



ECONOMICS AND MANAGEMENT OF ENTERPRISE

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**FORMATION OF AN ADAPTIVE MODEL
OF ENTREPRENEURIAL RISK MANAGEMENT AS AN
ELEMENT OF ENTERPRISE CRISIS MANAGEMENT**

pages 6–12

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The object of the research is the processes of business risk management as a key element of enterprise crisis management. Particular attention is paid to the study and formation of an adaptive model of business risk management as a key tool for crisis management. The emphasis is placed on its ability to respond to changes in the external and internal environment dynamically, ensuring strategic flexibility, enterprise risk resilience and effective functioning in conditions of uncertainty. Therefore, it is essential to establish a systematic approach for identifying, analysing, evaluating, and mitigating these risks. An adaptive model for business risk management enables a company to not only reduce the effects of adverse events but also to enhance resilience, recovery capacity, strategic flexibility, and competitiveness. The proposed mechanism for implementing the adaptive model consists of six consecutive stages: diagnostics, planning, institutionalization, digitalization, staff training, and continuous improvement. This approach facilitates a gradual transformation of the management system in response to changes in the external environment. The key priorities for implementation are as follows: proactivity, flexibility, integration, digitalization, the development of a risk-oriented culture, and continuous improvement. Successfully implementing these priorities is critical for the effective functioning of the entire risk management system. This article outlines a set of measures that can be adopted to put the adaptive model into practice. These measures address organizational, institutional, informational technology, and personnel aspects, ensuring an interdisciplinary approach and consistency in management decisions. The proposed model can serve as a foundation for developing a customized risk management strategy for enterprises operating in an unstable economy. The work highlights the importance of integrating the enterprise risk management system across all departments and structural units to enable quick responses to changes in both the external and internal environments, thereby enhancing the enterprise's crisis resilience. The presented results are of practical importance for enterprises in all sectors of the economy. The results of the study can serve as an analytical basis for further scientific developments and implementation of effective models of crisis management of business risks.

Keywords: entrepreneurial risk, risk management, crisis management, uncertainty management, risk minimization tools.

References

1. Hisrich, R. D., Ramadani, V. (2016). Entrepreneurial Risk Management. *Effective Entrepreneurial Management*. Cham: Springer, 55–73. https://doi.org/10.1007/978-3-319-50467-4_4
2. Aryati, T., Khomsiyah, K., Harahap, C. D. (2023). Enterprise risk management: A bibliometric analysis of research Trends. *Decision Science Letters*, 12 (3), 561–570. <https://doi.org/10.5267/j.dsl.2023.4.007>
3. Vesković, N. (2014). Aspects of entrepreneurial risk. *Proceedings of the 1st International Scientific Conference – FINIZ 2014*, 115–117. <https://doi.org/10.15308/finiz-2014-115-117>
4. Risk as the foundation for crisis management and crisis communication (2023). SAGE Publications, Inc., 21–39. Available at: https://uk.sagepub.com/sites/default/files/upm-assets/120144_book_item_120144.pdf
5. Alshebami, A. S. (2025). Crisis Management and Customer Adaptation: Pathways to Adaptive Capacity and Resilience in Micro- and Small-Sized Enterprises. *Sustainability*, 17 (9), 3759. <https://doi.org/10.3390/su17093759>
6. Skomra, W. (2017). Risk Management as Part of Crisis Management Tasks. *Foundations of Management*, 9 (1), 245–256. <https://doi.org/10.1515/fman-2017-0019>
7. Brear, A. S. (2021). Entrepreneurial and SME Resilience During Crisis Episodes. *Cases on Small Business Economics and Development During Economic Crises*. IGI Global Scientific Publishing, 52–79. <https://doi.org/10.4018/978-1-7998-7657-1.ch003>
8. Kotov, B. (2023). Justification of the Mechanism of Risk Protection of Business Structures. *Economics: Time Realities*, 3 (67), 89–98. <https://doi.org/10.15276/etr.03.2023.10>
9. Myroshnychenko, G. (2024). Strategies for risk management in enterprise structures. *Scientific Papers of Donetsk National Technical University. Series: Economic*, 2 (30), 4–10. [https://doi.org/10.31474/1680-0044-2024-2\(30\)-4-10](https://doi.org/10.31474/1680-0044-2024-2(30)-4-10)
10. Perederii, T. (2024). Features of the current practice of anti-crisis management of sustainable development in trade enterprises of Ukraine. *Actual Problems of Economics*, 1 (278), 146–158. <https://doi.org/10.32752/1993-6788-2024-1-278-146-158>
11. Korobka, S. V. (2024). *Osoblyvosti upravlinnia biznes-ryzykamy malykh pidpriemstv v umovakh viiny*. LNUVM BT. <https://doi.org/10.32718/monohraf.2024.5>
12. Kopylyuk, O., Muzychka, O. (2022). Organizational and Financial Mechanism of Anti-Crisis Management of Business Entities. *University Scientific Notes*, 1-2 (85-86), 8–16. <https://doi.org/10.37491/unz.85-86.1>
13. Bromiley, P., McShane, M., Nair, A., Rustambekov, E. (2015). Enterprise Risk Management: Review, Critique, and Research Directions. *Long Range Planning*, 48 (4), 265–276. <https://doi.org/10.1016/j.lrp.2014.07.005>
14. Khalina, V., Kolmakova, O., Ustilovska, A. (2023). Economic security of ukrainian companies through the prism of the modern phenomenon of their adaptation. *Economy and Society*, 58. <https://doi.org/10.32782/2524-0072/2023-58-94>
15. Kukhtyk, T. V., Obraztsova, N. O. (2012). Stymuliuvannia innovatsiino-investytsiinoi diialnosti malykh pidpriemstv shliakhom uprovozhdennia systemy upravlinnia ryzykamy. *Efektivna ekonomika*, 12. Available at: <http://www.economy.nayka.com.ua/?op=1&z=1687>
16. Varaksina, O., Pobidenna, V., Hrebenyk, R. (2023). Risk management in the context of economic security of the enterprise. *Economy and Society*, 56. <https://doi.org/10.32782/2524-0072/2023-56-47>
17. Kostyuk, M. S. (2024). Risk management strategy development in business activities. *Efektivna Ekonomika*, 8. <https://doi.org/10.32702/2307-2105.2024.8.94>
18. Nazarenko, I., Bazyluk, A., Nazarenko, M., Gorobinska, I., Nakonechna, S., Slavinska, O., Danchuk, V., Kunytska, O., Hulchak, O. (Eds.) (2025). Directions of Financial Support for Post-war Recovery and Sustainable Development of Smart Cities in Ukraine. *Intelligent Transport Systems: Ecology, Safety, Quality, Comfort. ITSESQC 2024. Lecture Notes in Networks and Systems*. Cham: Springer, 362–373. https://doi.org/10.1007/978-3-031-87379-9_33
19. Hutsaliuk, O., Antonenko, N., Nazarenko, I., Boiko, N., Karlova, I., Babych, L., El Khoury, R. (Ed.) (2024). Cognitive Model Building to Improve the Efficiency of Enterprise Liquid Cash Management. *Technology-Driven Business Innovation: Unleashing the Digital Advantage. Studies in Systems, Decision and Control*. Cham: Springer, 199–209. https://doi.org/10.1007/978-3-031-62656-2_18
20. Vorkut, T., Volynets, L. (2025). Devising a method for strategic-oriented evaluation of the activities of logistics personnel taking into account the effect of risk and uncertainty factors. *Eastern-European Journal of Enterprise Technologies*, 3 (3 (135)), 57–66. <https://doi.org/10.15587/1729-4061.2025.329994>

21. Levchenko, I., Dmytriiev, I., Babailov, V., Kyrchata, I., Britchenko, I., Vorkut, T. et al.; Levchenko, I., Dmytriiev, I. (Eds.) (2025). *Strategic-oriented management of the transport industry: logistics approaches, innovative solutions and management models*. Kharkiv: TECHNOLOGY CENTER PC, 116. <https://doi.org/10.15587/978-617-8360-14-6>
22. Volynets, L. M.; Chobitok, V. I. (Ed.) (2025). *Metodolohichni platformy doslidzhennia efektyvnosti stratehichno-oriietovanoho upravlinnia v orhanizatsiakh i orhanizatsiynkh merezhakh v umovakh hlobalizatsii. Transformation of socio-economic systems in the context of globalization*. Kharkiv: Vyd-vo Ivanchenka I. S., 8–23. <https://doi.org/10.35668/978-617-8332-75-4>

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SOCIAL RESPONSIBILITY MANAGEMENT IN THE ECOLOGICAL MARKETING SYSTEM TO ENSURING BUSINESS SUSTAINABILITY OF ENTERPRISES

pages 13–19

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The object of research is the processes of formation and development of social responsibility in the system of environmental marketing to ensure the business sustainability of enterprises. It was established that the phased implementation of social and environmental initiatives allows to assess resources, determine priorities and timely adjust strategies. Special attention is paid to the use of modern management principles, such as digital platforms, monitoring systems and interaction with stakeholders, which contributes to increasing the adaptability of enterprises to changes in the market environment. The economic, social, environmental, innovative, strategic, marketing and regulatory impact of CSR on business sustainability is studied. A methodological approach to social responsibility management is presented, which includes diagnostics of the state, definition of goals, assessment of resource potential, formation of management measures, their implementation and control. It was established that the integration of social and environmental responsibility contributes to the formation of a positive image of the enterprise, strengthening the trust of consumers and partners and the development of innovative products. It was determined that the comprehensive application of these approaches ensures the long-term sustainability of enterprises and their competitiveness. It is determined that systemic management of social responsibility is a key tool for sustainable business development. The paper deepens the theoretical foundations and develops practical recommendations for the integration of social, environmental and innovative models and management solutions to increase the business sustainability of en-

terprises. The presented conclusions can be used to plan sustainable development strategies and assess the effectiveness of CSR initiatives. The study emphasizes the importance of combining social responsibility and environmental marketing to ensure comprehensive and balanced development of enterprises.

