UDC 338.432:005.21
JEL Classification: Q01, F15, L26

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STRATEGIC MANAGEMENT MODELS FOR UKRAINIAN AGRARIAN ENTERPRISES IN THE POST-WAR PERIOD OF DEEPENING EUROPEAN INTEGRATION

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Immediate reconstruction of Ukraine's agricultural sector after the war is critical. The conflict has inflicted massive damage on the industry, and estimates suggest losses in the tens of billions of US dollars. Millions of hectares of arable land have been taken out of production due to landmines. Under these conditions, new strategic management models are needed that combine production recovery with adaptation to European standards. The aim of this article is to develop conceptual models of post-war strategic management for Ukrainian agrarian enterprises, taking into account the requirements of deeper integration into the European Union (EU). The research is based on an analysis of scientific publications and reports (2022–2025) and employs structural analysis of statistics and expert assessments. It was analyzed the impact of military actions on the agricultural sector – the destruction of infrastructure, mine-contaminated land, and export blockades – and confirm the sector's resilience. Ukrainian farmers have quickly adapted through technological innovations and by diversifying distribution routes. The proposed model is the "3R" model (Recovery – Resilience – Reintegration): Recovery – restoration, Resilience – resilience, Reintegration – reintegration. This is a phased framework that allows combining short-term and long-term objectives for sector recovery and EU integration, ensuring systematic and sequential decision-making during the crisis period, and enabling the industry to adapt to new market, technological, and EU regulatory conditions. At the Recovery stage, the priority is the rebuilding of logistical networks and production capacities. At the Resilience stage, the focus is on implementing innovations, risk management, and ecological balance. At the Reintegration stage, it is the full entry into the EU free trade area and harmonization with European standards. Practical recommendations include coordinating state support with the requirements of the EU's Common Agricultural Policy (CAP) and investing in infrastructure and human capital development. The scientific novelty of the model is in the comprehensive integration of wartime reconstruction and European integration processes. The practical value lies in creating a clear "road map" of strategic measures for government bodies and businesses to ensure the sustainable revival of the agro-industrial complex.

Keywords: agrarian sector; post-war recovery; innovation; resilience; European integration; strategic management.

DOI: 10.32434/2415-3974-2025-22-2-106-113

Introduction and problem statement

The agricultural sector of Ukraine has traditionally served as a mainstay of the economy. Prior to the 2022 invasion, it constituted about 40% of foreign currency earnings and a notable share of GDP. The war, however, inflicted severe losses on the agricultural sector: The Kyiv School of Economics and the World Bank estimate direct damages at $11.2 billion and total losses at about $72.7 billion [1; 2]. Additionally, the conflict destroyed key logistical infrastructure (roads, bridges, ports, elevators) and rendered millions of hectares unusable due to landmines. At the same time, heightened food security risks and deteriorating macroeconomic conditions have placed the strategic management of post-war reconstruction of agrarian enterprises at the forefront, amid emerging challenges and evolving international requirements.

Ukraine is a historically agrarian world leader: before the war, the sector accounted for about 20% of GDP, one-third of jobs, and almost half of foreign currency receipts. The Russian invasion of 2022 triggered a deep crisis: production and exports collapsed, food security became critical, and rural regions entered a socio-economic storm. Hostilities and occupations destroyed infrastructure, markets, and resources, while mine contamination and munitions pollution created long-term barriers to recovery. The Kyiv School of Economics (KSE) and the World Bank estimate direct damage at $11.2 billion and total losses at $72–80 billion. The area of arable land dropped by 2.4 million hectares, from 32.7 million to 30.3 million, in one year [3]. Now, the challenge is not just restoration but the future of the sector and its environmental and social resilience. Revolutionary strategic management is required under chaos and uncertainty, underscoring the relevance of this research.

The concept of sustainable development of the agricultural sector, which implies a harmonious combination of economic, ecological, and social priorities, gains particular importance for Ukraine – especially in light of the commitments the state has undertaken under the EU Association Agreement and the European Green Deal. On the one hand, post-war reconstruction aims to ensure the country's food security and to restore economic growth and the export potential of the agricultural sector. On the other hand, a unique opportunity arises to "reset" the industry on principles of sustainable development by introducing innovations, environmentally safe technologies, and new socially oriented business models. Accordingly, this research aims to outline the strategic priorities and managerial decisions that will enable Ukraine's agrarian enterprises to successfully recover after the war and simultaneously transform in line with the Sustainable Development Goals and European integration requirements.

