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ТЕОРЕТИКО-МЕТОДИЧНЕ ЗАБЕЗПЕЧЕННЯ УПРАВЛІННЯ АДАПТИВНІСТЮ ПІДПРИЄМСТВА В УМОВАХ VUCA-СЕРЕДОВИЩА.
THEORETICAL AND METHODOLOGICAL SUPPORT OF ENTERPRISE ADAPTABILITY MANAGEMENT IN THE VUCA ENVIRONMENT

Гришин О. С. Теоретико-методичне забезпечення управління адаптивністю підприємства в умовах VUCA-середовища. *Український журнал прикладної економіки та техніки*. 2025. Том 10. № 3. С. 16 – 21.

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The article is devoted to substantiating the principles of managing enterprise adaptability in a VUCA environment. The study aims to develop and justify the theoretical and methodological support for enterprise adaptability and development in a VUCA environment, which can contribute to long-term competitiveness and the effectiveness of managerial decisions. The article examines approaches to analyzing the impact of volatility, uncertainty, complexity, and ambiguity on enterprise operations and identifies the specifics of VUCA environment manifestations in Ukraine. The dynamics of enterprise product sales in Ukraine for 2018–2023 are analyzed. Based on this analysis, regional differences in the impact of VUCA factors were identified: the eastern and southern regions experienced significant losses of production capacity due to military actions, while the western and central regions demonstrated resilience and even economic growth, partly due to the relocation of enterprises from the eastern regions. To ensure enterprise adaptability and development in a VUCA environment, a comprehensive mechanism is proposed, aimed at forming an adaptive organizational system capable of quickly responding to changes in market, technological, institutional, and socio-economic conditions; ensuring operational resilience to maintain competitiveness and improve managerial decision-making; and achieving long-term competitiveness through active implementation of innovative solutions, digitalization of processes, and development of strategic flexibility. To achieve these goals, it is recommended to use the following methods and tools: scenario analysis, strategic flexibility methods, Agile and Lean approaches, benchmarking, system modeling, digital tools for managerial decision support, risk management mechanisms, and financial-economic instruments. The proposed mechanism is based on the principles of adaptability, flexibility, innovativeness, transparency, proactivity, and sustainability. Practical implementation of the proposed mechanism will ensure increased adaptability, resilience, and competitiveness, accelerated adoption of innovations and digital solutions, formation of highly qualified personnel, and effective risk management in a VUCA environment.
Keywords: *management, VUCA environment, adaptability, flexibility, digitalization.*

Статтю присвячено обґрунтуванню засад управління адаптивністю підприємства в умовах VUCA-середовища. Дослідження має на меті розробити та обґрунтувати теоретико-методичне забезпечення адаптивності та розвитку підприємств в умовах VUCA-середовища, яке здатне сприяти довгостроковій конкурентоспроможності та ефективності управлінських рішень. В статті досліджено підходи до аналізу впливу мінливості, невизначеності, складності та неоднозначності на функціонування підприємств, а також визначено специфіку прояву VUCA-середовища в Україні. Проаналізовано динаміку реалізації продукції підприємств України за 2018–2023 рр. На основі аналізу виявлено регіональні відмінності впливу VUCA-факторів: східні та південні регіони продемонстрували значні втрати виробничого потенціалу через військові дії, тоді як західні та центральні області проявили стійкість та навіть зростання економічної активності та рахунок релокації східних підприємств. Для забезпечення адаптивності та розвитку підприємств в умовах VUCA-середовища обґрунтовано комплексний механізм, який має на меті сформувати адаптивну організаційну систему, здатну швидко реагувати на зміни ринкових, технологічних, інституційних і соціально-економічних умов; забезпечити стійкість функціонування підприємств для збереження конкурентоспроможності та підвищення ефективності управлінських рішень; досягнення довгострокової конкурентоспроможності шляхом активного впровадження інноваційних рішень, цифровізації процесів та розвитку стратегічної гнучкості підприємства. Для досягнення поставленої мети рекомендується використання наступних методів та інструментів: сценарний аналіз, методи стратегічної гнучкості, Agile та Lean підходи, benchmarking, системне моделювання, цифрові інструменти підтримки управлінських рішень, механізми ризик-менеджменту та фінансово-економічні засоби. Запропонований механізм грунтується на принципах адаптивності, гнучкості, інноваційності, прозорості, проактивності та сталості. Практична реалізація запропонованого механізму розвитку підприємства забезпечить підвищення адаптивності, стійкості та конкурентоспроможності, прискорене впровадження інновацій і цифрових рішень, формування висококваліфікованого персоналу, ефективне управління ризиками в умовах VUCA-середовища.
Ключові слова: *менеджмент, управління, VUCA-середовище, адаптивність, гнучкість, цифровізація.*

