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MOSTENSKA T.L. Doctor of economic sciences, professor, professor of the department of administrative management and foreign economic activity, national university of life and environmental sciences of Ukraine (Ukraine),

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Marchuk V.Ye. Doctor of Technical Sciences, Professor, Professor of the Department of International Business and Logistics, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute." (Ukraine)

ORCID – 0000-0003-0140-5416
Researcher ID S-6514-2018
Scopus author id: – 57212323045
E-Mail: v.marchuk.kpi@gmail.com

Zelinska M.V. Master's degree seeker of the Department of International Business and Logistics, National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute» (Ukraine)

ORCID – 0009-0004-6614-1620
Researcher ID –
Scopus author id: –
E-Mail: m.zelinska09@gmail.com

Rezanko O.V. Master's degree seeker of the Department of International Business and Logistics, National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute» (Ukraine)

ORCID – 0009-0005-7220-8913
Researcher ID –
Scopus author id: –
E-Mail: olyarezanko@gmail.com

TRANSFORMATION OF THE MANAGEMENT SYSTEM OF MATERIAL AND TECHNICAL SUPPLY OF DEFENSE INDUSTRY ENTERPRISES UNDER CONDITIONS OF DIGITALIZATION AND WARTIME ECONOMY

Volodymyr Marchuk, Marharyta Zelinska, Olha Rezanko. «*Transformation of the management system of material and technical supply of defense industry enterprises under conditions of digitalization and wartime economy*». This paper substantiates the theoretical and methodological foundations and develops practical approaches to the transformation of the management system of material and technical supply (MTS) of defense industry enterprises in Ukraine under conditions of digitalization and a



wartime economy. The aim of the study is to develop a comprehensive transformation model capable of enhancing resource flow management efficiency and the resilience of logistics systems.

The methodological framework is based on systemic, comparative, and structural-functional approaches, as well as methods of analysis and generalization, which made it possible to assess the current state of MTS systems and identify key challenges. It is established that the existing system is characterized by low coordination, limited adaptability, fragmented management, and insufficient digitalization.

The generalization of NATO countries' experience allowed identifying key directions for adapting modern logistics models to Ukrainian conditions. The scientific novelty of the study lies in the development of a conceptual transformation model based on the principles of integration, digitalization, adaptability, and interoperability with NATO standards, as well as in combining centralized strategic planning with decentralized operational management.

The feasibility of implementing a unified digital resource management platform, developing decentralized logistics, and applying advanced digital technologies (LogFAS, RFID, data analytics) is substantiated. These solutions enable real-time resource monitoring and support data-driven decision-making.

The practical significance of the results lies in defining directions for improving resource flow management efficiency, ensuring transparency of logistics processes, reducing logistical gaps, and enhancing the resilience of defense industry enterprises under wartime conditions and post-war recovery.

Keywords: material and technical supply, defense industry, digitalization, logistics, NATO standards, resilience, resource management

Володимир Марчук, Маргарита Зелінська, Ольга Резанко. «Трансформація системи управління матеріально-технічним забезпеченням підприємств оборонно-промислового комплексу в умовах цифровізації та воєнної економіки». У статті обґрунтовано теоретико-методичні засади та розроблено практичні підходи до трансформації системи управління матеріально-технічним забезпеченням (МТЗ) підприємств оборонно-промислового комплексу (ОПК) України в умовах цифровізації та воєнної економіки. Метою дослідження є формування комплексної моделі трансформації МТЗ, здатної забезпечити підвищення ефективності управління ресурсними потоками та стійкості логістичних систем.

Методологічну основу дослідження становлять системний, порівняльний та структурно-функціональний підходи, а також методи аналізу та узагальнення, що дозволили оцінити сучасний стан МТЗ підприємств ОПК та виявити ключові проблеми його функціонування. Встановлено, що існуюча система характеризується низьким рівнем координації, обмеженою адаптивністю, фрагментарністю управління та недостатнім рівнем цифровізації.

Узагальнення міжнародного досвіду країн НАТО дозволило визначити напрями адаптації сучасних логістичних моделей до українських умов. Наукова новизна дослідження полягає у розробці концептуальної моделі трансформації системи МТЗ, яка базується на принципах інтегрованості, цифровізації, адаптивності та сумісності зі стандартами НАТО, а також передбачає поєднання централізованого стратегічного та децентралізованого оперативного управління.

