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## **INSTRUMENTS OF DIGITAL MARKETING IN THE PHARMACEUTICAL INDUSTRY**

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Each pharmaceutical company has its own specific goals in terms of choosing a marketing policy and communication system with stakeholders for market promotion and interaction with consumers (Chygryn, 2012; Chygryn et al., 2021; Pimonenko et al., 2018; Saher et al., 2018). One of the most significant transformations associated with the impact of digital technology on the pharmaceutical industry (Khomenko et al., 2020; Chygryn, 2017; Chygryn et al., 2015; Kuzmenko et al., 2020; Sigida, 2019). It is well-known fact that pharmaceutical companies are no longer the sole advocates or providers of information related to their products and treatment approaches (Mamay et al., 2021).

The powerful development of digital technologies, the expansion of online communities, a large number of mobile applications, accessible web content determine the wide access to information about treatment and a number of pharmacological knowledge (Mazurenko et al., 2021; Bozhenko, 2021; Starchenko et al., 2021; Dudchenko, 2020; Shkarlet et al., 2019; Vasilieva et al., 2017; Bublyk et al., 2017; Fila et al., 2020; Gallo et al., 2019). With this in mind, companies need to create targeted branded content, primarily value-oriented (Khomenko et al., 2020; Rosokhata et al., 2021). The information offered by pharmaceutical companies should provide consumers (potential or current patients) with a diverse view of the relevant information, which will significantly expand the company's audience.

The application of VR technologies in the pharmaceutical market has significant prospects. By 2022, the consumer VR software market is expected to

grow to \$ 16.3 billion. The implementation of VR technologies will provide positioning of people in the centre of business, will provide a unique opportunity to feel their mission, to understand in more detail the treatment or product of the brand.

At the same time, it is important to use social networking applications (Facebook Messenger, WhatsApp, Telegram, etc.) to communicate with potential customers, patients or partners (Minchenko et al., 2020; Yelnikova and Barhaq, 2020; Goncharenko and Lopa, 2020; Eddassi, 2020; Ziabina et al., 2020; Chukwu and Kasztelnik, 2021; Medani and Bhandari, 2019; Samoilkova, 2020; Yarovenko et al., 2020; Mazurenko and Tiutiunyk, 2021; Pimonenko et al., 2021; Kryvych and Goncharenko, 2020; Matsenko et al., 2021; Lazorenko et al., 2021).

The use of chatbots to improve the efficiency of the organization will ensure the implementation of key tasks and responses to customer inquiries, will improve the level of overall customer service (Rosokhata et al., 2021). It should be noted that chatbots have proven their convenience and versatility, and society has shown increased confidence in their use. In the case of social messaging, chatbot communication demonstrates the growth of the customer experience and provides valuable data for marketers and decision-makers (Oleksich et al., 2021).

A large part of the audience follows the behaviour of influencers, who form an appropriate model of audience behaviour. 70% of millennials are influenced by the recommendations of their peers, while 90% of adolescents aged 18 to 24 trust medical information obtained through social networks, and a third of American adults search the Internet to understand the medical condition.

Digital marketing technologies are effective tools for advancing the pharmaceutical and medical industries (Taraniuk et al., 2020). A significant number of pharmaceutical companies have adopted these strategies as key and have made significant progress in transforming the way they do business. To succeed in today's digital world, pharmaceutical companies need to provide a high level of personalization to care for potential customers and patients.

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## **PROBLEMS IN HEALTH CARE POINT MANAGEMENT CAUSED BY COVID-19**

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The problem of studying the possibilities to functioning in the global economic crisis is currently one of the most pressing problems for all economic entities (Mazurenko et al., 2021; Bozhenko, 2021; Starchenko et al., 2021; Dudchenko, 2020; Yelnikova and Barhaq, 2020; Goncharenko and Lopa, 2020; Eddassi, 2020; Ziabina et al., 2020; Chukwu and Kasztelnik, 2021; Medani and Bhandari, 2019). During 2020-2021, the world community has been witnessing the global crisis caused by the coronavirus infection COVID-19 and its economic, social, and political consequences. Developing countries have become the most vulnerable to these crises under current conditions in the world. On this basis, organizations, especially those that provide vital activity and health care, have to adapt to the conditions created by external environmental factors. Internal managed factors should determine the possibility of anti-crisis activities and adaptation of its structure and activities. The provision of anti-crisis activities on a regular basis allows to purposefully form an effective subsystem of enterprise management in crisis situations (Samoilikova, 2020; Yarovenko et al., 2020; Mazurenko and Tiutiunyk, 2021; Pimonenko et al., 2021; Kryvych and Goncharenko, 2020; Matsenko et al., 2021; Lazorenko et al., 2021; Oleksich et al., 2021; Mamay et al., 2021; Taraniuk et al., 2020; Shkarlet et al., 2019; Vasilieva et al., 2017; Bublyk et al., 2017; Fila et al., 2020; Gallo et al., 2019). Awareness of the need to form, as well

as the role, place and options for building a crisis management system in the enterprise or institution as a special and specific subsystem - an urgent problem that requires further consideration.

The object of this study is the healthcare point (HCP) of the Interregional Rapid Response Center (IRRC) of the State Emergency Service (SES) of Ukraine.

The purpose of this article is to analyse the main problems the organization that ensures the livelihood of the population in a global crisis caused by the global pandemic coronavirus infection caused by the virus Severe Acute Respiratory Syndrome Coronavirus 2.

The health care system is an important component in ensuring the national security of the state. Thus, the mechanism of international economic security management and assessment of the directions for the state's innovative development have been presented in (Shkola et al., 2020).

The reliable health care system ensures the quality of the country's intellectual capital. One of the important factors influencing the level of intellectual capital is the state of health of the population, especially in the reality of the Covid-19 pandemic (Shcherbachenko et al, 2020). New approaches to the management of health care facilities in market conditions are proposed in the works (Semchuk et al., 2020; Dmitruk, 2018). Directions of state regulation of innovative development of health care in Ukraine are identified in the work (Yurynets and Petrukh, 2018). A priority system of stabilization policy and anti-crisis measures under the new global financial and economic crisis caused by the spread of the coronavirus epidemic were suggested by (Danylyshyn and Bohdan, 2020). Actual tools of health emergency and disaster risk management were described in (Chan and Wong, 2020; Woynarowska-Soldan et al., 2018).