Keywords: sustainable development, social responsibility, business processes, environmental marketing, business sustainability, development strategies.

References

1. Solomentsev, O., Zaliskyi, M., Poberezhna, Z., Zuiev, O.; Ostroumov, I., Marais, K., Zaliskyi, M. (Eds.) (2025). *Predictive Analytics of Decision-Making for Aviation Operation Enterprise. Advances in Civil Aviation Systems Development*. Cham: Springer, 348–363. https://doi.org/10.1007/978-3-031-91992-3_23
2. Zaliskyi, M., Solomentsev, O., Poberezhna, Z., Okoro, O. C., Chumachenko, B., Chumachenko, S. (2024). Information technologies of data processing for linear deterioration process during aviation equipment operation. *CEUR Workshop Proceedings*, 3732, 32–44. Available at: <https://ceur-ws.org/Vol-3732/paper03.pdf>
3. White, K., Cakanlar, A., Sethi, S., Trudel, R. (2025). The past, present, and future of sustainability marketing: How did we get here and where might we go? *Journal of Business Research*, 187, 115056. <https://doi.org/10.1016/j.jbusres.2024.115056>
4. Chen, G., Sabir, A., Rasheed, M. F., Belascu, L., Su, C.-W. (2024). Green marketing horizon: Industry sustainability through marketing and innovation. *Journal of Innovation & Knowledge*, 9 (4), 100606. <https://doi.org/10.1016/j.jik.2024.100606>
5. Coelho, R., Jayantilal, S., Ferreira, J. J. (2023). The impact of social responsibility on corporate financial performance: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, 30 (4), 1535–1560. <https://doi.org/10.1002/csr.2446>
6. Bhat, A. A., Mir, A. A., Allie, A. H., Ahmad Lone, M., Al-Adwan, A. S., Jamali, D. et al. (2024). Unlocking corporate social responsibility and environmental performance: Mediating role of green strategy, innovation, and leadership. *Innovation and Green Development*, 3 (2), 100112. <https://doi.org/10.1016/j.igd.2023.100112>
7. Caha, Z., Skýpalová, R., Mrhálek, T. (2024). CSR as a framework for sustainability in SMEs: The relationship between company size, industrial sector, and triple bottom line activities. *Asia Pacific Management Review*, 29 (4), 451–461. <https://doi.org/10.1016/j.apmr.2024.09.006>
8. Xiao, H., Al Mamun, A., Reza, M. N. H., Lin, X., Yang, Q. (2024). Modeling the significance of corporate social responsibility on green capabilities and sustainability performance. *Heliyon*, 10 (19). <https://doi.org/10.1016/j.heliyon.2024.e38991>
9. Maury, B. (2022). Strategic CSR and firm performance: The role of prospector and growth strategies. *Journal of Economics and Business*, 118, 106031. <https://doi.org/10.1016/j.jeconbus.2021.106031>
10. Orlitzky, M., Siegel, D. S., Waldman, D. A. (2011). Strategic Corporate Social Responsibility and Environmental Sustainability. *Business & Society*, 50 (1), 6–27. <https://doi.org/10.1177/0007650310394323>
11. Sukhonos, V., Makarenko, I., Serpeninova, Y., Drebot, O., Okabe, Y. (2019). Patterns of corporate social responsibility of Ukrainian companies: clustering and improvement strategies for responsible activities. *Problems and Perspectives in Management*, 17 (2), 365–375. [https://doi.org/10.21511/ppm.17\(2\).2019.28](https://doi.org/10.21511/ppm.17(2).2019.28)
12. Makarenko, I., Steiner, B., Yuhai, K. (2024). Toward a novel Sustainability Transparency Index for improved governance in agri-food value chains: A comparative study of Finnish and Ukrainian companies. *Accounting and Financial Control*, 5 (1), 68–81. [https://doi.org/10.21511/afc.05\(1\).2024.06](https://doi.org/10.21511/afc.05(1).2024.06)
13. Lobachevska, G., Daub, C.-H. (2021). The role of Corporate Social Responsibility in the decision-making process of consumers in Ukraine. *Innovative Marketing*, 17 (1), 78–93. [https://doi.org/10.21511/im.17\(1\).2021.07](https://doi.org/10.21511/im.17(1).2021.07)
14. Makarenko, I., Plastun, A., Kozmenko, S., Kozmenko, O., Rudychenko, A. (2022). Corporate Transparency, Sustainable Development and SDG 2 and 12 in Agriculture: The Case of Ukraine. *Agris On-Line Papers in Economics and Informatics*, 14 (3), 57–70. <https://doi.org/10.7160/aol.2022.140305>
15. Tkali, Y., Yarmak, T., Martynova, L., Yurchyk, I., Andrusenko, N. (2025). Corporate Social Responsibility in Ukraine as a Tool for Sustainable Development. *Grassroots Journal of Natural Resources*, 8 (1), 566–582. <https://doi.org/10.33002/nr2581.6853.080123>

16. Wirba, A. V. (2023). Corporate Social Responsibility (CSR): The Role of Government in promoting CSR. *Journal of the Knowledge Economy*, 15 (2), 7428–7454. <https://doi.org/10.1007/s13132-023-01185-0>
17. Poberezhna, Z., Zaliskyi, M.; Ostroumov, I., Marais, K., Zaliskyi, M. (Eds.) (2025). Modeling of Integration Business Processes for Aviation Enterprise in the Context of Sustainable Development. *Advances in Civil Aviation Systems Development*. Cham: Springer, 59–73. https://doi.org/10.1007/978-3-031-91992-3_5
18. Kamyshnykova, E. V. (2014). Stratehichniy pidkhd do upravlinnia korporativnoiu sotsialnoiu vidpovidalnistiu pidpriemstva. *Teoretychni i praktychni aspekty ekonomiky ta intelektualnoi vlasnosti*, 1 (1), 81–85. Available at: [http://nbuv.gov.ua/UJRN/Tpaev_2014_1\(1\)_15](http://nbuv.gov.ua/UJRN/Tpaev_2014_1(1)_15)
19. Tiahunova, N., Tiahunova, Z. (2020). The influence of digital transformation of business on social responsibility of trade enterprises. *Problems of systemic approach in the economy*, 4 (78), 177–183. <https://doi.org/10.32782/2520-2200/2020-4-24>
20. Pasinovich, I., Myskiv, G. (2023). Ukrainian context of sustainable development and the role of business in its achievement. *Regional Science Policy & Practice*, 15 (1), 161–181. <https://doi.org/10.1111/rsp3.12619>
21. Smerichevskiy, S., Truhan, O., Poberezhna, Z., Chumak, O.; Ostroumov, I., Marais, K., Zaliskyi, M. (Eds.) (2025). Strategic Diagnostics for Optimization of Aviation Enterprises Activity in the Condition of Digital Transformations. *Advances in Civil Aviation Systems Development*. Cham: Springer, 92–104. https://doi.org/10.1007/978-3-031-91992-3_7
22. Smerichevskiy, S., Poberezhna, Z., Mykhalchenko, O., Petrova, Y., Smilyanets, V. (2024). Ensuring the sustainable development of the aviation enterprise in the context of forming innovative potential using digital technologies. *CEUR Workshop Proceedings*, 3732, 174–185. Available at: <https://ceur-ws.org/Vol-3732/paper14.pdf>
23. Slimani, K., Khouliji, S., Larbi Kerkeb, M. (2024). The Evolution of Wireless Sensor Networks through Smart Radios for Energy Efficiency. *E3S Web of Conferences*, 477, 00072. <https://doi.org/10.1051/e3sconf/202447700072>
24. Sysoieva, I. M., Roleders, V. V., Pohrishchuk, O. B. (2022). Sotsialna vidpovidalnist biznesu v umovakh stanovlennia tsyrkuliarnoi ekonomiky: realii vedennia biznesu v umovakh viiny. *Investytisii: praktyka ta dosvid*, 23, 19–25. <https://doi.org/10.32702/2306-6814.2022.23.19>
25. Zaliskyi, M., Solomentsev, O., Kozhokhina, O., Herasymenko, T. (2017). Reliability parameters estimation for radioelectronic equipment in case of change-point. *2017 Signal Processing Symposium (SPSympo)*. Jachranka: IEEE, 1–4. <https://doi.org/10.1109/sps.2017.8053676>
26. Solomentsev, O. V., Zaliskyi, M. U., Zuiev, O. V., Asanov, M. M. (2013). Data processing in exploitation system of unmanned aerial vehicles radioelectronic equipment. *2013 IEEE 2nd International Conference Actual Problems of Unmanned Air Vehicles Developments Proceedings (APUAVD)*. Kyiv: IEEE, 77–80. <https://doi.org/10.1109/apuavd.2013.6705288>
27. Backhoff-Veraguas, J., Zhang, X. (2022). Dynamic Cournot-Nash equilibrium: the non-potential case. *Mathematics and Financial Economics*, 17 (2), 153–174. <https://doi.org/10.1007/s11579-022-00327-3>

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THEORETICAL AND METHODOLOGICAL APPROACHES TO ASSESSING THE STRATEGIC POTENTIAL OF AN ENTERPRISE

pages 20–25

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The object of research is the strategic potential of enterprises as a basis for the formation of strategic plans, its structure, factors and reserves that contribute to increasing its level. The problem of assessing the strategic potential of enterprises forced to operate in difficult war conditions, characterized by rapid change and a high level of uncertainty of the external environment, is solved. The work contains the development of theoretical and methodological provisions, practical recommendations for the analysis of the strategic potential of an enterprise and the assessment of the effectiveness of its use by enterprises in modern conditions.

