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THE FEATURES OF THE IMPLEMENTATION OF FUNCTIONAL DIAGNOSTICS IN THE ENTERPRISE AS AN INNOVATION ECOSYSTEM

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ОСОБЛИВОСТІ ІМПЛЕМЕНТАЦІЇ ФУНКЦІОНАЛЬНОЇ ДІАГНОСТИКИ НА ПІДПРИЄМСТВІ, ЯК ІННОВАЦІЙНОЇ ЕКОСИСТЕМИ

У статті розглядаються особливості імплементації функціональної діагностики на підприємстві як інноваційної екосистеми. Доведено, що діагностика є важливою складовою всіх процесів, що протікають на підприємстві, оскільки надає можливість оцінити поточну ситуацію та визначити, які зміни необхідні для поліпшення адаптивності підприємства до трансформацій просторово-часового обміну між ендogenous наповненням та екзогенним оточенням, що характеризує підприємство як інноваційну екосистему. В зв'язку з чим, змінюються погляди на діагностичний процес, як основу для розв'язання безлічі завдань з управління виробництвом, фінансами, ресурсами, ризиками та іншими аспектами її діяльності. Через це, виникає нагальна потреба у дослідженні саме функціональної діагностики, яка надає можливість визначити необхідні заходи щодо нівелювання негативних чинників, розробити рекомендації щодо подальшого розвитку екосистеми з урахуванням змін, що виникли, спрогнозувати взаємодію між її компонентами з урахуванням запропонованих рішень, з метою максимально швидкої адаптації до наявних трансформацій. У контексті обраної тематики дослідження виокремлено основні компоненти ендogenous середовища екосистеми: управлінська, виробнича та фінансово-інвестиційна. Авторами представлено етапи проведення функціональної діагностики кожної з наведеної компонент. Зазначено, що функціональна діагностика підприємства як інноваційної екосистеми надає можливості визначити потенційні можливості для поліпшення його функціонування та розвитку, а також виявити загрози та ризики, що пов'язані із зовнішнім середовищем, у результаті чого з'являється можливість більш свідомо задіяти потенціал підприємства, його резерви, наявні ресурси та знайти можливості щодо посилення рівня економічної безпеки у майбутньому. Обгрунтовано, що для підтримання високого рівня адаптивності підприємства повинні упроваджувати функціональну діагностику на перманентній основі. Особлива увага у дослідженні приділена фактору часу в процесі оптимізації прийняття управлінських рішень.

The article considers the features of implementation of functional diagnostics at an enterprise as an innovative ecosystem. It is proved that diagnostics is an important component of all processes taking place at an enterprise, since it provides an opportunity to assess the current situation and

determine what changes are necessary to improve the adaptability of an enterprise to transformations of spatial and temporal exchange between endogenous content and exogenous environment, which characterises an enterprise as an innovation ecosystem. In this regard, views on the diagnostic process are changing as a basis for solving many problems of managing production, finances, resources, risks and other aspects of its activities. Therefore, there is an urgent need to study functional diagnostics, which makes it possible to identify the necessary measures to mitigate negative factors, develop recommendations for further development of the ecosystem, taking into account the changes that have occurred, and predict the interaction between its components, taking into account the proposed solutions, in order to adapt to the existing transformations as quickly as possible. In the context of the chosen research topic, the authors identify the main components of the endogenous environment of the ecosystem: management, production, and financial and investment. The authors present the stages of functional diagnostics of each of these components. It is noted that the functional diagnostics of an enterprise as an innovative ecosystem provides an opportunity to identify potential opportunities for improving its functioning and development, as well as to identify threats and risks associated with the external environment, which makes it possible to more consciously use the potential of the enterprise, its reserves, available resources and find opportunities to strengthen the level of economic security in the future. It is substantiated that in order to maintain a high level of adaptability, enterprises should implement functional diagnostics on a permanent basis. The study pays special attention to the time factor in the process of optimising management decision-making.

