



e-ISSN 3083-6018

SOCIAL DEVELOPMENT: Economic and Legal Issues

<https://www.eu-scientists.com/index.php/sdel>



Innovative Renewal of Regional Business Processes in the Context of Global Challenges: Organizational, Economic, Management Features and Mechanisms

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ARTICLE INFO

Research Article

DOI:

[10.70651/3083-6018/2026.4.10](https://doi.org/10.70651/3083-6018/2026.4.10)

Received:

3 March 2026

Accepted:

6 April 2026

Published online:

14 April 2026

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ABSTRACT

The article is devoted to the study of organizational, economic and managerial features of innovative restoration of regional business processes in the context of global challenges and systemic threats using the example of the Mykolaiv region. It is proven that if the region has suffered such large-scale military, environmental and demographic destruction, the use of standardized restoration models will not yield results. The author emphasizes that instead of copying the pre-war economy, the Mykolaiv region needs a complete transformation of business. The main guidelines should be digitalization, flexibility and the ability to manage risks. Based on official statistics and real projects, the depth of the socio-economic crisis in the Mykolaiv region is assessed. All threats to local business are divided into specific blocks: from military and environmental threats to severe shortages of personnel and disrupted logistics. To bring the region out of the crisis, a three-level model of reconstruction management is proposed. In practice, this means implementing the relevant stages: launching a single coordination center, transitioning to digital risk monitoring, and large-scale retraining of people to work in new conditions. The practical significance of integrating digital tools into the recovery management system is proven using the example of the EU international project Interreg VI-B NEXT Black Sea Basin BSB01415 – NAT-RES “NATech Resilience Initiative in the Black Sea Region”, aimed at modeling, GIS mapping, and risk assessment of Natech events. The role of strategic professional orientation of young people towards digital technologies and the blue economy is revealed, in particular through the activities of the Blue Economy Laboratory based on the Center for Business Support and Economic Development. The practical implementation of our proposals is the work of the Local Employment Partnership in the Mykolaiv region. The main conclusion of the study is that economic recovery will not work if it is carried out chaotically; there must be an integrated approach. Success depends on how well institutions work together, how quickly businesses go digital and learn to manage risks. Without staff training, technological innovation, the stimulation of local entrepreneurs and strong international ties, this process will simply stop.

KEYWORDS

innovative recovery of regional business processes; global challenges; global threats; organisational and managerial mechanism; Mykolaiv Oblast; regional economic security; digital transformation; risk-oriented management; blue economy.





e-ISSN 3083-6018

СОЦІАЛЬНИЙ РОЗВИТОК: економіко-правові проблеми

<https://www.eu-scientists.com/index.php/sdel>



Інноваційне відновлення регіональних бізнес-процесів в умовах глобальних викликів: організаційні, економічні, управлінські особливості та механізми

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СТАТТЯ

АНОТАЦІЯ

Дослідницька

DOI:

[10.70651/3083-6018/2026.4.10](https://doi.org/10.70651/3083-6018/2026.4.10)

Отримана:

03.03.2026 р.

Прийнята:

06.04.2026 р.

Опублікована:

14.04.2026 р.