In the paper (Aristodemou et al., 2021) authors analyzed the resilience/preparedness of public health systems, the confinement measures introduced by governments, and their socio-economic effects. Moreover, they also

investigated the relationships between these elements by focusing on the EU Member States. According to (Aristodemou et al., 2021), scholars conducted their investigation based on three indices: the preparedness of the countries' health systems to deal with a potential health shock resulting from the COVID-19 outbreak; the strictness of confinement measures taken per Member State in spring 2020; the expected socio-economic effects of such measures on each country for the year 2020. Thus, their findings show that on average, countries with less prepared health systems implemented stricter confinement measures and that higher levels of stringency in the confinement measures are associated with stronger, negative, socio-economic impacts (Aristodemou et al., 2021).

The HCP is a medical and preventive health care institution within the structure of the IRRC of the SES of Ukraine, which was established to ensure the organization and provision of health care in several major medical specialties to patients and preventive measures and reducing morbidity, disability and mortality, early detection of diseases. The HCP provides the help of such specialists as physician, surgeon, dentist, otolaryngologist, ophthalmologist, and neurologist. It reports to the head of the IRRC, and reports on the organization of medical activities to the head of the HCP of the center and is the governing body of the IRRC on medical issues. The HCP is guided by the Constitution and laws of Ukraine, decrees of the President of Ukraine, resolutions of the Verkhovna Rada of Ukraine adopted in accordance with the Constitution and laws of Ukraine, acts of the Cabinet of Ministers of Ukraine, other regulations concerning health care, IRRC Statute and Regulation (Regulations on the State Service of Ukraine for Emergencies, 2015; Order on approval of the Procedure for the organization of medical care in the system of the State Service of Ukraine for Emergencies, 2014).

The main problems of healthcare points management are:

- lack of a license from the NHS,

- quality of service provision due to the lack of sufficient diagnostic equipment,
- problems with financing the provision of medical equipment and its maintenance,
- problems with procurement of medicines and equipment due to lack of licensing,
- insufficiency and obsolescence of equipment in the framework of the activities of doctors, both therapeutic and surgical with a dental profile,
- use of property by some specialists on the terms of free lease,
- lack of accreditation (as the next step after licensing) for paid medical services,
- availability of only minimum areas for medical care in the required profiles in accordance with the relevant sanitary and hygienic standards and construction SES,
- lack of the required level of education of junior medical staff (to work with some equipment),
- insufficient number of junior medical staff,
- regulatory framework (regulation by both the Ministry of Health and the SES),
- lack of appropriate equipment and specialists.

At the present stage of development, the health care center is in a strong grip between two government agencies - the State Emergency Service of Ukraine and the Ministry of Health of Ukraine. The lack of understanding between them leads to a decrease in funding from the SES and the lack of funding mechanisms from the Ministry of Health or the National Health Service, except for the licensing of the HCP as a health care institution with subsequent accreditation for paid services.

To form the structure of the Medical Expert Commission (MEC), it is necessary to expand the staff structure of the HCP with the approval of the

appropriate structure of specialists in the SES. At the same time, it is necessary to increase the number of nurses to comply with the staffing standards approved by the Ministry of Health.

The expansion of health care facilities also leads to the need to analyze the infrastructure of the HCP at the current stage of overcoming the crisis, to identify opportunities to expand the facilities involved at the expense of other IRRC facilities, and their appropriate training at the IRRC.

Continuing to monitor the problems in HCP, including due to the epidemic raging in the country, we must not forget about the level of training, both doctors and paramedics, and therefore at the first opportunity to make a plan for continuous professional development of staff and monitor its implementation, which will allow to constantly influence the quality of medical care provided to personnel. While improving the quality of personnel assistance, the positive effect of staff recovery will be felt at the level of the entire interregional rapid response center, as well as protect the staff of the center, including from the negative effects of the pandemic.

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# **INFORMATION TECHNOLOGIES AND DIGITALIZATION OF SERVICES PROVIDED BY HEALTHCARE UNITS – SELECTED THEORETICAL ASPECTS AND CURRENT PROBLEMS**

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Advances in technology are constantly driving the world and its economy. All sorts of discoveries and inventions have made it possible, among other things, to use modern tools in the processes of servicing people. With their help, the vast amount of data and information exchanged directly between people could be processed automatically by devices equipped with specially tailored programs for this purpose.

All this development is undoubtedly due to the information technology present in everyday life. What actually is information technology and how it is defined in the literature. According to the PWN online dictionary of Polish language, technology is a field of technology whose main task is to develop modern methods used in production. Information technology, on the other hand, is a combination of solutions taken from computer science with other technologies used to acquire, transfer, and analyze information (Sysło).

The development of this field of science has undoubtedly made it possible to start digitizing the health services provided by public and state entities. The role of digitization in improving the process of serving people is undoubtedly huge. Its main task is to support human beings during the acquisition, processing and storage of information. The consequence of these activities is increased productivity, as well as higher quality of services provided (Kowalczyk and Mroczo, 2017).

The aim of this paper is to discuss the solutions in the field of information technology that are used in entities providing health services and to present the

current problems occurring in these units in the field of digitization.

Health care is of special importance for society. Unfortunately, with the passage of time and development of civilization, the needs increase. The amount of money that is used for financing this area of services is also increasing, but at a much slower pace. It is very important, however, to maintain their maximum level, which should also be successively increased in line with the development of information technology (Mazur, 2010).

The concept of e-health is a milestone in the management aspect of the healthcare field. It is the result of the emergence of technical innovations that make the service process move towards a virtual consultation that can be carried out anywhere and at any time. The project of virtual medical consultations, in order to be implemented, requires the investment of large financial resources and the training of a huge number of people. One of the obstacles for the realization of the e-health project for the general public is the low access to the Internet compared to other European countries. Many citizens also do not have the necessary computers or other devices to take an online consultation (Drela, 2010).