Keywords: *functional diagnosis, innovation ecosystem, ecosystem components, optimisation*

Ключові слова: *функціональна діагностика, інноваційна екосистема, компоненти екосистеми, оптимізація*

Statement of the problem in general terms and its relation to important scientific or practical tasks. Diagnostics is an important component of all processes in the enterprise, as it allows to assess the current situation and determine what changes are necessary to improve adaptability, innovative

development and economic security. With the help of diagnostics it is possible to identify the strengths and weaknesses of the enterprise in development mode, to determine the perspective activities, to evaluate the effectiveness of measures and programs, as well as to calculate the possible risks and threats. Diagnostics is an important tool for managing economic processes and ensuring economic stability and security.

At the same time, with innovative approaches to defining the enterprise as an ecosystem whose purpose is to obtain the appropriate result in a dynamic transformation, not only in the form of profit, but also part of the market, taking into account the phase of the life cycle of the enterprise, meeting the moral principles of the owners, etc., changes the view of diagnostics as the basis for solving the many problems of managing production, finance, resources, risks and other aspects of activity.

Delineation of functional components of endogenous ecological environment of an enterprise, as a complex of interconnected internal system components [1, 2], makes a completely different view of conducting a diagnostic process.

The diagnostic process, for which the feasibility of using certain indicators and calculations is constantly subjected to appropriate adjustments taking into account: the purpose, available resources and reserves, including time, is transformed into a more complexly structured system that allows the maximum leveling of information asymmetry in the management decision-making process.

In this case, we are talking about the functional diagnosis of the enterprise, which is based on determining the degree of influence of internal components on the development of the ecosystem, the identification of emerging problems and causes of deviations in accordance with the phase of the life cycle of the enterprise, allowing to determine the necessary measures to mitigate negative factors, to develop recommendations for further development taking into account the changes and to predict the interaction between ecosystem components, taking into account the proposed solutions that allow the fastest

In addition, in the process of functional diagnosis, it should be taken into account that the enterprise as an ecosystem functions within the market economy and interacts with other market participants, such as consumers, suppliers, competitors and government agencies [3-5]. It is also affected by external factors such as economic crises, political instability, changes in legislation, etc. [6-11].

We fully agree with the statement that it is not easy to directly influence the exogenous environment of an enterprise, which implies a set of interrelated elements and is relatively stable in space and time [1, 2], but at the same time, increasing the level of adaptability of the enterprise is one of the main goals of functional diagnosis. In addition to the above, diagnostics of the enterprise as an ecosystem helps to identify potential opportunities to improve its functioning and development, as well as to identify threats and risks associated with the external environment, such as changes in the market, changes in legislation, etc. [12-15], as a result, it is possible to utilize the potential of the company, its reserves, available resources in a more conscious manner and to find opportunities for increasing the level of economic security in the future.

Analysis of the latest research and publications. The study of issues related to the features of functional diagnosis of the enterprise as an innovation ecosystem and its implementation is important for solving the problems associated with the rapid adaptation of economic entities in a dynamic transformation. It is worth noting that the essence of the enterprise as an innovation ecosystem has been researched by such leading scientists and experts as A. Tansley [2], Moore [3], Singer [4], J. Teece [5], E. Autio and L. Thomas [6], Fransman [7], Pidorycheva [8], Boyarinova [9], O. Shevchuk [10], N. Roschina [11].

Along with this, separately studied the formation of general principles of implementation of the diagnostic process in enterprise management system by such scientists as: Strilchuk R.M., Kryvoviaziuk, I.V. & Kryvoviazuk B.I. [12] , Zavytii O. [13] , Yasynska, D. V., & Dobrovolska, O. V. [14] , Kovalchuk, A., & Tsyhanii, S. [15].