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Стаття присвячена дослідженню організаційних, економічних та управлінських особливостей інноваційного відновлення регіональних бізнес-процесів в умовах глобальних викликів і системних загроз на прикладі Миколаївської області. Доведено, що якщо регіон зазнав настільки масштабних воєнних, екологічних та демографічних руйнувань, використання стандартизованих моделей відновлення не дасть результату. Автором наголошено, що замість копіювання довоєнної економіки, Миколаївщина потребує повної трансформації бізнесу. Головними орієнтирами мають стати цифровізація, гнучкість та вміння управляти ризиками. Спираючись на офіційну статистику та реальні проекти, оцінено глибину соціально-економічної кризи в Миколаївській області. Усі загрози для місцевого бізнесу розбито на конкретні блоки: від воєнних та екологічних до жорсткого дефіциту кадрів і розірваної логістики. Щоб вивести регіон із кризи, запропоновано тривалу модель управління відбудовою. На практиці це означає реалізацію відповідних етапів: запуск єдиного координаційного центру, перехід на цифровий моніторинг ризиків та масштабне перенавчання людей для роботи в нових умовах. Доведено практичну значущість інтеграції цифрових інструментів у систему управління відновленням на прикладі міжнародного проекту ЄС Interreg VI-B NEXT Black Sea Basin BSB01415 – NAT-RES “NATech Resilience Initiative in the Black Sea Region”, спрямованого на моделювання, GIS-картування та оцінювання ризиків Natech-подій. Розкрито роль стратегічної професійної орієнтації молоді на цифрові технології та блакитну економіку, зокрема через діяльність Лабораторії блакитної економіки на базі Центру підтримки бізнесу та економічного розвитку. Практичним втіленням наших пропозицій є робота Місцевого партнерства зайнятості в Миколаївській області. Головним висновком дослідження є те, що економічне відновлення не спрацює, якщо діяти хаотично, повинен бути комплексний підхід. Успіх залежить від того, наскільки злагоджено працюватимуть інституції, як швидко бізнес перейде в «цифру» та навчиться управляти ризиками. Без навчання кадрів, технологічного оновлення, стимулювання локальних підприємців і міцних міжнародних зв'язків цей процес просто зупиниться.



КЛЮЧОВІ СЛОВА

інноваційне відновлення регіональних бізнес-процесів; глобальні виклики; глобальні загрози; організаційно-управлінський механізм; Миколаївська область; регіональна економічна безпека; цифрова трансформація; ризик-орієнтоване управління; блакитна економіка.

1. Introduction

Mykolaiv region is one of the regions where the issue of innovative restoration of business processes has acquired not only theoretical, but also practical importance. The region is traditionally one of the industrial leaders of the Black Sea region, since February 24, 2022, it has been in the zone of direct hostilities and has suffered losses comparable only to the Donetsk and Kharkiv regions in relative terms. Destroyed infrastructure, mass outflow of population, collapse in sales markets, in such conditions, the regional business system should look for directions not only for recovery, but for innovative renewal of its business processes.

It is under such conditions that there is an urgent need to study the organizational and managerial mechanisms that can ensure the innovative restoration of regional business processes in the face of long-term global threats and challenges. Solving this problem requires a systematic view that combines the analysis of the real scale of damage and losses with the development of effective management responses and mechanisms.

2. Literature Review

The theoretical basis of the study is formed in several scientific areas. The problems of organizational and managerial mechanisms in the system of regional development were developed by O. Berdanova, V. Vakulenko, M. Orlaty. The question of regional economic security and potential was studied by I.O. Irtyshchev with his co-authors, in terms of the methodological assessment of the potential and its impact on the stability of the galile system [1], as well as the relationship between the potential and the prospects of the war [2]. The key personnel prerequisites for regional development in the context of transformation were analyzed by I. O. Irtyshcheva, I. I. Nadtocha and I. S. Kramenko [3]. The connection between the digital transformation of investment processes and the conciliation of regional enterprises - through the assessment of the innovation conceivability in the conditions of changing investment security - was further investigated in the work of I. O. Irtyshcheva and the singers [4]. The financial measures of the financing of the Ministry of Internal Affairs were established in the work of M. Orlaty et. all. [5], where the institutional problems of reforming the local government were thoroughly analyzed. O. Berdanova and Vakulenko [6], who emphasized the strategic management of the development of cities as integral systems.

At the same time, the specifics of the Mykolaiv region as an object of research, from the point of view of the combination of significant military developments, the presence of an independent and agricultural classification and a special field of the region and the introduction of maritime trade wars, has been studied much less than is required by the proper practice. At the same time, the follow-up of organizational, economic, and legal features and mechanisms of innovation of regional business processes in the face of global challenges is quite relevant.

3. Problem Statement

The purpose of the article is to analyze the legalization, economic, and legal features and mechanisms of innovation of regional business processes in the face of global challenges, for example, in the Mykolaiv region.

4. Methods and Materials

In the process of research, the following methods are used: comparative analysis – the structure of the number of employed population by types of economic activity in the Mykolaiv region; generalization and systematization – when grouping the three-level architecture of the organizational and managerial mechanism of innovative restoration of regional business processes of the Mykolaiv region; typology and grouping – in the classification of global threats and challenges for regional business processes of the Mykolaiv region and their manifestations.

