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MODERN METHODS OF ANALYSIS OF ECONOMIC INDICATORS OF THE ENTERPRISE

СУЧАСНІ МЕТОДИ АНАЛІЗУ ЕКОНОМІЧНИХ ПОКАЗНИКІВ ПІДПРИЄМСТВА

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Ковтуненко Ю.В., Качанова Н.С., Попович К.Ф. Сучасні методи аналізу економічних показників підприємства. Оглядова стаття.

У статті висвітлено значення економічного аналізу фінансово-господарського стану підприємства у розрізі застосування сучасних методів аналізу з різних його позицій. Основна увага сконцентрована на методах та їх прийомах аналізу фінансового стану підприємств. Досліджено провідні підходи до тлумачення сутності сучасних методів аналізу, їх призначення та застосування у різних сферах аналізу, розкрито їх основні поняття та елементи, висвітлено їх особливості, мету аналізу та результати, які можна отримати, визначено їх алгоритми, моделі та етапи проведення. Продемонстровано характеристику основних моделей, які застосовуються в процесі аналізу фінансового стану підприємства. Створено зведену порівняльну матрицю сучасних методів аналізу економічних показників підприємства.

Ключові слова: метод, методика, аналіз, показники, модель, алгоритм

Kovtunenko Yu.V., Kachanova N.S., Popovych K.F. Modern methods of analysis of economic indicators of the enterprise. Review article.

The article highlights the importance of economic analysis of the financial and economic state of the enterprise in terms of applying modern methods of analysis from its various positions. The main focus is on methods and their methods of analysis of the financial state of enterprises. The main approaches to the interpretation of the essence of modern methods of analysis, their purpose and application in different spheres of analysis are investigated, their basic concepts and elements are revealed, their features, the purpose of the analysis and the results which can be obtained, their algorithms, models and stages of carrying out are determined. The characteristics of the main models that are used in the process of analyzing the financial condition of the enterprise are demonstrated. A consolidated comparative table of modern methods of analysis of economic indicators of the enterprise was created.

Keywords: method, methodology, analysis, indicators, model, algorithm

Undoubtedly entrepreneurship is an important indicator of the country's development. Therefore, it is necessary to pay attention to studying the economic activity of the enterprise and its economic indicators. It is possible to make a real assessment of the financial status and economic activity of the enterprise through economic analysis, by developing an information base for further strategic and tactical decisions. Currently, there are many traditional mathematical, statistical and logical methods that help to assess the financial efficiency of an enterprise. One or another method has its own peculiarities and disadvantages, the problem situation of many organizations is the choice of the correct method that meets the goals and objectives of this organization. However, the world does not stand still, there are more and more new methods for analyzing the economic situation of the enterprise. Therefore, the allocation of fundamentally important aspects regarding the application of one or another method of economic analysis, their disadvantages and advantages, is the main objective of this study.

Analysis of recent researches and publications

The following scientists paid attention to the study and research of modern methods of economic analysis: Savitskaya G.V., Metz V.O., Bilyk M.D., Davidenko N.M., Brigham Yu., Stepanova I.G., Sheremeta A.D. and other.

In conditions of scientific and technological progress, modern methods of analyzing the state of the enterprise is an actual object of research, therefore, it is necessary to pay attention to the study of this issue from the scientific point of view. Innovative progress leads to the creation of more and

more new methods, so there are many questions for further research on this topic.

The aim of the article is to study the main modern methods of analysis of economic indicators of the enterprise.

The main part

Each year, the number of studies on the impact of innovation on the development of countries, regions and cities is increasing. In many foreign and domestic studies, a methodology for evaluating and comparing the innovative development of the territory is considered.

Economic, scientific and cultural potential is concentrated in cities, and therefore they play an important role in the economic, political and public life of each individual country and of humanity as a whole. The economic and technological changes caused by globalization and integration processes lead to the need for sustainable development and increasing the competitiveness of cities. This problem is related to the need to improve the city in areas such as economy, culture, housing and social conditions, and the environment [1]. One of the ways of the decision was the creation of new cities – "Smart City".

