotel Skywalker.

Bigelow Aerospace has launched two experimental space modules - Genesis I and Genesis II, and plans to launch full-fledged modules that will be used as orbital hotels, test labs and factories. In April 2016, the Bigelow Expandable Activity Module was delivered to the International Space Station for testing in orbit (3).

NASA plans to build space elevator!

NASA's plans to extract resources on the moon and asteroids are also seriously under consideration. One of the minerals that can be economically justified in space is helium-3. It is absent on Earth and its excess on the moon.

However, helium is an excellent fuel for fusion energy. At the same time, to provide our entire planet with energy consumption, it will take about 100 tons of helium-3 to be delivered to Earth a year!

Space exploration is inevitable, and in the near future, a country that will control transportation into orbit and, consequently, Earth's space will control the planet's economy. Just like in the past: those who controlled the sea controlled international trade and colonies.

Space exploration has opened up endless possibilities for science. Space requires science - it is a grand and powerful tool for the study of the universe, the Earth, man himself. The field of application of astronautics is expanding every day. In addition, ahead - power plants in space, removal of harmful industries from the planet's surface, factories in Earth orbit and the moon.

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EXOPLANETS
Holovakin Mykyta
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

All the planets in our solar system circle around a star called the Sun. Exoplanets also circle around their star, but not in our system. They are very difficult to see using a telescope because they are obscured by the very bright light of the star around which they are moving.

To find an exoplanet, several options are used. The first is to follow the movement of the star. From astronomy it is known that a star and a planet interact with each other due to gravity. The planet does not revolve around the star, as they say. In fact, the system rotates around the center of mass located at the center of the star. As mentioned earlier, a planet from the Earth is almost impossible to see and find out its parameters. But it is possible to obtain a spectrum of the star's glow. Due to the star moving, there will be an opportunity to see the Doppler shift. If you measure it for a very long time, you can get the period of rotation of the star. Having estimated the mass of the star and knowing the period of rotation - you can get the mass of the planet.

The second method is called microlensing. Referring to the modern theory of gravity, bodies distort the space around them, and the larger the mass, the greater the distortion. If a massive object flies between the observer and the observed celestial body, then due to distortion, one can observe an increase in the glow of the studied object in the form of a flash. Microlensing is the most reliable method for finding exoplanets. Also, to detect it, you do not need to be in the plane of the planet's orbit. The least common methods for finding exoplanets are measuring the exact location of a star and observing exoplanets in telescope images.

Since ancient times, people have been exploring outer space, and as soon as they had the opportunity to find something or learn something, they immediately did it. The most interesting question was the question of the existence of life outside the Earth. In the view of people, life can be on the same planets as ours. The most interesting to study are exoplanets that are in the "habitable zone". There is not too high or low temperature for the existence of life based on water. The most popular exoplanet that has been featured in all the news is Kepler-452b. The orbital period of this exoplanet is 385 Earth days. The trajectory of its movements is almost identical with the orbit of our planet. But this planet is located 1400 light years from us.

Exoplanets are a common object in space. There are millions and billions of them. Scientists will continue their research in this area to answer the important question of humanity about the existence of life outside the Earth.

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EFFICIENCY OF USE OF PHYSICAL THERAPY OF PARKINSON'S DISEASE

Horobets Daryna
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Such a profession as a physical therapist is new to the job market. Physical rehabilitation specialists survey patients to identify motor dysfunctions and determine motor potential, develop and execute an individual physical rehabilitation plan in collaboration with other specialists (doctors, social workers, psychologists, teachers, trainers) and patients. Physical therapy improves the quality of treatment, speeds up the process of restoring the functions of organs and systems, returns performance, helps the patient to develop the skills of self-care, in cases of disability to adapt to the most active life in the new conditions due to illness or trauma (Hertsyk, 2010).

The main task is to prove the effectiveness of the use of physical therapy in the treatment of Parkinson's disease. The first place is the development of physical non-pharmacological methods for the correction of manifestations of Parkinson's disease using gymnastic exercises, massage and apitherapy to improve the effectiveness of complex pathogenetic therapy for Parkinson's disease.

For the treatment of patients with Parkinson's disease, a comprehensive technique was developed that combined several separate non-drug therapies: physical exercises and relaxation exercises and massage with the elements of manual therapy. This complex of innovative non-drug treatment affects the restoration of rheological properties of blood without side effects. Massage with manual therapy and gymnastic exercises improves the condition of the muscular system, restores mobility. Respiratory exercises have also been used, since in these later stages of the disease these patients are often characterized by hypoventilation, which contributes to the development of pneumonia, which is especially dangerous for such patients (Labinskyy, 2019).

In patients with the use of physical therapy, after the treatment was significantly improved overall health. Patients noted improvements in mood, sleep, increased daily activity, and relief from household duties. The intensity of daily fluctuations has decreased significantly. All patients had decreased pain, difficulty, and slowing of thinking. Anxiety and panic attacks, depression, hallucinations and psychosis became much less common. For the most part, a violent cry, groan, or crying has completely disappeared (Agafonova, 2014).

The feasibility of using such treatments for Parkinson's disease as physical therapy and manual therapy has been demonstrated, and it is recommended to introduce them more widely into therapeutic practice in order to slow the rate of progression of Parkinson's disease.

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BLOCKERS OF SPECIAL IMMUNOGLOBULIN IN MONOCLONAL IMMUNOTHERAPY AS A NEW CURE FOR ONCOLOGY

Ivanov Ivan
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

One of the most important issues of modern medicine today is the development of a cure for a malignant tumor. As a result, oncology is one of the most progressive branches of modern medicine. Leading experts from around the world sought the answer to such an important question until James Ellison and Tasuku Honjo were awarded the Nobel Prize for their innovative discovery in the fall of 2018: treating cancer by inhibiting the negative reaction of the immune system - monoclonal immunotherapy.

Until the popularization of this therapy (and to this day), the main cancer treatment methods were radiation therapy and chemotherapy. The main problems of these decisions are the detrimental effect of therapy on the general state of functional

systems, the total suppression of the patient's immune system and the relatively high percentage of treatment inefficiencies. The conclusion follows from this: a new treatment option is required, in which the side effect of traditional therapy will be leveled.

Principle of operation. Thanks to the research of J. Ellison and T. Honjo, several new and effective cancer treatments have been created. These are targeted agents that play a key role in the development of malignant cells. For example, nivolumab and pembrolizumab drugs block the interaction of specific proteins PD-L-1 and PD-1 with their receptors. These proteins, produced by malignant cells, help them remain an unidentified immune system. As a result, tumor cells cannot be recognized by the immune system as a violation. New drugs again make them visible, and thanks to this, immunity begins to destroy the tumor. All of these drugs are monoclonal antibodies that are completely analogous to human ones. It only makes them not our immune system. Preparations are obtained using genetic engineering technologies. Like conventional antibodies, they block antigens. The role of the latter is active regulatory molecules. For example, the first drug, ipilimumab, blocked the regulatory molecule CTLA-4, which plays a crucial role in protecting cancer cells from the immune system. It was this mechanism that was discovered by one of the current winners J. Elisson.

Rapid progress in the field of medicine led to discoveries in the field of physiology and pathology, which led to the solution of one of the most acute problems of modern medicine - oncology. Millions of people suffering from this disease will be treated with a safe method. Actual issues remain only the popularization of this therapy and the achievement of maximum availability of drugs, which, no doubt, will be resolved shortly.

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BLACK HOLE DETECTION METHODS

Karabinskyi Bogdan
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Before considering methods for detecting black holes, one should answer the question - why is a black hole black? The answer to it does not require deep knowledge in astrophysics and cosmology. The fact is that a black hole absorbs all the radiation incident on it and does not emit at all, if we do not take into account the hypothetical Hawking radiation. If we consider this phenomenon in more detail, we can assume that processes that lead to the release of energy in the form of electromagnetic radiation do not proceed inside black holes. Then if the black hole radiates, then in the Hawking spectrum (which coincides with the spectrum of a heated, absolutely black body). However, this radiation was not detected, which suggests a completely low temperature of black holes. Another generally accepted theory suggests that electromagnetic radiation is not at all capable of leaving the event horizon. It is most likely that photons (particles of light) are not attracted by massive objects, since according to the theory they themselves do not have mass. However, a black hole nevertheless "attracts" photons of light through the distortion of space-time. If we imagine a black hole in space in the form of a depression on the smooth surface of space-time, then there is a certain distance from the center of the black hole, approaching which the light can no longer move away from it. That is, roughly speaking, the light begins to "fall" into the "hole", which does not even have a "bottom". In addition to this, if we take into account the effect of gravitational redshift, then perhaps in a black hole the light loses its frequency, shifting in the spectrum to the region of low-frequency long-wave radiation, until it completely loses energy. So, a black hole is black and therefore difficult to detect in space (NASA, 2018).