Statement of the problem

The growing instability of the global economy, the deepening of crisis phenomena, geopolitical turbulence, and the challenges of digital transformation underscore the need for innovative management mechanisms that can provide enterprises with competitiveness and long-term sustainability. In this context, adaptability not only characterizes the flexibility of an enterprise but also determines its ability to effectively transform business models, management structures, and production and economic processes in response to external shocks. The low level of adaptability among enterprises leads to a decrease in their competitive advantages, loss of market positions, reduction in investment attractiveness, and ultimately, a threat to economic security. On the other hand, excessive reactivity of management decisions generates chaotic business processes and irrational use of resources. All the above necessitate the substantiation of theoretical and methodological support for enterprise management, with an emphasis on its ability to adequately and effectively respond to changes in the environment, maintaining a balance between flexibility and stability of development.

The concept of VUCA has become a paradigm of modern management, reflecting the impact of variability, uncertainty, complexity, and ambiguity in the external environment on organizational activities. In this regard, according to the classical doctrine of N. Bennett and G. Lemoyne [3], effective management in a VUCA environment requires specific approaches to forecasting threats and opportunities, as well as the development of strategic adaptability and scenario thinking. Scientists O. Mack, A. Hare, A. Kramer, and T. Burgartz [4] identified the need for an integrated approach to management, including strategic sensitivity, flexible resource management, and the ability to implement changes to form an anti-fragile organization quickly.

Domestic research also confirms the relevance of adaptive management in uncertain conditions. Thus, A. Todoshchuk, R. Ostashchuk, O. Stebliy, and I. Kolobov [5] identified ways to overcome uncertainty through the development of organizational

flexibility and the introduction of innovative management practices. Researchers A. Chmut and O. Chmut [6] concluded that modern challenges in the VUCA environment require the integration of digital technologies, system modeling, and flexible approaches to increase the adaptability of enterprises. Scientists O. Koschei, N. Koretska, and N. Vasylyk [7] substantiated management principles and tools that contribute to increasing efficiency, transparency, and coordination of processes in organizations. V. Khalina and E. Abelentsev [8] investigated the theoretical aspects of business adaptation to conditions of uncertainty. They determined the importance of integrating strategic planning with the development of human capital and innovative practices.

Therefore, scientists note that the management of enterprise adaptability in the VUCA environment should be based on a combination of strategic flexibility, innovation, digitalization of processes, and the development of organizational culture. However, modern literature does not present a generally accepted mechanism for managing the adaptability and development of the enterprise in a VUCA environment, which would ensure the enterprise's ability to respond effectively to turbulent changes in the external environment.

The purpose of the research

The purpose of this study is to develop and substantiate the theoretical and methodological foundations of adaptability and enterprise development in the VUCA environment, thereby contributing to the long-term competitiveness and effectiveness of management decisions.

Presentation of the main research material

The current stage of development of the world economy is characterized by high dynamism, uncertainty, and complexity, which necessitates a revision of traditional approaches to enterprise management. In this context, the concept of the VUCA environment, which describes the conditions in which organizations are forced to function and adapt to constant changes, becomes relevant.