Currently in Poland there are e-sick leaves which are sent by a doctor directly to the workplace. This solution shortens the time of information circulation and reduces the number of people involved in, for example, the process of transporting traditional sick leave from the patient to the employer. Doctors are also obliged to issue e-prescriptions which are legible and contain complete data. Another element of digitalization of the Polish healthcare system are e-referrals. This solution is aimed, among others, at shortening the queues to specialist doctors (Czerska et al., 2019). The application of technological innovations such as the Internet of Things, Big Data or the cloud in the process of providing 21st century healthcare services enables more efficient data management and a faster and more effective patient care process. Devices that monitor human vital activities are nowadays connected to specially developed software or applications that transmit the collected

parameters in real time. After receiving alarming measurement results, the doctor can immediately react to them by making a phone call to the patient or calling for medical assistance. Unfortunately, as it has already been indicated above, the main obstacle to the implementation of these technological innovations on a mass scale is the lack of appropriate technological tools, Internet connections and knowledge.

Improving the quality of public service delivery requires large financial outlays, which are necessary for the smooth implementation of technological innovations that emerge on an ongoing basis. Financial resources must also be allocated to training physicians and patients in the use of mobile devices and software. The consequence of the costs incurred in the initial phase of implementation of the innovations mentioned in this article is a higher quality of provided medical services and their lower costs. Which is why it is so important to create special reserves of funds dedicated exclusively to their implementation.

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## RECCOMENDATIONS FOR MACDONALD'S MARKETING STRATEGY IMPROVEMENT

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Few global brands are as highly recognizable as fast-food giants, McDonald's. Universally identifiable by its famous brand imagery, meal names, and mascot, McDonald's is a prime example of a business that has successfully leveraged smart marketing to support impressive growth. McDonald's marketing mix facilitates effective reach to target customers around the world. This condition supports the company's leading global industry position, as well as the strength of its brand, despite the strong force of competitive rivalry.

McDonald's understands that the path to a successful business goes through customer satisfaction. Having understood this thing, all their actions are directed in this direction. According to the changing times, McDonald's added new food items to their menu made changes in the decor and opened new outlets. In addition, McDonald's also understood their customers' needs very well. And their menus reflect the culture and country they are a part of. So, you're going to find completely new items in India, Moscow, Paris, and Beijing. McDonald's did that to serve better their customers. However, there is always room for improvement and McDonald's can learn a few lessons from its rivals and adopt or adjust some of their marketing strategies.

Breakfast is one of the areas in which McDonald's is currently doing things right, so this isn't so much a suggestion as it is encouragement for them to keep doing what they're doing. The fast-food giant recently began testing all-day breakfast in the San Diego market, which is what McDonald's customers have wanted since



breakfast came to the fast-food chain. Since U.S. consumers increased their visits to restaurants to get breakfast beefing up its offerings for the first meal of the day could be a major win for McDonald's.

Recently, protests asking McDonald's to increase the minimum wage for employees have placed a dark cloud over the fast-food chain. A huge wave of protests asking the fast-food chain to increase its minimum employee wage to \$15 an hour just took place on April 15. McDonald's announced earlier this month that it plans to raise wages by more than 10 percent for employees at the company-owned U.S. restaurants. Of course, paying employees more is going to deepen the company's costs, but it will also help McDonald's improve its public image, not to mention that improving the lives of its employees could also improve business operations too.

Additionally, there is a great marketing strategy which McDonald's should adopt from its main competitor, KFC. In order to meet with the customer load or pressure, KFC offers distribution services to ensure the availability of food products according to demand. They have strategic partnerships and strong tie-ups with local supply chain services. They are using different supply chain partners to serve the customers in a perfect way. Its outlets all around the world also offer home delivery to customers booking orders online. Unlike McDonald's, which has an app only location and current menu options, KFC has created unique apps for each country the company is operating in, with help of which people can order online without delivering-businesses' assistance. Such convenience makes customer experience more pleasing and easier. This strategy can be implemented by McDonald's as well, having all resources needed (Winterbell A., 2020).

Another rival that can make McDonald's inspired to improve customer experience is Subway. Today, most of the people prefer filling yet nutritional meals and Subway fits the bill just perfectly. Each customer can make his/her sandwiches as per their preference. From picking up the bread to the filling and the sauces – each

and every component of the sandwich is selected by the customer. Technically, it's the customer who is supervising the entire process and the final sandwich is as per their preference. The same can be done with hamburgers. It does not mean that company should refuse from its menu. It means that it can charge additional payment for special requests. This may be also combined with marketing strategy of KFC, mentioned above. The customer could have opportunity to make a burger on the app, choosing ingredients, and order it from straight to his/her home (McDonald's Corporation, 2021).

In summary, McDonald's has efficient marketing strategy. However, there are certain lessons that can be learned from the main rivals. Despite its focus on people, the corporation can improve its image and customers' experience through some improvements in delivery service and revision of working conditions.

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## ARTIFICIAL INTELLIGENCE FOR COUNTRY'S DECARBONISATION

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The results of the 26th United Nations Climate Change Conference, held in Glasgow from October 31 to November 12, 2021, highlight that there is a huge gap between current national commitments and emission reductions needed to save the world from a full-blown climate crisis. Artificial intelligence (AI) can be a game changer. Its ability to deliver deep insights into multiple aspects of a company's carbon footprint and quick cost-cutting wins offers a promising route to accelerating sustainable transformation and reducing expenses in a time of need.

Artificial intelligence is one of the powerful technologies that can lead countries to sustainable development, in particular in the processes of decarbonisation.

One of the main differences of the new climate agreement from the previous ones is a direct call to phase out the use of coal as soon as possible and to start phasing out fossil fuel subsidies altogether.

According to a study by the journal Nature, artificial intelligence will be able to improve the performance of 90% of tasks under the 17 UN Sustainable Development Goals in the Environment category, 80% in the Society, 70% in the Economy. However, the increasing spread of artificial intelligence makes the issue of corporate responsibility more acute, because the creation and operation of AI increases the carbon footprint. Among the main directions of development of AI for a sustainable society is work on increasing the efficiency of artificial intelligence

algorithms so that they consume fewer resources. In addition, more efficient algorithms and platforms need to be used. If 10 years ago AI was tied mainly to computer vision technology, now AI develops software for other AIs, solves real problems, moves into the corporate environment, allowing to increase business efficiency. This is a completely different level of AI using. Plus, AI (coupled with 5G) is exactly what is driving the next industrial revolution.