The existing ones have been studied and the need for the application of new approaches to the development and assessment of the strategic potential of enterprises has been substantiated.

A model for assessing the strategic potential of an enterprise has been formed. Such a model, unlike existing ones, allows taking into account the quantitative and qualitative parameters of its structural elements, as well as financial, labor, marketing, information, material and technical restrictions. Restrictions are imposed by the internal and external environment for the formation of the corresponding structural element of the strategic potential by the enterprise.

A methodology for assessing the strategic potential of enterprises is proposed, which allows analyzing their resource provision and strategic opportunities to effectively function and develop in the long term. The parameters for assessing strategic potential are given, taking into account the complex and multifaceted structure of the indicator. A list of possible reserves for its increase is indicated, the application of which will allow reducing the strategic gap between the real and expected value of the strategic potential indicator.

The results obtained can be useful in the practical activities of enterprises as a basis for developing and choosing a strategy, its assessment and adjustment.

Keywords: strategic potential, strategic assessment, enterprise strategy, strategic potential structure.

References

1. Biletska, I., Iablon, B. (2025). Strategic management as a tool for ensuring the stable development of the enterprise. *Modeling the development of the economic systems*, 1, 26–31. <https://doi.org/10.31891/mdes/2025-15-4>
2. Carpenter, M. A., Sanders, G. (2009). *Strategic management: a dynamic perspective concepts*. Upper Saddle River: Pearson International.
3. Konoplyanko, D. (2021). Essence and methods of assessment of strategic potential of the enterprise. *Economy and Society*, 34. <https://doi.org/10.32782/2524-0072/2021-34-89>
4. Bosone, C., Dautović, E., Fidora, M., Stamato, G. (2024). *How geopolitics is changing trade*. Available at: <https://cepr.org/voxeu/columns/how-geopolitics-changing-trade>
5. Bremmer, I., Kupchan, C. (2024). *Top risks 2024*. Eurasia Group's annual report. Available at: <https://www.eurasiagroup.net/issues/top-risks-2024>
6. De Villa, M. A., Rajwani, T., Lawton, T. (2015). Market entry modes in a multipolar world: Untangling the moderating effect of the political environment. *International Business Review*, 24 (3), 419–429. <https://doi.org/10.1016/j.ibusrev.2014.10.001>
7. Dovbnya, S., Papusha, I. (2022). Evolution of strategic management and features of its current stage. *Economy and Society*, 40. <https://doi.org/10.32782/2524-0072/2022-40-54>
8. Sytnyk, Y., Zakharchyn, H. (2024). HR management of enterprises under martial law, socio-cultural and technological challenges. *Economics Entrepreneurship Management*, 11 (1), 67–79. <https://doi.org/10.56318/eeem2024.01.067>
9. Bilderback, S. L., Miller, G. J. (2023). Importance of employee development programs in business. *Journal of Management Development*, 42 (4), 327–336. <https://doi.org/10.1108/jmd-03-2022-0054>
10. Koval, Z. O. (2024). *Stratehichniy analiz*. Lviv: SPOLOM, 424.
11. Koval, Z. O. (2019). Evaluation of efficiency of marketing strategies of enterprises by factor analysis methods. *Economic innovations*, 21 (1), 64–74. Available at: <http://jnas.nbuv.gov.ua/article/UJRN-0001062026>
12. Koval, Z. (2023). Assessment of strategic opportunities of the enterprise in conditions of uncertainty. *Technology Audit and Production Reserves*, 5 (4 (73)), 27–31. <https://doi.org/10.15587/2706-5448.2023.289288>

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A FULL MEDIATION MODEL OF STAFF PERFORMANCE ON PROJECT SUCCESS IN ROAD SUPERVISION

pages 26–31

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The object of research is the road supervision consultant teams operating in East Kalimantan (Indonesia). One of the most problematic areas is understanding the mechanism by which sub-professional staff performance influences project success via professional staff. Using an explanatory quantitative approach with survey data ($n = 55$), regression with mediation testing (PROCESS Model 4) was employed. The results confirmed a full mediation model: Sub-professional performance significantly predicted professional performance ($B = 1.0127$, $p < 0.001$), and professional performance significantly predicted project success ($B = 0.8377$, $p < 0.001$). Crucially, the direct effect of sub-professional performance on project success became insignificant ($p = 0.358$) when professional performance was included, while the indirect effect was substantial ($Effect = 0.8483$). This clarifies a key feature of project workflows: technical contributions must be transformed through managerial capabilities to impact outcomes. This allows for a clearer understanding beyond individual contributions. Compared to studies assessing factors in isolation, this offers a systemic view, highlighting the critical importance of the managerial layer (professional staff) in converting technical work into strategic success.

Keywords: road supervision consultancy, construction project management, project success, mediation analysis, regression analysis, stratified sampling, Likert scale.

References

- Simbolon, R., Sutanto, H. (2025). Konsultan pengawas sebagai pengontrol mutu, waktu dan biaya pada pelaksanaan pembangunan jalan nasional. *Jurnal Teknologi Sipil*, 9 (1), 70–77. Available at: <https://e-journals.unmul.ac.id/index.php/TS/article/view/19891>
- Saputra, A. A. I., Kadar Yanti, R. M., Wiguna, I. P. A., Nurcahyo, C. B. (2017). Pengaruh Komunikasi Terhadap Keberhasilan Proyek Pada Hubungan Kerja Antara Kontraktor dan Subkontraktor. *JST (Jurnal Sains Terapan)*, 3 (2). <https://doi.org/10.32487/jst.v3i2.265>
- Dwiretnani, A., Dony, W., Manalu, F. A. (2024). Analisis Kinerja Konsultan Pengawas Dalam Pelaksanaan Proyek Konstruksi. *Jurnal Civronlit Unbari*, 9 (1), 1. <https://doi.org/10.33087/civronlity9i1.112>
- Putra, I. K. A. A., Pagehgiri, J., Ariyanta, I. P. G. (2021). Analisis kinerja konsultan pengawas konstruksi dalam pelaksanaan proyek gedung puskesmas di kabupaten Tabanan. *Jurnal Teknik Gradien*, 13 (1), 48–60. <https://doi.org/10.47329/teknik-gradien.v13i1.741>
- Kresna (2019). *Pengertian Proyek Konstruksi*. [Skripsi dan tesis]. Available at: <https://konsultasiskripsi.com/2019/01/17/pengertian-proyek-konstruksi-skripsi-dan-tesis/>
- Rasul, R. F., Hudori, M. (2021). Pelaksanaan Pengawasan Proyek Peningkatan Ruas Jalan Simpang Marina – Simpang Base Camp Kota Batam. *Conference on Community Engagement Project*, 1 (1), 75–79. Available at: <https://journal.luib.ac.id/index.php/concept/article/download/4614/1323>
- Muazzin, M. T. (2021). *Pemahaman umum dan pengendalian pekerjaan konstruksi*. Jakarta: PUPR. Available at: https://sibangkoman.pu.go.id/center/pelatihan/uploads/edok/2022/10/71f27_MODUL_02_PPK_-_PEMAHAMAN_UMUM_DAN_PENGENDALIAN_PEMERJAAN_KONSTRUKSI.pdf
- Yohanes, Y., Wellem, I. (2023). Peran Suatu Analisis Kinerja Dalam Organisasi Dengan Menggunakan Pendekatan. *Jurnal Projemen UNIPA*, 10 (2), 37–55. <https://doi.org/10.59603/projemen.v10i2.28>
- Ali, H., Chuanmin, S., Ahmed, M., Mahmood, A., Khayyam, M., Tikhomirova, A. (2021). Transformational Leadership and Project Success: Serial Mediation of Team-Building and Teamwork. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.689311>
- Luo, L., Yang, Y., Wu, G., Zheng, J., Liu, D. (2023). Effects of Organizational Leadership on Project Citizenship Behavior and Management Performance in Complex Construction Projects. *Buildings*, 13 (1), 259. <https://doi.org/10.3390/buildings13010259>
- Hayes, A. F. (2022). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. The Guilford Press, 732. Available at: https://www.guilford.com/books/Introduction-to-Mediation-Moderation-and-Conditional-Process-Analysis/Andrew-Hayes/9781462549030?srsltid=AfmBOoo6vBYWthqysKp_j7PL4Nyq1rZqLkk2cRTI4i0chgEMcmEJa_
- Shahzad, M., Qu, Y., Zafar, A. U., Rehman, S. U., Islam, T. (2020). Exploring the influence of knowledge management process on corporate sustainable performance through green innovation. *Journal of Knowledge Management*, 24 (9), 2079–2106. <https://doi.org/10.1108/jkm-11-2019-0624>
- Joslin, R., Müller, R. (2016). The impact of project methodologies on project success in different project environments. *International Journal of Managing Projects in Business*, 9 (2), 364–388. <https://doi.org/10.1108/ijmpb-03-2015-0025>
- Olowolayemo, O. E., Williams, S. O., Adeniji, O. O., Olutu, F. M., Oyegoke, I. K. (2024). Design error: Its effects on building projects delivery period. *International Journal of Science and Research Archive*, 12 (1), 2376–2380. <https://doi.org/10.30574/ijrsra.2024.12.1.1039>
- Aga, D. A., Noorderhaven, N., Vallejo, B. (2016). Transformational leadership and project success: The mediating role of team-building. *International Journal of Project Management*, 34 (5), 806–818. <https://doi.org/10.1016/j.ijproman.2016.02.012>
- Kumar, V., Pandey, A., Singh, R. (2023). Project success and critical success factors of construction projects: project practitioners' perspectives. *Organization, Technology and Management in Construction: An International Journal*, 15 (1), 1–22. <https://doi.org/10.2478/otmcj-2023-0001>