In general, the VUCA environment is a conceptual framework for understanding the modern socio-economic and entrepreneurial landscape. This concept radically transformed approaches to strategic planning, management, forecasting, and organizational development in general, so it is interesting to explore its origins. The term "VUCA" was first introduced in 1987 in the context of military strategy, where it was used to describe changes that occurred as the unilateral world order transitioned to a multipolar one, leading to an increase in uncertainty and complexity in global relations [1]. Later, in 1991, the concept was first substantiated in the work of G. Barber, where the application of the VUCA approach to strategic leadership in the conditions of the new geopolitical reality was considered in detail. Although the term was first introduced in the military sphere, its conceptual foundations are primarily based on the works of W. Bennis and B. Nanus, who were the first to explore the challenges of leadership in the face of variability, uncertainty, complexity, and ambiguity [2].

Since the beginning of the XXI century, the analyzed term has been actively used in scientific and practical research to analyze global changes in the business environment, which is characterized by a high level of variability, uncertainty, complexity, and ambiguity. However, scientific approaches to understanding the concept of "VUCA" differ significantly. Thus, researchers N. Bennett and G. Lemoyne [3] determined that each element of the VUCA environment requires a specific management response: volatility requires flexible and fast actions, uncertainty requires analytical thinking and scenario forecasting, complexity requires the integration of knowledge and technologies from different industries, ambiguity requires an innovative approach and strategic adaptability. At the same time, according to scientists [3], the development of scenario thinking, organizational learning ability, and dynamic competencies is becoming a key mechanism for increasing the adaptability of enterprises in VUCA conditions.

In addition, as foreign researchers emphasize [4], new challenges of variability, uncertainty, complexity, and ambiguity require proactive management decisions from enterprises. They outlined four powerful areas of strategic response: strategic sensitivity, flexible resource management, coherence of goals, and rapid implementation of changes, to form an anti-fragile organization capable of using the turbulence of the external environment as a source of new competitive advantages (Table 1).

Table 1. Strategic directions of response of enterprises in the VUCA environment

Direction	Content	Expected effect
Strategic sensitivity	Scanning of the external environment, early detection of opportunities and threats, scenario forecasting	Reducing time lags in decision-making, improving the quality of strategic response
Flexible resource management	Rebuilding the resource base in accordance with changes in demand and technology	Prompt response to market fluctuations, reducing risks in supply chains
Coherence of goals	Unified understanding of strategic guidelines by all employees	Increasing organizational cohesion, coordination of actions
Rapid implementation of change	Accelerated decision-making and adaptation of business processes	Increase operational flexibility, minimize bureaucracy, quickly adapt

Source: compiled by the author according to [4].

The VUCA environment in Ukraine has its own specifics, which is due to a combination of global challenges and internal transformations, which form extremely dynamic conditions for the functioning of the national economy and the business sector, as evidenced by the results of research [5-8]. VUCA in domestic realities is vividly embodied in the form of instability of the political situation, prolonged hostilities, macroeconomic imbalances, structural changes in industry and the agricultural sector, and constant fluctuations in the currency and financial markets (Table 2).

The volatility of the Ukrainian business environment manifests itself in the form of sharp changes in the institutional and regulatory field, unpredictable tax and customs initiatives, growing inflationary pressures and instability in the energy sector. Uncertainty in Ukraine is exacerbated by the war, security risks, limited access to foreign markets and financial resources. The complexity of the VUCA environment in Ukraine is manifested in the interdependence of economic, political, social and technological processes. Enterprises operate in the context of European integration aspirations, the need to adapt to international standards, while overcoming the challenges of resource constraints and institutional instability. The ambiguity of the business environment is due to the contradiction of reforms, a low level of trust in state institutions, insufficient transparency of market mechanisms and a high level of shadowing of the economy.