Обґрунтовано доцільність впровадження єдиної цифрової платформи управління ресурсами, розвитку децентралізованої логістики та використання сучасних цифрових технологій (LogFAS, RFID, аналітика даних), що забезпечують моніторинг ресурсів у режимі реального часу та підтримку управлінських рішень.

Практичне значення отриманих результатів полягає у визначенні напрямів підвищення ефективності управління ресурсними потоками, забезпеченні прозорості логістичних процесів,



скороченні логістичних розривів та підвищенні стійкості підприємств ОПК в умовах воєнних викликів і післявоєнного відновлення.

Ключові слова: матеріально-технічне забезпечення, оборонно-промисловий комплекс, цифровізація, логістика, стандарти НАТО, стійкість, управління ресурсами

Introduction. Under conditions of full-scale security challenges and the transition to a wartime economy model, the transformation of the management system of material and technical supply (MTS) of Ukraine's defense industry enterprises becomes particularly relevant. The current stage of defense industry development is characterized by profound institutional changes aimed at improving the efficiency of the sector, adapting it to a dynamic security environment, and integrating it into NATO standards [1]. In this context, material and technical supply serves as a key element determining the ability of enterprises to fulfill state defense orders in a timely and high-quality manner.

The growing importance of logistics and resource provision under conditions of geopolitical instability is substantiated by contemporary research, which defines military logistics as a fundamental basis for ensuring national defense capability and the effective functioning of the security sector [2]. At the same time, the transformation of the defense industry is accompanied by the implementation of innovative approaches to production organization, including digitalization, decentralization, and the integration of logistics processes into unified management systems [3].

Strategic approaches developed at the state level provide for the reform of the defense industry management system through the corporatization of enterprises, the introduction of transparent mechanisms of interaction with customers, as well as the digitalization of procurement and logistics processes [4, 5]. Particular importance is attached to the development of national production and the localization of critical technologies, which are considered key

prerequisites for ensuring the strategic autonomy of Ukraine's defense industry [6].

Thus, the transformation of the MTS management system should be based on the principles of digitalization, analytical transparency, and adaptive management of resource flows. The implementation of digital technologies and innovative logistics solutions creates the preconditions for improving resource utilization efficiency and enhancing the resilience of the defense industry under wartime economic conditions.

Literature and researches review. Contemporary scientific research confirms that the transformation of the material and technical supply (MTS) system in the defense industry is driven by the influence of the wartime economy and the digitalization of logistics processes. Military logistics is considered a key element in ensuring defense capability, integrating supply, transportation, and resource distribution processes into a unified management system.

Study [2] demonstrates that under conditions of increasing geopolitical instability, logistics is transforming into a strategic management function based on the principles of digitalization and integration of information systems. Emphasis is placed on the need to shift from traditional logistics models to adaptive systems capable of ensuring flexibility and rapid response to changes in the external environment.

Recent studies focus on the innovative aspects of transforming management systems under conditions of digitalization and wartime challenges. In particular, research [7] substantiates the decisive role of innovative changes in enterprise management systems as a driver of controlled transformation under the influence of both external and internal factors. At the same



time, studies [8] analyze improvements in MTS management at enterprises, emphasizing the need for timely and comprehensive resource provision, as well as the development of methods for cost and inventory control.

A number of studies [9–12] justify the transition to digital logistics management models, which involve the use of information systems, data analytics, and process automation. This contributes to increased transparency, efficiency, and resilience of MTS systems, as well as their integration with NATO standards.

In particular, the transition from paper-based to digital accounting systems is examined through the formation of an integrated digital ecosystem (DELTA, SOTA,

LOGFAS, "Korovai", SAP), which enables real-time resource monitoring, efficient planning, and coordination. The results indicate an increase in logistics transparency, particularly due to the implementation of barcode systems, reverse flow management, and multi-level supply systems [9].

In parallel, structural and mathematical models of logistics for the distribution of defense industry products are being developed, taking into account wartime risks, resource constraints, and reverse flows. These approaches are aimed at minimizing logistics cycle time, optimizing routes and resource allocation, and enhancing the resilience of supply to the Armed Forces of Ukraine through the application of scenario analysis [10].

