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**MANAGEMENT OF PROGRAM DEVELOPMENT OF INTEGRATED STRUCTURES
OF JOINT ENTERPRISES IN THE CONDITIONS OF POST-WAR ECONOMIC
RECOVERY OF UKRAINE**

The study presents results on the management of program development of integrated structures of joint enterprises, identifies the main aspects of the management system. Integrated ecosystems of joint enterprises in the conditions of post-war economic recovery are an attempt to position a kind of innovative form of doing business, present the connections of public-private partnership, substantiate the priorities and limitations of the adaptive management structure. Integrated structures of joint enterprises are formed for a specific purpose, in particular, this is the conquest of new market sectors or reducing costs. These factors are significant in increasing the value of enterprises, its capitalization, which is why the effectiveness of management of the system as a whole, and not only the managing enterprise, is substantiated. In connection with the development of business processes, integrated structures of joint enterprises are faced with the issue of streamlining the adaptive management structure. It is proven that it is the integrated system that has a certain synergistic management potential, which is determined by the level of coherence of elements and subsystems of joint enterprises, the ability to adapt to changes in the economic environment. The management of the program development of integrated structures of joint enterprises in post-war Ukraine will be based on the creation of flexible industrial consortia, digitalization of processes and attraction of investments for restoration of production potential. The main attention is paid to the synergy of joint assets, effective planning and implementation of innovations, which ensures sustainable growth, modernization and European integration. The development of integrated structures of joint enterprises is critical for economic recovery, allowing to combine resources for large-scale reconstruction and modernization projects, turning industrial complexes into driving forces of economic growth of Ukraine.

Keywords: *innovations; integrated structures; integration policy; modeling; enterprises; management; synergy.*

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**УПРАВЛІННЯ ПРОГРАМНИМ РОЗВИТКОМ ІНТЕГРОВАНИХ СТРУКТУР
ОБ'ЄДНАНИХ ПІДПРИЄМСТВ В УМОВАХ ПОВОЄННОГО ВІДНОВЛЕННЯ
ЕКОНОМІКИ УКРАЇНИ**

В дослідженні наведено результати щодо управління програмним розвитком інтегрованих структур об'єднаних підприємств, визначено основні аспекти системи управління. Інтегровані екосистеми об'єднаних підприємств в умовах повоєнного відновлення економіки є спробою позиювання своєрідної інноваційної форми ведення бізнесу, представлення зв'язків державноприватного партнерства, обґрунтування пріоритетів та обмежень структури адаптивного управління. Інтегровані структури об'єднаних підприємств утворюються для певної мети, зокрема, це завоювання нових секторів ринку або зниження витрат. Дані чинники є вагомим у підвищенні вартості підприємств, її капіталізації, саме тому обґрунтовано ефективність управління системи в цілому, а не лише підприємства, що управляє. У зв'язку з розвитком бізнес-процесів

інтегровані структури об'єднаних підприємств, зіштовхуються з питанням упорядкування структури адаптивного управління. Доведено, що саме інтегрована система володіє певним синергійним управлінським потенціалом, який визначається рівнем узгодженості елементів та підсистем об'єднаних підприємств, можливостями пристосування до змін економічного середовища. Управління програмним розвитком інтегрованих структур об'єднаних підприємств у повоєнній Україні базуватиметься на створенні гнучких індустріальних консорціумів, цифровізації процесів та залученні інвестицій для відновлення виробничого потенціалу. Основну увагу приділено синергії об'єднаних активів, ефективному плануванню та впровадженню інновацій, що забезпечує стаке зростання, модернізацію та євроінтеграцію. Розвиток інтегрованих структур об'єднаних підприємств є критичним для відновлення економіки, дозволяючи об'єднати ресурси для масштабних проектів відбудови та модернізації, перетворюючи промислові комплекси на рушійні сили економічного зростання України.

Ключові слова: інновації; інтегровані структури; інтеграційна політика; моделювання; підприємства; управління; синергія.

Problem statement. In the world, integration policy is considered as a key tool for increasing the competitiveness of industries and regions, developing the innovative potential and the post-war economy of the country. This is explained by the fact that the majority of competitive products – goods and services are formed within the framework of integrated structures of joint enterprises.

Unresolved parts of the problem. The key elements of the integration ecosystem of joint enterprises are the main components that ensure its effective functioning and development. They include infrastructure, human capital and partnership, each of which plays an important role in creating a sustainable innovation environment of joint enterprises.

Analysis of scientific publications on the problem. According to the research of the European Cluster Observatory, 70 integrated structures of combined enterprises operate in the territory of European states that are members of the EU, with different levels of innovative development, export volumes, wages and forms of association.

Given the analytical results of international studies, which indicate an increase in the level of competitiveness within associations, it seems appropriate to consider the main prerequisites and factors of the formation and development of integrated structures in the conditions of post-war economic reconstruction.

Presentation of the main material. Program development of integrated structures is a strategic approach to the formation and management of associations of enterprises (corporations, consortia, clusters, alliances) through the implementation of special target programs.

It is based on partnership, innovative integration and is aimed at increasing competitiveness, optimizing resources and ensuring sustainable development.

Key aspects of program development:

- Development of targeted measures for the development of integrated entities in the long term.
- Implementation of innovative technologies, creation of joint research centers and technological platforms.
- Especially relevant for the agro-industrial complex, where the development of structures (vertical and horizontal) improves value chains.
- Financial mechanisms, infrastructure support, information technologies and personnel management.

Such development ensures increased stability of integrated structures in the context of globalization and increases the efficiency of using internal resources.