Analysis of the dynamics of the volume of sold products (goods, services) of Ukrainian enterprises for 2018–2023 (Table 3) showed the powerful influence of VUCA factors, which manifests itself at the national level and in the regional context, especially in the territories that have been subjected to hostilities in recent years. Let us consider a separate all-Ukrainian trend and regional aspects.

The dynamics of all-Ukrainian sales of products indicate the presence of sharp fluctuations, for example, in 2021, the volume of products sold reached 13616.79 billion UAH. UAH, reflecting the recovery from the COVID-19 pandemic and an inevitable revival in business activity. However, in 2022, because of the war outbreak, the analyzed indicator decreased by 19%, exhibiting characteristic features of volatility and uncertainty. Already in 2023, the economy had adapted to new conditions, with the volume of sales increasing to 13,456.37 billion UAH. UAH, which informs us about the development of new mechanisms for sustaining business and the state economy.

Table 2. Manifestations of the VUCA environment in Ukraine

VUCA Element	Manifestations in Ukraine	Consequences for enterprises
Volatility - frequent and unpredictable changes in the environment	escalation of hostilities, shelling of infrastructure; jumps in energy and raw material prices; sharp fluctuations in the exchange rate;migration waves of the population	disruption of logistics and production processes; increase in production costs; loss of sales markets
Uncertainty - lack of predictability of future events and consequences	unpredictability of the timing of the end of the war; various scenarios of European integration; Instability of the tax and regulatory environment	decrease in investment activity; complicated strategic planning; high transaction risks
Complexity – multifactoriality and interdependence of processes	interconnectedness of energy, financial, and agricultural spheres; dependence on international aid; complicated supply chains	unpredictable cascading consequences (energy crisis, rising costs in industry, decreased competitiveness); High onboarding costs
Ambiguity (ambiguity) - lack of unambiguous interpretations of events, duality of information	different interpretations of reforms and legislative changes; unpredictable consequences of international sanctions; Volatility of consumer expectations	difficulty in decision-making; increasing the risk of strategic mistakes; Rising analytics costs

Source: systematized by the author according to [5-11].

The impact of the VUCA environment was especially acute in the eastern and southern regions, which suffered great destruction because of hostilities. Donetsk region, from 2018 to 2021. provided a significant share of national production (UAH 457.40 billion in 2018 and UAH 612.66 billion in 2021), in 2022–2023. experienced a catastrophic drop in sales volumes (UAH 128.32 billion and UAH 117.51 billion, respectively). A similar situation was observed in the Luhansk region, where the volumes decreased from 54.90 billion. UAH. in 2021 to UAH 4.44 billion. UAH. in 2022 and only 0.7 billion. UAH. In 2023, this indicates a loss of the region's economic potential. The Kherson region lost a significant part of its production capabilities: from 113.20 billion. UAH. in 2021 to UAH 10.77 billion. UAH. In 2023, these three regions collectively accounted for approximately 8-9% of the total volume of products sold prior to the full-scale invasion by the Russian Federation. However, in 2023, their contribution decreased to less than 1%, resulting in a significant shift in Ukraine's economic geography and the loss of powerful industrial centers.

Along with this, the western and central regions of Ukraine demonstrated relative resilience and even growth, thanks to the adaptability of businesses and the partial migration of entrepreneurial activity from war zones. In particular, the Lviv region. Increased the volume of sales from 576.68 billion. UAH. in 2021 to UAH 846.68 billion. UAH. In 2023, Vinnytsia had a budget of UAH 278.31 billion. UAH. to 349.11 billion. UAH, Ternopil region with UAH 124.15 billion. UAH. to 158.27 billion. UAH, which indicates the formation of new economic centers and the gradual shift of industrial and entrepreneurial activity to the west of our country. A distinct place in the national economy is occupied by the city of Kyiv, which serves as an anti-fragile economic center. Despite the crisis, in 2023, the capital provided UAH 5772.15 billion. UAH. sold products, which is more than 42% of the national indicator. The high share of Kyiv is due to the concentration of the financial sector, the IT industry, and the service sector, which have shown resilience in the VUCA environment and the ability to adapt to changes quickly.