The abbreviation "Smart" in English translates to "intelligent" and stands for: "Specific" – concreteness; "Measurable" – dimensionality; "Attainable" – reach; "Realistic" – realism, "Timebound" – limited time (tab. 1).

Table 1. Definition of abbreviation "Smart"

S	Specific	Concreteness	the more precise a specific task is described, the higher the probability of obtaining the expected result would be.
M	Measurable	Dimensionality	the result must be measurable. To do this, we determine the criteria by which the process will be conducted.
A	Attainable	Reach	this parameter shows the need to discard the knowingly unattainable results, since obtaining the desired result should be at least potentially.
R	Realistic	Realism	only this aspect involves not only assessing their presence, but correlating their number with the number necessary to achieve the goal.
T	Timebound	Limited time	The purpose setting for this phase involves setting a clear timetable in which it should be implemented.

Source: compiled by the authors on the materials [2]

Thus, the development of "smart-city" is a strategic process that requires the novelty of approach, planning, exploitation, networking and management of urban enterprises. In this way, the concept embodied transforms the city's space into a source of resources for all people who are visiting this city. Thus, the meaning of the term "smart city" indicates the search and implementation of intelligent solutions that help the city to qualitatively and quantitatively increase its own productivity.

"Smart City" is a new strategy aimed at providing assistance to cities in which there are a number of problems, such as: high population density; increase in the number of vehicles; inefficient use of resources, climate change, deterioration of energy infrastructure. To solve the above-mentioned problems, we propose to develop a model of the ideal "smart-city" (fig. 1), which identifies different sectors of the concept through the implementation of projects for the development of modern urban infrastructure.

To build the perfect smart city model, we will use the classic six characteristics: smart economy, smart-management, smart-society, smart-mobility, smart-environment and smart-life.

The need for the transition of "smart-economy" is due to global disturbances in the development and conduct of economic activity of individual cities and the country as a whole. The main goals of the "smart economy" can be attributed to:

—recovery of economic growth after the global crisis;

—adaptation to changes in the ratio of demand and supply of labour at the expense of high levels of general and vocational education, the activity and mobility of the workforce and changes in regulated working hours;

— the formation of an innovation system, the introduction of advanced technologies, smart-networks in all sectors of the economy to provide quick access to information and knowledge, the generation of new ideas with their subsequent implementation in the production of products and services with increased value added and intelligent component [1];

— creation and maintenance of productive business environment for increasing the degree of innovation, optimal use of nature, energy and material saving technologies, etc.

The technology of the intelligent network allows solving problems for power companies. SmartGrid is a smart meter, dynamic electrical network management, demand regulation, security enhancement and cost savings. This network will allow you to monitor the energy consumption of each home device and maintain certain rules of behaviour at peak hours and at other times of the day, increase safety and reduce costs.

"Smart-management" means participation in public life, development of public and social services, transparent management, lack of corruption, crowd-sourcing. This is a management that is completely

inseparable from the use of intellectual and collective technologies, including crowd-sourcing, knowledge management, BigData [3]. Due to the use of such technologies, in particular, a very effective mechanism for the dissemination of the competencies that are currently required, which will always be highly sought after by the "smart-society", is being formed.

The main component of the "smart-society" is the population, so the degree of development of the city directly depends on the level of education of its inhabitants. Therefore, one of the main factors is the level of human qualification. Due to constantly changing technologies, the ability of a person to learn throughout his life was not an important factor in being an active participant in the process of modernization. In principle, factors such as flexibility and agility, creativity, cosmopolitanism, and citizens' openness to change, as well as their readiness for active participation in public life, follow from the latter characteristic.