The continuity of the management process of integrated structures of joint enterprises makes it possible to talk about a management cycle. The following stages of the management cycle are usually distinguished [1]:

- 1) definition of management goals;
- 2) development and adoption of management decisions based on the study of practice and trends in the behavior of the managed object;
- 3) organization of the implementation of the decision, which involves bringing it to the managed object, ensures the support of a stable relationship between the managing and managed systems and between their elements, and also creates the necessary prerequisites for the implementation of the decision;
- 4) monitoring the implementation and evaluation of management results in order to develop information for making a new management decision.

Management of program development of integrated structures of joint enterprises in the conditions of post-war recovery of the economy of Ukraine is a comprehensive, scientifically based process of formation, coordination and implementation of strategic programs aimed at restoration, modernization and increase of competitiveness of industrial and economic potential of Ukraine after military actions.

This approach is critically important for organizing the activities of groups of enterprises (holdings, clusters, corporations) in order to achieve a synergistic effect, attract investments and effectively use resources.

Key components of this management include:

Strategic recovery planning: Formation of target programs that transform destroyed infrastructure into modern, innovative production on the basis of a green economy.

Integration and synergy: Combining production, scientific and financial resources of several enterprises to jointly solve complex tasks, which increases their resilience.

Digital transformation: Introduction of modern IT tools (for example, the DREAM system for monitoring recovery) for transparency and efficiency of project management.

Public-private partnership: Interaction of integrated structures with the state and international financial organizations (IFOs) to attract financing.

Smart specialization: Focusing on industries that have the highest potential for rapid growth and competitiveness in the European market.

Ukraine's strategic recovery planning is based on the principle of "build back better", transforming the destroyed infrastructure into modern, innovative and environmentally friendly production. This involves a transition from the energy-intensive Soviet model to a green economy integrated into the European Green Deal.

The key principles for the formation of targeted transformation programs are as follows:

1. Fundamental principles of green recovery.

Decarbonization and energy efficiency: Focus on reducing greenhouse gas emissions by 65% by 2030 (compared to 1990) and achieving climate neutrality by 2050.

Circular economy (Closed Loop): Recycling construction waste from destroyed buildings to produce new construction materials.

Decentralization of the energy system: Transition from large thermal power plants to a network of renewable energy sources (RES) and the use of biomethane.

2. Targeted infrastructure transformation programs.

"Green industrial parks": Creation of industrial parks where enterprises exchange resources, energy and by-products, reducing the environmental footprint.

Transformation of mining regions: Diversification of the economy of communities dependent on the coal industry through the development of green energy and creation of new jobs.

Digitalization of industry: Implementation of industry 4.0, automation of production to increase their efficiency and reduce resource use.

3. *Technological innovations in production.*

Production of "green" steel and cement: Modernization of metallurgical enterprises using direct iron reduction (DRI) and carbon capture (CCUS) technologies.

Eco-construction: Use of energy-efficient materials, structures from renewable resources and certified according to LEED/BREEAM standards in the reconstruction of housing and social facilities.

4. *Implementation tools (Programmatic approach).*

Ukraine Facility (EU): Financial support aimed at reforms and green investments.

UNIDO projects: Launch of the "Green Industrial Recovery Program 2024–2028", supporting biomethane and green technologies.

NEFCO Green Recovery Programme: Direct financing of municipalities for the environmental modernization of public infrastructure.

DREAM digital platform: Transparent accounting of destroyed and restored facilities based on ESG standards.

The strategic goal is to transform Ukraine from an exporter of raw materials to a producer of technological, environmentally friendly goods integrated into European value chains.

Increasing resilience:

Integrated structures demonstrate higher adaptability to external shocks (crises, military actions) due to the ability to quickly redistribute resources, optimize supply chains, and share risks between participants.

Advantages of integration:

Economic effect: Reduction of transaction costs and optimization of taxes.

Innovative development: The combination of scientific potential creates the prerequisites for competitiveness.

Marketing power: Expansion of sales markets and better control over the value chain.

Digital transformation is a fundamental change in business models, processes and corporate culture through the implementation of digital technologies. It is not just digitizing data, but a complete reorganization of work to increase efficiency, innovation and improve customer experience. In Ukraine, this process is actively supported by the state.

Key aspects of digital transformation:

Strategy change: Transition from traditional methods to digital work models.

Technology integration: Use of modern solutions (AI, robotic process automation - RPA) in all areas of activity.

Cultural transformation: Changing the mindset of employees and corporate culture.

Customer focus: Rethinking and improving customer experience.

Conclusions and prospects of research. The main goal of Ukraine's post-war reconstruction management is not simply to rebuild the destroyed infrastructure, but to radically transform the economy into a new European model based on the principles of sustainable development, a green economy, and digitalization.

This strategy, often described as "Build Back Better", includes the following key aspects:

European integration and modernization: Orientation to European Union standards, which involves the modernization of production facilities and transport systems, the introduction of energy-efficient technologies, and the abandonment of outdated energy-intensive methods.

"Green" transformation (Decarbonization): Transition to a low-carbon economy, decentralization of the energy system, and the active use of renewable energy sources.

Sustainable development: Reconstruction that meets the needs of the current generation without compromising the needs of future generations, taking into account environmental, social, and economic interests.

Smart Specialization: Using approaches that allow for effective mobilization of investments, grants and other assistance for sustainable development of regions.

Institutional changes: Creating a transparent recovery management system, transparent reconstruction, involving civil society and digitalizing processes.

Recovery is aimed at creating a sustainable, competitive economy integrated into the European space.

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