Detection method

Consider the methods that astronomers use to detect a black hole: a black hole can be detected when it attracts the matter surrounding it, whether it is stellar matter of a neighboring star or a gas cloud through which a black hole moves. Computer simulation shows a star falling into a black hole. In this case, the visible substance begins to contract to the massive object, forming an accretion disk around it. That is, a disk of rapidly rotating heated matter. In some cases, matter rotating around a black hole can densely overlap the black hole, thereby visually forming a huge luminous sphere.

The method of gravitational perturbation allows you to determine the presence of black hole by its gravitational effect on surrounding bodies. For example, if the trajectory of a planet around a star does not agree with the theoretical calculations of the orbit of this planet, but has some distortion, it can be assumed that there is a massive object near the planet that affects its trajectory. This particular case is

simplified, since such situations make it possible to detect less massive objects, like other planets. Black holes can distort the trajectory of huge clouds of gas.

Returning to a change in the trajectory of electromagnetic radiation near a black hole, one of the phenomena that also allows one to detect a black hole — gravity lens (Freudenrich, 2019). The light passing near the borders of the black hole slightly changes its trajectory, thus creating a blurry or distorted picture, and sometimes even a duplicated image of cosmic bodies. Thus, a black hole located on the background of any cluster, such as a galaxy or nebula, gives an abnormal image of this cluster, which attracts astronomers and gives reason to start searching for a black hole in this area of the sky.

In addition to the methods mentioned above, scientists often associate objects such as black holes and quasars. Quasars are certain clusters of cosmic bodies and gas, which are one of the brightest astronomical objects in the Universe. Since they have a high intensity of luminescence at relatively small sizes, there is reason to believe that the center of these objects is a supermassive black hole that attracts surrounding matter. Due to such a powerful gravitational attraction, the attracted matter is so heated that it emits intensely. The detection of such objects is usually compared with the detection of a black hole. Sometimes quasars can radiate in two directions jets of a heated plasma - relativistic jets. The reasons for the occurrence of such jets are not completely clear, however, they are probably caused by the interaction of the magnetic fields of the black hole and the accretion disk, and are not emitted by the direct black hole (Viani, 2014).

To summarize the above, one can imagine how a black hole looks in space near: it is a spherical black object around which strongly heated matter rotates, forming a luminous accretion disk

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STAR FORMATION PROCESS
Karpenko Evgen
Faculty of Sociology and Law,
National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute»

So far, people cannot penetrate the structure of stars and tell with certainty what they are inside, what is their nature. Scientists examine stars, observing only their external signs: size and emitted light. The remaining properties and processes

occurring inside the stars are determined by indirect methods, that is, using mathematical calculations and computer modeling.

A star is a giant sphere, which consists of gaseous substances heated to high temperatures. It is well known that all gases tend to expand rapidly to fill a certain volume. Any gas has a clear pressure. The force of this pressure is directed to increase the star. But it does not expand, because its outer layers counteract the gas pressure and balance the latter by gravity. Continuous thermonuclear processes take place in the cores of stellar cosmic bodies, at the end of which a tremendous amount of energy is released. Power is transmitted from one level to the next in the direction from the inner core to the outer layer. But the rays of the star leave her and go into interstellar space not instantly. Rays many times change the direction of motion inside the star, due to the fact that it is difficult for them to break through each envelope before they enter free space. The center of the star emits ultrashort and short waves, which, due to a breakthrough in the direction of the upper levels, become longer. The exception is X-ray waves and gamma rays, which, when nucleated in the nucleus, do not change their length in the process of going out.

According to researchers, the temperature in the bowels of the stars can vary from 10 to 30 million degrees, depending on the size of the body.

Based on information about the chemical composition of stars, scientists suggested that the basis for the formation of new stars is the so-called interstellar gas, which includes: hydrogen (67%), helium (28%), oxygen, carbon, nitrogen and several other chemical elements (5%).

The gas in interstellar space is not the same. In the plane of the Galaxy, concentrations of interstellar gas are observed, large volumes of which accumulate in the spiral arms of the Galaxy. In such clouds, the density of interstellar gas is much higher than in other places of interstellar space, and is approximately 100 atoms per cubic centimeter, while in other parts of interstellar space the density of gas is only 1 atom per cubic centimeter. At the same time, the temperature of the gas cloud is low - less than 200 degrees Celsius. These conditions contribute to the fact that gas atoms begin to unite into molecules. In 1970, scientists were able to detect hydrogen molecules in the interstellar space, and later water, ammonia, formaldehyde, ethyl alcohol and glycine amino acids.

So in the interstellar space there are molecular clouds, the mass of matter in which approaches the mass of the Sun; the temperature in them is only 1-2 degrees above zero. Under the influence of gravity, the substance begins to condense, its density increases, a new star collapses and flashes. A molecular cloud, whose mass is five thousand suns, is observed in the southern part of the Milky Way. Cloud name Coal Sack. Similar molecular clouds were found in the constellations Taurus, Ophiuchus and Orion.

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THE EFFECT OF MICROWAVE AND EXTREMELY HIGH FREQUENCY RADIATION ON MICROORGANISMS

Kokhanovska Anastasiia, Yermolaiev Maxim
Faculty of Biotechnology and Biotechnics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The propagating of electromagnetic field, produced by moving electric charges, in space is called electromagnetic radiation. There are several types of EMR, which can be broadly classified by wavelength or frequency. All of us are aware of some effect of EMR on living organisms such as the part of visible light in photosynthesis or the production of vitamin D in the skin with the involvement of ultraviolet. The most compelling area of study of this biophysical issue is the effect of extremely high frequency radiation.

The most common usage of EMR is disinfection. The mechanism is easy to understand. The cell absorbs electromagnetic energy, which speeds up the molecular motion, transforms into heat and causes hyperthermia. This method of disinfection is unselective and sometimes proves to be more effective than ultraviolet and can synergize with chemical unselective disinfecting agents such as hydrogen peroxide.

While a lot of research has been done on the nature of the thermal effect of EMR, the work on the non-thermal effect on biological systems is mostly limited to proving its existence. Many studies on bacteria, fungi, and algae show stimulation of growth or biosynthesis intensity on energy levels way too low to cause any thermal effect. Different biosystems require optimal frequency and time of radiation to get a positive result. For example, the wavelength 7,1mm and time 30 minutes are optimal for the increasing growth of Sc.quadricauda and Str. xanthochromogenes (40% compared to blind test).

It has also been experimentally proved that microwave radiation affects non-thermal enzymatic reactions using non-aqueous esterification reactions as an example. There were made studies on the synthesis of caprylic acid and butanol, which is catalyzed by the lipase of the colonies of the fungi Rhizomucor miehei, used for the industrial production of enzymes. It turned out that at a certain substrate concentration, heating and subsequent irradiation with microwaves, the initial reaction rate increased in comparison with a similar experiment, but without the use of EMR. The possible explanation is the polarity of specific solvents and substrates.

There are several theories about the nature of the positive effect of microwaves and EHF radiation on microorganisms. The radiation on oxygen absorbing frequency causes intense growth of E.coli what brings one to the assumption that EMR has an ionizing effect and creates reactive oxygen species, which can both increase

metabolic rate or destroy biological molecules. Both positive and negative effect is explained by the high reactivity of these oxygen species. The similar stimulation of EMR and aeration along with the lack of positive effect in systems without dissolved oxygen also goes with the reactive oxygen species theory.

Some studies on the cellular structure of Saccharomyces cerevisiae show that polar elements of the cytoskeleton can produce electromagnetic radiation that could play a role in intracellular or extracellular (coordination of a colony) regulation. For example, oscillation of microtubules affects the structure and charge of membranes. The possible connection between EMR and membrane structure can also be seen in studies on fluorescent bacteria Photobacterium leiognathi, which loses the luminescence after 10 minutes of radiation.

A large number of studies show that microwave radiation can have a significant effect on the genesis of microbial cultures: from stopping the life of microorganisms to accelerating their growth. The nature and extent of the effects depend on the frequency of microwaves and the total energy absorbed by the objects being studied. However, neither the effects of a wide range of frequencies nor the effects of the same spectrum of absorbed energies have been sufficiently studied. Therefore, given the existence of a clear correlation between microwaving of cultures of microorganisms and the frequent acceleration of biomass growth and stimulation of the synthesis of certain biologically active substances, it is advisable to further study the nonthermal effect of short-wavelength waves on biotechnological producers.

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NEUROSCIENCE MECHANISMS OF INFORMATION PROCESSING

Kononov Anton

Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The nervous system is a complex system that transmits signals throughout the body. Neurons are the cells that make the system work. Information processing is carried out by means of interneuron interaction. In the results form receptive and projective fields of sensory neurons, which play a major role in the processing of sensory signals.