At the same time, the issue of implementation of functional diagnostics at the enterprise, which is based on determining the degree of influence of internal components on the development of ecosystem, identifying the emerging problems and causes of deviations from the target development benchmarks, which will help determine the necessary measures to level out the negative factors, develop recommendations for further development of the enterprise as an innovation ecosystem with regard to the changes, forecast interaction between its components with regard to

Formulation of the objectives of the article (task statement). The purpose of this article is to develop theoretical and methodological principles of functional diagnosis, which involves the formation of a theoretical framework and practical aspects of its implementation in the enterprise as an innovation ecosystem, through the specification of its components and principles in terms of modern dynamic transformations.

Summary of the main research material. The functional diagnosis of the internal environment of an enterprise is based on a system approach, according to which the enterprise as an ecosystem consists of three components: management, production and financial and investment components [9].

In this case, by functional diagnosis of the management component of the enterprise we mean the process of analysis and assessment of its management functionality in order to prevent problematic situations and develop appropriate proposals for their resolution (tab. 1).

Table 1. Components of the functional diagnosis of the management component of an enterprise

Components	Objectives of the functional diagnosis stage
Analysis of the company's aims and objectives	Define the mission and objectives of the enterprise; assess the current tasks that the enterprise performs; determine which tasks help to achieve the objectives and which may delay or hinder the achievement of the objectives; develop a concrete and realistic strategy to achieve the objectives; assess the resources necessary to achieve the objectives and implement the strategy; assess the competitive environment in which the enterprise operates; assess possible problems and obstacles that may arise in the implementation of the strategy; develop an action plan, designate
Business process analysis of the company	Define the objectives of the analysis and identify the business processes to be analysed; collect data on the time taken to complete the processes, the number of errors and rejects, the cost of resources used, etc.; assess the efficiency of the business processes and identify problems that may arise during the execution of the business processes; determine what changes need to be made to the processes to improve their efficiency and reduce costs.
Analysis of human resources policies	Define the objectives of the personnel policy analysis and assess the current personnel policy for compliance with the company's objectives (evaluate the remuneration system, motivation system, working conditions, opportunities for professional development, etc.); assess the personnel structure, including the number of employees, their qualifications, age, gender, work experience, etc.; examine employee turnover and replacement costs of departing employees, including recruitment, training and adaptation of new employees; determine what changes to personnel policy are needed to improve
Market analysis	Assess the current state of the market by examining data on sales, production volumes, price levels, share of competitors, etc.; assess competitors in the market by examining their products, prices, marketing strategies and market shares; determine market potential based on current trends and expected growth in the near future; assess consumer needs and preferences in the market; develop a marketing strategy based on the findings; estimate financial indicators - production costs, marketing and promotion costs, selling price and profitability
Analysis of the technological environment	Evaluate what technologies can affect the business and how new technologies can be used to improve their business processes, optimise costs and increase efficiency; identify technological advantages with competitors; assess risks and threats that may arise when using new technologies; identify what technologies are needed to improve business processes and increase efficiency; assess the costs of implementing new technology, including the cost of purchasing and setting up equipment, training personnel and supporting new technology; assess how new technology will affect the business model, processes and products of the enterprise, what opportunities and threats new technology will bring, and the ability to adapt to changes in the technological environment; assess the potential profitability of implementing new technology, considering the costs of implementation and the potential benefits.

Continuation of table 1.

Components	Objectives of the functional diagnosis stage
Analysis of financial indicators	Gather reliable and up-to-date information on the company's income, expenditure, assets and liabilities over the past few years; assess the company's liquidity; assess its financial stability; assess the company's profitability, i.e. its ability to generate profit; compare the company's financial performance with industry benchmarks to determine how well the company performs compared to its competitors; examine changes in financial performance over recent years to identify trends and problem areas.
Analysis of legislation	Evaluate the compliance of the company's activities with legal requirements, risks and problems in this area.
Analysis of the organisational structure of the company	Examine the current structure and determine whether it is consistent with the goals and objectives of the enterprise; assess the effectiveness of the structure, checking whether there are redundancies that could slow down processes, or whether there are missing links that could speed up work; assess the level of communication between the various units, the level of decentralised management, flexibility and adaptability of the structure to changes within and outside the enterprise.
Analysis of the management decision-making process	Identify the steps and procedures used in decision-making in the enterprise; examine who is involved in the decision-making process and what roles they play; find out what sources of information are used in decision-making, how they are processed and analysed, and what evaluation methods are used to select alternative solutions; assess the effectiveness of the decision-making process.
Analysis of management process automation	Assess the capabilities and limitations of software products and technologies, the costs of implementing management process automation, the risks and opportunities of management process automation; determine which processes should be automated, in what order they should be implemented, what resources will be needed, and who will be responsible for implementing the plan; measure how much time spent on processes has been reduced and how much money has been saved; assess how the quality and accuracy of processes has changed, and how much better the organisation as a whole has been managed.