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DEVELOPMENT OF AN AUDIT-INTEGRATED CONCEPTUAL MODEL FOR SUSTAINABLE INNOVATION MANAGEMENT IN MOTOR TRANSPORT ENTERPRISES: A VIABLE SYSTEMS APPROACH

pages 32–46

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The object of this research is the system of sustainable innovation management in motor transport enterprises (MTEs). The problem addressed concerns the lack of integrated frameworks that combine sustainability, innovation, and

audit mechanisms, which limits adaptability, resilience, and strategic alignment in MTEs, particularly under volatile markets and post-conflict recovery conditions in Ukraine. The research develops and establishes an audit-integrated conceptual model based on the viable systems approach (VSA) and the viable system model (VSM). The model aligns strategic, tactical, and operational subsystems with dual-loop regulation, combining deviation-based operational control with disturbance-based adaptive control. Internal audit functions are embedded to ensure accountability, transparency, continuous monitoring, and systemic integration of sustainable innovations. A comparative analysis with existing approaches, including the triple bottom line concept, circular economy principles, ISO 14001, and ESG frameworks, was conducted using the fuzzy analytic hierarchy process (Fuzzy-AHP). This method enabled a multi-criteria expert evaluation under conditions of uncertainty and provided quantitative validation of the advantages of the proposed VSM-based model. The results confirmed that the model ensures comprehensive systemic integration, positions innovation as a structural driver of development, enhances organizational resilience, and institutionalizes internal audit as a governance mechanism. The practical significance is the applicability of the model in ecological modernization, digital transformation, and post-conflict recovery of transport enterprises, particularly in developing economies with resource constraints. In practice, it supports managers and policymakers in designing adaptive strategies, embedding audit into business processes, and improving resilience, competitiveness, and sustainability performance.

Keywords: sustainable innovation, business processes, viable system model, audit, regulation, resilience, adaptability, recovery.

References

1. \$155 billion – the total amount of damages caused to Ukraine's infrastructure due to the war (2024). *Kyiv School of Economics*. Available at: <https://kse.ua/about-the-school/news/155-billion-the-total-amount-of-damages-caused-to-ukraine-s-infrastructure-due-to-the-war-as-of-january-2024/>
2. Nazvano sumu zbytkiv, yakikh zavdala ukrainskomu dovkilliu viina (2024). *Analitchnyi portal Slovo i Dilo*. Available at: <https://www.slovoidilo.ua/2024/01/21/novyna/bezpeka/nazvano-sumu-zbytkiv-yakix-zavdala-ukrayinskomu-dovkilliu-vijna>
3. Syrtseva, S., Ivaniuk, U., Fedotova, I., Hurina, O., Dovzhyk, O., Nazarenko, O. (2022). Innovative potential and development of Ukrainian small enterprises during the war (2022–2023). *Revista Amazonia Investiga*, 11 (58), 222–232. <https://doi.org/10.34069/ai/2022.58.10.24>
4. Novikova, I., Zabarna, E., Volkova, O., Fedotova, I., Korolkov, V. (2023). Economic prospects of post-war recovery: challenges and opportunities for sustainable development in Ukraine. *Financial and Credit Activity Problems of Theory and Practice*, 3 (50), 298–307. <https://doi.org/10.55643/fcaptp.3.50.2023.4091>
5. Cillo, V., Petruzzelli, A. M., Ardito, L., Del Giudice, M. (2019). Understanding sustainable innovation: A systematic literature review. *Corporate Social Responsibility and Environmental Management*, 26 (5), 1012–1025. <https://doi.org/10.1002/csr.1783>
6. Silvestre, B. S., Țircă, D. M. (2019). Innovations for sustainable development: Moving toward a sustainable future. *Journal of Cleaner Production*, 208, 325–332. <https://doi.org/10.1016/j.jclepro.2018.09.244>
7. Duong, L. N. K., Wang, J. X., Wood, L. C., Reiners, T., Koushan, M. (2021). The value of incremental environmental sustainability innovation in the construction industry: an event study. *Construction Management and Economics*, 39 (5), 398–418. <https://doi.org/10.1080/01446193.2021.1901950>
8. Carmagnac, L., Naoui-Outini, F. (2022). Emotions and ends matter: Exploring the Practice of Sustainable Innovation Diffusion. *Supply Chain Forum: An International Journal*, 23 (4), 397–408. <https://doi.org/10.1080/16258312.2022.2128693>
9. Kusi-Sarpong, S., Gupta, H., Sarkis, J. (2018). A supply chain sustainability innovation framework and evaluation methodology. *International Journal of Production Research*, 57 (7), 1990–2008. <https://doi.org/10.1080/00207543.2018.1518607>
10. Zailani, S., Govindan, K., Iranmanesh, M., Shaharudin, M. R., Sia Chong, Y. (2015). Green innovation adoption in automotive supply chain: the Malaysian case. *Journal of Cleaner Production*, 108, 1115–1122. <https://doi.org/10.1016/j.jclepro.2015.06.039>
11. Lopes, J. M., Gomes, S., Pacheco, R., Monteiro, E., Santos, C. (2022). Drivers of Sustainable Innovation Strategies for Increased Competition among Companies. *Sustainability*, 14 (9), 5471. <https://doi.org/10.3390/su14095471>
12. Nosratabadi, S., Mosavi, A., Shamshirband, S., Kazmieras Zavadskas, E., Raktotonirainy, A., Chau, K. W. (2019). Sustainable Business Models: A Review. *Sustainability*, 11 (6), 1663. <https://doi.org/10.3390/su11061663>
13. Bocken, N. M. P., Geradts, T. H. J. (2020). Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. *Long Range Planning*, 53 (4), 101950. <https://doi.org/10.1016/j.lrp.2019.101950>
14. Evans, S., Vladimirova, D., Holgado, M., Van Fossen, K., Yang, M., Silva, E. A., Barlow, C. Y. (2017). Business Model Innovation for Sustainability: Towards a Unified Perspective for Creation of Sustainable Business Models. *Business Strategy and the Environment*, 26 (5), 597–608. <https://doi.org/10.1002/bse.1939>
15. Guldman, E., Huulgaard, R. D. (2020). Barriers to circular business model innovation: A multiple-case study. *Journal of Cleaner Production*, 243, 118160. <https://doi.org/10.1016/j.jclepro.2019.118160>
16. Varadarajan, R. (2015). Innovating for sustainability: a framework for sustainable innovations and a model of sustainable innovations orientation. *Journal of the Academy of Marketing Science*, 45 (1), 14–36. <https://doi.org/10.1007/s11747-015-0461-6>
17. Jeurissen, R. (2000). John Elkington, Cannibals With Forks: The Triple Bottom Line of 21st Century Business. *Journal of Business Ethics*, 23 (2), 229–231. <https://doi.org/10.1023/a:1006129603978>
18. Jayashree, S., Reza, M. N. H., Malarvizhi, C. A. N., Mohiuddin, M. (2021). Industry 4.0 implementation and Triple Bottom Line sustainability: An empirical study on small and medium manufacturing firms. *Heliyon*, 7 (8), e07753. <https://doi.org/10.1016/j.heliyon.2021.e07753>
19. Geissdoerfer, M., Savaget, P., Bocken, N. M. P., Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757–768. <https://doi.org/10.1016/j.jclepro.2016.12.048>
20. Hartley, K., Schülzchen, S., Bakker, C. A., Kirchherr, J. (2023). A policy framework for the circular economy: Lessons from the EU. *Journal of Cleaner Production*, 412, 137176. <https://doi.org/10.1016/j.jclepro.2023.137176>
21. Mukherjee, P. K., Das, B., Bhardwaj, P. K., Tampha, S., Singh, H. K., Chanu, L. D. et al. (2023). Socio-economic sustainability with circular economy – An alternative approach. *Science of the Total Environment*, 904, 166630. <https://doi.org/10.1016/j.scitotenv.2023.166630>
22. Ofori, E. K., Asongu, S. A., Ali, E. B., Gyamfi, B. A., Ahakwa, I. (2024). Environmental impact of ISO 14001 certification in promoting sustainable development: The moderating role of innovation and structural change in BRICS, MINT, and G7 economies. *Energy & Environment*. <https://doi.org/10.1177/0958305x241246193>
23. Zimon, D., Madzik, P., Sroufe, R. (2020). The Influence of ISO 9001 & ISO 14001 on Sustainable Supply Chain Management in the Textile Industry. *Sustainability*, 12 (10), 4282. <https://doi.org/10.3390/su12104282>
24. Martiny, A., Tagliatela, J., Testa, F., Iraldo, F. (2024). Determinants of environmental social and governance (ESG) performance: A systematic literature review. *Journal of Cleaner Production*, 456, 142213. <https://doi.org/10.1016/j.jclepro.2024.142213>
25. Beer, S. (1979). *The Heart of Enterprise*. London: John Wiley. Available at: <https://archive.org/details/heartofenterprise0000beer>
26. Beer, S. (1994). *Brain of the Firm*. Chichester: John Wiley. Available at: <https://ia802300.us.archive.org/25/items/brain-of-the-firm-reclaimed-v-1/Brain%20of%20the%20Firm%20-%20Stafford%20Beer.pdf>
27. Scoones, I., Stirling, A., Abrol, D., Atela, J., Charli-Joseph, L., Eakin, H. et al. (2020). Transformations to sustainability: combining structural, systemic and enabling approaches. *Current Opinion in Environmental Sustainability*, 42, 65–75. <https://doi.org/10.1016/j.cosust.2019.12.004>
28. Kimpimäki, J.-P., Malacina, I., Lähdeaho, O. (2022). Open and sustainable: An emerging frontier in innovation management? *Technological Forecasting and Social Change*, 174, 121229. <https://doi.org/10.1016/j.techfore.2021.121229>
29. Williams, A., Kennedy, S., Philipp, F., Whiteman, G. (2017). Systems thinking: A review of sustainability management research. *Journal of Cleaner Production*, 148, 866–881. <https://doi.org/10.1016/j.jclepro.2017.02.002>