Table 1. Comparative Characteristics of Scientific Models for MTS Management and Transformation

Model / Approach	Description	Key Elements	Advantages	Limitations
NATO Logistics Model (LogFAS, STANAG, NSPA) [13]	Integrated logistics management system in a multinational environment	Standardization (STANAG), digital platforms (LogFAS), cooperation (NSPA – NATO Support and Procurement Agency)	High interoperability, operational efficiency, scalability	Implementation complexity, high resource requirements
Integrated Logistics Support (ILS) [14]	Lifecycle management of material and technical supply	Planning, technical support, inventory management, maintenance	Systemic approach, lifecycle efficiency orientation	High integration complexity
Capability-Based Planning (CBP) [15]	Planning based on required capabilities	Threat analysis, capability identification, resource provision	Result-oriented, flexible	Complexity of capability assessment
New Public Management (NPM) [16]	Public sector reform based on market efficiency principles	Decentralization, accountability, efficiency, competition	Improved management efficiency	Risk of loss of centralized control
Digital Supply Chain / Industry 4.0 [17]	Digital transformation of logistics systems	ERP, RFID, AI, Big Data, IoT	Transparency, speed, decision-making accuracy	High investment costs, cybersecurity risks
Ukrainian Adaptive MTS Models [18]	Combination of Soviet legacy and NATO standards	Partial standardization, fragmented digitalization, defense industry reforms	Flexibility under wartime conditions	Low level of integration, fragmentation

Source: compiled by the authors based on [3-9; 12; 16].

A comparative analysis of modern MTS management models (Table 1) demonstrates

that each approach focuses on specific aspects of logistics system efficiency, ranging



from standardization and interoperability to digitalization and lifecycle management. NATO and Integrated Logistics Support (ILS) models form the foundation of integrated and systemic logistics, while Capability-Based Planning (CBP) ensures a strategic focus on capabilities. New Public Management (NPM) and digital transformation approaches enhance managerial efficiency and the technological component of the system. The synthesis of these models enables the development of a comprehensive concept for transforming Ukraine's MTS system, combining institutional, technological, and strategic components.

The NATO Digital Transformation Implementation Strategy [11] identifies key directions of transformation covering four interrelated domains: people, processes, technologies, and data. Particular attention is given to the development of real-time analytics, ensuring effective data exchange, standardization, and the integration of multi-domain operations (maritime, land, air, cyber, and space domains). The implementation of these approaches is aimed at enhancing the Alliance's capabilities, establishing a unified information space, and improving decision-making processes in logistics and operational management.

Study [12] substantiates the necessity of developing a logistics information system for the Armed Forces of Ukraine that is interoperable with NATO standards, including the use of systems such as DRMIS and LOGFAS. The authors analyze NATO requirements for logistics information systems and identify key tasks for their implementation. The findings reveal integration challenges of existing systems and confirm the feasibility of implementing interoperable solutions to improve the efficiency of logistics support for the Armed Forces of Ukraine.

Research on the reform of the defense industry also focuses on government initiatives, including the implementation of corporate governance models, improvement

of public procurement systems, and import substitution policies. Study [19] identifies disruptive factors in the logistics support system of the Armed Forces of Ukraine, particularly ineffective planning and coordination, and proposes measures to improve management quality. At the same time, study [20] substantiates a model for ammunition supply management in the defense industry, defining the subjects and objects of the process under wartime conditions.

The transformation of MTS systems is also examined in the context of international experience. Study [3] demonstrates the feasibility of adapting foreign approaches to the development of defense-industrial facilities, taking into account national characteristics and security challenges, which contributes to improving enterprise performance and technological capabilities.

Successful transformations of MTS systems in NATO countries demonstrate the effectiveness of decentralized logistics, digitalization, and multinational cooperation, serving as a model for Ukraine (Table 2). The United States and the United Kingdom have achieved significant efficiency improvements through automation and new management models, while the Czech Republic emphasizes innovative solutions for field operations. Joint NATO initiatives ensure resource synergy and enhance operational flexibility. These practices provide key benchmarks for the further transformation of Ukraine's MTS system [21, 22].

A distinct line of research focuses on the management and coordination of resource flows in the security and defense sector. Study [6] identifies that current challenges are associated with the insufficient effectiveness of strategic management and the need to improve planning and supply mechanisms under wartime conditions. The importance of implementing modern management approaches and enhancing coordination



among stakeholders within the supply system is emphasized.

The reform of the MTS system in the defense industry should take into account NATO standards, requirements for interoperability of weapons and military equipment, as well as the need to harmonize

procurement procedures and product quality control. In this context, the transformation of MTS management serves not only as a tool for improving the efficiency of internal processes but also as a critical factor in Ukraine's integration into international security systems.