AI is phenomenon that attracts strong attention of researchers.

Rolnick et al. (2019) describe how machine learning can be a powerful tool in reducing greenhouse gas emissions and helping society adapt to a changing climate (from smart grids to disaster management), determine domains of prospective positive climate impact and forms of AI technology relevant to each.

Galaz V. et al. (2020) argue that automated decision making and predictive analytics through artificial intelligence, in combination with rapid progress in technologies such as sensor technology and robotics are likely to change the way individuals, communities, governments and private actors perceive and respond to climate and ecological change. Methods based on various forms of artificial intelligence are already today being applied in a number of research fields related to climate change and environmental monitoring. Despite a growing interest in, and deployment of AI-technologies in domains critical for sustainability, few have explored possible systemic risks in depth a) algorithmic bias and allocative harms; b) unequal access and benefits.

Cowls J. et al. (2021) determine that development of AI also raises two sets of problems when considering climate change: the possible exacerbation of social and ethical challenges already associated with AI, and the contribution to climate change of the greenhouse gases emitted by training data and computation-intensive AI systems.

Van Wynsberghe A. (2021) propose a definition of Sustainable AI. Sustainable AI is focused on more than AI applications; rather, it addresses the whole

sociotechnical system of AI. Sustainable AI takes sustainable development at the core of its definition with three accompanying tensions between AI innovation and equitable resource distribution; inter and intra-generational justice; and, between environment, society, and economy.

Artificial intelligence can be a game changer. Its ability to deliver deep insights into multiple aspects of a company's carbon footprint and quick cost-cutting wins offers a promising route to accelerating sustainable transformation and reducing expenses in a time of need. And because their size gives them access to huge data sets – key success factor for deploying AI – large companies are in an especially strong position to benefit from its power.

So, AI has strong potential at decarbonisation country's processes. It can transfer huge amounts of data into useful ideas. Also, it can be used to optimize complex systems, including energy-intensive systems, whether those are domestic heat-generation systems or complex manufacturing processes.

In addition, artificial intelligence allows planning energy-efficient production processes and automates the continuous growth of its efficiency.

AI is tool for accurate forecasts (energy consumption, carbon emissions) and for automate reasoning algorithms at energy consumption models.

According to the analyzed research, scientists identify both positive and negative consequences of artificial intelligence technologies using for the processes of decarbonisation economy and society, but all of them agree that artificial intelligence is one of the powerful technologies that can lead countries to sustainable development, in particular in the processes of decarbonisation.

Most academic literature suggests that more emissions would lead to increased climate impact related damages in the future, and they in turn imply a higher economic cost on a global level. Lower emissions therefore imply less GDP lost due to climate-related risks. In other words reduced negative physical climate impacts carry an economic benefit.

At the same time, the algorithm of country's decarbonisation processes is not constructed, which actualizes the need to develop model of roadmap for country's decarbonisation with artificial intelligence technologies.

Ukraine has no plan of decarbonisation both the country as a whole and industry. Refusal, first of all, from the use of coal (as an energy donor) requires the search for new sources, ways of generating energy; or expanding the capacity of existing power plants, optimizing the energy production process by reducing carbon emissions. Similarly, industrial enterprises should optimize production processes, focusing on reducing carbon emissions and creating "green" products. Artificial intelligence technologies allow to form expert neural networks for decision-making on decarbonization of industry, which highlights the need to create a database training's examples for the neural network decarbonization of industry.

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## PROTECTING MEDICAL DATA IN HEALTHCARE INSTITUTIONS

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The General Data Protection Regulation (GDPR) recognizes health data as a specific data category and defines health data for data protection purposes. There is a general prohibition against processing this type of data, with strictly defined exceptions. These include processing of data for purposes of protection of health, delivery of medical services, treatment of patients, and administration of the provision of medical services by entities professionally involved in treatment or delivery of other medical services, or administration of the provision of such services. The exception is their processing for the purposes of health protection, provision of medical services or treatment by professionals dealing with treatment (EDPS).

The GDPR requires that upon processing special category data institutions have to keep records and include documenting the categories of the data which they process. The GDPR does not state how long a company is allowed to hold on to personal data but healthcare organisations should ensure that the information relating to health data is not kept for longer than needed. Wherefore, retention period must be explicitly established and communicated to data subjects, such as patients (Jackowski et al., 2018).

Furthermore, the GDPR states that before processing data that is likely to be high risk to the rights and freedoms of data subjects, it is necessary to conduct the Data Protection Impact Assessment in order to identify the potential risks that could

be faced (Abouelmehdi et al., 2018).

Healthcare institutions should take the necessary steps to ensure compliance and reduce the risk of a breach while processing medical data.

Important step for compliance is that data subjects (patients), should be informed about third parties with which their data will be shared, in order to comply with transparency requirements set out in the GDPR. In addition, the data sharing agreement should explicitly set the purpose, lawful base and the information to be shared, along with necessary details about handling data subjects' rights, and agreed shared security standards. All this information have to be communicated to data subjects in a clear, and easy-to-understand manner.

It is equally important to make employees of medical institutions aware of the importance of data protection, the safeguards that must be implemented, and the typical problematic aspects that should be avoided in order to effectively protect medical data. In addition, personnel should know how to recognize a data breach and what to do in the event of a security incident. Regular training of staff on data protection is recommended to reduce the risk of human error and thus internal data breach (Kister et al., 2016).

Institutions may only process and share personal data that is necessary for the purpose of their work. Health data necessary for processing should be minimally processed and only made available when needed. It is important that the sharing of data takes place on the basis of any lawful basis for processing, with appropriate contracts to hold the relevant party responsible (Kister, 2013).

It should be emphasized that information security should not be reduced to cybersecurity (the protection of networks and information systems from attack), but it should also cover physical and organizational security measures. Organizations should establish strict access controls and ensure that only necessary persons have access to medical data (Machanavajhala et al., 2006). The implementation of measures such as two-factor authentication or single sign-on can also help to provide



further data protection measures when it comes to accessing patient records (Kim et al., 2013).