30. Reynolds, M., Holwell, S. (Eds.) (2010). *Systems Approaches to Managing Change: A Practical Guide*. London: Springer. <https://doi.org/10.1007/978-1-84882-809-4>
31. Barile, S., Quattrociochi, B., Calabrese, M., Iandolo, F. (2018). Sustainability and the Viable Systems Approach: Opportunities and Issues for the Governance of the Territory. *Sustainability*, 10 (3), 790. <https://doi.org/10.3390/su10030790>
32. Iandolo, F., Barile, S., Armenia, S., Carrubbo, L. (2018). A system dynamics perspective on a viable systems approach definition for sustainable value. *Sustainability Science*, 13 (5), 1245–1263. <https://doi.org/10.1007/s11625-018-0565-2>
33. Formisano, V., Quattrociochi, B., Fedele, M., Calabrese, M. (2018). From Viability to Sustainability: The Contribution of the Viable Systems Approach (VSA). *Sustainability*, 10 (3), 725. <https://doi.org/10.3390/su10030725>
34. Britchenko, I., Fedotova, I., Shersheniuk, O., Prokopenko, M., Vazov, R.; Levchenko, I., Dmytriiev, I. (Eds.) (2021). Management of a viable enterprise on the basis of the approach to management of a "living" organization and the concept of viable systems. *Problems and prospects of development of the road transport complex: financing, management, innovation, quality, safety – integrated approach*. Kharkiv: TECHNOLOGY CENTER PC, 63–80. <https://doi.org/10.15587/978-617-7319-45-9.ch5>
35. Adamides, E. D., Georgousoglou, K., Mouzakitis, Y. (2023). Designing a Flexible and Adaptive Municipal Waste Management Organisation Using the Viable System Model. *Sustainability*, 15 (18), 13323. <https://doi.org/10.3390/su151813323>
36. Vilalta-Perdomo, E., Salinas-Navarro, D. E., Michel-Villarreal, R., García Bustamante, R. (2022). Digitalization of the Logistics Process in Short Food Supply Chains. An online Viable System Model application during the COVID-19 pandemic. *Systemic Practice and Action Research*, 36, 509–534. <https://doi.org/10.1007/s11213-022-09619-7>
37. Chaudhry, I. S. (2022). Viable system model: a tool for managing sustainable development holistically. *Management & Sustainability: An Arab Review*, 1 (1), 50–65. <https://doi.org/10.1108/msar-01-2022-0008>
38. Štrukelj, T., Zlatanović, D., Nikolić, J., Sternad Zabukovšek, S. (2021). The viable system model's support to social responsibility. *Kybernetes*, 50 (3), 812–835. <https://doi.org/10.1108/k-12-2019-0860>
39. Lowe, D., Espinosa, A., Yearworth, M. (2020). Constitutive rules for guiding the use of the viable system model: Reflections on practice. *European Journal of Operational Research*, 287 (3), 1014–1035. <https://doi.org/10.1016/j.ejor.2020.05.030>
40. Fedotova, I., Shynkarenko, V., Kryvoruchko, O. (2018). Development of the Viable System Model of Partner Relationship Management of the Company. *International Journal of Engineering & Technology*, 7 (4.3), 445–450. <https://doi.org/10.14419/ijet.v7i4.3.19913>
41. Emrouznejad, A., Ho, W. (2017). *Fuzzy Analytic Hierarchy Process*. Chapman and Hall/CRC. <https://doi.org/10.1201/9781315369884>

DEVELOPMENT OF PRODUCTIVE FORCES AND REGIONAL ECONOMY

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DETERMINANTS OF HIGH-TECH EXPORTS IN THE EU AND UKRAINE IN THE CONTEXT OF INNOVATION, INDUSTRIAL AND ENTREPRENEURSHIP POLICY

pages 47–56

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The object of research is the innovation, industrial and entrepreneurial policy of the EU and Ukraine in 2016–2024, assessed by key performance indicators.

The problem lies in the lack of mechanisms for integrating European practices adapted to Ukrainian conditions, which limits investment potential, the development of innovation ecosystems, acceleration of structural modernization and growth of competitiveness in the context of post-war recovery.

The essence of the results obtained is to identify significant differences between the EU and Ukraine in seven indicators of innovation policy, as well as to establish the factors that most affect high-tech exports. For the EU, a close relationship between R&D funding, business participation, human capital development and commercialization of innovations has been confirmed. In Ukraine, science-industry cooperation and the human resource potential of business

research have become decisive, while the impact of R&D funding is weak and unstable. Regression modeling showed that in the EU the key drivers are corporate R&D, human capital and scientific-industrial cooperation, while in Ukraine – institutional and personnel factors.

These results are explained by differences in institutional maturity, quality of innovation management, efficiency of commercialization of developments and integration of science into production. The EU has comprehensive and targeted support instruments that ensure a direct link between innovation spending and economic results. In Ukraine, however, there is fragmentation of measures, declarative nature of reforms and low conversion of costs into high-tech exports.

The results obtained can be used to adjust national innovation development strategies, form post-war recovery programs, increase the role of private R&D, human capital development and intensify cooperation between science and business at all levels.

Keywords: innovation policy, industrial policy, entrepreneurship policy, European Union – Ukraine, policy effectiveness.

References

1. Veugelers, R. (2024). An Innovation-Based Industrial Policy for the EU. *Intereconomics*, 59 (5), 254–261. <https://doi.org/10.2478/ie-2024-0052>
2. Dugo, A., Erixon, F., Guinea, O. (2025). Models of industrial policy: Driving innovation and economic growth. *European Centre for International Political Economy*. Available at: https://ecipe.org/wp-content/uploads/2025/04/ECL_OccasionalPaper_05-2025_LY02.pdf
3. Landesmann, M. A. (2025). *EU industrial policy in the evolving geo-political and geo-economic environment*. The Vienna Institute for International Economic Studies, 44. Available at: <https://wiiw.ac.at/eu-industrial-policy-in-the-evolving-geo-political-and-geo-economic-environment-dlp-7342.pdf>
4. Batbaatar, M., Larsson, J. P., Sandström, C., Wennberg, K.; Henrekson, M., Sandström, C., Stenkula, M. (Eds.) (2024). *The State of the Entrepreneurial State: Empirical Evidence of Mission-Led Innovation Projects around the Globe. Moonshots and the New Industrial Policy*. Cham: Springer, 125–143. https://doi.org/10.1007/978-3-031-49196-2_8
5. Wigger, A. (2023). The New EU Industrial Policy and Deepening Structural Asymmetries: Smart Specialisation Not So Smart. *JCMS: Journal of Common Market Studies*, 61 (1), 20–37. <https://doi.org/10.1111/jcms.13366>
6. García Calvo, A., Hancké, B. (2025). When does industrial policy fail and when can it succeed? Case studies from Europe. *Socio-Economic Review*. <https://doi.org/10.1093/ser/mwaf045>

7. The impact of R&I policy instruments: Quarterly R&I literature review 2022/Q4 (2023). *European Commission*. Available at: https://research-and-innovation.ec.europa.eu/system/files/2023-03/ec_rtd_quarterly-ri-review_042022.pdf
8. Veugelers, R. (2021). *Research and innovation policies and productivity growth*. Bruegel. Available at: https://www.bruegel.org/system/files/wp_attachments/WP-2021-08-100521.pdf
9. Makrevska Disoska, E., Tonovska, J., Toshevska-Trpchevska, K., Tevdovski, D., Stojkoski, V. (2024). Empirical Determinants of Innovation in European Countries: Firm-level Analysis Based on CIS 2018. *European Review*, 32 (3), 269–290. <https://doi.org/10.1017/s106279872400019x>
10. Belanová, K., Ochotnický, P., Sivák, R. (2025). Innovation performance of EU countries in context of R&D: R&D trap risk in Slovakia? *Journal of Innovation and Entrepreneurship*, 14 (1). <https://doi.org/10.1186/s13731-025-00533-5>
11. Haddad, C. R., Bergek, A. (2023). Towards an integrated framework for evaluating transformative innovation policy. *Research Policy*, 52 (2), 104676. <https://doi.org/10.1016/j.respol.2022.104676>
12. Borrás, S., Laatsit, M. (2019). Towards system oriented innovation policy evaluation? Evidence from EU28 member states. *Research Policy*, 48 (1), 312–321. <https://doi.org/10.1016/j.respol.2018.08.020>
13. Edler, J., Berger, M., Dinges, M., Gok, A. (2012). The practice of evaluation in innovation policy in Europe. *Research Evaluation*, 21 (3), 167–182. <https://doi.org/10.1093/reseval/rvs014>
14. Cunningham, J. A., Link, A. N. (2016). Exploring the effectiveness of research and innovation policies among European Union countries. *International Entrepreneurship and Management Journal*, 12 (2), 415–425. <https://doi.org/10.1007/s11365-016-0394-7>
15. Fuest, C., Gros, D., Mengel, P.-L., Presidente, G., Tirole, J. (2024). *Reforming innovation policy to help the EU escape the middle-technology trap*. VoxEU. Available at: <https://cepr.org/voxeu/columns/reforming-innovation-policy-help-eu-escape-middle-technology-trap>
16. Borrás, S., Edler, J. (2014). The governance of change in socio-technical and innovation systems: three pillars for a conceptual framework. *The Governance of Socio-Technical Systems*. Edward Elgar, 23–48. <https://doi.org/10.4337/9781784710194.00011>
17. Cavalcante, P. L. C.; Farazmand, A. (Ed.) (2022). *Innovation Policy Governance*. *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Cham: Springer, 6704–6709. https://doi.org/10.1007/978-3-030-66252-3_4234
18. Global innovation index 2024 (2024). *World Intellectual Property Organization*. Available at: <https://www.wipo.int/publications/en/details.jsp?id=4758&plang=EN>