The main function of the nervous system is the processing and integration of sensory information coming from the external and internal environment of the body.

During evolution, each organism has developed specialized sensory limbs, arranged to optimally respond to certain phenomena. There are three groups: exteroceptors are stimulated by the environment and involved in the implementation of auditory, visual and tactile sensory functions. The proprioceptors determine the position and motion parameters and take part in the formation of kinesthetic and tactile sensory functions. Interoceptors record information coming from the internal organs of the body. For example, sensors of temperature, blood pressure, blood composition, etc. The perception of information is accomplished through the six main channels of sensory reception. These are the channels of the organs of the senses - hearing, sight, touch, thermoreception, smell and taste. The system of receptors of each modality is connected to certain departments of the central nervous system. Highlighting the important sides and properties of signals coming from outside is the main function of information processing at the receptor level.

Kinesthetic sensors play a crucial role in enhancing the senses. The kinesthetic function serves to ensure the coordinated movements of the musculoskeletal system of the person and the proper orientation in the space of the whole organism. The sensors of the respective control circuits detect changes in the relative position of the individual elements of the motor system.

Visual analyzers are used to analyze optical signals. The visual perception is the result of the interaction of the mechanisms of the eye and the nervous system, as both arbitrary and involuntary movements of the eyes and head cause the image to shift. A complete picture is created from a series of discrete images. The visual acuity is maximum at which the image gets to the retinal point.

Finally, a tactile reception. The value of its function is the highest. If the absence of special types of sensitivity such as vision, hearing and smell does not lead to the death of the body, the lack of tactile reception is incompatible with life. Dermal reception can be divided into two categories: sensitivity associated with skin receptors and types of sensitivity associated with receptors located in muscles, joints and tendons.

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CONNECTION BETWEEN NOT CONSUMPTION OF SOLID FOOD AND PREDISPOSITION TO AN ALZHEIMER'S DISEASE

Kopieikina Yelyzaveta
Institute of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Alzheimer's disease is a non-convertible and remediless, onward brain disorder that little by little destroys memory and thinking skills and, finally, the ability to execute the ordinary job. Periodontitis is pass for to be one of the eventual hazard factors for Alzheimer's disease. It is a lingering inflammation of the tissue ambient the teeth which is due to complex bacterial interaction, resulting in breakdown and leakage of supporting structures around the teeth. This one information clear up the enigmatical connection between Alzheimer's disease and periodontitis, display the pathophysiology and likely consequents. Known for a long range of things that bring about to the periodontitis: it is a violation of the blood circulation of gums, dental stones, irregular bites, vitamin A deficiency, P and C, problem with endocrinology, diabetes mellitus, diseases of the gastrointestinal tract, medication with hormonal medicine. Nowadays it become very popular to use special diet where you can eat all dishes only in soup state.

To define the connection between not consumption of solid food and predisposition to an Alzheimer's disease.

The correct growth of teeth, satisfactory state of gums and support of their working capacity depends on the constant loads on them. Solid food is a kind of food you need to chew well. If to deprive the teeth of the necessary loading, tooth fabric will begin to lose gradually calcium. It occurs very quickly, but they may not be noticeable over the next few weeks. If for a long time to refuse consumption of solid food there is a risk to lose teeth - they start to distribute, crumble, have caries. Thus, the organism gets rid of "unnecessary" to its more organs.

Consumption of solid food in daily diet improves blood circulation of gums as massages it. Whereas excessive consumption of soft food is one of the fundamental reasons for a periodontal disease.

Summing up, we need consumption of solid food as it is excellent prevention of periodontitis. And it means as at the same time consumption of solid food is preservation of Alzheimer's disease.

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THE INFLUENCE OF COSMETOLOGY ON THE HUMAN BODY

Kostenko Aliona

Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Beauty salons offer many face care methods, however, the base on which all cosmetology is based has been preserved since the time of Cleopatra. But modern technology has gone far ahead and among the many services there may be not only useless, but also procedures that are dangerous to beauty and life. Today we will understand the influence of cosmetology on the human body.

Let's start with the most popular facial cleansing procedure. Cosmetologists use cleaning when the pores are cleaned, comedones are removed. Brushes are made depending on the condition of the skin. Previously, steaming was used before cleansing, now other methods are used to open the pores. In my opinion, this is one of the most important and necessary procedures. Most cosmetologists agree on this point of view, so we can say that facial cleansing is important and necessary!

The second important aspect is hydration, namely nourishing and moisturizing masks. Nutrient masks were made on the basis of clay, natural home-made products: sour cream, eggs, olive oil. But, attention, it is important to understand that in the modern world harmless products of home use can have hidden threats. For example, raw eggs often contain salmonella. Which, for the data WHO:

1.Salmonella is one of the most common causes of diarrhea.

2. Sometimes salmonella is the cause of death.

3. Antimicrobial resistance - a public health problem

Therefore, we can conclude that any of your actions need to be thought out, because dangers can be avoided without abandoning the hydration procedure.

And now we'll talk about a procedure like Botox. Under the commercial name Botox, is a botulinum toxin that has a powerful effect on the nervous system. It became popular due to its bright anti-aging effect - after such a "beauty injection",

both fine facial and deep wrinkles disappear, the skin tightens and becomes more elastic. However, this is achieved in a far from healthy way. Botox acts on the nerve endings of the muscles, so that they lose their ability to contract and relax. As a result - a smooth and rejuvenated, but completely motionless face mask.

To make beautiful cheekbones and adjust the face contour, cosmetologists suggest introducing very thin threads under the skin. In the places of their introduction, tissues begin to actively produce collagen, which allows you to quickly tighten the contours and eliminate sagging skin. Flashing firmware is dangerous for several reasons:

1.here is a high risk of scar tissue and skin thickening;

2.issues lose elasticity and coarsen quickly;

3.metabolic processes are disturbed in the subcutaneous layer, which leads to the formation of edema and premature wilting.

In conclusion I want to say, that beauty standards are passed down from generation to generation. It is noted that even heredity can change if the main principles of caring for your skin are passed from mother to daughter. But how high are you willing to pay for beauty? Is it worth it to risk health, and maybe life? Take care and choose only safe anti-aging procedures!

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HOW MOON AFFECTS HUMANS

Krasnyanskaya Elizaveta
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Introduction. All over the centuries humanity was interested in the fact how actually Moon affect creatures that inhabited Earth for thousand of years. Even our ancestors has noticed some interesting and useful facts. Moreover, plenty of researches has already proved the fact of undisputable influence on the animals, fishes and other our neighbours. Nowadays stack of modern technologies enabled the further explorations in this field. World scientific community is ready to embark on the trip to conquer new study that was unknown before.

Objectives. The main task is to conduct research for new information about correlation of moon phase with human biorhythms. To be more exact, there are a

plenty of theories that are begging us for further exploration of their secretes. Understanding of such biological problems will be crucial for humanity.

Methods. Contemporary technologies such as programming language Python with its libraries(Pandas, NumPy, AstroPy, Sklearn, etc.) and frameworks(Spark) made a breakthrough for the variety of researches. Tools that allows with lighting speed operate the huge amount of different data become vital for every researcher. Furthermore, statistics oriented method was also dramatically simplified. Notwithstanding the importance of the mathematical method, physics model is extremely important to. Every researcher in this field should mind about biological aspect which is probably the most mandatory.

Results. Fortunately, nowadays scientists made a lot of new huge discoveries in this sphere. For instance, National Geographic research of how full Moon and other strange lunar effects on animals. To be more exact, research that was conducted on oysters unveiled interesting facts about this animal. Turned out, that oysters close their shell during the full moon. There is still lack of information about why exactly they react on the moon in this way, but there is a theory that such shell shutting is because of more algae or other food being available during the new moon and as the year progresses, says Damien Tran who was in charge of the research that was conducted at the University of Bordeaux. This example represents a typical way of discovering new study by at first monitoring dozens of oysters opened their shells during a 3.5-month period. The team used a high-tech device that quantified the valve opening every two seconds, as they elaborated later in the journal Biology Letter. Zooplankton was under an investigation to. These mini-creatures are prey to a many larger animals that hunt by sight. So to avoid predation, zooplankton head for the depths at dawn. Different statistics methods were applied on researches that was tightly interlinked with humans. But such method requires thoroughly analysis operations with data. Unfortunately, there were no professional researches using modern technological set.

Conclusion. To cut the long story short, Moon is still bears a lot of hidden facts, especially about its influence on Earth and creatures that inhabit the planet. Further exploration of the effects will be extremely important for human being for better understanding of our biological secretes that were a mystery for a centuries before.