5. Results and Discussion

Before forming organizational and managerial mechanisms for recovery, it is necessary to have a clear idea of what exactly is to be restored and under what conditions it will take place. For example, let's consider the Mykolaiv region, which has been an "outpost" of the south of Ukraine for a long time. The choice of the Mykolaiv region as an object for testing organizational and managerial mechanisms is methodologically justified, since this region combines the critical challenges of wartime and the strategic potential for Recovery.

The scale of damage in the Mykolaiv region is critical, namely, only a third of the damaged facilities have been restored, and the share of actually used restoration funds was less than 35% of the planned volume [7]. However, certain indicators show positive dynamics: the number of registered taxpayers has increased, partly due to the relocation of businesses from more affected regions. The growth in the number of taxpayers, partly explained by the registration of relocated businesses from the Kherson region and other regions, is positive. Let us consider the structure of the number of employed populations by types of economic activity in the Mykolaiv region (Table 1).

Table 1. Structure of the number of employed populations by types of economic activity in the Mykolaiv region

Type of economic activity	2020	2021	2022	2023	Change in share (2023 to 2021), +/- p.p.
Total in the region	100.00	100.00	100.00	100.00	—
Agriculture (A)	11.30	11.70	12.10	11.70	0
Processing industry (C)	19.10	18.70	16.60	17.10	-1.6
Construction (F)	2.80	2.90	2.70	3.10	+0.2
Wholesale & Retail (G)	24.70	24.30	25.60	25.70	+1.4
Transport and Logistics (H)	8.30	8.30	7.40	7.60	-0.7
IT & Telecommunications (J)	4.10	4.40	4.90	5.30	+0.9
Other industries (education, healthcare, etc.)	29.70	29.70	30.70	29.50	-0.2

Source: Compiled and calculated according to [8].

Despite the war, the trade sector not only retained its status as the largest employer but also increased its share from 24.3% to 25.7% (+1.4 percentage points). This indicates the high adaptability of small businesses (FOP), which recover faster compared to large industrial facilities. The share of the processing industry decreased by 1.6 p.p. (from 18.7% to 17.1%). This is the most worrying indicator for regional management, since industry is usually the main source of personal income tax and technological development. Agriculture demonstrates amazing structural stability; its share remained at the level of 11.7 – this is the "foundation" of the region's economy, which survived despite mining and logistical blockades.

A structural analysis of the share of employed workers in the Mykolaiv region confirms the transformation of the economic landscape from industrial and transport to trade and digital. The growth of the share of the IT sector to 5.3% in the employment structure against the background of a decline in the traditional industry justifies the need to adapt the organizational and management mechanisms of regional business structures to the needs of the new, digital economy of the community.

The importance of these data is fundamentally important for the development of an organizational and managerial recovery mechanism, which can be not only anti-crisis, but also supportive. To develop a supportive organizational and managerial mechanism, it is necessary to systematize the threats to which it must respond. The classification proposed below takes into account the specifics of the region and is the basis for further design of the mechanism.

The data from Table 2 clearly demonstrate that the Mykolaiv region was under attack by all possible crises at the same time. At the same time, the military destruction and environmental consequences are so large-scale that the world's experience of peacetime is simply powerless here. That is why it will not be possible to take stereotypical Western models of reconstruction and apply them here — the region needs to develop its own, unique recovery mechanism.

Table 2. Classification of global threats and challenges for regional business processes of the Mykolaiv region and their manifestations

Threat/Call Type	Key manifestations in the region	Affected sectors	Criticality level
Geopolitical-military	Destruction of production facilities, blockade of ports, mine hazards	Shipbuilding, agriculture, port logistics	Critical
Hydrological and environmental	Explosion of the Kakhovka hydroelectric power station, lack of centralized water supply in Mykolaiv since 2022	Food Industry, Utilities	Critical
Economic and financial	Loss of sales markets, collapse of lending activity, reduction of investments	SMEs, trade, agro-industrial complex	High
Demographic and personnel	Outflow of ~36% of the population, loss of qualified personnel, deficit of managerial potential	All sectors	High
Digital information	Attacks on the management systems of enterprises, manipulation of market information, failures in e-governance	IT Services, Financial Sector, Public Administration	Medium (growing)
Chain and logistics	Destroyed transport hubs, reorientation of cargo flows, increase in the cost of logistics	Grain trade, processing, building materials	High

Source: Systematized by the author [8].