In order to ensure the safe processing of medical data, it is necessary for an organization to identify the limitations of existing solutions and to propose solutions based on control measures, for both staff and patients, and the data processing itself. Healthcare institutions that pay attention to data protection should recognize that while legal initiatives are a good starting place for building a data protection program, efforts should go beyond compliance to ensure that medical sensitive data is protected against threats.

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## **DEVELOPMENT OF THE WEB-BASED SYSTEM FOR ACCOUNTING OF MEDICAL PRESCRIPTIONS**

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Increasing morbidity among the population, numerous outbreaks of epidemics, the COVID-19 pandemic are some of the many reasons why people urgently need medical care and medical advice (GBD, 2016). The relevance of the chosen research topic grounds on the current epidemiological situation in the world and increasing morbidity, medical treatments and subsequent trips to the pharmacy. It is becoming a regular process for everybody. The outdated way of medical prescribing by hand significantly slows down and complicates the work of both doctors and pharmacists. It is very inconvenient in today's digital age, when all paper circulation transfers to electronic form.

Scientists from different countries and industries are researching this issue nowadays (Mazurenko et al., 2021; Bozhenko, 2021; Starchenko et al., 2021; Dudchenko, 2020; Yelnikova and Barhaq, 2020; Goncharenko and Lopa, 2020; Eddassi, 2020; Ziabina et al., 2020; Chukwu and Kasztelnik, 2021; Medani and Bhandari, 2019; Samoilikova, 2020; Yarovenko et al., 2020; Mazurenko and Tiutiunyk, 2021; Pimonenko et al., 2021; Kryvych and Goncharenko, 2020; Matsenko et al., 2021; Lazorenko et al., 2021; Oleksich et al., 2021; Mamay et al., 2021; Taraniuk et al., 2020; Shkarlet et al., 2019; Vasilieva et al., 2017; Bubyk et al., 2017; Fila et al., 2020; Gallo et al., 2019). A group of scientists from European Public Health Association, Utrecht, the Netherlands composed of Anna Odone, Stefan Buttigieg, Walter Ricciardi, Natasha Azzopardi-Muscat, & Anthony Staines (Odone et al., 2019) allocates digitalization as a set of tools for improving healthcare

system. Scientists from Masaryk University, Brno, Czech Republic, like Walter Ricciardi, Pedro Pita Barros, Aleš Bourek, Werner Brouwer, Tim Kelsey, & Lasse Lehtonen (Ricciardi et al., 2019) suggest how to govern the digital transformation of health services. They suppose that the development, implementation, use and funding of digital health technologies should be carefully evaluated and monitored by government to avoid any unintended and/or negative (side) effects in the short or long term.

The process of patient reception by the doctor and subsequent patient purchasing medicines in pharmacy is still poorly automated, at least in Ukraine. The practice when doctor writes medical prescriptions by hand now exists in most health care facilities in Ukraine, whether private or public. Therefore, Ukrainian scientists are also actively studying the issue of digitalization of the healthcare sphere. Sybila Buletsa in her paper «Place of information technologies in carrying out medical activities» (Buletsa, 2020). wonders if it makes sense to introduce information technology into medicine. Natalia Friedrichson in her paper «IT technologies in medicine» (Friedrichson, 2018) suggests specific ways to introduce automation into the healthcare sector.

On April 1, 2019, the «Affordable medicines» program, administered by the National Health Service of Ukraine, started operating in Ukraine. It has become possible to prescribe electronic prescriptions for medicines (E-Ukraine, 2021). Unfortunately, this system is still not perfect, failures often occur, the list of accessible medicines is quite limited, not all pharmacies participate in the program «Affordable medicines». Limited list of medicines is a significant weakness of this system. Even though program «Affordable medicines» is funded from the State Budget of Ukraine, only a few patients can use it, and there is a need to create a more mass system.

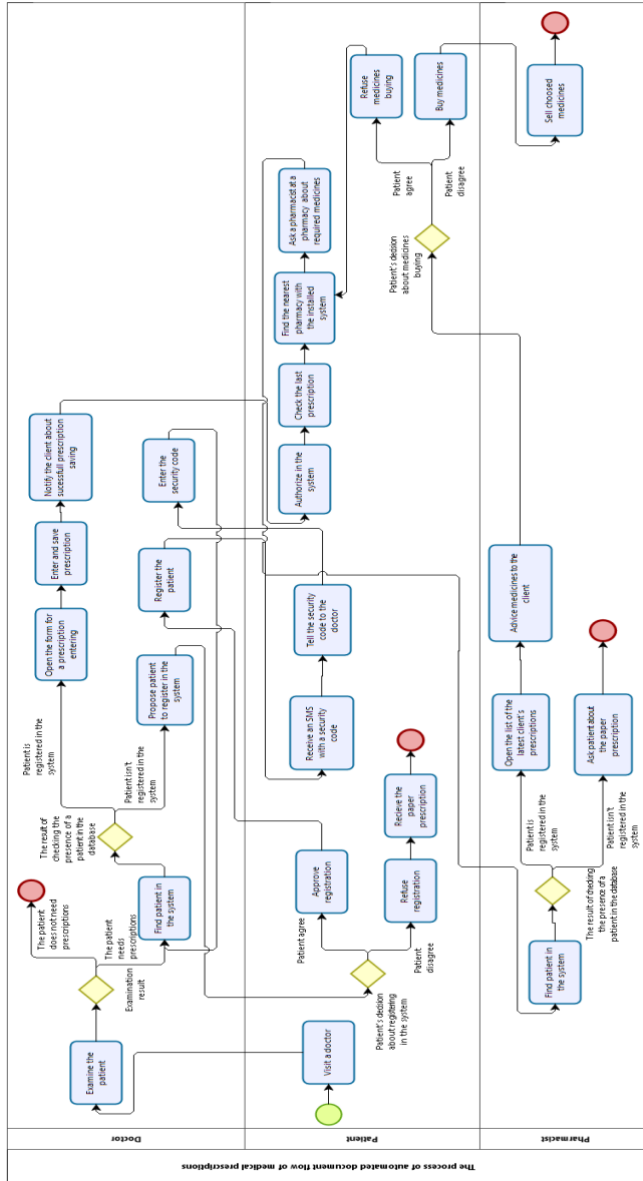


Figure 1 – Work diagram of the web-based system for accounting of medical prescriptions

Based on the above problems that take place in the healthcare sphere of Ukraine, we are aiming to develop the web-based information system for accounting of medical prescriptions, which provides the following abilities:

- reduce the service time of one customer at the checkout, which in turn increases the capacity of checkout and allows to serve more customers in pharmacy;
- increase the flow of customers to those pharmacies that use this system, due to the greater convenience of interaction between customers and pharmacists, as well as increase the credit of trust in such pharmacies;
- facilitate the process of obtaining, storing and using medicines for patients;
- make the prescriptions making process more comfortable for doctors;
- reduce the usage of paper, which is a very important environmental problem in the modern world, etc.