"Smart-mobility" is a solution to many problems associated with the traffic jams, fares, access to Internet resources in all parts of the city. The main goals of "smart-mobility" are: the ability to easily move around the city, openness and accessibility of the city at the national and international levels, accessibility to information and communication technologies (ICTs), sustainable, innovative and safe transport system. Mobility is a key component of the Smart City, and first of all, it is worth paying attention to the inclusion of ICT infrastructure in this characteristic.

"Smart-environment" – preserves natural resources, as well as orientation towards sustainable development, combating pollution, sustainable resource management.

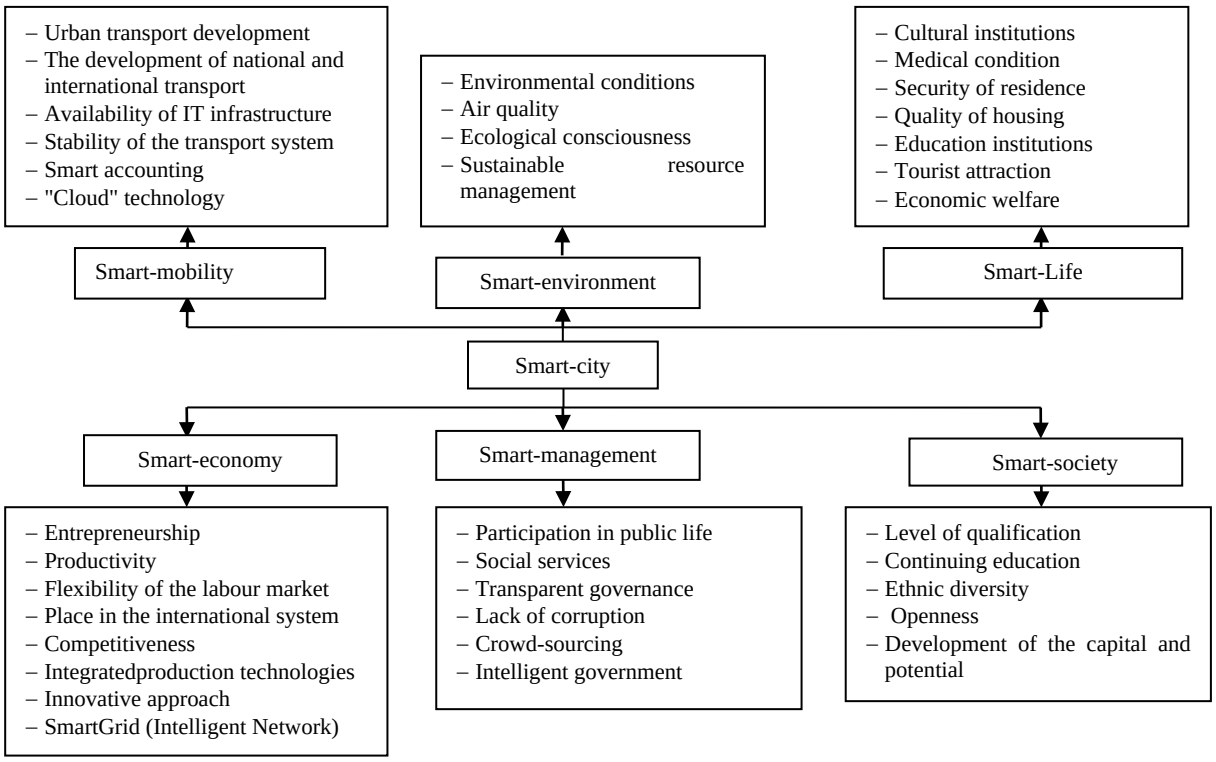

Fig. 1. Characteristics of "Smart-city"
Source: compiled by the authors on the materials [3-14]

"Smart Life" is a project devoted to the development of society. The objectives of this project are: the development of cultural space and the presence of cultural objects; developed medicine, high level of individual safety of people, quality of places of living and level of development of system of housing and operating organizations; availability and level of educational institutions; attractiveness of the city for tourists; social cohesion of citizens.