However, the key barrier to launching the economy remains the lack of people. The restoration of factories, logistics, or the service sector is impossible if there is no one there to work. Due to mass migration, mobilization, population aging and the mismatch of skills with the real needs of business, a huge gap has formed in the local labor market. This is confirmed by specific figures: during the study for the Local Employment Partnership, 158 employers in the region were interviewed. More than 72% of them reported serious problems with hiring. The most acute personnel shortage is recorded in the agricultural sector, transport, construction, food industry and maintenance.

The identified imbalances are not only quantitative, but also qualitative. Employers note the insufficient correspondence of candidates' professional training to the real technological and production needs of enterprises, low practice-oriented individual educational programs, limited modern material and technical base of vocational education institutions, as well as weak integration of employers into the process of forming the content of training.

The problem of "inactivated labor potential" is additionally exacerbated when a significant part of people aged 45+, veterans, internally displaced persons and other vulnerable groups have professional experience or basic competencies, but cannot effectively integrate into the labor market due to barriers to retraining, digital literacy, health status, psychological adaptation, or lack of personalized support.

In this context, the personnel policy of regional recovery should be considered not as an auxiliary element, but as one of the central components of the organizational and management mechanism. Without the formation of effective tools for aligning workforce skills with the needs of the economy, supporting entrepreneurship and integrating vulnerable groups into the labor market, the innovative recovery of regional business processes will remain limited both in scale and in sustainability of results.

That is why we believe that the organizational and managerial mechanism of innovative restoration of regional business processes is a systemic set of principles, institutions, tools and procedures that ensure the coordinated influence of management entities on the state of the regional business system to transition it from a crisis state to a qualitatively higher level of functioning based on innovations. The proposed essence of the mechanism is innovative and focused not on recreating the pre-war state, but on embedding fundamentally new elements in regional business processes.

We propose an architecture of the mechanism that includes three interconnected levels, each of which has its own functional logic, but cannot function effectively in isolation from the other two.

On the other hand, if the operational level sags, even ingenious strategies remain only on paper. This is clearly confirmed by the figures: due to weak management on the ground in 2023, the region was able to absorb only 34.3% of funds allocated for reconstruction [9]. The shortage of resources, especially human resources, blocks the functioning of the two previous levels, turning strategic and managerial decisions into declarative intentions.

Table 3. Three-level architecture of the organizational and managerial mechanism of innovative restoration of regional business processes of the Mykolaiv region

Mechanism level	Functional logic	Key tools	Responsible entities
Strategic	Determination of the long-term recovery vector; formation of institutional prerequisites; setting strategic priorities for resource allocation	Regional Recovery Strategy; priority sectors for innovative development; agreements on interregional and international partnership	Mykolaiv Regional Military Administration; city and district councils; Regional Council
Operating	Implementation of management procedures for recovery; coordination between subjects; monitoring and adjustment of current decisions	Action plans and road maps; interagency coordination platforms; digital systems for monitoring business processes; launch of a partnership model of various stakeholders of economic recovery, including employment partnerships; SME support mechanisms	Executive bodies of councils; entrepreneurship support centers; business associations; EU4Business / GIZ projects
Resource	Formation and optimal allocation of recovery resources — personnel, financial, technological and partner	Grant funding programs; training and retraining of personnel; involvement of digital technologies and R&D competencies; International Technical Assistance Instruments	HEI; IFIs and donors (EU, GIZ, USAID, KfW, the Government of the Kingdom of Denmark and other countries); Private sector

Source: Developed by the author.