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THE INFLUENCE OF ALCOHOL ON THE HUMAN BODY

Kukhrivskyi Denys
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Alcohol has a bad effect on the human body, it is the cause of a large number of diseases and both physical and mental disorders. Due to the high concentration of alcohol in the blood in the brain there are disturbances in the cerebral cortex, increasing the heart rate. The vessels of the cardiovascular system expand causing redness of the skin. Muscle is affected by excessive alcohol consumption, and balance is impaired.One fact is that alcohol has a negative effect on vision, and with age it gradually worsens.

According to WHO, more than 6 million people die from alcoholism every year. It's more than dying of cancer. Alcohol consumption is associated with 65% of injury deaths.A glass of beer, drunk by the driver before departure, increases the likelihood of accidents due to his fault by 7 times, with the use of 50 grams of vodka - 30 times, 200 grams of vodka - 130 times.The most unlucky adventures happen at the age of 15-25 years, at the most reproductive young age. Alcohol consumption is the cause of many diseases; every third case of cardiology and every fourth cancer in men and women are related to alcohol. In addition, directly from the systematic use of alcohol, there are diseases such as cirrhosis, mental disorders, and gastric ulcer. More than 40% of alcohol users have high blood pressure, 25% of sudden deaths are caused by drinking. Parental alcoholism has a detrimental effect on their children. Drinking and alcoholism are the cause of many divorces. Alcoholic parents are more likely to have a mentally retarded child.

Many women who drink alcohol, pregnancy is accompanied by dangerous complications, with a high risk of birth of premature or dead children.

In families where alcohol is consumed, children often suffer from quarrels between their parents and these children, do not instill normal moral qualities. In generaly influence of alcohol on the body depends on the body weight and the amount of water in it: the more water - the less harm the alcohol produces. In most cases, the female body contains less water than the male body due to its lower body weight, which is why it reacts more intensely with alcohol. In addition, women are less effective in the use of gastric enzyme, which neutralizes alcohol.

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GENETIC ENGINEERING
Kumpan Lina
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Genetic engineering (gene modification) is the process of altering DNA in the genome of the body. It uses various methods of molecular genetics to artificially create new genes that are not naturally occurring. Genes foreign to the body are introduced into its cells and incorporated into the genome for various purposes. In particular, it may be to study the structure of the genetic apparatus, to provide the host organism with desirable qualities (such as resistance to infections).

Genetic engineering uses sophisticated and sophisticated methods of modern genetics that allow you to work with a small amount of genetic material. It is important to remember that genes change (mutate) in all living organisms - this is the process of evolution. The only difference between artificial and natural gene modification is that in the first case, we can control this process ourselves.

With the help of genetic engineering technologies, it is possible to create a variety of organisms, even harmful mutants, but modern geneticists usually pursue a different purpose - commercial interest. Most often, people seek to create useful things that will be in demand in the market. For example, irrigation of fields with insecticides (chemicals for pest control) is dangerous for beneficial insects. To prevent the destruction of the latter, humans create genetically modified pest resistant varieties. At the same time, the cost of using insecticides is also reduced.

Gene engineering for the medical field is especially relevant. It has prospects for use in the treatment of three groups of diseases: viral, hereditary and oncological. As for viral, the very popular CRISPR technology is now being developed.

CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) is a state-of-the-art development based on the bacterial immune system. This development makes it possible to get rid of such horrible diseases as HIV, hepatitis and others. This method is that the bacteria are able to process their DNA to become resistant to some viruses. Scientists use this opportunity to rearrange the human genome.

This development was first applied in China, and this is the case in the US on a human embryo. Scientists have said that research must continue to ensure that families with genetic abnormalities can have healthy children.

CRISPR-Cas9's innovative technology is attracting more and more attention from both scientists and those interested in biotechnology.

What is CRISPR-Cas9?

The essence of CRISPR is that when a bacterium is attacked by a virus, it produces genetic material that corresponds to the genetic sequence of the attacker. This material, in combination with the Cas9 key protein, can attach to the DNA of the virus, break its genetic code and neutralize the virus. This is similar to how antiviruses work on computers: they have a database of virus fragments and they detect pests.

Scientists can now use the same scheme to insert new elements into DNA, remove or correct parts of it. This process is so precise that scientists can go through the billions of chemical combinations - the constituents of a cell's DNA - to make some specific key change in the genetic code.

Also important is that it is a simple and inexpensive method. Therefore, it will accelerate all kinds of research - from the creation of genetically modified models of human disease in animals to the search for DNA mutations that provoke disease or, conversely, protect against them.

When and how do we feel about the effects of CRISPR treatment? Technology is only a few years old, so its testing on patients has not yet begun. However, some experiments are already in the planning stages.

Boston-based biotechnology firm Editas Medicine plans to launch clinical trials of the first gene-modifying drugs by 2017. The drug to be developed will be able to treat Leber's blindness (LCA10), a rare disease of the retina that causes blindness, as a result of the mutation of the genes, there is a gradual loss of photoreceptors located in the eye.

In the field of biotechnology, there are several newly established companies that hope to implement the use of CRISPR technology in hospitals. They suggest that crippers can be used to enhance the body's T-cell function. This will improve our immune system's ability to recognize and fight cancer cells. Another potential area of technology is the treatment of blood diseases and the immune system.

Recently, the debate has been about the possibility of genetic engineering rejuvenation. So far, scientists have conducted experiments only on rodents - using viruses introduced into the cells of animals an enzyme gene (telomerase). When cells divide, DNA is doubled, chromosomes are reduced, some more complex biological processes occur, and cells are more able to divide. Thus, rodents have prolonged their lives by 20%. There was an idea to try the same for humans, but there have not yet been full clinical trials.

Interesting was Stephen Hawking's position on this - in his recent work, he suggested that, thanks to genetic engineering, a new race of superhumans could emerge in the world.

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WILDFIRES. CAUSES AND CONSEQUENCES

Nekhomiazh Kateryna
Institute for Applied System Analysis,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Planet Earth is experiencing many problems caused by destructive human activity. Melting glaciers, pollution of the oceans, droughts, the appearance of ozone holes in the upper atmosphere, the disappearance of rare protrusions of animals and birds and among others there are fires.

2019 is notorious for a big splash of conflagrations all around the world. The questions that need to be covered are: what actions cause such incidents, what catastrophes of this year shocked the world scientific community and what are the global consequences of all this for the planet?

One of the most disastrous this year`s calamities is California wildfires. So far more than 6 000 have been recorded, that is more than 101,303 ha of burned land. Even though September`s season have been pretty quiet, October through December is predicted to be devastating as the Diablo winds and the Santa Ana winds pick up. What is more, usually Californian fire season occurs in fall, but over the last years it has also broadened to summer and winter.

A lot of fires were caused by lightning strikes, tree branches that fell on power lines, vehicular traffic along adjacent routes, PG&E and Southern California Edison high-voltage transmission lines and also trash in garbage trucks (Arango, Del Real, Penn, 2019).

Greta Thunberg, an activist, known for her speeches for environmental protection and general awareness and concern, standing outside City Hall just in miles from an ongoing blaze said: "We can see the wildfires happening right around the corner. Right now we are living in the beginning of a climate and ecological breakdown, and we cannot look away from this crisis anymore."

And hundreds of people joined her to show the government that youth is concerned about environment and ecological situation all over the world and it is a crime to remain inactive (Davis, 2019).

Another huge conflagration that worried scientists is devastating bushfires in Australia. Those ignitions are happening because of a dry atmosphere, suitable for tinder to inflame: strong winds, enduring heat. As of 13th November 69 were strong and 70 more were moving fast to the south. Experts are concerned, as at that region summer has just started.

Moreover, the fires have also caused a great amount of smoke. Its area is so huge, it has reached the Pacific ocean and the Atlantic Ocean through the tip of South America. However, modern technologies have gone so far that NASA`s satellites let scientist know about burnings in distant areas and send data straight to local controllers in a matter of hours, create a map of ignitions, their relocation, development (Jenner, 2019).

But one of the situations that shocked the world community the most was forest fires in Siberia, which lasted from mid-July and burned about 11 hectares of forests. It is absurd that the authorities were in no hurry to fix the problem, citing the fact that it was "economically unprofitable." The fires were triggered not only by global warming, but also by large-scale deforestation that occurred, despite the warnings of environmental experts. Siberian forests, together with the Amazon forests, provide about 50% of oxygen throughout the globe. Therefore, given the smog that spread over the territories of Asia and even reached Canada, this is far from a local problem, the life of all mankind depends on these forests (Irfan, 2019).

Three components are needed for combustion to happen: something to burn (trees, houses, dry bushes), oxygen and a source of heat to get to the temperature of ignition. After this, fuel, weather and topography conclude how the fire develops, whether it quickly goes out or turns into a huge fire, which destroys hectares of plantings, maybe animals, buildings etc.

There are a lot of factors that cause forest fires, directly induced by people or indirectly. The most common are:
- Arson;
- Campfires;
- Not extinguished cigarettes;
- Improper garbage burning;
- Incorrectly conducted power systems.