Approximately eight out of ten Europeans live in cities, spend 70% of their energy, and the traffic congestion they create in Europe costs roughly 100 billion euro pro year. Therefore, metropolitan areas are constantly looking for ways to become more efficient, resourceful and friendly to the population. Tab. 2 shows the ranking of ten cities that are close to the model of the perfect smart city.

The first place in the 10th "Smart Cities" rating is the prominent business capital of Denmark, Copenhagen. The city has a state-owned enterprise that controls all initiatives within the Smart City program. Also, the company is developing a strategy to reduce CO_2 emissions, so that by 2025 become the first carbon-neutral capital. The city has a well-developed centralized heating system, which serves about 98% of homes. The system uses excess heat from power generation and redirects it to the heating of buildings. This system allows you to save up to 1400 USD, up to 203 thousand tons of oil annually. Similarly, a large wind power plant built in the city,

located at sea 3.5 meters from the coast, produces 4% of the energy for the city.

In the second place ranking is the capital of the Netherlands – Amsterdam. B. Cohen noted that Amsterdam "is the only city in the world that has more problems than pedestrian and cycling traffic congestion than the congestion of vehicles." Almost 67% of Amsterdam's residents travel by bike or on foot.

In the third place in the rating is Vienna. The relatively small Austrian capital is one of the greenest cities in Europe and provides a high standard of living. More than 15% of the city's energy resources come from renewable sources, including the use of Europe's largest biomass power plant.

In addition to pan-European ratings, some EU countries carry out national ratings of Smart cities, namely:

— New York. One of the first smart cities in which city computer systems began to develop. To date, it has two "smart" systems at once – Cisco and City24/7, thanks to which each resident has free internet access. It was in New York that a computer program to combat street crime was developed, and now this metropolis has become the safest city in the United States.
— Boston. The first city in the world where the computer system StreetBump was launched: on the wheels of cars installed special sensors that collect information about each pit on the road and send data to the server utilities. Only one year of work of the program has led to the fact that the number of pits on the roads of Boston was reduced almost twice: from 7.8 to 4 thousand.
— San Francisco. In the city there are over 60 computer programs that fully control the operation of public transport and housing and communal services. Also in San Francisco the implementation program of electric vehicles with built-in autopilot is being implemented, for which the densest worldwide network of public charging stations for such cars is already built in the city. It is assumed that in three years in San Francisco, no gasoline car will remain.
— Tokyo. The Japanese capital initially had a single system of total computer control of the road network, and now became a training ground for the implementation of the "smart city" project, which involves the leading corporations of the country. In addition to general computerization, this concept involves gardening the city to create conditions for the harmonious coexistence of man with the environment. For example, in one of the districts of Tokyo adopted a program to replace all pillars by 2015 with live trees.
— Karamay. The first "smart city" in Xinjiang Uighur Autonomous Region of China. Feature of the Chinese concept of SmartHub: emphasis on combining all devices into a single information network and continuous informing of citizens about all aspects of city life. For example, every stop in the city is equipped with an electronic screen, which shows the movement of all buses in the district. Traffic is tracked through thousands of webcams, and any one of them can be connected via a mobile phone.
— Songdo. The first "smart city" in South Korea, which is decided to completely and completely build from scratch. Now Songdo is practically ready for settlement: the city is calculated for 65 thousand people who will be selected by special tests for the level of IQ. Today in the world about 50 projects of building "smart cities" from the zero cycle are being implemented, but Songdo will become a model for everyone.

In Ukraine, there are several cities claiming the status of "smart city", including Kiev, Dnipropetrovsk, Kharkiv, Vinnytsia and Lviv.