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DESIGN AND IMPLEMENTATION OF A QUANTITATIVE MODEL FOR ASSESSING MOTIVATIONAL GAP AS AN INDICATOR OF UNREALIZED INNOVATION CAPACITY IN UKRAINIAN ROAD CONSTRUCTION ENTERPRISES

pages 57–65

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The study focuses on assessing the current state and future prospects of motivational support systems in Ukraine's road construction sector, with particular emphasis on their role in strengthening innovation potential during wartime conditions and post-crisis recovery. The object of the research is the motivational support systems of employees in enterprises of the road construction industry of Ukraine. The aim of the study is to identify motivational gaps between the actual and target levels of motivation and to determine the directions and principles on the basis of which a framework model for increasing the motivational support index (MSI) can be developed in future research. It was

established that the innovation potential index (IPI) of Ukrainian companies remains consistently high and corresponds to the findings of the Global Innovation Index, where Ukraine held leading positions in 2021–2024 in terms of the innovation efficiency ratio. However, this potential is largely underutilized due to insufficient motivational support. The calculation of the motivational gap index (MGI), defined as the normalized difference between innovation potential (≈ 0.6) and the actual level of motivation (≈ 0.4), yielded $MGI \approx 0.33$, indicating a substantial human resource reserve that remains unengaged within the current HR system. The study develops an integrated motivation model aimed at enhancing the MSI, capable of functioning effectively under resource constraints while remaining consistent with contemporary global HR and ESG trends. The proposed model may serve as a roadmap for identifying and reducing motivational gaps, increasing employee engagement, and strengthening the competitiveness of Ukraine's road construction sector. Thus, the results of the study have not only theoretical significance but also practical value for optimizing HR practices in the industry.

Keywords: GAP analysis, motivational support index, innovation potential index, motivational gap, innovation culture.

References

1. *OECD Science, Technology and Innovation Outlook*. Paris: OECD Publishing. <https://doi.org/10.1787/0b55736e-en>
2. Himmelfarb, A. (Ed.) (2025). *Ukraine – Fourth Rapid Damage and Needs Assessment (RDNA4)*: Feb 2022–Dec 2024. World Bank Group; Government of Ukraine; European Commission; United Nations. Washington: World Bank. Available at: <https://documents1.worldbank.org/curated/en/099022025114040022/pdf/P1801741ca39ec0d81b5371ff73a675a0a8.pdf> Last accessed: 10.08.2025
3. *Global Innovation Index 2024*. *GII 2024 results* (2024). WIPO. Available at: <https://www.wipo.int/web-publications/global-innovation-index-2024/en/gii-2024-results.html> Last accessed: 10.08.2025
4. Laursen, K. B., Harste, G., Roth, S. (2022). Moral communication observed with social systems theory. An introduction. *Kybernetes*, 51 (5), 1653–1665. <https://doi.org/10.1108/k-01-2022-0059>
5. Al-Abbadi, G. M., Agyekum-Mensah, G. (2019). The effects of motivational factors on construction professionals productivity in Jordan. *International Journal of Construction Management*, 22 (5), 820–831. <https://doi.org/10.1080/15623599.2019.1652951>
6. Abdolmaleki, G., Naismith, N., Ghodrati, N., Poshdar, M., Babaeian Jelodar, M. (2024). An analysis of the literature on construction employee turnover: drivers, consequences, and future direction. *Construction Management and Economics*, 42 (9), 822–846. <https://doi.org/10.1080/01446193.2024.2337084>
7. Bos-Nehles, A., Townsend, K., Cafferkey, K., Trullen, J. (2023). Examining the Ability, Motivation and Opportunity (AMO) framework in HRM research: Conceptualization, measurement and interactions. *International Journal of Management Reviews*, 25 (4), 725–739. <https://doi.org/10.1111/ijmr.12332>
8. Deci, E. L., Ryan, R. M. (2000). The “What” and “Why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11 (4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
9. Osman, A. M., Liu, Y., Wang, Z. (2023). Influence of Organizational Culture on Construction Firms' Performance: The Mediating Roles of Innovation and Marketing Capabilities. *Buildings*, 13 (2), 308. <https://doi.org/10.3390/buildings13020308>
10. Gerhart, B., Feng, J. (2021). The Resource-Based View of the Firm, Human Resources, and Human Capital: Progress and Prospects. *Journal of Management*, 47 (7), 1796–1819. <https://doi.org/10.1177/0149206320978799>
11. *Handbook on Constructing Composite Indicators: Methodology and User Guide* (2008). Paris: OECD Publishing. Available at: https://www.oecd.org/content/dam/oecd/en/publications/reports/2008/08/handbook-on-constructing-composite-indicators-methodology-and-user-guide_g1gh9301/9789264043466-en.pdf
12. *Annual and sustainability report 2023* (2023). Skanska AB. Available at: <https://group.skanska.com/493370/siteassets/investors/reports-publications/annual-reports/2023/annual-and-sustainability-report-2023.pdf>

13. *Sustainability report 2023* (2023). STRABAG SE. Available at: https://www.strabag.com/site/strabag-company-locale/get/params_E2074889770/1002420/Sustainability-Report-2023.pdf
14. *Forging a sustainable world* (2023). VINCI. Available at: https://www.vinci.com/publi/vinci/extract/2023_workforce_related_environmental_and_social_information.pdf
15. Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17 (1), 99–120. <https://doi.org/10.1177/014920639101700108>
16. Delery, J. E., Doty, D. H. (1996). Modes of theorizing in strategic human resource management: tests of universalistic, contingency, and configurations. performance predictions. *Academy of Management Journal*, 39 (4), 802–835. <https://doi.org/10.2307/256713>; Available at: <https://www.jstor.org/stable/256713> Last accessed: 22.10.2025
17. Cronbach, L. J. (1951). Coefficient Alpha and the Internal Structure of Tests. *Psychometrika*, 16 (3), 297–334. <https://doi.org/10.1007/bf02310555>
18. Gliem, J. A., Gliem, R. R. (2003). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales*. Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education, Columbus. Available at: <https://scholarworks.iupui.edu/handle/1805/344>
19. Tejada, J. J., Punzalan, J. R. B. (2012). On the misuse of Slovin's formula. *Philippine Statistician*, 61 (1), 129–136. Available at: https://www.psaiph/docs/publications/tps/tps_2012_61_1_9.pdf
20. *Research Ethics and New Forms of Data for Social and Economic Research* (2016). Paris: OECD Publishing. <https://doi.org/10.1787/5jln7vnpxs32-en>
21. Working conditions and sustainable work: An analysis using the job quality framework. Challenges and prospects in the EU (2021). Eurofound. Luxembourg: Publications Office of the European Union. Available at: <https://www.eurofound.europa.eu/system/files/2021-02/ef20021en.pdf> Last accessed: 10.08.2025
22. European Skills Index 2024: Technical report. *Cedefop* (2024). Luxembourg: Publications Office of the European Union. Available at: https://www.cedefop.europa.eu/files/esi_technical_report_2024.pdf Last accessed: 10.08.2025
23. Kim, T. K. (2017). Understanding one-way ANOVA using conceptual figures. *Korean Journal of Anesthesiology*, 70 (1), 22–26. <https://doi.org/10.4097/kjae.2017.70.1.22>
24. Herzberg, F., Mausner, B., Snyderman, B. B. (1959). *The motivation to work*. New York: John Wiley & Sons.
25. Bakker, A. B., Demerouti, E. (2007). The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology*, 22 (3), 309–328. <https://doi.org/10.1108/02683940710733115>
26. Mehner, L., Rothenbusch, S., Kauffeld, S. (2024). How to maximize the impact of workplace training: a mixed-method analysis of social support, training transfer and knowledge sharing. *European Journal of Work and Organizational Psychology*, 34 (2), 201–217. <https://doi.org/10.1080/1359432x.2024.2319082>
27. Kötting, M., Kuckertz, A. (2019). Three configurations of corporate innovation programs and their interplay. *European Journal of Innovation Management*, 23 (1), 90–113. <https://doi.org/10.1108/ejim-07-2018-0142>
28. Cotton, J. L., Vollrath, D. A., Froggatt, K. L., Lengnick-Hall, M. L., Jennings, K. R. (1988). Employee Participation: Diverse Forms and Different Outcomes. *The Academy of Management Review*, 13 (1), 8–22. <https://doi.org/10.2307/258351>
29. Priyashantha, K. G., De Alwis, A. C., Welmilla, I. (2022). Disruptive human resource management technologies: a systematic literature review. *European Journal of Management and Business Economics*, 33 (1), 116–136. <https://doi.org/10.1108/ejmb-01-2022-0018>
30. Roth, S., Clausen, L., Möller, S. (2020). COVID-19. Scenarios of a superfluous crisis. *Kybernetes*, 50 (5), 1621–1632. <https://doi.org/10.1108/k-05-2020-0280>
31. *Deiaki pytannia realizatsii polozhen Zakonu Ukrainy "Pro mobilizatsiinu pidhotovku ta mobilizatsiiu" shchodo broniuvannia viiskovozoboviazanykh na period mobilizatsii ta na voiennyi chas* (2023). Postanova Kabinetu Ministriv Ukrainy No. 76. 27.01.2023. Available at: <https://zakon.rada.gov.ua/laws/show/76-2023-%D0%BF>

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MANAGEMENT OF INDUSTRIALIZATION AND REINDUSTRIALIZATION OF THE ECONOMY: STRATEGIC DIMENSION

pages 66–73

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The object of research is the management of industrialization and reindustrialization processes of the economy in a strategic dimension. The analysis of existing approaches to the formation of industrial policy in Ukraine revealed the main shortcomings, in particular, the fragmentation of state initiatives, the lack of a coherent long-term strategy, the low level of coordination between state and regional institutions, insufficient support for innovation and human capital. One of the most problematic areas is the lack of a comprehensive model of reindustrialization management that would take into account modern technological, economic and environmental challenges.