The last one is especially rough, as it is one of the main reasons for California Wildfires I have mentioned before. And the worst part is that there are companies that are responsible for accidents, but they are not held accountable for their deeds (Bonsor, 2001).

In conclusion, I would like to draw attention to the fact that everything depends on us, fires lead to the extinction of entire populations of animals, the formation of holes in the ozone layer, threaten the life and well-being of human beings. There are things that each of us can do, as it is not difficult to be more responsible, for example, not to make fire in the wrong places, always check whether you have put it out, carefully throw out cigarette butts, making sure that you do not provoke a fire. Moreover, check electrical appliances at home, as problems with them and wiring can

lead to irreparable consequences, as well as gas stoves; do not smoke indoors, especially in bed; check if your debris leads to a fire in the tank. Do not transport flammable substances without proper packaging and do not leave them in the sun, as a regular bottle of water left in direct sunlight can cause a fire.

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ADDING MARBLE TO A STRETCH FILM COMPOSITION

Nikolaieva Iryna, Lazarchuk Anastasiia
Faculty of Chemical Technology,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The global problem of environmental pollution with plastic waste annually disturbs the world community more than ever. Research in this area, published in PNAS in 2015, shows that about 70% of seabirds have plastic waste particles in their stomach and that this trend will have increased this indicator to 99% by 2050. These data show how much floating waste on the surface of the water endangers the natural ecosystem. Restrictions on the production and use of plastic bags also find their place in Italy, Denmark, Ireland and England. In 2019, a law prohibiting disposable packages in New Zealand came into force.

The object of our research is stretch film. There is a ban on its import only in China at the moment; it forbids import of films less than 0.025 mm thick. This suggests that the world community is not yet ready to abandon this material, which means this topic is relevant and currently important.

The main goal of the research is to bring the plastic film to a state of biodegradation. This type of decomposition implies unauthorized destruction of the polymer as a result of natural microbiological and chemical processes to simple components.

Polyethylene films can be considered biodegradable, because Penicillium simplicissimum and Pseudomonas molds can partially utilize polyethylene pretreated with nitric acid in three months. Furthermore, Nocardia asteroides bacteria quickly decompose polyethylene. Some bacteria that live in the intestines of the southern barn moth (Plodia interpunctella) can decompose 100 mg of polyethylene in eight weeks. Bee moth caterpillars (Galleria mellonella) can utilize polyethylene even faster.

Marble filler is a special substance to be added to the polymer composition in order to increase the volume or impart certain technical characteristics. The material is characterized by whiteness, as well as by a stable chemical and fractional composition and has high dispersion and strength. Although this material is hardly biodegradable. However, as the research described in the article "UV destruction of thin polymer stretch films" showed, filling a polymer film with marble accelerates the destruction of such a material under the influence of UV rays.

Accordingly, with a decrease in the particle size of the stretch film, the rate of its absorption by microorganisms will increase, as evidenced by a 2009 study conducted by Daniel Bird, who studied the effect of Pseudomonas on plastic bags. He found that the biodegradation of polyethylene powder in 3 months is 60%, while the decomposition of large samples of the package was not observed.

However, despite the fact that strains of these types of microorganisms exist, and this can lead to a solution to the global problem of waste disposal – the amount currently available is not enough for recycling even 0.001% plastic. Therefore, it will be possible to implement this method of disposal globally not so soon.

The problem of pollution of the oceans is not limited to large plastic garbage, and although frames are usual on which heaps of garbage like glasses, bottles and bags float on the surface, this is not the only problem. So an article by a group of scientists published in the journal IOP Publishing in 2015 suggests that 1% of plastic waste entering the oceans is micro-plastic (particle size <5 mm). This type of plastic is no better than large, since it is much more difficult to catch it.

Thus, we can conclude that, although the filling of polyethylene with marble under soil conditions can lead to its biodegradation, one cannot deny the danger of this type of decomposition in conditions of uncontrolled garbage discharge by ordinary consumers. On the one hand, under controlled conditions, this can lead to the safe disposal of garbage, and on the other hand, in the absence of control over this type of film filled with marble, it can lead to even more irreparable damage to the world's oceans.

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ENVIRONMENTAL ISSUES

Oger Alina

Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Some scientists believe that man rebelled against nature about 10 to 12 thousand years ago, when he learned to fire. Then the first ecological catastrophe occurred on Earth: for the sake of freeing up the vast expanses of vast tracts of woodland, they were cast into the flames. Animals were killed along with the forests. Since that time, the person has not been stopped. Each generation creates more and more environmental problems that it can no longer overcome. Economic activity of man every century caused the nature of increasing damage. As a result of the greatest scientific and technological progress of the XVIII-XX centuries about 20% of natural ecosystems have been destroyed. According to recent estimates, this figure has increased dramatically to 64%.

Depletion of the ozone layer of the planet, reduction of mineral resources, pollution of oil and petroleum products of the oceans, chemical contamination of soil, destruction of plants and animals - this is not a complete list of major environmental problems of a global nature.

For hundreds or even thousands of years, vast areas of the Earth will be unfit for human life. These are areas of nuclear testing and radiation disasters. This terrain is a stern warning to humanity. If so, the world will become a continuous zone of environmental disaster.

Scientists have seriously talked about the possibility of greenhouse effect on Earth in the 60's of XX century. This is one of the most pressing environmental problems of the world today. The greenhouse effect is due to the increase in the atmosphere of our planet the concentration of gases - carbon dioxide, methane, ozone, water vapor, etc. Accumulating in it, these gases, like glass greenhouses, freely transmit the sun's rays to the earth's surface and retain heat that leaves the atmosphere. Global warming is what awaits us as a result.

According to the UN, in thirty years, as a result of increased production capacity and massive destruction of forests, the planet's overall temperature will rise by another 3˚C. This is enough for the Arctic and Antarctic glaciers to accelerate melting. The ocean level will rise by one and a half meters. And then in the worst-case scenario of the apocalypse: storms, hurricanes, droughts, floods, and more.

Environmentalists from around the world are convinced that it is unlikely that we will be able to completely prevent the effects of the disaster. However, today there are a large number of "green" organizations that have undertaken to find possible solutions to the world's environmental problems. International cooperation in the environmental field allows for joint development and programs on environmental protection, conclude international conventions. Only a common understanding can save the planet. Educating environmental awareness is what is of the utmost importance today.

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THE LUNGS OF THE PLANET ARE BURNING

Ohiyewuch Sophia
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Humanity is nearing the beginning of the cascading destruction of all natural systems that support life on the planet. A very big problem at the moment is the fires that devour large territories across entire continents. According to the survey data, according to the Brazilian Institute for Space Research (INPE), since the beginning of this year, more than 75,000 wild fires have occurred — 84 percent more than in the same period last year. The fire swept forests in Siberia, northern Scandinavia, Alaska,

Greenland, the Brazilian Amazon, Greece and the Canary Islands. In July, dry hot and windy weather caused large-scale forest fires in the heart of Portugal.

The fire in Siberia was so large that it could be seen from images in space. According to space monitoring, the total area of fire in Siberia was about 3 million hectares. Smoke from fires in Siberia covered entire regions not only in Russia but also in Kazakhstan and Mongolia.

About 80,000 fires originated in Brazil in the summer. This is the highest since 2013, according to a study by the Brazilian Space Research Institute INPE. The G7 has agreed to a €20 million grant. These funds were to pay for the funding of the firefighters' work. However, Brazilian officials have abandoned foreign donors.

Forest fires destroy trees and shrubs harvested in the forest products, buildings and structures. As a result of the fires, the protective, water-protecting and other beneficial properties of the forest are reduced, valuable fauna is being destroyed, the planned management of the forestry and the use of forest resources are being disrupted. During combustion, chemical compounds are released into the atmosphere. Alaska alone has caused 50 million tonnes of carbon dioxide to be emitted this year — more than all Arctic fires in the last ten years. The effects of fires in Siberia have not yet been calculated.

According to estimates from the European Center for Medium-Term Weather Forecasts, in June and July 2019, forest fires in the atmosphere have increased by 100 million tons of CO_2. For comparison, all cars and factories in countries such as Uzbekistan or Belgium emit carbon dioxide per year.

Christina Pasca Palmer, executive director of the UN Convention on Biological Diversity, said it was time to change ways to improve the climate through tropical forest fires. It is impossible to bring the situation to a state where it cannot be changed.

The first three steps are needed to counteract climate change:
• tax pollution;
• stop subsidizing the mining of non-renewable minerals;
• stop construction of new mines from 2020.