Table 2. The ranking of ten "smart cities" of Europe in 2016

City's name	Ratings of city assessment criteria						∑
	Smart-economy	Smart-management	Smart-society	Smart-mobility	Smart-environment	Smart-life	
Copenhagen	7	7	1	4	1	2	22
Amsterdam	6	9	2	1	4	4	26
Vienna	4	3	7	6	6	1	27
Barcelona	5	5	5	3	5	6	29
Paris	3	8	4	2	7	9	33
Stockholm	8	4	6	7	2	7	34
London	1	2	3	10	10	10	36
Hamburg	8	10	8	5	3	3	37
Berlin	2	6	10	8	8	5	39
Helsinki	10	1	9	9	9	8	46

Source: compiled by the authors on the materials [4-13]

Kyiv is the first city in Ukraine, integrating smart technologies and building digital infrastructure. To date, there are 4100 special cameras HikVision and Huawei. It is planned to cover all entrances and exits from the city (61), entrances/exits to the subway, 120 traffic lights. Plan for the end of the year – another 4.000 cameras. Also, cameras will have the main places of accumulation of people on the level of city districts, the main transport interchanges. Similarly, it is planned to install Wi-Fi in tourist places and medical institutions. The private company will cover the main locations: Bessarabskaya Square,

Khreshchatyk, Independence Square, European and Mikhailovskaya Square, Andriyivsky Uzviz, Postal and Kontraktova Square, Leo Tolstoy Square and Shevchenko Park [14]. Until the beginning of 2018, it is planned to introduce a single electronic ticket in the subway, trams, trolleybuses and buses. Estimated purchase amount – 300 million UAH. These funds are expected to cost 1.500 on-board computers for buses, trams and trolleybuses, as well as 5500 electronic validators. The KyivPass hotel project is already presented – the only ticket for a tourist that will allow you to visit interesting places and move around the city on the road.

In Dnipropetrovsk's plans are to install smart city-wide stops, equipped with heaters, charging for mobile phones, Wi-Fi, information boards, fixtures; introduce a single electronic ticket to the metro and tram; to establish a system of reasonable traffic lights, which will allow remotely control the traffic of streets [14].

Vinnitsa operates an automated system for managing utilities on a Microsoft cloud platform; an internal portal is created for the city council in which the working documentation is kept, the database of executive bodies is kept, and a number of electronic services are available to the residents of the city: online registration in kindergarten, the possibility to pay utility services via the Internet, search of the necessary public transport route; about 70 cameras were installed on the streets to ensure the safety of the citizens on the streets, information from them goes to the servers of the city council and the police center [14].

In Lviv, on the basis of the cloud platform, Microsoft Azure operates a portal of open data, which makes information on the tourism industry automated and displayed in a visual fashion; a tender for the purchase of a single electronic ticket system was announced; operates a traffic control center and dispatching a vehicle to which 150 traffic lights are connected. Some of them are intelligent traffic lights; a smart tourist route with QR-tags will soon be created in the city center [14].

Cities and their transformation in smart cities are not in the empty space, but in the context of the global transformation of the world economy into the digital economy. And practically everything that is happening in this or that country is related to the "capital" of the digital economy – a smart city. The success of the "smart-city" project depends directly on effective planning and control of its implementation. Therefore, the planning and control of the implementation of the change in the structure of the project are important components that determine the success of the restructuring program as a whole. A smart approach to developing a restructuring program is the smart-city roadmap. A roadmap is a set of methodologies and tools for preparing real organizational documents for each particular city with its diverse peculiarities. Work begins with the problem statement and moves to finding the optimal solution.

The first stage is the preparation and planning, it is necessary to develop, taking into account the road map of the city, in order to ensure that the business case is fully formulated and that all key stakeholders in it are foreseen.

At the second stage of development, the emphasis is on creating a maximum impulse for implementing a roadmap at a minimal risk of implementation. This means, in particular, targeting: quick victories to demonstrate progress and early benefits, with low expense, in order to strengthen faith and trust through the interested city parties; the introduction of a roadmap in the governance structures and processes that will be needed to create an environment for informing all future investments.

At the third stage, some of the most significant investments are starting to emerge, for example, an open Data Platform for supporting small and medium businesses and an innovative community with city data for the creation of community services. Also, here comes the first wave of intelligent services and applications from leaders of these areas within the city.