This system will be created in the form of a web application – software that allows the client side to interact with the web server side through a web browser interface. Web applications are created for different purposes and used by both organizations and individuals because they have many potential benefits: simultaneous access of many users to the same version of the application and work with it; one can access web application through various platforms such as PCs, laptops, mobile devices; one can access web application simultaneously from different browsers that allows simultaneous use of multiple accounts (Web application, 2017).

Analysis and modeling of business processes is a crucial stage in designing a web-based system. It is necessary to clearly define which areas of business processes, inputs, and outputs can be automated and improved. In our case business process contains a visit to the doctor, examination of the patient and prescription of medicines, also the patient's trip to the pharmacy and purchasing medicines. For visualizing and best analyzing there is a sense to create the graphic business-process

model. Business Process Modeling Notation (BPMN) – a flowchart method that allows to model the stages of business processes from start to finish and visually depicts the detailed sequence of actions and information flows. BPMN is one of the most common methods of business process modeling, and its significant advantage is that it uses standardized symbols to make process maps easier to understand for all relevant parties: management, employees and consultants. BPMN provides information in a much simpler way than data flow charts or UML activity charts, and is more suitable for process design (Kissflow, 2021). Figure 1 presents the diagram of the web-based system for accounting of medical prescriptions under BPMN.

*Source: author's development.*

So, in conclusion, it should be noted, that there is an urgent need for healthcare sphere automation around the world. The government of many countries, and scientists are concerned about this issue. In this paper were proposed a solution for automating the process of document circulation of medical prescriptions using a web-based system. A diagram of the process of document circulation was developed and the task on development a web-oriented system was set.

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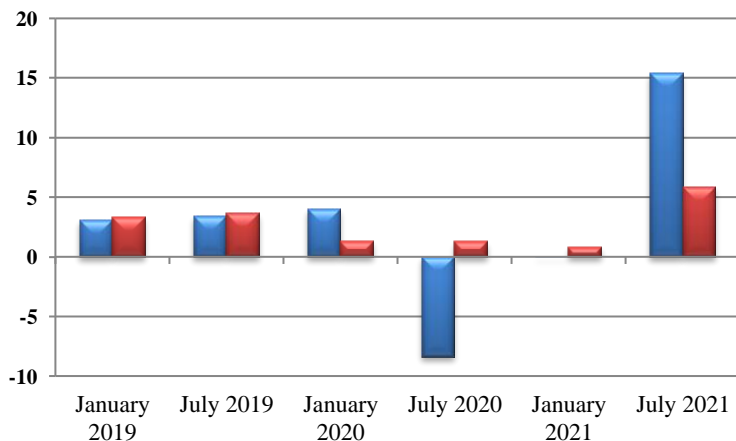
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# MASS VACCINATION AS A FACTOR IN ACCELERATING ECONOMIC RECOVERY AFTER THE COVID-19 PANDEMIC: THE CASE OF ISRAEL

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COVID-19 dealt a significant blow to the Israeli economy. According to preliminary data released by the Central Bureau of Statistics, the Israeli economy shrank by 2.4% in 2020 (Fig. 1), significantly less than recent forecasts and more than half of what experts feared at the beginning of the coronavirus pandemic. The Gross Domestic Product (GDP) in Israel expanded 5.90 percent in the third quarter of 2021 over the same quarter of the previous year.



**Figure 1.** Israel Annual GDP growth rate

\*Source:(Trading Economics, 2021)

Recall that the IMF's April 2020 preliminary forecast called for a 5.2% contraction of Israel's gross domestic product. In October, that estimate was corrected to 4.4%. The OECD in May 2020 projected a 6.2%-8.3% decline in Israel's GDP, depending on the scenario. The Bank of Israel and Finance Ministry also talked about a 5%-6% decline in GDP, later improving the forecast to 3%-4%.

The surprise for experts was a 0.6% increase in Israeli exports of goods and services. Public consumption increased by 2.6% due to a government economic aid program. According to initial data from the Central Bureau of Statistics, in the second quarter of 2021, in which restrictions on economic activity were almost completely lifted, the Gross Domestic Product rose by 15.4% year-on-year against a projected growth of 10.8% (all figures are annualized below).

Entrepreneurial GDP grew by 19.8%, private consumption by 36.3%, real investment by 9.7%, exports of goods and services by 18.1%, and imports of goods and services by 15.8% (Новости Израиля, 2021).

Compared to the second quarter of 2020, where the first lockdown occurred, GDP grew by 15%, business sector GDP by 17.9%, private consumption by 22.5%, real investment by 16.4%, exports by 22.2%, and imports by 26.9% (Новости Израиля, 2021). Israel has long been the leader among countries in terms of the percentage of vaccinated population. Both inside and outside the country have different reactions to the success: Israel is called a testing ground, the coronavirus program is called an election campaign, and there are growing conflicts in society due to discrimination against the unvaccinated (Samoilikova, 2020; Yarovenko et al., 2020; Mazurenko and Tiutiunyk, 2021; Pimonenko et al., 2021; Kryvyeh and Goncharenko, 2020; Matsenko et al., 2021; Lazorenko et al., 2021; Oleksich et al., 2021; Mamay et al., 2021; Taraniuk et al., 2020).