Analysis and research of publications

The issues of recovery and sustainable development of the agricultural sector under wartime conditions have attracted significant attention from scholars and experts during 2022–2025. Strategic management in the transformation of the agricultural sector is studied by both Ukrainian and foreign researchers. In the post-crisis, post-war context, adaptive management models, increased enterprise resilience, and integration into European markets are highlighted. M. Zhuk, O. Harafonova, and V. Stavnichuk [4; 5] examine the institutional foundations of the agri-sector's transformation and strategic planning at the national level. V. Levitskyi [6] emphasizes the need to implement integrated management models for enterprises during the transition period. T. Kharchenko and O. Lahodienko [7; 8] investigate sustainable development and digital transformation of agricultural production in the context of European integration. M. Petrick, K. Radlicska, as well as reports by the OECD and the European Commission [9–12], provide a comparative analysis of agricultural support in Central and Eastern European countries that have undergone post-conflict integration into the EU. Their findings help adapt effective approaches to Ukrainian realities. Thus, the scientific and expert output provides a foundation for formulating a strategy for post-war development of agrarian enterprises, synchronizing the efforts of the state, business, and international partners.

However, the question of comprehensive strategic management of agrarian enterprises in the phased implementation of the 3R model (Recovery – Resilience – Reintegration) in the context of European integration challenges remains underexplored, underscoring the need for further research.

The purpose of the article

The aim of this article is to develop and methodologically substantiate comprehensive models of post-war strategic management for Ukrainian agrarian enterprises that integrate the task of restoring production capacities with the implementation of Euro-integration requirements, and to formulate practical recommendations for government authorities and businesses.

Presentation of the main material

Based on the conducted analysis, we propose a conceptual "3R" model (Recovery – Resilience – Reintegration) as a phased framework for the strategic recovery of agrarian enterprises. In this model, the Recovery phase focuses on the immediate restoration of productive and logistical capacities; the Resilience

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phase aims to strengthen adaptive ability, support innovation, and enhance risk management; the Reintegration phase is dedicated to aligning enterprise operations with EU standards and gaining access to the EU market. In designing this framework, key aspects of strategic management must be taken into account:

– the economic aspect of post-war agrarian management centers on restoring production and finances, bolstering business resilience, and strengthening market position. The war caused major losses, including the destruction or damage of machinery, warehouses, processing facilities, and logistics infrastructure. Beyond these, reduced harvests, blocked markets, and higher resource costs created further losses (totaling around $70 billion). Financial support for producers is thus essential for operational restoration;

– innovations: innovation plays a crucial role in transforming agrarian enterprises in the post-war period, enabling simultaneous improvements in production efficiency, reduced dependence on manual labor, and compensation for resource shortages. One lesson of the war has been the necessity of maximum technological development of the agricultural sector – enterprises that had previously invested in modern technologies have proven more resilient and productive even under crisis conditions. The concept of "smart" agriculture is being implemented at an accelerated pace in the Ukrainian agro-sector. Large agroholdings and progressive farmers are actively using precision agriculture technologies: GPS-guided machinery, drones for field monitoring, and IoT sensors for tracking soil moisture and crop conditions. In the post-war period, when every hectare and every ton of produce counts, the digitalization of processes – from planting to marketing – becomes a necessary condition for competitiveness;

– environmental approach: the war has turned the agrosphere into an ecological disaster zone. Soil contamination, fuel spills, destroyed windbreaks, and damaged topsoil are massive consequences [12]. Any recovery strategy must bring the ecological component to the forefront;

– social orientation: the social component of sustainable development for agrarian enterprises is no less important, as the recovery of the sector directly impacts the well-being of the population, the development of rural communities, and food security. The war has caused large-scale demographic and social changes in rural areas: part of the workforce has been mobilized or killed, and many people have left abroad or become internally displaced. In such conditions, staffing and social cohesion are critical factors for the successful recovery of agrarian enterprises.