The result of the functional diagnosis of the management component of the enterprise is a comprehensive analysis of management efficiency and identification of weaknesses in management that could lead to problems in the future.

As for the functional diagnosis of the production component of the enterprise, it is primarily aimed at assessing and analysing the effective use of available resources of the enterprise, if necessary, its reserves, as well as directly to assess the effectiveness of the production process, possible problems, leveling bottlenecks and development of optimal solutions (Table 2).

Table 2. Components of the functional diagnosis of the production component of an enterprise

Components	Objectives of the functional diagnosis phase
Process analysis	To assess the efficiency of production processes, availability of bottlenecks and problem areas; availability of opportunities to optimise production processes and reduce production costs.
Equipment analysis	To assess the condition of equipment, its technical readiness and availability of spare parts; availability of modern equipment and possibility of its modernisation.
Analysis of the quality of raw materials	Evaluate the quality of raw materials and supplies, the availability of necessary certificates and documentation; the possibility of using higher quality and cheaper counterparts of raw materials and supplies.
Analysis of human resource policy	Assess the quality of staff, their qualifications and experience. Evaluate the availability of a personnel motivation and development system and the availability of a personnel reserve. Evaluation of personnel policy includes analysis of the level of professionalism of personnel, their qualification and competence, and the effectiveness of the personnel training and development system. It is necessary to analyse how effectively human resources are managed, what problems may arise in the management process and how they can be solved.
Energy analysis	Evaluate the efficiency of energy resources use and whether it is possible to reduce them; whether it is possible to use renewable energy sources.
Environmental analysis	Evaluate the environmental compliance of production and the availability of environmental risks; the possibility of optimising production processes to meet environmental requirements.
Financial analysis	Evaluate the cost of production, sales revenue and profitability of production; the availability and effectiveness of accounting and control of production finances, the degree of use of production resources; analyse how financially sustainable production is, what problems may arise in the process of financial management and how they can be solved.
Process analysis	Assessing technological processes involves analysing the use of raw materials, energy, labour, equipment, machinery and other resources in production. It is necessary to analyse to what extent technological processes are optimised, what problems may arise in the production process and how they can be solved.
Production infrastructure.	Analyse the condition of production facilities, equipment, vehicles and other elements necessary for production processes; analyse the effectiveness of the use of production infrastructure and identify what problems may arise in the process of operation.
Product quality	Analyse the conformity of the products produced to customer requirements and quality standards; identify possible problems in the production process and how they can be resolved.

Based on the results of the functional diagnosis of the production component, plans and recommendations are developed to improve production processes, increase product quality, improve management of production resources and human resources, and improve financial stability of production.

The functional diagnosis of the financial and investment component of the enterprise allows assessing the efficiency of the use of financial resources and identifying problem areas (Table 3).