Table 3. The volume of products (goods, services) sold by enterprises by regions, 2018-2023, billion-hryvnia UAH.

Region	2018	2019	2020	2021	2022	2023
Ukraine	9206,05	9639,73	10049,87	13616,79	11033,02	13456,37
Vinnytsia	171,30	195,02	201,32	278,31	265,02	349,11
Volyn	172,90	187,58	178,51	238,57	263,10	289,30
Dnipropetrovsk	1050,35	1088,87	1100,31	1528,13	1147,92	1396,47
Donetsk	457,40	431,12	376,77	612,66	128,32	117,51
Zhytomyr	108,57	113,45	119,23	152,57	154,94	196,01
Zakarpattia	59,75	62,44	64,38	86,41	104,51	125,14
Zaporizhzhia	322,51	306,09	303,27	433,08	332,08	293,61
Ivano-Frankivs	97,72	120,45	126,58	159,04	134,69	168,81
Kyiv	490,23	522,23	579,02	730,02	657,32	876,29
Kirovohrad	99,14	109,98	121,69	153,84	142,25	175,89
Luhansk	39,90	41,99	45,80	54,90	4,44	0,70
Lviv	350,76	406,55	440,68	576,68	705,84	846,68
Mykolaiv	150,89	164,30	169,26	242,94	125,44	165,56
Odesa	377,93	390,70	450,20	573,81	465,13	570,57
Poltava	294,18	296,53	304,85	415,51	320,06	369,88
Rivne	67,86	72,81	81,69	111,75	120,91	153,51
Sumy	104,62	107,31	118,61	152,39	123,97	150,89
Ternopil	71,21	71,17	84,65	124,15	133,24	158,27
Kharkiv	377,18	393,37	439,28	557,80	375,37	500,12
Kherson	73,33	74,92	82,32	113,20	31,55	10,77
Khmelnytskyi	105,56	109,99	126,05	166,29	167,80	196,32
Cherkasy	173,29	206,78	215,07	314,08	290,87	334,95
Chernivtsi	31,21	34,56	39,50	51,17	65,50	95,76
Chernihiv	101,78	106,69	114,55	276,51	113,10	142,11
city Kyiv	3856,46	4024,83	4166,28	5512,99	4659,65	5772,15

Source: compiled by the author under [12]

The analyzed trends in product sales in Ukraine revealed the manifestation of all the classic characteristics of the VUCA environment. Variability and uncertainty are manifested in sharp fluctuations in macroeconomic indicators, difficulty in transforming the regional economic structure, and ambiguity in the formation of new centers of economic activity that compensate for the losses of eastern industrial regions. The VUCA environment in Ukraine is multidimensional and complex, simultaneously generating both risks and opportunities for Ukrainian businesses. Overcoming it requires the introduction of adaptive management systems and the development of flexible strategies that will enable enterprises to survive and achieve competitive advantages in the turbulent conditions of the global and national economy. According to research [9-11], the recovery of Ukrainian enterprises and their adaptation to the VUCA environment should combine short-term anti-crisis measures with long-term strategic transformations. The success of these processes largely depends on institutional support, the active involvement of international partners, and the internal readiness of businesses to adapt and innovate. Considering international experience and analytical forecasts [9-11], it can be argued that recovery projects have the potential to ensure the sustainability of enterprises and to form a mechanism for their development based on innovation, integration, and global competitiveness. The mechanism for developing enterprises in a VUCA environment involves a comprehensive integration of goals, methods, tools, principles, and functions of management, aimed at ensuring the sustainable functioning and long-term development of organizations in the context of high variability, uncertainty, complexity,

and ambiguity in the external environment (Fig. 1). The proposed mechanism aims to: to form an adaptive organizational system capable of quickly responding to changes in market, technological, institutional, and socio-economic conditions; to ensure the sustainability of the functioning of enterprises, to maintain competitiveness, and to increase the efficiency of management [illegible] digitalizati[illegible]