It can be identifying three key stages of reconstruction. These are the "Recovery" stage, the "Resilience" stage (building resilience through innovative changes), and the "Reintegration" stage (full entry of Ukrainian agricultural producers into the European market). Each stage has its own priority tasks:

Stage "Recovery": the main task is the rapid restoration of infrastructure and production. Key measures at this stage include repairing and modernizing transportation routes (roads, railways, ports, elevators), land reclamation and demining of fields, providing financial support to farmers (credits, subsidies, tax relief), and investing in updated machinery and equipment. Implementing these steps will allow the swift restoration of sowing areas and logistic chains. Emergency financial support to farmers through preferential loans, recovery grants, and compensation for losses plays an important role. For example, international financial institutions together with donor country governments have launched concessional lending programs for Ukrainian agricultural producers. Providing access to cheap financing helps maintain farm operations even under unstable conditions. In parallel, to prevent a food crisis, it is critically important to establish functional export channels. In 2022, the EU and Ukraine launched the "Solidarity Lanes" initiative, opening alternative routes through the western borders – by rail, road, and via ports on the Danube. These logistic corridors have become a true "lifeline" for the Ukrainian agro-economy: from May 2022 to September 2025, they were used to export nearly 199 million tons of Ukrainian goods (including over 95 million tons of agricultural products). According to the European Commission, by the end of 2025, the "Solidarity Lanes" will account for about 20% of Ukraine's grain exports (the remaining ~80% will be exported through Black Sea ports, if they are operational). In addition to the immediate economic effect, such measures lay the foundation for long-term integration: the created logistic infrastructure and simplified border procedures will facilitate trade with the EU in the future. Thus, the Recovery stage is a time of urgent action to rebuild and restart agricultural production, requiring maximum coordination among the state and international partners. An important aspect of this stage is also humanitarian: supporting the rural population, providing food aid to the most affected communities, and returning people to work. A key component of the economic strategy is attracting investment to restore and modernize the sector. Despite wartime risks, Ukraine's agricultural sector

demonstrates potential that sustains investor interest. Creating favorable conditions for domestic and foreign investment is a key cross-sectoral priority that must remain central at all stages. Ultimately, the successful implementation of measures in the Recovery stage will halt the sector's further decline and provide a starting point for its gradual development.

Stage "Resilience" (building resilience): this stage aims to increase the agricultural sector's adaptive capacity, long-term stability, and competitiveness. At this stage, innovative technologies (precision agriculture, agricultural drones, digital monitoring) are implemented, risk management mechanisms are improved (expanded crop insurance, use of financial instruments, etc.), and an ecologically sustainable approach is introduced (crop rotation, reuse of bio-waste, organic fertilizers). After restoring the sector's basic functions, the focus shifts to structural transformations, innovation-driven development, and adaptation to new conditions. Among the priorities is diversification – both product diversification (growing high-value-added crops, developing niche sectors, and processing agricultural raw materials) and market diversification (accessing new export markets and reducing dependence on individual trading partners). It is worth continuing the logistic innovations initiated during the war: increasing the throughput of western border crossings, developing the Danube grain corridor, and establishing a network of transshipment hubs. The development of cooperation and clusters at the local level plays an important role in enhancing resilience. The consolidation of small farmers into marketing and service cooperatives enables them to be more effectively integrated into value chains and to improve access to equipment, storage, and markets. A number of international projects already support such initiatives. In particular, under the EU4Business program, the development of local agricultural clusters is being financed (for example, the creation of a dairy-berry cluster in the Pyriatyn community), which contributes to youth employment and to sales of products from remote villages. Innovations and digitalization remain leading drivers at the stage of resilience building. Agrarian enterprises should invest in modern technologies (precision agriculture, machinery automation, IT management solutions), as this increases productivity and reduces dependence on the human factor. State programs and donor funds can provide grants and tax incentives for implementing AgTech solutions on farms. There are already positive examples in Ukraine: domestic agri-startups are attracting investments to develop spraying drones, soil-monitoring sensor systems, electronic platforms for farmers, and so on. Financial stability of enterprises is also a focus at this stage. It is necessary to build an agricultural insurance system (including crop insurance against weather and war risks), create reserve funds, and more actively attract private capital. International partners are already implementing business support programs: for example, the EU's "SME Recovery Program" provides guarantees and grants to Ukrainian small and medium-sized enterprises, helping them invest in development and enter new markets.