The research used methods of historicism, theoretical generalization, logical-structural analysis, as well as economic and mathematical modeling to construct an integral index of industrialization, cluster grouping and forecasting the dynamics of industrial development of Ukraine until 2033.

A quantitative assessment of the level of industrialization of Ukraine over the past 30 years has been obtained and a forecast of reindustrialization has been constructed, which indicates the potential for moderate growth under the condition of implementing an effective industrial policy. This is due to the fact that the proposed model of reindustrialization management is multi-level, provides for the definition of a strategic goal, time horizons and specific instruments (tax incentives, industrial parks, public-private partnership, R&D programs).

This ensures the possibility of achieving an increase in the share of industry in GDP, an increase in the industrial production index and technological complexity of exports. Compared to known approaches, the model has advantages in complexity, phased implementation and integration of digital and green technologies, which allows adapting industrial policy to global challenges.

Keywords: industrialization, reindustrialization, strategic management, industrial policy, industrialization index, public-private partnership.

References

1. Zadoia, A. O.; Ihnatiuk, A. I. (Ed.) (2019). Deindustrializatsiia yak kliuchova problema suchasnoi Ukrainy. *Ekonomika. Finansy. Biznes. Upravlinnia*, 1 (2), 22. Available at: <https://ir.duan.edu.ua/items/1e99098e-0c1a-42e6-8659-5600136087c8>
2. Osetskiy, V., Kuzmenko, T., Kulish, V. (2024). Strengthening of reindustrialization policy as a factor of innovative modernization of Ukraine's economy. *Economy and Society*, 62. <https://doi.org/10.32782/2524-0072/2024-62-137>
3. Sachenko, A. (2024). Economic growth evolution from the stage of industrialization to neo-industrialization. *Economy and Society*, 62. <https://doi.org/10.32782/2524-0072/2024-62-157>
4. Makovoz, E. V., Kazakov, A. Yu. (2020). Reindustrialization of the industrial sector of the economies of the European Union countries: experience for Ukraine. *The bulletin of transport and industry economics*, 70–71. <https://doi.org/10.18664/338.47:338.45v0i70-71.222134>

5. Veshko, A. (2017). Reindustrializatsiia krain yevrozony yak peredumova promyslovoho renesansu ekonomiky Ukrainy. *Journal of European Economy*, 12 (2), 233–242. Available at: <https://jeej.wunu.edu.ua/index.php/ukjee/article/view/646>
6. Karlina, E., Solonenko, A., Arslanova, E. (2018). Reindustrialization as a strategic priority of the competitiveness of macro regions in a globalized business environment. *Proceedings of the International Scientific Conference "Competitive, Sustainable and Secure Development of the Regional Economy: Response to Global Challenges" (CSSDRE 2018)*. Atlantis Press. <https://doi.org/10.2991/cssdre-18.2018.52>
7. Sytnyk, N. S., Shushkova, Y. V. (2019). The Conceptual Aspects of Reindustrialization of Economy, Based on Technological Modernization. *Business Inform*, 11 (502), 61–67. <https://doi.org/10.32983/2222-4459-2019-11-61-67>
8. Volosiuk, M. V. (2020). The Reindustrialization of Ukraine as a Prerequisite for Economic Growth. *Business Inform*, 4 (507), 63–70. <https://doi.org/10.32983/2222-4459-2020-4-63-70>
9. Nikitin, D. (2022). World industrial revolutions as the basis of nanotechnological transformations. *Change Management and Innovation*, 3, 61–65. <https://doi.org/10.32782/cmi/2022-3-11>
10. Prokhorova, V., Mushnykova, S., Kovalenko, D., Koleshchuk, O., Babichev, A. (2023). Convergence of educational technologies as an imperative for the development of innovation cooperation in the context of circular transformation. *Eastern-European Journal of Enterprise Technologies*, 4 (13 (124)), 26–35. <https://doi.org/10.15587/1729-4061.2023.286183>
11. Pylypenko, Y., Prokhorova, V., Halkiv, L., Koleshchuk, O., Dubiei, Y. (2022). Innovative intellectual capital in the system of factors of technical and technological development. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*, 6, 181–186. <https://doi.org/10.33271/nvngu/2022-6/181>
12. *World Development Indicators*. The World Bank Group. Available at: <https://databank.worldbank.org/reports.aspx?source=2&country=UKR>
13. *World Investment Report 2023*. UN Trade and Development (UNCTAD). Available at: <https://unctad.org/publication/world-investment-report-2023>
14. *Ukraine: Cargo Freight Shipped Railway Trains* (2019). CEIC. Available at: <https://www.ceicdata.com/en/ukraine>
15. *Ukraine – Manufacturing, Value Added (% Of GDP)*. Trading Economics. Available at: <https://tradingeconomics.com/ukraine/manufacturing-value-added-percent-of-gdp-wb-data.html>
16. *Ukraine Economic Indicators*. TheGlobalEconomy.com. Available at: <https://www.theglobaleconomy.com/Ukraine/>
17. *State Statistics Service of Ukraine*. Available at: <https://www.ukrstat.gov.ua/>

PROBLEMS OF MACROECONOMICS AND SOCIO-ECONOMIC DEVELOPMENT

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USE OF ELECTRONIC LEARNING AS A TECHNOLOGY FOR STRENGTHENING SOCIAL-PSYCHOLOGICAL SUPPORT FOR UKRAINIAN VETERANS

pages 74–82

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The object of research is the technology of socio-psychological support for Ukrainian veterans in the process of their reintegration into civilian life through the use of e-learning methods. The research revealed a number of critical shortcomings: insufficient digital literacy among veterans (less than 40%), limited awareness of existing educational platforms (less than 20%), and the lack of an integrated state strategy for using digital tools in the field of social and psychological rehabilitation. One of the most problematic areas is the gap between veterans' needs for professional development (more than 58% want to radically change their specialty or get a first one), social support, and their actual level of access to adapted resources (no one refused the offered training opportunities), which complicates reintegration, reduces motivation for self-development, and exacerbates social isolation. The methods of systematic analysis, literary sources summarization, processing of data from official sources, and a sociological survey of 228 veterans were used. Using a mixed approach made it possible to comprehensively assess the level of awareness, educational needs, and psycho-emotional demands of the target group. The results indicate that veterans are highly inter-

ested in developing soft skills (99%), professional retraining, and self-realization. Reserves in the functioning of the support system were identified, in particular, the potential of the Prometheus, Coursera, and Duolingo platforms to provide personalized content. It is because the proposed approach has various features: flexibility, accessibility regardless of dwelling, adaptation to the cultural context, and integration of elements of social and psychological support. This creates conditions for improving the level of veterans' self-regulation, emotional stability, and professional adaptation. Compared to known support models, e-learning technologies provide scalability, rapid implementation, and the possibility of long-term monitoring of the effectiveness of reintegration measures. The increase in the number of veterans who independently wish to engage in education using digital technologies is 90% annually within the framework of the public management and administration program of Odesa Polytechnic. All respondents emphasize receiving socio-psychological support during the learning process.

Keywords: Ukrainian veterans, e-learning technologies, socio-psychological support, reintegration, soft skills, digital education.

References

1. Analitichna informatsiia za danymy Ministerstva u spravakh veteraniv Ukrainy. *Ministerstvo u Spravakh Veteraniv Ukrainy*. Available at: <https://data.mva.gov.ua/>
2. Obraz veteraniv v ukrainskomu suspilstvi (2024). *Ukrainskyi veteranskyi fond, Sotsiolohichna hrupa "Reitynh"*. Available at: https://veteranfund.com.ua/wp-content/uploads/2024/12/RG-UA_Veterans_1000-UA_122024_press.pdf
3. Vorona, P. V., Vorona, L. I. (2016). Post-traumatic syndrome, caused by the ATO area, and features to overcome: pedagogical and psychological aspects. *Imidzh suchasnoho pedahoha*, 9 (168), 49–53. Available at: <https://dspace.luguniv.edu.ua/xmlui/handle/123456789/8949>
4. Barnett, A., Savic, M., Forbes, D., Best, D., Sandral, E., Bathish, R. et al. (2021). Transitioning to civilian life: The importance of social group engagement and identity among Australian Defence Force veterans. *Australian & New Zealand Journal of Psychiatry*, 56 (8), 1025–1033. <https://doi.org/10.1177/00048674211046894>
5. Malyovanyi, M., Ulyanych, Y., Pidlubna, O. (2022). Professional and social adaptation of military officers, veterans and their family members in Ukraine. *Collected Works of Uman National University of Horticulture*, 2 (101), 197–207. <https://doi.org/10.32782/2415-8240-2022-101-2-197-207>
6. Moos, R. H., Schaefer, J. A.; Moos, R. H. (Ed.) (1986). *Life Transitions and Crises. Coping with Life Crises*. Plenum Press, 3–28. https://doi.org/10.1007/978-1-4684-7021-5_1
7. Vashchenko, I. V., Ivanenko, B. B. (2018). Psychological resources of the personality in overcoming difficult life situations. *Problems of Modern Psychology*, 40, 33–49. <https://doi.org/10.32626/2227-6246.2018-40.33-49>