As a conclusion, forest fires in the heat of the day are a normal, natural phenomenon but the magnitude and causes of the above causes humanity to reflect on their actions and their consequences. Statistics show that there has never been a pollution of this magnitude in the history of mankind. It is important not only to know the rules for avoiding the occurrence of a fire, but also to follow them, not only to watch the news and be aware of events, but also to take action. The changes will not come by themselves. We are the change.

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CRETACEOUS-PALEOGENE EXTINCTION EVENT OR WHY DID THE DINOSAURS DISAPPEAR

Onoguekhian-Habert Nadia
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The Cretaceous-Paleogene extinction event (or K-T extinction or Cretaceous-Tertiary extinction or K-Pg extinction) is one of the most interesting and important pages of the history. This is exactly what nearly sixty-six million years ago have led to the death of dinosaurs and the beginning of the mammals' dominance. Scientists have been arguing for quite some time about what really caused the extinction of the prehistoric reptiles. In our time, there are many theories that disclose certain aspects of this process.

Deccan Traps in India.

Some scientists believe that extinction occurred gradually. Its cause could be volcanic activity in India that is known as Deccan Traps. Two-thirds of them were formed about 65.5 million years ago. That is, they could provoke a rapid extinction over millennia. Nowadays, this volcanic rock covers almost two hundred thousands square miles.

These are few of the Deccan Traps' mechanisms, that might have changed the Earth's climate and caused the extinction:

- releasing the dust which could have blocked the sunlight and stopped photosynthetic process in plants
- sulfur gases formed aerosols and became acid rains
- after the dust had been cleared, emissions of carbon dioxide might have caused greenhouse effect ("Cretaceous-Paleogene extinction event", n.d., para. 67)

Moreover there're some studies that have evidences of mass extinctions starting much earlier than 66 we thought before, with some indications that by the end of Cretaceous, dinosaurs were already slowly declining (Jaggard, 2019, para. 9).

Impact event.

The oldest and most common assumption relates the extinction of prehistoric reptiles with an asteroid falling. But even this wouldn't be enough to completely destroy the dinosaurs. As mentioned above, their extinction had begun long before that. It was caused by cooling and, as a consequence, flowering plants appeared, that greatly changed the then existing ecosystem. So, by the time the impact happened, only a small part of once existing prehistoric reptiles remained on Earth.

Confirmation of this theory is a huge impact crater named Chicxulub, which is located on the Yucatan Peninsula and has a width of over 150 kilometers.

After the asteroid had fallen, the ground around it completely vaporized. Than tsunamis and forest fires embraced the hole planet and killed nearly 75% of all life on Earth ("Reconstructed the chronology of the events of the day of extinction of dinosaurs", n.d., para. 5). The entire planet had plunged into the darkness for some time.

One another evidence for this version is a "fossil graveyar" ("Последний день из жизни динозавров. Как обнаруженное "поле смерти" помогло выяснить детали гибели гигантов", 2019, para. 17) found in North Dakota. On the site, the remains of freshwater fish, terrestrial vertebrates, trees, branches, marine ammonites and other creatures were found. Scientists have found that most of the samples contain rock particles that come from the region of the Chicxulub crater. The location of the remains indicates that they were under the water column. But this was not due to the tsunami. According to scientists, the tsunami would take at least 17 hours to cover the distance from the Gulf of Mexico to North Dakota (it's about 3000 km). A seismic wave would handle this in about 10 minutes.

The appearance of flowering plants.

As mentioned above, the appearance of flowering plants ("Мел-палеогеновое вымирание", n.d., para. 24) greatly changed the then existing ecosystem. Flowering plants very quickly replaced other types of vegetation. The appearance of a large number of insects associated with flowering plants caused the beginning of the extinction of insects that feed on pre-existing species of vegetation. Also, flowering plants form turf, which is a natural suppressant of erosion. Therefore, the erosion of earth and entry of nutrients into oceans were significantly lowered.

The "depletion" of the ocean by food provoked the death of a huge part of the algae, which were the main producer of ocean biomass. As a result, this caused a complete disruption of the entire marine ecosystem and mass extinctions in the sea. This was reflected in large flying lizards, which were trophically connected with the sea.

Space version.

Some paleontologists believe a supernova explosion near the Earth caused the Cretaceous-Paleogene extinction (Край, 2017, para. 6). Subsequently, a large amount of deadly radiation arrived to the planet.

But there is no evidence for this theory. Even after sixty-five million years, modern telescopes would have to detect even the smallest traces of a flash that could destroy everything within a radius of 30 light-years. But they were not found.

Also, the temporary absence of a magnetic field protecting the Earth's biosphere could become the cause of radiation. Today, the magnetic field sometimes weakens and disappears during the pole change. But so far this has not led to any disastrous consequences.

Mammals exterminated the dinosaurs.

Dinosaur cubs hatch very tiny compared to adults. Extracting food on their own, they grew very slowly. To reach maturity, a large lizard took several decades.

Mortality among cubs of dinosaurs was very high. Insectivorous mammals began to compete with young dinosaurs that were forced to feed on bugs and lizards.

The beginning of this process was most likely the appearance of grass 70 million years ago. It was the absence of grass cover that distinguished the Cretaceous landscapes from modern ones. Under the cover of thickets of grass that allowed them to hunt for larvae during the day and limited their visibility, primitive hedgehogs began to act actively. The small predatory theropods were the first which became extinct. Ancient rabbits took their place. In the same way, diplodocus were replaced by small animals. The last who died were triceratops which managed to adapt to grass nutrition and tyrannosaurs.

Atmosphere change

The oxygen concentration in the air, initially reaching 40–45%, gradually decreased to the current level. At the end of the period (this was the reason for the cooling), the concentration of carbon dioxide began to fall, in the era of lizards ten times higher than now. In the middle of the Cretaceous, ichthyosaurs became extinct. With a high oxygen concentration, pulmonary respiration gave the cold-blooded reptiles an indisputable advantage compared to gill-breathing sharks. But when oxygen became less, the question arose whether fish hunters are needed in nature, if ordinary fish are in no way inferior to them.

In fact, there are many more theories of the Cretaceous-Paleogene extinction event, which put an end to the era of dinosaurs. Many scientists have been arguing about this for many years. But perhaps in the near future we will finally unveil this mystery.

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BLACK HOLES
Petrushkina Olha
Faculty of Sociology and Law,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Studying black holes has been one of the most important tasks of modern science for a long. The reason why these celestial objects arouse interest in scientists is that they are impossible to explain with any of existing laws of physics.

At the beginning of the 20th century Albert Einstein proved that the cause of gravity lies not in the bodies' interaction force, but in the deformation of spacetime itself.

There is a model of gravity, where spacetime is depicted as a very elastic fabric. If you put a heavy object such as a ball on this fabric, it will bend it, forming a hollow. Let's launch a much smaller ball by a straight line. It will also create a hollow that smaller body can be moved by too.

Thereby there may be an object that bends spacetime that much, that it forms a huge hole, no particles of energy can escape from. It creates such a strong gravitational field around, that everything that falls in it, stays there forever. This hole was called black.

In fact, any body can become a black hole if it is compressed to the size of a gravitational radius. At the same time, it is also the radius of the sphere around the black hole, once you got in, you would never get out.

If a person approaches a black hole, an outside observer will see something very strange. The closer this person will get to the hole, the slower it will move. But, in fact, the speed of its movement will increase with frantic acceleration. This is due to the fact that black holes distort not only space, but time too. When the person approaches the event horizon, observer will see that its body stops. But it's not the end of the journey. The closer the person approaches the gravitational singularity, the stronger its body will stretch. Scientists call this process "spaghetification". When, at the end, a person reaches the gravitational singularity, the molecules of its body will be torn apart into the particles, smaller than atoms.

But what happens to these particles then? All existing laws of physics cannot answer this question. The most likely option is that all of the energy and information that get into the black hole stay there forever. However, quantum mechanics, the scientific sphere that explains how the microcosm works, completely denies the

possibility of an infinite growth of energy inside black holes. Otherwise, if all the information in black hole simply disappears, then the even more important postulate, the law of conservation of energy, breaks. So the task of modern physics is to explain what lies behind the singularity.

In the late 1960s, well-known British physicist Stephen Hawking began studying black holes. In 1974, he proposed an extraordinary theory: all black holes sooner or later evaporate. And it was called "the Hawking radiation".

The scientist examines the situation when virtual particles suddenly appear on the event horizon. Their only task is to transfer momentum to other particles without transferring any energy. And, in this case, the powerful gravity of the black hole can swallow them even before they disappear. As a result, from virtual, particles turn into the real ones. And then, one particle that is closer to the event horizon moves to singularity, and the other one avoids powerful gravity and begins to move away from the black hole, to open space. Despite the positive energy of the attached particle, the total energy lost by the black hole during this time is still negative. So the scientist has suggested that one day every black hole returns to its original state – a neutron star.

There is a theory that could combine the microcosm with the macrocosm. And it claims that black holes could be portals to other universes.