At the fourth stage, the focus shifts away from the decisions taken on the basis of the creation of primary smart city services and applications, the training of smart data (intelligent data) and feedback from users, and, through feedback, the definition of business changes and technologies, development of architecture for a longer term and strategic decisions.

Finally, when smart city services are catching up with the critical mass, the program is being upgraded to a wider range of smart city projects, completing the transition to a complete strategic IT platform becomes necessary to ensure future maneuverability as changes and business priorities to customers.

A traditional operating model for the city was founded around functionally-oriented service providers that work as non-interconnected vertical silos, which are often not built around the needs of users. Smart cities should develop new operating models, stimulate innovation and cooperation between these vertical silos. Decision making and service delivery have been built into a vertically integrated supply chain within cities – implementation silos that are built around a function that does not belong to the needs of users:

— a single citizen or business must deal with each silos individually: establishing a connection for themselves, and not receiving seamless and connected services that are appropriate to their needs;
— data and information has typically been locked in these silos, limiting the potential for collaboration and innovation throughout the city, and limiting the speed of city-wide change.

Conclusions

The main theoretical principles of using modern methods of analysis of financial and economic activity of the enterprise and the feasibility of their practical application were investigated. Modern unstable economic processes require systematic

monitoring and analysis, so one of the most important aspects of the enterprise's analysis of the enterprise is the choice of the method of analysis according to its specifics and objectives. Such modern methods as strategic due-diligence, diagnostic benchmarking, fuzzy-plural method, method of economic norms, simulation modeling, pest-analysis, McKinsey / GE matrix, game theory, cluster analysis, Fraschon-Romana matrix were highlighted. For a more comprehensive study of the financial condition of an enterprise, a variety of methods and models should be used. A consolidated comparative matrix will facilitate the choice of a particular method, in accordance with the needs of the enterprise, since it makes it possible to visually identify the fundamental differences between methods. Having made the right choice and conducted a qualitative analysis, you can take the optimal management solution for further development of the enterprise.

Abstract

Modern economic phenomena in conditions of turbulence require enterprises to react instantly and adapt to its specification and dynamic changes. In order to ensure the financial equilibrium and economic growth of economic activity, comprehensive and comprehensive studies of the financial and economic state of the enterprise are required. The research can be done through economic analysis, using different methods and models. First of all, there are a number of methods, both traditional and modern. Our research was focused on modern methods that are considered more effective and appropriate in conducting and making managerial decisions, since they have been modified and refined under present conditions. In the course of the study, the following modern methods were considered: strategic debugging, diagnostic benchmarking, fuzzy-plural method, method of economic normals, simulation modeling, pest-analysis, McKinsey / GE matrix, game theory theory, cluster analysis, Fraschon- Roman The basic theoretical aspects and approaches to the interpretation of the results of these methods are determined. Of course, each method has its own characteristics, advantages and disadvantages, so the question that needs to be put at the beginning of the study is the correctness of choosing a method of economic analysis that meets the goals and needs of the enterprise.

For the convenience of making managerial decisions, the methods described above were systematized and presented in the form of a consolidated comparative matrix of modern methods of analysis of economic indicators of the enterprise. The principal differences between modern methods have been identified. In the study, it was determined that some methods are applied at all economic levels and for all enterprises, some can not be applied in certain situations. It was also determined that matrix-type models are the most versatile and applicable, they are simpler in calculations and use than mathematical models, which entail significant costs and complex mathematical tools. Using the created comparative matrix, you can greatly simplify the process of selecting a method, since they were compared with each other, so you can see the fundamental differences between methods and choose the most optimal. At the end of the study, it was concluded that there is no universal, single method that would allow for in-depth analysis of various areas of its orientation, taking into account the specifics and size of the enterprise. Therefore, a comprehensive analysis should be carried out, using a variety of methods and models to determine the most accurate picture of the financial and economic situation of the enterprise.