Stage "Reintegration" (integration and development): this stage involves the full adaptation of agrarian enterprises to European standards and regulations, the full integration of Ukraine's agricultural sector into the EU economic space, and the long-term development of the industry. The 2017 Association Agreement laid the foundation for these changes by creating a deep free trade area and increasing exports of Ukrainian agricultural products. At this stage, Ukraine is expected to gradually integrate into the EU's common agricultural market by taking advantage of opportunities to participate in CAP support programs and by attracting European investments and technologies. Meanwhile, Ukrainian agribusiness faces significant challenges: it must meet numerous requirements – from raising product quality and traceability standards (in line with DGSANTE regulations) to complying with environmental regulations and animal welfare standards (in line with the principles of the Farm to Fork initiative and the European Green Deal). For example, the European Green Deal sets ambitious targets: reducing the use of chemical pesticides by 50%, cutting fertilizer application by at least 20%, and increasing organic farmland to 25% by 2030. Ukraine should gradually adopt these targets as benchmarks and adapt its national agricultural policy accordingly. Initial steps have already been taken: legislation on seeds and agrochemicals has been harmonized, agreements on mutual recognition of product certificates have been signed, and Ukrainian farmers receive guidance on participating in European environmental schemes. The integration process is planned for several years, during which the Ukrainian government, together with the EU, will implement special support programs for producers, from investment grants for farm modernization to training workshops on EU market requirements. Significant financial support for these processes is expected from a new EU instrument – the "Ukraine Facility" for 2024–2027, under which up to □50 billion is planned to be allocated for reconstruction, reforms, and preparing Ukraine for EU membership [13-15]. Thus, the Reintegration stage involves, in parallel, internal transformations (institutional reforms, improving the efficiency of agricultural policy, refining the state

support system in line with CAP requirements) and external integration with the European Union (trade, investment, regulatory integration). At the same time, the focus remains on innovative and climate-resilient development: introducing clean technologies, adapting to climate change (a common priority for Ukraine and the EU under the European Green Deal), and building the processing industry's capacity to export high-value-added products. It is projected that by the fifth year after the war, Ukraine's agricultural sector will be fully reintegrated into world markets and maximally aligned with EU structures. This will be an indicator not just of the restoration of pre-war production volumes, but of a qualitative transformation of the industry – transition to European quality standards, a significant increase in productivity, and an expansion of the presence of Ukrainian brands in the global food market.

Conclusions

The study emphasizes that post-war reconstruction of Ukraine's agricultural sector must be based on a phased, strategic approach that takes into account EU integration commitments. The proposed 3R model is scientifically novel in that it combines the elements of reconstruction and EU integration into an integrated concept of strategic development. The practical significance of the work lies in the formulation of a clear "road map" of measures for government bodies and agribusiness – especially regarding the prioritization of resources for infrastructure reconstruction, innovation development, and adaptation to European standards - which will help increase the competitiveness of domestic agrarian enterprises.

In addition, when implementing the 3R model, it is necessary to consider the different capabilities and needs of agrarian enterprises depending on their scale. Small farms are the most vulnerable: they have limited financial reserves and therefore require targeted support (subsidies, micro-grants, accessible loans) at the Recovery stage to restore production. The state and international donors should pay special attention to this category – for example, special EU programs (such as EU4Business) are aimed at helping affected small farms invest in development and enter export markets. Medium-sized agribusinesses are more diversified and institutionally developed, but for them too, access to financing and markets remains critical. At the Resilience stage, it is important for medium enterprises to utilize available credit and insurance programs, expand sales channels (including through cooperatives), and adopt quality standards required to access the European market. Large agroholdings have more internal resources and are more easily able to attract investment, allowing them to rebuild faster and implement innovations. However, even large companies depend on macro conditions – stability of tax policy, trade agreements, and state support for exports. At the Reintegration stage, these large exporters will become the "locomotives" of integration into European markets, but they must meet EU regulatory requirements (production certification, compliance with quotas, and environmental norms).

Thus, the recovery strategy for the agricultural sector must adopt a differentiated approach: for small producers, maximum support and protection; for medium producers, creating conditions for growth; and for large producers, stimulating investment and encouraging their responsibility for the industry's overall development. This will enable balanced growth and socio-economic stability in rural areas.

Implementing the strategic priorities will require the consolidation of efforts by the state, business, and the international community. State agricultural policy must become more flexible and proactive, covering measures from supporting innovation to insuring investors against wartime risks. Agrarian enterprises, in turn, need to update their development strategies, taking into account lessons from the war and sustainability principles. International partners have already played an important role in financial and expert support for the reconstruction of Ukraine's agro-sector, and continued partnership will be key to the successful implementation of the identified strategic priorities. The implementation of the proposed approaches will not only restore agricultural production to pre-war levels but will also elevate it to a qualitatively new level that meets modern challenges and ensures Ukraine's food and economic security for decades to come.

Future research directions include a more detailed elaboration and adaptation of these strategic priorities, as well as the development of mechanisms for practical implementation of the outlined approaches at the level of individual enterprises and state policy.

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Received 20.09.2025.
Revised 01.10.2025.
Accepted 20.11.2025.
Published 25.12.2025.