String theory was put forward in the 1960s and its main purpose was to combine quantum gravity theory and general relativity. In the late 1960s, attention was drawn to the Euler equation of 200 years ago. Leonard Saskend saw that the formula described particles that had no internal structure and could vibrate. Then he called them strings. Studying string theory, physicists have come to the conclusion that our universe can be explained by interacting particles. However, the theory has some weak points, one of which is that it only works in 11-dimensional space.

We have already mentioned the gravitational radius - the size that the body must have to become a black hole. If you calculate the gravitational radius of the universe, you will see that the radius of the universe is smaller than the gravitational radius. The next question: is our universe a black hole? Remembering the big bang theory, we know that before the explosion, our universe was a point of infinite density. So, perhaps that explosion, triggered by the excessive density of matter, created a black hole? With such information, we can assume that every black hole is the same universe as ours.

The theory of the existence of universes as black holes can be perfectly combined with the string theory, which says about existence of 11-dimensional space, and, consequently, the existence of 10 different universes. It states that all the Universes are parallel to each other, sequentially. Then, let us suppose the first universe is one-dimensional. All the black holes there are located on the straight line and are the path to the next, two-dimensional universe, that leads to our universe, then to 4-dimentional etc. Through all these Universes, starting in the first, the coordinate of time passes.

Similarly, in the theory described above, the Hawking radiation can safely exist, because, although every universe is a black hole, the number of paths to get to it (all the black holes are portals) is infinite.

Analyzing information about black holes, I tried to combine some theories with each other. Still, there is no 100% proven theory about the construction of black holes.

A very important point in the development of science is its popularization. I believe that more and more people should be involved in scientific work, because only by combining the knowledge and views of many we can reach the true.

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OCEAN POLLUTION AND ITS CONSEQUENCES
Pohrebenko Vasily
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Ocean pollution is the large–scale modern issue that appears in a serious long-term transformation in the world ecosystem. Human civilization spreads dangerous materials such as chemical elements, plastic particles, oil and manufacturing waste into the ocean. This is causes a direct and deadly effect on wildlife creating death zones and leading to the extinction of entire species.

The main cause of ocean pollution is human activity. Sewage, oil spills, toxic chemicals, ocean mining are constant sources of pollution growth (Daoji, 2004). According to scientific researches, around 5.25 trillion macro and microplastic pieces are floating in the open ocean for today, and every day approximately 8 million pieces of plastic particles falls into the oceans. It leads to traumatization and death of marine life due to this plastic are absorbed by sea creatures along with food (Stull, 1989). As example 100,000 marine mammals and turtles are killed by marine plastic pollution annually. This leads to large-scale ecosystem disturbances and, as a result, damage human health. Humans eat contaminated animals and toxins from them get into the bodies of people and can lead to cancer, birth defects and health problems (Kukreja).

A partial solution is to reduce use of single-use plastic, recycle trash created by humans and improve safety of industrial facilities to avoid incidents like oil spills. This, along with ocean cleanups projects such as creating coastlines for garbage

collection, will make it possible to get rid of 90% of ocean plastic by 2040 (Sheavly, 2007).

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BIOINFORMATICS DATABASE OF GENOMES

Sikorinska Alina

Faculty of Biotechnology and Biotechnics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Bioinformatics is a branch of computational biology that uses machine algorithms and statistical methods for analyzing large sets of biological data, which generally consist of a large number of nucleotide (DNA and RNA) and peptide (protein) sequences and data structures of proteins.

The main areas of bioinformatics research include aligning sequences, searching for genes, genomes, aligning protein structures, predicting protein structures, predicting gene expression and protein-protein interaction, and reconstructing the evolution process (Xion, 2006).

This section of bioinformatics deals with the analysis of nucleotide and protein sequences.

Biological macromolecules undergo multiple mutations in the process of evolution, which leads to the loss or acquisition of long pieces of sequence or individual point mutations.

Two sequences can be aligned by recording their homologous residues one by one. In the case of multiple alignment, it is a matter of re-merging paired sequences.

Multiple sequencing is the alignment of three or more biological sequences of proteins, DNA or RNA. In most cases, it is assumed that the input sequence set has an evolutionary relationship. Using multiple alignment, one can
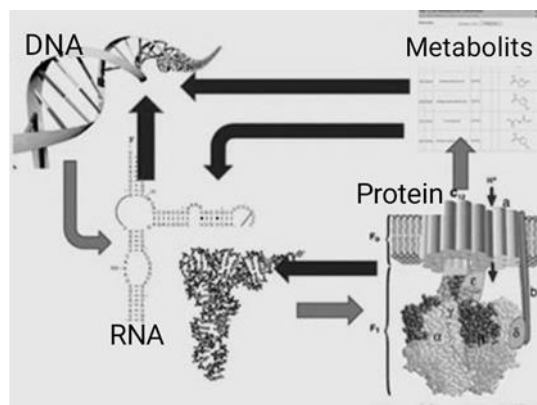
estimate the evolutionary origin of sequences by performing phylogenetic analysis. Multiple line alignment is now possible with the help of programs available in on-line mode.

ClustalW is the third generation of series programs that runs on the basis of a series of pairwise alignment algorithms.
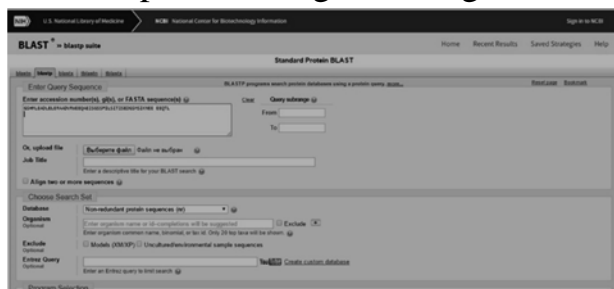
MUSCLE (Sequence Comparison by Log- Expectation) is located on the EMBL-EBI server and provides high precision alignment and performance.

The GenBank Base is a global archive of nucleic acid sequences that arose thanks to the partnership of the National Center for Biotechnology in the United States, the Data Bodies of the European Institute of Bioinformatics and the DNA Database of the Japanese National Institute of Genetics (Strasser, 2011).

Bioinformatics is a young but promising branch of biological science, whose main task is to work with large masses of molecular genetic data, as well as to model and predict the properties of individual biological molecules and entire biological systems.

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QUANTUM TELEPORTING

Vinichuk Anastasia
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

"Science is step by step. First, you make the impossible thing possible. Then you work to make it more perfect."

Chao-Yang Lu, physicist

Teleporting is an instantaneous movement from one place to another. Ideally, the speed of the transition would be faster than speed of light.

The history of teleportation began in 1993 when Charles Henry Bennett, an American physicist, succeeded in calculation of theoretical possibilities of the instantaneous quantum displacement. The account included only abstracting equations without any practical use. Nevertheless, the history remembers many situations when this sort of research led to unbelievable discoveries. Therefore, one more evidence of a possible quantum transition has cemented this idea in the minds of many scientists. The idea of quantum teleporting is to dematerialize the object in one place and to materialize it in another. It is highly significant to emphasize QUANTUM moving, the main reason is in the mechanism of such teleporting. We do not transfer the material object (like a photon or atom), however we transfer the information about its quantum state. According to the Bennett`s calculation it is enough to "recreate" item in a new place and get the exact copy of it, in consequence the material object is destroyed.

Quant – is the smallest particle. We and everything around us are composed by quants. These diminutive particles are characterized by such condition as *superposition*. Superposition is the ability of a quant to be in multiply states at the same time. This trait was the basis of quantum theory. There are two major interpretations of quantum theory: Copenhagen's and many-worlds. The phenomenon of superposition was a quite challenging task for scientists to accept. Therefore, "Schrödinger's cat" has been offered.

"Schrödinger's cat" – is a thought experiment, which was proposed by Ervin Schrödinger to explain quantum theory. This poses the question of when exactly quantum superposition ends and reality collapses into one possibility or the other.