When developing an organizational and legal mechanism for the restoration of the Mykolaiv region, it is important to take into account the methodology of system modeling by Y. Garazishvili [8], which is based on the identification of safe boundaries for the functioning of complex systems. Since the statistical analysis of employment for 2021–2023. recorded a drop in the region's workforce by 24.1%, the reengineering of municipal management should be aimed not only at economic growth, but also at returning the system to a state of dynamic sustainability through inclusive architectonics and digital convergence of processes

Based on the analysis, three priorities for the implementation of the mechanism at the level of the Mykolaiv region are proposed.

The priority is operational coordination. To overcome the fragmentation of management decisions and duplication of functions between different entities, it is advisable to create the Regional Coordination Center for Recovery, a permanent structure at the Mykolaiv Regional Military Administration, which includes representatives of executive bodies, business associations, higher education institutions, and coordinators of donor projects. The center should be functionally oriented not to administration, but to coordination and elimination of managerial barriers.

The second priority is a digital system for monitoring and risk-based recovery management. The level of disbursement of regenerative funds of 34.3% indicates not only financial and administrative restrictions, but also insufficient formation of operational digital systems for tracking, verification and management response. The implementation of a regional digital recovery management platform should ensure monitoring of the status of each facility, sources and packages of funding, deadlines for work, responsible entities, implementation bottlenecks and delay risks in close to real time. Such a tool should perform not only the accounting function, but also the function of early management warning, allowing timely identification of deviations, predicting risks and adjusting decisions before they turn into systemic management failures.

The importance of this approach is also confirmed by the involvement of the Mykolaiv region in the international EU cross-border cooperation project Interreg VI-B NEXT Black Sea Basin BSB01415 – NAT-RES “NATech Resilience Initiative in the Black Sea Region” [10], aimed at increasing the resilience of the Black Sea Basin regions to Natech events – man-made accidents provoked by natural hazards, armed conflicts or a combination of them. The project provides for the introduction of digital tools for modeling,

mapping and risk assessment of man-made disasters, in particular through the use and adaptation of the AFAD-EKA software package, which allows simulating scenarios of chemical releases, fires, explosions, toxic spread, pollution of water resources, soils and air, as well as identifying potential areas of damage in the GIS environment. Of particular importance for the Mykolaiv region is the component of the project focused on the formation of Natech hazard maps caused by flood risks and armed conflict, which directly corresponds to the specifics of the region as a territory with a high concentration of critical infrastructure, industrial facilities, logistics hubs and environmentally sensitive areas.

The practical significance of the NAT-RES project lies in changing the very logic of digital monitoring: now it is not just a database, but a tool for preventing threats and protecting regional businesses. The working model of the project covers the full cycle — from the collection and verification of spatial data to the development of specific accident scenarios and plans to save infrastructure and population. Thanks to the involvement of the Ukrainian Association of Business Support Centers [11], the project gained real experience in the Mykolaiv region, and the author of the article was able to directly coordinate the Ukrainian component at the management level. Thus, the developments of NAT-RES become the digital basis that combines infrastructure repair, environmental protection and business stability into a single understandable system for making management decisions.

The third priority is the personnel, competence and career guidance base of innovative recovery. The systemic shortage of qualified managers, engineering personnel and digital specialists in the executive bodies, educational environment and the entrepreneurial community of the region should be considered as one of the key barriers to recovery. Overcoming it requires not only short-term training and retraining programs, but also the formation of a long-term personnel trajectory that combines the professional orientation of schoolchildren, practice-oriented training of students, the involvement of young people in innovative entrepreneurship and the creation of a talent pool for public administration and business. In this context, it is advisable to formalize programs of academic exchanges, internships and rotational practice between Admiral Makarov National University of Shipbuilding [12], executive bodies of the Mykolaiv Regional Military Administration, city councils, business associations and entrepreneurship support institutions. Such programs should provide internships for graduate and graduate students in public administration structures, project offices, economic development centers, and business associations, forming a talent pool for recovery management.

Of particular importance is the strategic professional orientation of schoolchildren and students to digital technologies as an innovative basis for the development of the blue economy, which is identified among the priorities of the strategic development of the city and the region. For the Mykolaiv region, this is of particular importance given the historically formed potential of shipbuilding, marine engineering, port logistics, water transport, coastal infrastructure, environmental monitoring and related high-tech services. Accordingly, the HR policy of recovery should be aimed not only at filling current vacancies, but also at the early formation of competencies related to 3D modeling, additive technologies, VR/AR solutions, digital twins, computer-aided design, engineering visualization, and data management technologies.