8. Mental health (2022). *World Health Organization*. Available at: <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
9. Karamushka, L. M. (2022). *Psykichne zdorovia osobystosti pid chas viiny: yak yoho zberehyty ta pidtrymaty*. Instytut psykholohii imeni H. S. Kostiuka NAPN Ukrainy, 52. Available at: https://lib.iitta.gov.ua/id/eprint/730974/1/Karamushka%20А_Методичні%20рекомендації.pdf
10. Pedersen, C. L., Wieser, C. (2021). Veteran Transition from Military to Civilian Life: Towards a Sociocultural Framework for Social Support. *Scandinavian Journal of Military Studies*, 4 (1), 158–171. <https://doi.org/10.31374/sjms.97>
11. Sachdev, S., Dixit, S. (2023). Military to civilian cultural transition experiences of retired military personnel: A systematic meta-synthesis. *Military Psychology*, 36 (6), 579–592. <https://doi.org/10.1080/08995605.2023.2237835>
12. Kramer, C. B., Nelson, K. M., Sayre, G., Williams, J. L., Spruill, L., Fennell, T. et al. (2024). "Veteran to Veteran, There's Automatically a Trust": A Qualitative Study of Veterans' Experiences in a Peer Health-Coaching Program for Hypertension. *AJPM Focus*, 3 (6), 100257. <https://doi.org/10.1016/j.focus.2024.100257>
13. Kroll-Desrosiers, A., Finley, E. P., Hamilton, A. B., Cabassa, L. J. (2023). Evidence-Based Intervention Adaptations Within the Veterans Health Administration: a Scoping Review. *Journal of General Internal Medicine*, 38 (10), 2383–2395. <https://doi.org/10.1007/s11606-023-08218-z>
14. *Metodychni rekomendatsii shchodo orhanizatsii roboty pomichnykiv veterana v hromadi ta vzaiemodii z zainteresovanyimi subiektami* (2024). Kyiv: Tsentr bezpekovykh doslidzhen "SENSS". Available at: <https://mva.gov.ua/storage/app/sites/1/Методичні%20рекомендації/rekomendatsii-web-3.pdf>
15. Leshchenko, N. (2024). Osoblyvosti sotsialno-psykholohichnoi pidtrymky na shliakhu do profesiinoi pereorientatsii veteraniv viiny v Ukraini. *Pidtrymka psykholohichnoho zdorovia osobystosti v umovakh viiny: mizhnarodnyi dosvid ta ukraïnski realii*. Donetsk: DonObLIPPO, 120–126. Available at: https://ippo.dn.ua/images/files/materials/SUPPORTING_OF_PSYCHOLOGICAL_WELL-BEING_OF_THE_INDIVIDUAL_IN_THE_WAR_CONDITIONS_INTERNATIONAL_EXPERIENCE_AND_UKRAINIAN_REALITIES.pdf#page=121
16. Levinstein, Y., Zerach, G., Levi-Belz, Y., Bonanno, G. A. (2024). Trajectories of moral injury and their associations with posttraumatic stress symptoms among recently discharged Israeli veterans. *Journal of Psychiatric Research*, 177, 321–329. <https://doi.org/10.1016/j.jpsychires.2024.07.025>
17. Rattray, N., Flanagan, M., Salyers, M., Natividad, D., Do, A.-N., Frankel, R. et al. (2023). The Association Between Reintegration, Perceptions of Health and Flourishing During Transition from Military to Civilian Life Among Veterans with Invisible Injuries. *Journal of Veterans Studies*, 9 (1), 224–234. <https://doi.org/10.21061/jvs.v9i1.432>
18. Biscoe, N., Bonson, A., Nickerson, A., Murphy, D. (2023). Factors associated with exposure to potentially morally injurious events (PMIEs) and moral injury in a clinical sample of veterans. *European Journal of Trauma & Dissociation*, 7 (3), 100343. <https://doi.org/10.1016/j.ejtd.2023.100343>
19. Fry, K. M., Bennett, D. C., Roberge, E. M., McClain, C. M., Rugo-Cook, K., Brewczynski, J., Pryor, C. (2024). The effects of Religiosity, Spirituality, and sense of purpose on posttraumatic stress disorder treatment outcomes among Veterans. *Journal of Psychiatric Research*, 176, 276–281. <https://doi.org/10.1016/j.jpsychires.2024.05.054>
20. McGuire, A. P., Riera, A., Lascano, X. (2025). Adapting MOVED as a web-based moral elevation intervention for veterans with PTSD: Using feedback from a pilot trial and subject matter experts. *Contemporary Clinical Trials Communications*, 44, 101445. <https://doi.org/10.1016/j.conctc.2025.101445>
21. Varker, T., Cowlishaw, S., Baur, J., McFarlane, A. C., Lawrence-Wood, E., Metcalf, O. et al. (2022). Problem anger in veterans and military personnel: Prevalence, predictors, and associated harms of suicide and violence. *Journal of Psychiatric Research*, 151, 57–64. <https://doi.org/10.1016/j.jpsychires.2022.04.004>
22. Malik, T. H. (2022). Military-civilian partner selection for mental health management: An analysis of organisational and technological legitimacy. *Ethics, Medicine and Public Health*, 20, 100733. <https://doi.org/10.1016/j.jemep.2021.100733>
23. Tautz, D., Sprenger, D. A., Schwaninger, A. (2021). Evaluation of four digital tools and their perceived impact on active learning, repetition and feedback in a large university class. *Computers & Education*, 175, 104338. <https://doi.org/10.1016/j.compedu.2021.104338>
24. Hinojosa, J. E., Armstrong-Gallegos, S., Villafaena, M. (2024). Roles of digital technologies in the implementation of inquiry-based learning (IBL): A systematic literature review. *Social Sciences & Humanities Open*, 9, 100874. <https://doi.org/10.1016/j.ssoho.2024.100874>
25. Kulal, A., Dinesh, S., Abhishek, N., Anchan, A. (2024). Digital access and learning outcomes: a study of equity and inclusivity in distance education. *International Journal of Educational Management*, 38 (5), 1391–1423. <https://doi.org/10.1108/ijem-03-2024-0166>
26. Ifenthaler, D., Cooper, M., Daniela, L., Sahin, M. (2023). Social anxiety in digital learning environments: an international perspective and call to action. *International Journal of Educational Technology in Higher Education*, 20 (1). <https://doi.org/10.1186/s41239-023-00419-0>
27. Nguyen, A. J., Russell, T., Skavenski, S., Bogdanov, S., Lomakina, K., Ivaniuk, I. et al. (2023). Development and piloting of a mental health prevention and referral program for veterans and their families in Ukraine. *Global Health: Science and Practice*, 11 (3). <https://doi.org/10.9745/ghsp-d-22-00488>
28. Levis, M., Levy, J., Dimambro, M., Dufort, V., Ludmer, D. J., Goldberg, M., Shiner, B. (2024). Using natural language processing to evaluate temporal patterns in suicide risk variation among high-risk Veterans. *Psychiatry Research*, 339, 116097. <https://doi.org/10.1016/j.psychres.2024.116097>
29. Ryan, A. T., Brenner, L. A., Ulmer, C. S., Mackintosh, M.-A., Greene, C. J. (2023). The Use of Evaluation Panels During the Development of a Digital Intervention for Veterans Based on Cognitive Behavioral Therapy for Insomnia: Qualitative Evaluation Study. *JMIR Formative Research*, 7, e40104. <https://doi.org/10.2196/40104>
30. Van Doren, N., Ng, H., Rawat, E., McKenna, K. R., Blonigen, D. M. (2024). Virtual reality mindfulness training for veterans in residential substance use treatment: Pilot study of feasibility and acceptability. *Journal of Substance Use and Addiction Treatment*, 161, 209315. <https://doi.org/10.1016/j.josat.2024.209315>
31. Lahutina, S., Frankova, I., Gruen, M., Vermetten, E., Zohar, J., Spitschan, M., Bajbouj, M. (2024). A digital self-help tool to promote mental well-being for Ukrainians affected by war – Assessing predictors of stress. *Neuroscience Applied*, 3, 104089. <https://doi.org/10.1016/j.nsa.2024.104089>
32. Pearson, R., Carl, E., Creech, S. K. (2022). Computerized Psychological Interventions in Veterans and Service Members: Systematic Review of Randomized Controlled Trials. *Journal of Medical Internet Research*, 24 (6), e30065. <https://doi.org/10.2196/30065>
33. Balan, O. S., Morris, K., Shepel, M. Ye., Balan, A. A., Savchenko, D. V., Samarchenko, I. I. (2023). *Instrumenty tsyfrovizatsii yak zasib pidvyshchennia rinvnia dostupnosti do yakisnoi osvity i uspishnoi adaptatsii veteraniv*. Odeska politekhnika; Universytet Portsmutu. Available at: https://economics.net.ua/files/analitics/UUT6_Veterans_Analytics_Updf
34. Analiz potreb ta problem veteraniv ta veteranok za 2024 rik. *Veteranskyi fond*. Available at: <https://veteranfund.com.ua/analitics/analiz-potreb-ta-problem-veteraniv-ta-veteranok-za-2024-rik/>
35. Pro proekt "Stvoreno zakhysnykamy". *Ministerstvo u spravakh veteraniv*. Available at: <https://mva.gov.ua/veteranam/pro-proekt>
36. *Economic Scientific Portal*. Available at: <https://economics.net.ua/en/uut6>