"A cat, a flask of poison, and a radioactive source are placed in a sealed box. If an internal monitor (e.g. Geiger counter) detects radioactivity (i.e. a single atom decaying), the flask is shattered, releasing the poison, which kills the cat. The Copenhagen interpretation of quantum mechanics implies that after a while, the cat is simultaneously alive and dead (in a superposition). Yet, when one looks in the box, one sees the cat either alive or dead, not both alive and dead."(Schrödinger, 1935).
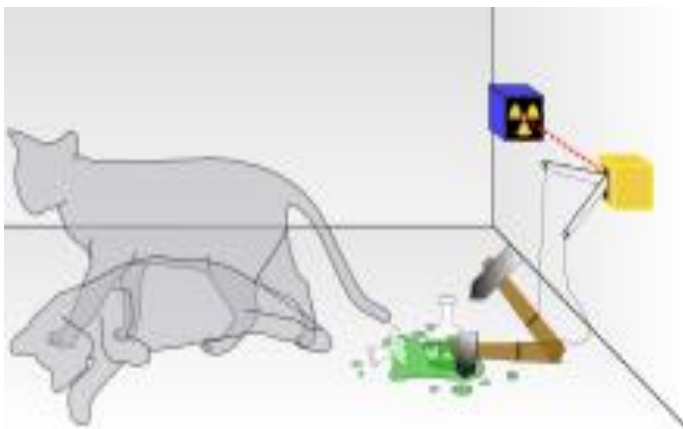
Testing of the practical teleporting has been continuing for more than 10 years. In 2009 an Austrian physicist Anton Zeilinger was in charge of such research on the Canary Islands. On the Palm Island the scientists generated a couple of entangled photons (A and B), then send one of them to the Tenerife Island, which is 89.8 miles (144 km) away. Both of particles were in the state of superposition (the box with the cat had not been opened yet). Next step was to force the third photon C (the photon scientists wanted to transfer) to get in touch with one of the entangled particles.

Subsequently, physicists measured parameters of this connection (A+C) and dispatched them, as usual bites, to the laboratory on the Tenerife Island, where was the second entangled electron. Unexplained connection between A and Bgives an opportunity to generate accurate copy of C from B-particle. It seems that it momentarily moved, although it is make-believe, because C-photon is a copy. "We are "extracting" the information that the original carries – and produce a new original elsewhere," Mr. Zeilinger (Voronin, 2019), who has teleported thousands and thousands of elementary particles in this way, explains.

Theoretically, it is conceivable to teleport subject or, even, human`s body. However, practically, it is tough. The main reason is that our body consists of about 7 octillions (there are 27 nulls after 7) of such elementary particles. The main tasks are to analyze each bit and every connection between them, besides togather everything in a strict order. Current technologies do not allow to teleport so many particles in view of the impossibility of processing a lot of information. Up to date researches are focused on increasing distance between photons, although not the amount of them. Therefore, even if all technical problems had been solved, would it have been exact copy of Human with mind and memories? No one could be convinced. "For quantum teleportation the destruction of a teleporting object is necessary and inevitable, according to Edward Farhi,who headed MIT Theoretical Physics Center from 2004 to 2016 and works at Google. – I think you would just turn into bunch of electrons, protons and neutrons. You would not look better" (Voronin, 2019). On the other hand, we are determined not by particles, of which we are composed, but by their state – and scientists are convinced that this information istransferred accurately.

Oddly enough, quantum teleporting is likely to have an important utility in secure communications. What is more, much of the discoveries are funded by cyber security applications in mind. For instance, in 2017 Pan, Zeilinger and their squad (team) used China's satellite to transmit a photon across 4772.4 miles (7600km), from Austria to China. By taking information about photons scientists in each location could construct unhackable password, which they used to conduct secure video call. Technique is entirely sensitive to any wiretaps, it would interfere and leave detectable mark. "This demonstrates that global quantum communication is possible and will be achieved in near future," says Nicolas Gisin, physics from University of Geneva (Billings, 2017).

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A NEW METHOD FOR TREATING PARKINSON'S DISEASE USING STEM CELLS

Zharko Kate
Faculty of Biomedical Engineering,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

Parkinson's disease is a chronic neurodegenerative disease associated mainly with damage to the neurons of the substantial nigra (nigrostriatal system) that produce dopamine and impaired function of the basal ganglia, which are responsible for coordination of movements and regulation of muscle tone. As a result, patients with Parkinsonism are the first to experience symptoms such as hyperkinesias (reduction and slowing of voluntary movements), tremors, unstable gait and increased muscle tone of the limbs.

As you know, stem cells can turn into any other type of cell and thus make up for the cellular loss of the body that occurs with injuries and diseases. The goal is to replace certain damaged neurons in Parkinson's disease with stem cells and thereby reduce the severity of symptoms of this disorder

To obtain stem cells, Japanese scientists used modern technology with which these cells can be obtained even from mature skin cells or adult blood. It is noteworthy that 7 volunteers became the donors of biological material in this experiment, 3 of which have a history of Parkinson's disease. Then, from the obtained cell cultures, biologists already grew specialized precursors of dopamine-synthesizing neurons. To conduct a preclinical experiment, scientists used monkeys with an artificially damaged nigrostriatal system. Due to this manipulation, these animals experienced the same symptoms as patients with Parkinson's disease.

Previously grown young neurons, the researchers introduced the test monkeys into the motor center, and then watched their condition for a year. It turned out that after the therapy, the condition of the monkeys improved by 40-50% - the characteristic tremor of the limbs did not become as strong as before, and the movements of the animals were less constrained and more natural than before the injection.

At the moment, scientists plan to conduct many more additional studies to study the safety and reliability of the method before starting clinical trials. In the

world, approximately 10 million people have Parkinson's disease. Currently available treatments "improve symptoms without slowing down or stopping the development of the disease," the Parkinson's Disease Foundation said in a statement.

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RECYCLING PLASTIC WASTE
Zhyrov Danyil
Faculty of Applied Mathematics,
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

The production of plastic commodities is expanding year by year, as well as the amount of plastic waste, which not only pollutes the environment but also affects some crucial aspects of our life. Plastic wastes belong to III-IV hazard classes, low-hazard waste types, but non-recyclable plastic poses a significant environmental threat because it releases toxic carcinogens over time: formaldehyde, phthalates, and others. Particularly dangerous plastic when ignited. Most fatal accidents are caused by fire poisoning, which releases very toxic gases - furans, dioxins, hydrogen chloride, carbon dioxide, which replaces all oxygen in the blood. It is because of the plastic smudging of MSW landfills that it is a very dangerous phenomenon.

Plastic recycling consists of several stages:
- gathering;
- sorting (by color, by quality, clean/dirty waste);
- rolling;
- the processing itself (cutting, washing, drying, production of granulate);
- reproduction.

There are several ways to recycle plastic:

1. Pyrolysis is the thermal decomposition of organic products in the presence or without oxygen. Polymer waste pyrolysis allows obtaining high-calorie fuel, raw materials and semi-finished products used in various processes, as well as monomers used for polymer synthesis. This is the most common method of disposal.

2. Hydrolysis - is the splitting of plastic with a water-acid solution at high temperature. As a result, we have the most granular material to be purified from toxic substances. A disadvantage of this method is its cost and the amount of time it takes to dispose of it this way.

3.   Glycolysis - processing is carried out with the addition of glycol in the process of the chemical reaction (depolymerization) at temperatures above 210-250˚C. With glycolysis there is no need for perfect cleaning and sorting of waste, also this process is practically waste-free, but the obtained raw materials can not be used in the manufacture of items for the food industry.

4.   Recycling is processing waste with the subsequent use of raw materials to produce the same products without changing the qualities. Most often, in this method, plastic waste is crushed, resulting in plastic shavings, then heated and pressed into the desired molds. This way of using plastic in my personal opinion is the best and most promising one because we get a waste cycle of plastic.

In developing countries, polymer waste is collected manually.

All polymeric waste can be divided into several types: the first four are waste of the production sphere, and two more - waste of the sphere of consumption:

1. Waste of the polymer manufacturing industry.
2. Waste of the polymer processing industry.
3. Waste of the industry using polymers (semi-finished products) in its products.
4. Waste of the industry using polymers (semi-finished products and finished products) in the process of production of its products.
5. Polymeric packaging.
6. Polymer products for individual consumption.

However, there are differences between cities in different countries. Let's look at average trash production. Cities in France and the United Kingdom annually produce industrial waste of up to 50 million tons each, in Germany - up to 61 million tons, in Italy - up to 44 million tons. million tons per year, in Germany - 20 million tons per year.

If we talk about the amount of garbage that a person produces per day, in the cities of Japan waste is generated 920-1220 g, in France - 620 g. This is the usual amount for industrialized countries. The largest amount of waste per person is the United States, with 0.47-0.52t / year or 1450g / day. The total global volume of domestic waste in Ukraine is 10-11 million tons per year. Landfills occupy 2,600 hectares of land. If we sum up all the types of waste and divide by the number of people, we get that they form about 1 ton per person per year.

Typical urban waste composition is as follows: paper and cardboard - 41%, garbage 17.9%, rubber, leather and wood - 8.1%, food waste - 7.5%, metals - 8.7%, glass - 8.2 % etc. - 1.6%. Of course, the waste structure depends on many factors, ie national features, local legislation, population traditions, etc.

The most promising sort of plastic for the chemical industry is polylactide. The range of its use is boundless: lamination of packaging paper dishes, waste bags, disposable tableware, packaging for food.

The main problem of garbage recycling in Ukraine is unprepared infrastructure that would allow waste sorting.

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