A practical example of this approach is the creation of the Blue Economy Laboratory based on the Center for Business Support and Economic Development, equipped under the organizational guidance of the author of this article. On this basis, demonstration days of digital technologies and opportunities of the blue economy are held for schoolchildren, students, educators, entrepreneurs and community representatives. The laboratory's instrumental base, including a 3D scanner, a 3D printer, VR technologies, interactive demonstration solutions, and digital prototyping tools, allows you to popularize engineering, technology, and entrepreneurial professions, as well as demonstrate the applied use of digital tools in shipbuilding, manufacturing, logistics, product design, service innovation, and startup development. This format combines career guidance, innovative education, technological demonstration and entrepreneurial motivation, creating prerequisites for the formation of a new generation of specialists capable of working in the sectors of the blue economy and ensuring the innovative recovery of regional business processes.

5.1 Practical institutionalization of the mechanism through the Local Employment Partnership in the Mykolaiv region

A practical example of the implementation of the operational and resource levels of the proposed organizational and managerial mechanism is the Local Employment Partnership in the Mykolaiv region,

formed with the support of the International Labor Organization. The partnership initiative was launched in the fall of 2024 through a training and diagnostic event for key stakeholders in the regional labor market, during which the main personnel, educational and institutional imbalances were identified. Official The launch of the MPZ took place on March 24, 2025, and on April 18, 2025, a Memorandum of Partnership was signed between 20 institutions representing regional and city authorities, employment services, business associations, employers, trade unions, the educational sector, veteran services and entrepreneurship support organizations.

From a managerial point of view, the MPZ is important not only as an employment policy tool but as a model of multilateral coordination of the restoration of human capital in the region. Its importance lies in the transition from fragmentary support measures to systemic interaction of actors that simultaneously generate demand for labor, ensure its training, create jobs and accompany the integration of vulnerable groups into economic activity. Practical experience in launching and coordinating the activities of the Ministry of Internal Affairs, in particular through the work of the Coordination Council of the Partnership, with the participation of the author of this article, has become an important empirical basis for clarifying the applied elements of the proposed mechanism for innovative recovery of regional business processes.

Within the framework of the MPZ, three strategic areas of intervention were identified, which directly correspond to the key personnel and economic challenges of the Mykolaiv region. The first direction is aimed at aligning the professional skills of the workforce with the needs of the economy by strengthening the vocational education system and developing mechanisms for the recognition of qualifications. Its practical basis was a survey of 158 employers, which showed a significant shortage of personnel: more than 72% of the surveyed enterprises reported difficulties in hiring personnel. Based on the data obtained, two programs with partial qualifications were developed and launched – “Locksmith for the repair of wheeled vehicles” and “Cook: cooking dishes and products from yeast and unleavened dough”. Two training groups of 15 people were formed, and the material and technical base of three vocational education institutions was updated.

The second direction of the minimum wage is related to the expansion of the economic capacity of vulnerable groups of the population through the development of entrepreneurship and self-employment. Within this direction, a comprehensive support model was introduced, combining training according to the international SIYB methodology – Start and Improve Your Business [13-14], grant funding, mentoring support and the formation of an entrepreneurial community. Out of 412 applications submitted, 101 participants completed the training program, 70 business plans were prepared, and 40 business ideas received grant support, which contributed to the registration of 40 new individual entrepreneurs. In addition, business meetings and thematic online seminars were held, and more than 100 hours of individual consulting support were provided. This approach allows us to consider entrepreneurship not only as a form of self-employment but also as a tool for restoring local economic activity and creating new micromarkets in communities.

The third direction is focused on the economic integration of veterans, people with disabilities and people aged 45+ into the regional labor market.

Within its framework, a study was conducted on the needs of 179 veterans and 700 people aged 45+, a protocol for the integration of veterans into the labor market was developed, support services were mapped, and an interactive online directory of organizations providing relevant services was created. An important practical result was the provision of 20 grants to employers for the adaptation of jobs for veterans, including veterans with disabilities, as well as the organization of short-term vocational training for 57 participants in priority professions. Separately, teachers were trained to work with an adult audience and career counselors to accompany veterans and representatives of vulnerable groups.