Israel had a tough time with the pandemic: authorities-imposed lockdowns three times to contain the virus (Mazurenko et al., 2021; Bozhenko, 2021; Starchenko et al., 2021; Dudchenko, 2020; Yelnikova and Barhaq, 2020;

Goncharenko and Lopa, 2020; Eddassi, 2020; Ziabina et al., 2020; Chukwu and Kasztelnik, 2021; Medani and Bhandari, 2019; Shkarlet et al., 2019; Vasilieva et al., 2017; Bublyk et al., 2017; Fila et al., 2020; Gallo et al., 2019). The first tight restrictions were imposed in March and lifted at the end of May, after which the increase in new infections began to increase again. The country was gradually hit by a second wave, and as a result, in mid-September, Israel became the first developed country to re-declare the lockdown: residents were prohibited to go further than 500 meters from their homes, and schools, sports clubs, restaurants, and shopping malls were closed. For the third time, the lockdown was imposed after the start of mass vaccination - at the end of December. Initially, it was planned that such a regime would be in place for two weeks, but as a result, the restrictions began to be gradually lifted only at the end of February of this year.

In January, the authorities of the country decided to introduce "green passports" in the country for those who had been vaccinated or had already recovered. Israeli authorities were very persistent in negotiations with Pfizer, said the company's CEO Albert Burla. According to him, Prime Minister Benjamin Netanyahu called him 30 times, sometimes in the middle of the night. The politician constantly asked him to clarify matters, such as whether vaccinations could be carried out in schools or what information the company had about vaccinations for pregnant women (BBC, 2021).

Netanyahu, together with Yoel Edelstein, the Minister of Health, promised to organize one of the fastest vaccination campaigns in the world and to share the data about its effect on the pandemic, provided that the supplies were uninterrupted and large-scale. In this way, Israeli authorities were able to rapidly roll out a large-scale vaccination campaign, and Pfizer acquired a huge testing site with millions of participants. "Without this, no company would even look in our direction - they would be looking for markets hundreds of times larger," Netanyahu explained. To ensure speed in the fight against the coronavirus, the authorities were helped by the

army: a specially created headquarters was responsible for testing, quarantine supervision, and vaccination.

Israel suited Pfizer as a pilot country for vaccination also because it is a country with a relatively small population (9.3 million people) and a developed healthcare system with a high degree of digitalization - electronic health records are used here by 99% of the population, Bloomberg said (Bloomberg, 2021).

The Israeli media reported that another factor that prompted Pfizer to agree on uninterrupted supplies of vaccines with Israel was the price that the country was ready to pay for the drug. Local newspapers wrote that Israel was willing to pay a serious overpayment. Bloomberg, on the other hand, reported a price of \$30 per dose, double what the U.S. pays for the vaccine. In November, Reuters reported that the EU had agreed to pay \$18.34 per dose of Pfizer's vaccine, which means the price of the two doses needed for one person would be \$36.68 (Guarascio, F. 2020).

On November 23, 2021, Israel began a campaign to vaccinate children ages 5-11 against the coronavirus. Israeli Prime Minister Naftali Bennett earlier urged parents not to prevent their children from being vaccinated, stressing that vaccination is safe and effective. Recalling the current wave of infections in Europe, Bennet noted that the reproductive factor is increasing in Israel as well. This factor shows how many people, on average, are infected by one person, which allows us to determine the rate of spread of the coronavirus infection. According to Israeli media reports, as many as 1 million children between the ages of five and 11 can be vaccinated against the coronavirus in Israel. Children receive one-third of the adult dose. According to the manufacturer, the BioNTech/Pfizer vaccine is 91 percent effective in this age group (Reuters, 2021)

In Israel, the number of coronavirus infections has been declining for two months already. The previous day, the country's Ministry of Health recorded 454 new cases. In September in some days, the daily number of infections exceeded 11 thousand. Experts, however, warn of the threat of a new surge of infection.

Thus, Israel is the most vivid example of the government's strict measures to force immunization of citizens.

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## THE ENDOWMENT EFFECT IN BEHAVIOURAL ECONOMICS

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At the time of Adam Smith, the most important point is the “rational economic man” hypothesis: decision making by economic agents is always logical. The desire for maximum benefit is equal to the desire of consumers to maximize the utility of a product or service, manufacturers to maximize profits, owners of factors to maximize income, and governments to make optimal decisions.

Traditional economic theories ignore the huge differences between people and use only singular and specific models to unify their behaviour, which has led to the fact that the hypothesis of the “rational economic man” has been challenged.

Since then, neoclassical economics has gradually evolved into a logically self-consistent system of axioms expressed in mathematical language. Although neoclassical economics has an important place in economic theory and helps people understand social phenomena and economic behaviour, in recent years, it has moved towards mathematical, physical, formal and instrumental means, using abstract logical systems to model real economic movements and explanatory power (Mazurenko et al., 2021; Yarovenko et al., 2020; Mazurenko and Tiutiunyk, 2021; Pimonenko et al., 2021; Kryvych and Goncharenko, 2020; Matsenko et al., 2021).

In his doctoral dissertation at the University of Rochester in 1974, Richard Thaler conducted the first experimental study of the value of reducing moral hazard by collecting participants' responses to hypothetical questions. He embraced Tversky and Kahneman's “prospect theory” and first mentioned the endowment effect in his scientific papers. This research mainly includes two questions:

(1) *Suppose there is a disease around you. Once infected, you will die*

*quickly and painlessly within a week. Your chance of getting this disease is 0.001. If you get sick, how much are you willing to spend on treatment?*

*(2) Assuming that volunteers are currently being recruited to study the above diseases, the probability of infection in volunteers is 0.001. So, what is the minimum wage that can make you a volunteer?*

Virtually all of the above questions include a 0.001 probability of death. However, Thaler revealed very interesting results of the experiment: “*A large number of respondents gave very different answers to two questions (typical answer: question 1 – \$ 200, question 2 – \$ 10,000)!*” (Thaler et al., 1980). As a result, we can see that compared to the high compensation required to “sell health”, people are less enthusiastic about spending on “buy health”.