Список літератури:

1. Kovtunenko Yu.V. Economic analysis and its importance in the management of enterprise *[Електронний ресурс]* / Yu.V. Kovtunenko, A.O. Valyanskaya, K.O. Miroshnykova // Економіка: реалії часу. Науковий журнал. – 2017. – № 1 (29). – С. 80-85. – Режим доступу до журн.: http://economics.opu.ua/files/archive/2017/No1/80.pdf.
2. Бирка М.І. Застосування процедури «дью діліджанс» в процесі залучення прямих іноземних інвестицій на підприємства / М.І. Бирка // Бізнес Інформ. – 2013. – № 1. – С. 81-85.
3. Безус А.М. Застосування процедури Дью Діліджанс як важеля зменшення інформаційних ризиків при здійсненні емісії цінних паперів / А.М. Безус, К.В. Шафранова, М.Б. Шевчун // Інвестиції: практика та досвід. – 2018. – №9. – С. 50-53.
4. Тараєвська Л.С. Бенчмаркінг як інструмент відбору найбільш конкурентних проектів природоохоронного призначення / Л.С. Тараєвська // Економіка та управління підприємствами. – 2018. – Вип. 26(2). – С. 39-42.
5. Воробйова Н.П. Бенчмаркінг як інструмент підвищення конкурентоспроможності організації / Н.П. Воробйова // Проблеми інноваційно-інвестиційного розвитку. – 2018. – № 14. – С. 13-20.
6. Ісаєва Т.М. Нечітко-множинний підхід до оцінки ризику банкрутства підприємства / Т.М. Ісаєва // Економіка та управління підприємствами. – 2012. – № 1 (17). – С. 108-113.
7. Петренко А.О. Сучасні методи оцінювання фінансовоекономічного стану підприємства: теоретичні та практичні аспекти. – *[Електронний ресурс]*. – Режим доступу: https://core.ac.uk/download/pdf/32612621.pdf.

8. Губар Л.С. Економіка будівництва. – *[Електронний ресурс]*. – Режим доступу: http://nmcbook.com.ua/wp-content/uploads/2017/11/%D0%9D%D0%9F-%D0%95%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D0%B8%D0%BA%D0%B0-%D0%B1%D1%83%D0%B4%D0%B8%D0%B2%D0%BD%D0%B8%D1%86%D1%82%D0%B2%D0%B0.pdf.
9. Тараненко Ю. Імітаційне моделювання логістичних процесів / Ю. Тараненко, І. Федоренко // Вісник КНУ ім. Т. Шевченка. Економіка. – 2016. – Вип. 8(185). – С. 38-44.
10. Лук'яненко О.Д. Моделі аналізу середовища бізнес-діяльності ТНК / О.Д. Лук'яненко, О.М. Пісна // Науковий вісник Полісся. – 2016. – № 4(8). – С. 323-328.
11. Саєнко М.Г. Стратегія підприємства: Підручник / М.Г. Саєнко. – Тернопіль: «Економічна думка», 2006. – 390 с.
12. Гладкова Л.А. Застосування теорії ігор в економіці / Л.А. Гладкова, М.А. Наумова // Наукові записки. Проблеми методики фізико-математичної і технологічної освіти. – 2013. – Вип. 4. – С. 16-21.
13. Шиян А.А. Теорія ігор: основи та застосування в економіці та менеджменті: Навчальний посібник / А.А. Шиян. – Вінниця: ВНТУ, 2009. – 164 с.
14. Мандель И.Д. Кластерный анализ / И.Д. Мандель. – М.: Финансы и статистика, 1988. – 176 с.
15. Волощук Л.О. Класифікація підходів та методів формування аналітичних інструментів оцінювання економічної безпеки промислового підприємства. *[Електронний ресурс]* / Л.О. Волощук // Економіка: реалії часу. Науковий журнал. – 2014. – № 5 (15). – С. 224-231. – Режим доступу: http://economics.opu.ua/files/archive/2014/n5.html.
16. Забаріна К.Ф. Особливості використання інструментів стратегічного менеджменту з метою комплексної оцінки фінансової діяльності підприємства / К.Ф. Забаріна, І.А. Нечаєва // Економічний аналіз: збірник наукових праць. – 2014. – Том 15. – № 3. – С. 37-43.