СТРАТЕГІЧНІ МОДЕЛІ УПРАВЛІННЯ АГРАРНИМИ ПІДПРИЄМСТВАМИ УКРАЇНИ У ПОВОЄННИЙ ПЕРІОД В УМОВАХ ПОГЛИБЛЕННЯ ЄВРОІНТЕГРАЦІЇ

Чуприна В.В.

Негайна відбудова аграрного сектору України після війни є критичною. Конфлікт завдав галузі масових збитків. За оцінками, втрати агросектору сягають десятків мільярдів доларів США. Мільйони гектарів оброблюваних земель виведені з обігу через мінування. За таких умов потрібні нові моделі стратегічного управління. Вони мають поєднувати відновлення виробництва та адаптацію до європейських стандартів. Метою статті є розробка концептуальних моделей повоєнного стратегічного управління агропідприємствами України з урахуванням вимог глибшої інтеграції до ЄС (Європейський Союз). Дослідження базується на аналізі наукових публікацій і звітів (2022−2025/ рр.). Використано структурний аналіз статистики та експертних оцінок. Проаналізовано вплив воєнних дій на агросектор: руйнування інфраструктури, мінування ґрунтів, блокаду експорту. Підтверджено стійкість галузі. Українські аграрії оперативно адаптувалися через технологічні інновації і диверсифікацію маршрутів збуту. Запропоновано модель «3R» (Recovery−Resilience−Reintegration): Recovery − відновлення, Resilience − стійкість, Reintegration − реінтеграція. Це поетапна рамка управління. На етапі Відновлення пріоритет − відбудова логістичних мереж і виробничих потужностей. На етапі Стійкість − впровадження інновацій, управління ризиками та екологічна збалансованість. На етапі Реінтеграція − повне входження

Strategic management models for Ukrainian agrarian enterprises in the post-war period of deepening European integration

в зону вільної торгівлі з ЄС і гармонізація з європейськими нормами. Практичні рекомендації включають координацію держпідтримки з вимогами САП ЄС (Спільна аграрна політика Європейського Союзу), інвестування в інфраструктуру та розвиток людського капіталу. Наукова новизна моделі у комплексному об'єднанні процесів воєнної реконструкції та євроінтеграції. Практичне значення – створення чіткої дорожньої карти стратегічних заходів для державних органів і бізнесу. Це забезпечить стале відродження агропромислового комплексу.

Ключові слова: аграрний сектор; післявоєнне відновлення; інновації; стійкість; євроінтеграція; стратегічне управління.

STRATEGIC MANAGEMENT MODELS FOR UKRAINIAN AGRARIAN ENTERPRISES IN THE POST-WAR PERIOD OF DEEPENING EUROPEAN INTEGRATION

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Immediate reconstruction of Ukraine's agricultural sector after the war is critical. The conflict has inflicted massive damage on the industry, and estimates suggest losses in the tens of billions of US dollars. Millions of hectares of arable land have been taken out of production due to landmines. Under these conditions, new strategic management models are needed that combine production recovery with adaptation to European standards. The aim of this article is to develop conceptual models of post-war strategic management for Ukrainian agrarian enterprises, taking into account the requirements of deeper integration into the European Union (EU). The research is based on an analysis of scientific publications and reports (2022–2025) and employs structural analysis of statistics and expert assessments. It was analyzed the impact of military actions on the agricultural sector – the destruction of infrastructure, mine-contaminated land, and export blockades – and confirm the sector's resilience. Ukrainian farmers have quickly adapted through technological innovations and by diversifying distribution routes. The proposed model is the "3R" model (Recovery – Resilience – Reintegration): Recovery – restoration, Resilience – resilience, Reintegration – reintegration. This is a phased framework that allows combining short-term and long-term objectives for sector recovery and EU integration, ensuring systematic and sequential decision-making during the crisis period, and enabling the industry to adapt to new market, technological, and EU regulatory conditions. At the Recovery stage, the priority is the rebuilding of logistical networks and production capacities. At the Resilience stage, the focus is on implementing innovations, risk management, and ecological balance. At the Reintegration stage, it is the full entry into the EU free trade area and harmonization with European standards. Practical recommendations include coordinating state support with the requirements of the EU's Common Agricultural Policy (CAP) and investing in infrastructure and human capital development. The scientific novelty of the model is in the comprehensive integration of wartime reconstruction and European integration processes. The practical value lies in creating a clear "road map" of strategic measures for government bodies and businesses to ensure the sustainable revival of the agro-industrial complex.

Keywords: agrarian sector; post-war recovery; innovation; resilience; European integration; strategic management.

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