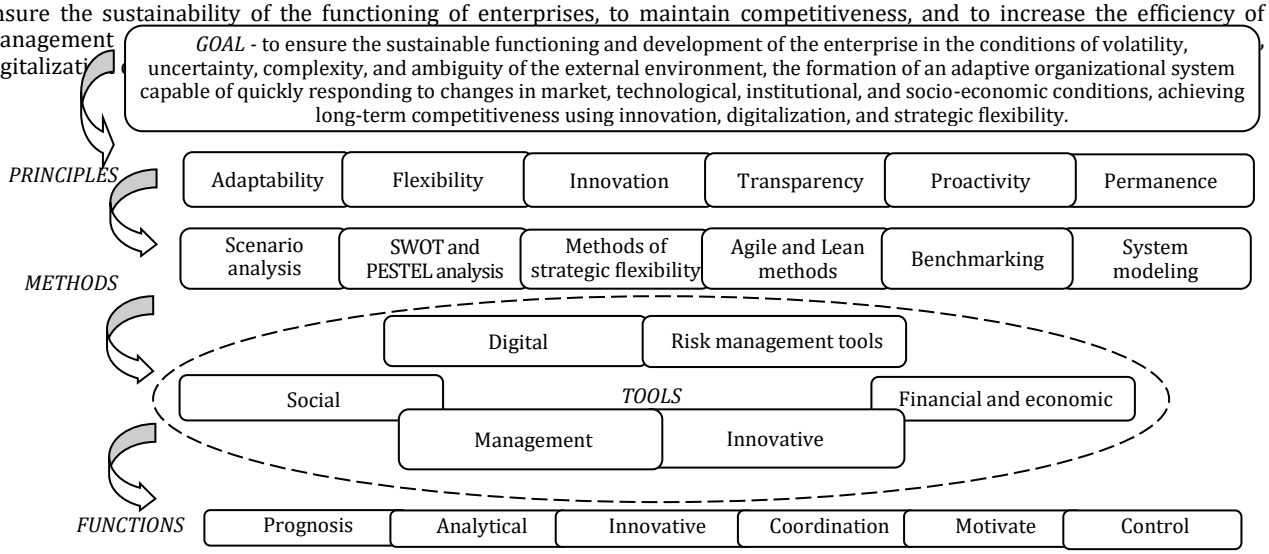

Fig. 1. Mechanism of development of enterprises in the VUCA environment

Source: author's development

To achieve the outlined goals, it is expected to employ a set of methods that will enable systematic analysis and assessment of risks, as well as prediction of possible development scenarios. These include:

Scenario analysis for modeling alternative scenarios.

SWOT and PESTEL analyses for comprehensive diagnostics of internal and external factors;

Methods of strategic flexibility for the formation of alternative strategies and project portfolios;

Agile and Lean methods for implementing agile management and minimizing losses;

benchmarking to study the best practices of global and domestic companies;

System modeling to establish relationships between risks, resources, and expected outcomes.

The practical application of these methods will require the use of modern tools (Table 4), which form a comprehensive system for maintaining the organization's adaptability, flexibility, and sustainability. Digital tools will provide quick access to data and support for prompt decision-making. Risk management tools and financial and economic mechanisms will minimize the negative impact of the VUCA environment. Innovative tools will drive the development of new products and business models. Management tools will ensure coordination and transparency of processes. Social tools will support the development of competencies and foster an enterprise culture of flexibility. The synergy of the identified tools will enable businesses to effectively adapt to a changing, complex, and ambiguous environment, transforming the challenges of VUCA into a source of competitive advantage.

The implementation of the mechanism for the development of enterprises is based on the principles that will ensure the efficiency and integrity of the management system, in particular

the principle of adaptability involves a quick reaction to external changes;

the principle of flexibility allows you to modify strategies and business models;

the principle of innovation is focused on the integration of the latest technologies and business solutions;

the principle of transparency ensures an open exchange of information between departments and partners;

the principle of proactivity involves a proactive response to risks and opportunities;

The principle of sustainability ensures the balance of economic, social, and environmental components within the enterprise.