Table 3. Components of functional diagnostics of the financial-investment component of the enterprise

Components	Objectives of the functional diagnosis stage
Financial analysis:	To assess the current financial position of the company, the presence of financial problems and risks; to assess the possibility of improving the financial position and optimising the use of financial resources.
Analysis of investment activities	Evaluate the effectiveness of the investment activities of the enterprise, the presence of successful and unsuccessful investment projects.
Analysis of Financial Planning	Assess the availability of financial planning at the enterprise, its efficiency and relevance; assess the possibility of optimizing financial planning and improving financial management.
Analysis of receivables and payables management	Evaluate the effectiveness of receivables and payables management, the presence of problems with payments and debts; assess the possibility of improving debt management and risk mitigation.
Analysis of Tax Payments Management	Evaluate the effectiveness of tax payment management, whether there are problems with tax legislation and tax risks and whether tax payment management and risk mitigation can be improved.
Analysis of Financial Risk Management	Assess the effectiveness of financial risk management, the presence of risks related to exchange rate differences, interest rates, inflation, etc.; assess the possibility of improving financial risk management and reducing their impact on the financial and investment sphere of the enterprise.
Analysis of financial reporting	Evaluate the quality and credibility of financial reporting, the presence of errors and misstatements; assess the possibility of improving the financial reporting process and improving its quality.
Analysis of financial literacy of the staff:	Assess the level of financial literacy of the company's personnel, the presence of problems with understanding financial indicators and processes; assess the possibility of conducting training and improving the financial literacy of personnel.
Evaluation of Financial Control and Audit	Evaluate the effectiveness of internal control, audit and risk management systems; identify opportunities to improve these systems.
Analysis of financial markets and macroeconomic environment.	Evaluate the current economic situation, forecast changes in financial markets and identify opportunities and risks for the company.

The results of this diagnosis can be used to develop a development strategy for the enterprise, to improve financial and investment management, and to improve the financial sustainability and competitiveness of the enterprise in the market.

It is important to note that in order to function effectively as an ecosystem, an enterprise should constantly analyze its resources, production processes and market situation, and make management decisions that allow it to adapt to changing conditions depending on the life cycle of the enterprise.

Therefore, in order to maintain a high level of adaptability of the enterprise to the spatial and temporal exchange between the endogenous content and the exogenous environment, the functional diagnosis of the enterprise must be of a permanent nature. In this regard, the functional diagnosis of the enterprise is to determine the appropriate level of development of interrelated internal elements, which makes it possible to increase the variability of decisions, predetermine and adjust further goals of enterprise development with the subsequent reallocation of resources.

Functional diagnosis in economics uses various methods and tools, including data analysis, process modelling, business process analysis and others. It can be carried out either internally by the enterprise or by specialised consultants. At the same time, it should be said that there are certain conditions and requirements for the process of diagnostics by specialists in order to obtain the maximum managerial effect.

For example, reducing time in the process of making management decisions is a very important aspect of effective management. In today's fast-paced business world, where competition is intense, quick and accurate decisions can be the key to a company's success. It is important to realise that long management decisions can lead to missed opportunities and loss of competitive advantage. In addition, the longer the decision-making time, the more resources and time spent waiting, preparing and analysing data, which can lead to additional costs and a worsening of the company's financial position. It is also important to remember that quick decisions should not sacrifice quality. It is necessary to make sure that decisions are made based on an adequate assessment of risks, possible consequences and available data. Therefore, it is important to have a well-structured and reliable

system of data collection and analysis, as well as to make sure that the participants in the decision-making process are professional and competent.

Conclusions. In this regard, it is quite logical to overestimate the requirements for the diagnostic process, as it is the basis for making optimal management decisions. The application of functional diagnostics, which is based on the principle of gradation in accordance with the functional areas of the economic environment of the enterprise - allows fulfilling this requirement and optimizing the management process.

The conducted research allows estimating the peculiarities of implementation of functional diagnostics in an enterprise as an innovation ecosystem. Further research will be aimed at forming a system of balanced indicators (indicators) that provide a complete information component of functional diagnostics, allowing to optimize the decision-making process.