The Local Employment Partnership in the Mykolaiv region [15-16] can be considered as an example of applied institutionalization of the innovative recovery mechanism, which combines diagnostics of business needs, modernization of educational offer, entrepreneurship development, inclusive employment policy and digital access to services. In the context of the proposed three-tier architecture, the MPZ performs the function of a specialized personnel and economic module, which strengthens operational coordination and resource support for the restoration of regional business processes. His experience confirms that the innovative recovery of the region requires not only infrastructure investments, but also a sustainable human capital management system capable of

responding quickly to the needs of employers, activating domestic labor potential and ensuring the economic integration of socially vulnerable groups of the population.

6. Conclusions

As a result of the study, it was found that the Mykolaiv region is one of the most difficult and at the same time the most indicative regions of Ukraine for approbation of organizational and managerial mechanisms for innovative restoration of regional business processes. Its specificity lies in the combination of large-scale military destruction, critical infrastructure and environmental losses, demographic and personnel exhaustion, logistical constraints, transformation of the employment structure and at the same time the preservation of powerful industrial, agricultural, shipbuilding, educational and entrepreneurial potential. This creates a special managerial situation in which recovery cannot be considered as a mechanical return to the pre-war model of the economy, but should provide for a qualitative update of business processes on the basis of innovation, digitalization, adaptability, sustainability, and cross-sectoral coordination.

The analysis of global challenges made it possible to group the main threats to the business environment of the Mykolaiv region into the relevant areas. These are most characterized by military, environmental, financial, personnel, digital and logistics. The biggest blow to the region's economy is caused by the war, environmental risks, and personnel shortages. They do not just create difficulties, but literally block the resumption of production and the normal operation of enterprises. At the same time, the shortage of specialists — engineers, managers, and IT specialists — has turned from a purely social problem into the main inhibiting factor of the economic revival of the region.

For the Mykolaiv region, it is critically important to establish clear coordination, introduce digital risk control systems and create a database of qualified personnel. The creation of a regional coordination center will help overcome management chaos by uniting the efforts of government, business, educators, and foreign donors around specific projects. Digitalization plays the role of a transparent tool of trust here. The regional digital platform should not only count the funds spent, but also predict the development of events and warn of dangers. A vivid example of such work is the region's participation in the international project NAT-RES. The use of GIS maps and digital modeling allows you to assess the risks of complex man-made accidents (Natech events) caused by both natural factors and war. This makes it possible to simultaneously take care of the environment, the safety of critical infrastructure, and the stability of business.

It was emphasized that the issue of personnel requires a systematic approach, and not just retraining courses. It is necessary to build the "life path" of a specialist: from the interest of schoolchildren in technologies to the training of top managers and engineers. Particular emphasis should be placed on the "blue economy" (maritime industry, shipbuilding, logistics). The work of the Blue Economy Lab, based on the Business Support Center, already shows how 3D printing, VR technologies and digital modeling can motivate young people to create startups and work in the innovation sector of the region.

The experience of creating the Local Employment Partnership in the Mykolaiv region confirms that the system model works. Local Employment Partnership allows you to combine real employer requests with educational opportunities and support for vulnerable groups (veterans, people with disabilities, people 45+). In the overall structure of recovery, such a partnership becomes an engine that provides businesses with people and people with jobs. Therefore, the success of the Mykolaiv region depends on the ability to build a comprehensive system where coordination, digital tools and human capital work synchronously. Only by creating sustainable platforms for partnership and professional development will the region be able not only to attract investment but also to become resilient to future global threats.

It is advisable to associate the prospects for further research with the development of a system of quantitative indicators for assessing the effectiveness of the organizational and managerial mechanism of innovative recovery, modeling the impact of digital platforms on the speed and quality of implementation of recovery projects, assessing the effectiveness of personnel and career guidance tools for the sectors of the blue economy, as well as a comparative analysis of regions of Ukraine with a similar threat profile – Kherson, Zaporizhzhia, Kharkiv and Odesa region.

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