Within the framework of the proposed mechanism, the main functions that will ensure the integrity and effectiveness of management processes are defined: the forecast function will allow assessing market trends and anticipating possible threats; adaptation function – to adjust strategies in accordance with changes in the environment; innovative – to introduce technological and organizational innovations; coordination – to ensure coordination of the activities of all departments of the enterprise; motivational – to stimulate staff to learn and think flexibly; controlling – to monitor performance and identify deviations and minimize the impact of destabilizing factors.

The practical implementation of the proposed mechanism for the development of the enterprise in the VUCA environment will provide several strategic and operational results that contribute to the sustainable functioning and development of the organization:

Firstly, the use of methods of scenario analysis, strategic flexibility, and system modeling will contribute to effective forecasting of changes in the external environment, assessment of potential threats and opportunities, adjustment of strategies and business processes, which in general will increase the adaptability and flexibility of the enterprise, reduce time lags in managerial decision-making, and form the basis for further planning.

Secondly, the use of digital tools will ensure the prompt receipt and practical analysis of large amounts of data, increase the accuracy of management decisions, and allow a timely response to changing market conditions. In turn, risk management tools and financial and economic mechanisms minimize the negative impact of external threats and internal instabilities, increasing the overall stability of the enterprise.

Thirdly, the practical use of innovative tools will stimulate the development of new products, technologies, and business models. Management tools will ensure transparency, coordination, and control of activities across all departments, thereby forming coherence with strategic goals and enhancing the effectiveness of their implementation.

Thus, the implementation of a reasonable mechanism for the development of the enterprise in the conditions of the VUCA environment, in comparison with the existing ones, will ensure:

increasing the adaptability, flexibility, and sustainability of the enterprise;

effective risk management and minimization of negative impacts of the VUCA environment;

accelerated implementation of innovations and digital solutions;

increasing coordination, transparency, and consistency of the organization's activities;

formation of highly qualified, motivated, and proactive personnel;