Література

1. Kleiner G., Kobylko A. Vasiliev, Y.S., Pankratova, N.D., Volkova, V.N., Shipunova, O.D., Lyabakh, N.N. (eds). System Analysis in Engineering and Control. SAEC 2021. *Lecture Notes in Networks and Systems*, vol 442. Springer, Cham. 2022. P. 43–51. DOI: 10.1007/978-3-030-98832-6_4
2. Tansley A.G. 1935. The use and abuse of vegetational terms and concepts. *Ecology*. 1935. Vol. 16 (3). P. 284-307.
3. Moore J. F. Business ecosystems and the view from the firm. *The Antitrust Bulletin*. 2005. Vol. 51. № 1. P. 31-75. DOI: <http://dx.doi.org/10.1177/0003603X0605100103>
4. Singer John G. Systems marketing for the information age. *MIT Sloan Management Review*. 2006. URL: <https://sloanreview.mit.edu/article/systems-marketing-for-theinformation-age/>
5. Teece D. J. Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*. 2007. Vol. 28. Iss. 13. P. 1319-1350. DOI: <http://dx.doi.org/10.1002/smj.640>
6. Autio E., Thomas L.D.W. Innovation ecosystems: implications for innovation management? In: Dodgson M., Gann D.M., Phillips, N. (Eds.). *The*

Oxford Handbook of Innovation Management. Oxford University Press. Oxford, 2014. P. 204-228. DOI: <https://doi.org/10.1093/oxfordhb/9780199694945.001.0001>

7. Fransman M. Models of Innovation in Global ICT Firms: The Emerging Global Innovation Ecosystems. *JRC Scientific and Policy Reports*. Seville: JRC-IPTS. 2014. 60 p.

8. Підоричева І.Ю. Інноваційна екосистема в сучасних економічних дослідженнях. *Економіка промисловості*. 2020. № 2 (90). С. 54–92 URL: <http://ojs.econindustry.org/index.php/ep/article/view/188/230>

9. Бояринова К. О. Управлінські інновації функціональних підсистем промислового підприємства. *Проблеми системного підходу в економіці*. 2020. Вип. № 4 (78). С. 70-76. URL: <http://psae-jrnl.nau.in.ua/78-2020>

10. Шевчук О. А. Сучасний інструментарій стратегічного управління розвитком та динамічною стійкістю підприємств. *Економічний вісник НТУУ «КПІ»*. 2018. № 15. С. 290–298. URL: <https://ela.kpi.ua/handle/123456789/26577>

11. Рощина Н.В., Крейдич І.М., Канцедал Г.О. Концепція ефектуатії в умовах фундаментальної невизначеності. Київ: *Економічний вісник НТУУ «КПІ ім. Ігоря Сікорського»*. 2019. № 16. URL: <http://ev.fmm.kpi.ua/article/view/181354>

12. Стрільчук Р.М. Економічна діагностика діяльності промислового підприємства: теорія, методика та практика реалізації. *Вісник ХДУ Серія Економічні науки*. 2019. №33. DOI: <https://doi.org/10.32999/ksu2307-8030/2019-33-26>

13. Завитій О. Роль фінансової діагностики в діяльності підприємства. *Інститут бухгалтерського обліку, контроль та аналіз в умовах глобалізації*. 2021. Випуск 1-2. С. 33-41. DOI: <https://doi.org/10.35774/ibo2021.01.033>

14. Ясинська, Д. В., & Добровольська, О. В. Сучасна парадигма діагностики фінансового стану підприємства в період кризи. *Економічний простір*, 2021. (166), 81-84. URL: <https://doi.org/10.32782/2224-6282/166-14>

15. Ковальчук, А., & Циганій, С. Економічна діагностика стратегічного управління імпортною діяльністю підприємства як умова забезпечення його конкурентоспроможності. *Економіка та суспільство*. 2021. URL: <https://doi.org/10.32782/2524-0072/2021-34-65>