References:

1. Kovtunenko, Yu.V., Valyanskaya, A.O., Miroshnykova, K.O. (2017). Economic analysis and its importance in the management of enterprise. Economics: time realities. Scientific journal, 1(29), 80-85. Retrieved from http://economics.opu.ua/files/archive/2017/No1/80.pdf [in English].
2. Byrka, M.I. (2013). Application of the "Due Diligence" procedure in the process of attracting foreign direct investment to enterprises. Business Inform, 1, 81-85 [in Ukrainian].
3. Bezus, A.M., Shafranova, K.V., Shevchun, M.B. (2018). Applying the procedure of Due Diligence as a leverage to reduce information risks in the implementation of the issue of securities. Investments: practice and experience, 9, 50-53 [in Ukrainian].
4. Tarayevska, L.S. (2018). Benchmarking as a tool for selecting the most competitive environmental projects. Economics and Enterprise Management, 26(2), 39-42 [in Ukrainian].
5. Vorobyova, N.P. (2018). Benchmarking as an instrument for improving the competitiveness of the organization. Problems of innovation and investment development, 14, 13-20 [in Ukrainian].
6. Isayeva T.M. (2012). Fuzzy-multiple approach to risk assessment of enterprise bankruptcy. Economics and Enterprise Management, 1(17), 108-113 [in Ukrainian].
7. Petrenko, A.O. Modern methods of estimating the financial and economic state of the enterprise: theoretical and practical aspects. Retrieved from https://core.ac.uk/download/pdf/32612621.pdf [in Ukrainian].
8. Gubar, L.S. (2014). Construction Economics. Retrieved from http://nmcbook.com.ua/wp-content/uploads/2017/11/%D0%9D%D0%9F-%D0%95%D0%BA%D0%BE%D0%BD%D0%BE%D0%BC%D0%B8%D0%BA%D0%B0-%D0%B1%D1%83%D0%B4%D0%B8%D0%B2%D0%BD%D0%B8%D1%86%D1%82%D0%B2%D0%B0.pdf [in Ukrainian].
9. Taranenko, Yu., Fedorenko, I. (2016). Imitation modeling of logistic processes. Bulletin of the T. Shevchenko National University of Kyiv. Economy, 8(185), 38-44 [in Ukrainian].
10. Lukyanenko, O.D., Pisna, O.M. (2016). Models of analysis of the business environment of TNCs. Scientific bulletin Polesie, 4(8), 323-328 [in Ukrainian].
11. Sayenko, M.H. (2006). Enterprise strategy. Ternopil: "Economic Thought" [in Ukrainian].
12. Hladkova, L.A., Naumova, M.A. (2013). Application of the theory of games in the economy. Scientific notes. Problems of the method of physical and mathematical and technological education, 4, 16-21 [in Ukrainian].
13. Shyyan, A.A. (2009). Theory of games: the basis and application in economics and management. Vinnitsa: VNTU [in Ukrainian].
14. Mandel, I.D. (1988). Cluster analysis. M.: Finance and Statistics [in Russian].
15. Voloshchuk, L.O. (2014). Classification of approaches and methods for the formation of analytical tools for assessing the economic security of an industrial enterprise. Economics: time realities. Scientific journal, 5(15), 224-231 [in Ukrainian].

16. Zabarina, K.F., Nechayeva, I.A. (2014). Features of the use of strategic management tools in order to comprehensively assess the financial activity of the enterprise. Economic analysis: a collection of scientific works, 3, 37-43 [in Ukrainian].

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