Table 4. Modern Enterprise Management Tools in a VUCA Environment

	Tool	Essence	Advantages	Restriction
Digital tools	Big Data	Technologies for collecting and processing large volumes of structured and unstructured data for analytics and forecasting	Allows you to quickly identify trends, assess risks, and make informed decisions	High implementation costs, need for qualified analysts, data security risks
	Artificial intelligence	Automated systems for data analysis, forecasting and decision support	Increases the accuracy of forecasts, reduces the time for information processing, adapts to changes	Complexity of integration, high cost, dependence on data quality
	ERP systems	Comprehensive enterprise resource management systems integrating production, finance, logistics and HR	Ensures coordination of processes, reduces operational risks, increases transparency	High implementation costs, long period of staff training, complexity of setup
	Real-time analytics	Live data monitoring and analysis for quick management decisions	Allows you to quickly respond to market changes, identify risks and opportunities	Requires significant computing resources, dependence on the reliability of data sources
Tools Zik Management	Risk maps	Visualization of risks and the relationships between them to manage potential threats	Facilitates the identification and prioritization of risks, promotes preventive actions	May not cover unpredictable events, needs regular updates
	Risk tolerance KPIs	Indicators to assess an organization's ability to face risks and adapt to change	Supports strategic planning, allows you to measure the effectiveness of measures	Do not always reflect all aspects of risks, the possibility of formalization without a real assessment
Financial and economic Tools	ESG Finance	Funding based on environmental, social and governance criteria	Increases the sustainability of the enterprise, stimulates innovation and social responsibility	Limited availability of capital, dependence on the regulatory environment
	Green bonds	Investment Instrument for Financing Environmental Projects	Supports sustainable development, enhances the company's reputation	High reporting requirements, limited market
	Risk insurance	Transfer of financial risks to external organizations	Reduces the negative impact of unpredictable events, increases financial stability	The cost of insurance, does not cover all risks, dependence on the terms of the contract
Innovative Tools	Research & Development	Creation of new products, technologies and processes	Increases innovation capacity, creates competitive advantages	High costs, long return on investment cycle, risk of failure
	Startup Incubators	Platforms to support new entrepreneurial initiatives and technologies	Promotes rapid testing of ideas, increases adaptability	Limited resources, dependence on external partners
	Open innovation	Collaborate with external partners to create and implement innovations	Expands access to knowledge and technologies, reduces R&D costs	Needs to protect intellectual property, complexity of coordination
Management tools	Balanced scorecard	Performance evaluation system through financial and non-financial indicators	Ensures strategic coherence, control over the implementation of goals	May complicate management processes, risk of formalization
	Objectives and Key Results	Method of setting goals and key results for the organization	Stimulates transparency, increases staff engagement	Needs regular review, risk of inconsistency in execution
	KPI	Performance indicators to evaluate the work of departments and employees	Helps track progress and goal achievement	May lead to concentration on indicators instead of results
	Controlling systems	Monitoring, planning and control of business processes	Increases transparency, supports informed decision-making	Requires resources to set up, risk of excessive bureaucracy
Social tools	Corporate culture of flexibility	Formation of values and behavioral models for an adaptive organization	Promotes rapid response to changes, supports innovation	Long time to form, difficult to measure efficiency
	Human Capital Development	Staff training and advanced training	Increases the competencies and adaptability of employees	Requires constant investment, depends on staff motivation
	Staff motivation	Performance and Engagement Incentive Systems	Increases efficiency, promotes engagement in change	Can be expensive, risk of unproductive incentives

Source: Systematized by the author according to [13-16].

Achievement of long-term competitiveness and stable development of the enterprise even in complex, uncertain, and ambiguous conditions of the external environment.

Conclusions and prospects for further research

The current stage of economic development is characterized by significant variability, uncertainty, complexity, and ambiguity, which form the conditions of the VUCA environment in which modern enterprises operate. The analysis of scientific sources revealed that traditional management approaches under such conditions proved insufficiently effective, and the success of enterprises depends on their ability to quickly adapt, integrate innovative solutions, and utilize digital technologies.

In Ukraine, the manifestations of the VUCA environment are particularly pronounced, manifesting as political and economic instability, prolonged hostilities, macroeconomic imbalances, structural economic changes, and fluctuations in financial markets. The analysis of product sales in the regional context revealed significant changes in economic geography, with the eastern and southern regions suffering substantial losses in production potential. In contrast, the western and central regions demonstrated relative stability and even growth in economic activity. The capital acts as a powerful, resilient economic center of our country.

To ensure the sustainable functioning and development of enterprises, it is necessary to implement a comprehensive management mechanism that integrates the goals, methods, tools, principles, and functions of management. The mechanism proposed in the study enables the formation of an adaptive organizational system capable of quickly responding to changes in

market, technological, institutional, and socio-economic conditions, thereby ensuring the introduction of innovations, digitalization, and strategic flexibility, while also increasing the effectiveness of management decisions. The practical implementation of the mechanism involves the use of scenario analysis, SWOT and PESTEL approaches, methods of strategic flexibility, Agile and Lean approaches, benchmarking and system modeling, which, in combination with digital, anti-risk, financial and economic, innovative, managerial and social tools, will ensure the adaptability, flexibility, sustainability and competitiveness of the enterprise. The expected results of the implementation of the mechanism provide for increasing the ability of enterprises to predict changes in the external environment and promptly respond to them, effective risk management and minimization of negative impacts, accelerated implementation of innovations and digital solutions, increased coordination and transparency of the organization's activities, development of highly qualified and proactive personnel, ensuring long-term competitiveness and stable development of the enterprise even in complex and ambiguous conditions of the VUCA environment.

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