Taking into account the phenomenon that people's willingness to pay for a particular product or service has been often lower than their willingness to sell prices, Thaler also pointed out that the endowment effect can cause a difference between the cost of cash expenditure and the cost of an opportunity. People tend to view the cost of money as a loss and opportunistic costs as a loss of profits, and therefore pay more attention to the cost of money (Bozhenko, 2021; Starchenko et al., 2021; Dudchenko, 2020; Yelnikova and Barhaq, 2020; Goncharenko and Lopa, 2020; Eddassi, 2020; Ziabina et al., 2020; Chukwu and Kasztelnik, 2021; Medani and Bhandari, 2019; Samoilikova, 2020). Thaler gave many examples of companies using endowment effects in marketing. One example is the use of “cash rebates” rather than “credit card surcharges” to portray the cost of using credit cards as lost profits rather than actual losses.

Thus, we can conclude that the endowment effect refers to the assessment of an object by people who own it, and which turns out to be much higher than their assessment of the same object that they do not own. In addition, a large number of behavioural experimental studies have shown that this effect is an innate tendency of human behaviour and not an induced preference (Lazorenko et al., 2021; Oleksich

et al., 2021; Mamay et al., 2021; Taraniuk et al., 2020; Shkarlet et al., 2019; Vasilieva et al., 2017; Bublyk et al., 2017; Fila et al., 2020; Gallo et al., 2019).

The giftedness effect is closely related to self-confidence. Thaler cites the example that 70% of people in the world believe that their IQ is above average, which is a sign of self-confidence (Thaler et al., 1981). In corporate governance, overconfidence among executives can lead to misjudgement of various investments and have a significant impact on corporate decisions such as overinvestment and a large number of mergers and acquisitions. In the stock market, overconfidence leads to frequent transactions, distortions in stock prices, increased volatility, etc.

Unlike traditional economic theory, which emphasizes the “indifference” of people, Thaler believes that the choice of different people will be influenced by life experience and psychological activities. This is why people are sometimes “rational” and sometimes “irrational”.

Summing up, we can observe that with the transformation of the economic structure and the growth of the spiritual and cultural needs of people, behavioural economics began to develop rapidly. Many scientists believe that due to the constant abundance of goods, the value orientation of people affects the sale of goods, therefore, in the modern economy, the phenomenon of “dematerialization” and “individualization” often occurs. These new developments challenge traditional economic theories, and behavioural economics itself has become a powerful complement to them.

In addition, due to the uncertainty of people in decision-making, it can be difficult to achieve the ideal calculation in the hypothesis of “rational economic person”, and the endowment effect is important in the actual application process in the field of behavioural economics.

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## CREATIVE AS A DETERMINANT OF THE MARKETING COMMUNICATION TOOLS DEVELOPMENT

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As of today, the market for products and services is extraordinary competitive, and such an element of communication as advertising plays a key role. The consumer has to make his choice among the many options for products from the same group. The variety is so great that

It is very easy for a brand to lose loyalty even with the support of high quality goods. Survival in a world of fast-growing business and globalization entails constant competition for the buyer. All these factors are the main reasons why marketers have to resort to more and more creative and the latest, increasingly digitalized, ways to attract and retain customers. While traditional advertising is designed to perform a purely communicative function, ie simply informing potential consumers about the company's products or services, creative advertising is considered more memorable, it is designed to generate among consumers' trust, and over time, to create a kind of "fan group" around the advertised brand. Creative tools are becoming the main tool in the fight for the heart and wallet of the target audience. You can even say that it is vital for companies to monitor trends in the advertising market, look for opportunities to use creative strategies and innovate in the marketing and communications industry (Popova et al, 2020).

Researchers are very interested in understanding creativity in advertising services and its ability to generate increased audience attention, provide awareness of the advertised brands, form a favorable attitude and more (Mazurenko et al., 2021;

Bozhenko, 2021; Starchenko et al., 2021; Dudchenko, 2020; Yelnikova and Barhaq, 2020; Goncharenko and Lopa, 2020; Eddassi, 2020; Ziabina et al., 2020; Chukwu and Kasztelnik, 2021; Medani and Bhandari, 2019; Gallo et al., 2019). German scholars such as W. Reinartz and P. Saffert define "creativity" as "divergent thinking, namely the ability to find unusual and obscure solutions to the problem." One of the pioneers in the study of this concept was the American psychologist Ellis Paul Torrance, who developed the Torrance Creative Thinking Test (TTMT), which is used to assess people's ability to disagree directly in the business world. In the early 2000s, Torrance's activities were adapted for the advertising industry by Indiana University's communications researcher. Robert Smith and his colleagues. They also derived the definition of creativity for advertising as the extent to which advertising contains branded or executive elements that are different, new, unusual, original, unique, and so on (Letunovska et. al., 2019). Their goal was to measure creativity using only those factors that are most relevant to the advertising context. They agreed on five aspects of creativity in advertising services, namely: originality, flexibility, complexity, synthesis, artistic value.

It is also important to remember that creativity is not a must to separate from effectiveness, advertising must be productive and able to achieve its goals ) Samoilikova, 2020; Yarovenko et al., 2020; Mazurenko and Tiutiunyk, 2021; Pimonenko et al., 2021; Kryvykh and Goncharenko, 2020; Matsenko et al., 2021; Lazorenko et al., 2021; Oleksich et al., 2021; Mamay et al., 2021; Taraniuk et al., 2020; Shkarlet et al., 2019; Vasilieva et al., 2017; Bublyk et al., 2017; Fila et al., 2020). However, when considering the concept of effectiveness of advertising creativity is confused with its consequences. Indeed, many researchers consider creative advertisements effective in achieving their goals simply due to the presence of creative elements in them.

However, the main reason why advertising scientists and practitioners are generally interested in studying advertising is to find an explanation for why some

campaigns are more effective in achieving their goals than others. To make efficiency a part of creativity itself is to eliminate its usefulness as an explanatory variable (Smith R., & X. Yang, 2004). However, studies by W. Reinartz and P. Saffert, which are to be measured perceived creativity by consumers formed a focus group to 288 analyze 437 German television advertising campaigns for 90 FMCG brands, which ran from January 2005 to October 2010, nevertheless confirmed the common view of creativity: more creative campaigns more significant (Smith T, 2020). Of course, the use of creativity differs by category, and certain types of creativity, on which may be emphasized by one of the parties, are not always the most effective for sales promotion.

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## Матеріали Міжнародної науково-практичної конференції

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