References

1. Kleiner, G. Kobylko, A. Vasiliev, Y.S. Pankratova, N.D. Volkova, V.N. Shipunova, O.D. and Lyabakh, N.N. (2022), "System Analysis in Engineering and Control. SAEC 2021", Lecture Notes in Networks and Systems, vol 442, pp. 43-51. DOI: 10.1007/978-3-030-98832-6_4
2. Tansley, A.G. (1935), "The use and abuse of vegetational terms and concepts", Ecology, vol. 16 (3), pp. 284-307.
3. Moore, J.F. (2005), "Business ecosystems and the view from the firm", The Antitrust Bulletin, vol. 51, no 1, pp. 31-75. doi: <http://dx.doi.org/10.1177/0003603X0605100103>
4. Singer, J.G. (2006), "Systems marketing for the information age", MIT Sloan Management Review, available at: <https://sloanreview.mit.edu/article/systems-marketing-for-theinformation-age/> (Accessed 25 April 2023).
5. Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", Strategic Management Journal, vol. 28, Iss. 13, pp. 1319-1350. DOI: <http://dx.doi.org/10.1002/smj.640>
6. Autio, E. and Thomas, L.D.W. (2014), "Innovation ecosystems: implications for innovation management?", The Oxford Handbook of Innovation Management. Oxford University Press, Oxford, pp. 204-228. DOI: <https://doi.org/10.1093/oxfordhb/9780199694945.001.0001>
7. Fransman, M. (2014), Models of Innovation in Global ICT Firms: The Emerging Global Innovation Ecosystems. JRC Scientific and Policy Reports, JRC-IPTS, Seville.
8. Pidorycheva, I.Iu. (2020), "Innovative ecosystem in modern economic research", Ekonomika promyslovosti, vol. 2 (90), pp. 54-92, available at: <http://ojs.econindustry.org/index.php/ep/article/view/188/230> (Accessed 25 April 2023).
9. Boiarynova, K.O. (2020), "Managerial innovations of an industrial enterprises functional subsystem", Problemy systemnoho pidkrodu v ekonomitsi, vol. 4 (78), pp. 70-76, available at: <http://psae-jrnl.nau.in.ua/78-2020> (Accessed 25 April 2023).
10. Shevchuk, O.A. (2018), "Current tool of strategic department management and dynamic strength of enterprises", Ekonomichnyi visnyk NTUU

«KPI». 2018, vol. 15, pp. 290-298, available at: <https://ela.kpi.ua/handle/123456789/26577> (Accessed 25 April 2023).

11. Roshchyna, N.V. Kreidych, I.M. and Kantsedal, H.O. (2019), “The concept of effectuation in conditions of fundamental uncertainty”, *Ekonomichnyi visnyk NTUU "KPI im. Ihoria Sikorskoho"*, vol. 16, available at: <http://ev.fmm.kpi.ua/article/view/181354> (Accessed 25 April 2023).

12. Strilchuk, R.M. Kryvoviazuk, I.V. and Kryvoviazuk, B.I. (2019), “Economic diagnosis of the activity of an industrial enterprise: theory, methodology and implementation practice”, *metodyka ta praktyka realizatsii. Visnyk KhDU Seriia Ekonomichni nauky*, vol. 33. DOI: <https://doi.org/10.32999/ksu2307-8030/2019-33-26>

13. Zavytii, O. (2021), “The role of financial diagnostics in the enterprise”, *Instytut bukhalterskoho obliku, kontrol ta analiz v umovakh hlobalizatsii*, vol. 1-2. DOI: <https://doi.org/10.35774/ibo2021.01.033>

14. Yasynska, D.V. and Dobrovolska, O.V. (2021), “Diagnostics of the enterprise’s financial condition during the crisis”, *Ekonomichnyi prostir*, vol. (166), pp. 81-84. DOI: <https://doi.org/10.32782/2224-6282/166-14>

15. Kovalchuk, A. and Tsyhanii, S. (2021), “Economic diagnostics of strategic management of an enterprise's import activities as a condition for ensuring its competitiveness”, *Ekonomika ta suspilstvo*, vol. (34). DOI: <https://doi.org/10.32782/2524-0072/2021-34-65>

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