Table 2. Comparison of Successful MTS Transformation Practices in NATO Countries

Country / Initiative	Key Tools	Main Approaches	Achieved Effect
United States	LogFAS, JCIDS, AI-based forecasting, 3D printing	Full digitalization, echeloned reserves, logistics automation	Reduction of delivery time by up to 40%
United Kingdom	DE&S, RFID tracking	Corporate governance, decentralized procurement	Efficiency increase by 25%
Czech Republic	Cargo UAVs, integration with LogFAS	Innovative logistics for special operations forces, field mobility	Improved operational efficiency of supply and evacuation
NATO (joint initiatives)	Multinational contracts, strategic transportation	Cooperation, integrated logistics support	Increased operational capability and flexibility

Source: compiled by the authors based on [21; 22].

Thus, the analysis of scientific sources indicates that the transformation of MTS management systems in defense industry enterprises is evolving toward digitalization, the implementation of integrated information systems, and the adaptation of logistics processes to the conditions of a wartime economy. Key trends include the transition to digital ecosystems for resource management, the use of data analytics, the automation of logistics processes, and the implementation of adaptive management models that take into account wartime risks.

At the same time, existing studies are largely focused on individual aspects of digitalization, logistics, or resource management, which necessitates the development of a comprehensive approach to the transformation of MTS systems in defense industry enterprises. Issues related to the integration of digital technologies into a unified resource management system, taking into account the requirements of a wartime economy, NATO standards, and the need to ensure logistics system resilience, remain insufficiently addressed.

This determines the relevance of further research aimed at developing an integrated model for transforming the MTS management system of defense industry enterprises under conditions of digitalization and wartime challenges.

Aim and objectives. The aim of this study is to substantiate the theoretical and methodological foundations and to develop practical directions for the transformation of the management system of material and technical supply (MTS) of Ukraine's defense industry enterprises under conditions of a wartime economy, digitalization, and post-war recovery.

To achieve this aim, the study addresses the following objectives:

- to assess the current state of MTS systems in defense industry enterprises and identify key challenges and risks under wartime conditions;
- to synthesize contemporary approaches to digitalization and develop a conceptual framework for an adaptive and integrated MTS management system aligned with NATO standards;



– to propose practical directions for improving MTS efficiency through digital technologies, resource flow optimization, and the application of international best practices.

Results, analysis and discussion. Material and technical supply (MTS) is a key component of the functioning of Ukraine's defense industry, as it ensures the alignment between the production capabilities of defense enterprises and the actual needs of the Armed Forces of Ukraine. Under current conditions, MTS performs not only a supporting but also a strategic function, forming the basis of national defense capability, the resilience of military operations, and the efficiency of resource utilization. In the context of full-scale war, the requirements for responsiveness, reliability, flexibility, and continuity of logistics processes significantly increase, highlighting the need to transform the existing MTS management system while simultaneously revealing a number of its systemic deficiencies (Fig. 1).

First, one of the key problems remains the insufficient level of coordination among the main MTS stakeholders, including defense enterprises, military authorities, and logistics structures. This situation is caused by the imperfection of defense planning procedures, their insufficient integration with the budget process, and the unclear distribution of responsibilities between the Ministry of Defense of Ukraine, the General Staff of the Armed Forces of Ukraine, and other stakeholders within the supply system. As a result, duplication of functions, inconsistency in managerial decisions, and inefficient use of material and financial resources arise [23]. Under wartime conditions, such imbalances lead to delays in the supply of weapons and military equipment, reduced responsiveness to frontline needs, and, consequently, a decrease in the operational capability of defense forces.

Second, the MTS system is characterized by limited adaptability of logistics processes, which is largely due to the persistence of a rigid hierarchical management model inherited from previous stages of development. This model complicates rapid decision-making and does not correspond to the dynamic nature of modern warfare, where resource requirements may change in real time. The lack of flexible mechanisms for resource reallocation and the insufficient level of decentralization result in temporary shortages of certain types of material and technical resources, negatively affecting the continuity of military supply.

Third, a significant constraining factor is the fragmentation of management across territorially distributed enterprises and infrastructure of the defense industry. A considerable number of production and storage facilities are located across different regions, requiring a high level of coordination and synchronization of material flows. At the same time, the absence of a unified logistics space and an integrated management system complicates centralized planning, control, and optimization of resource movement, which is particularly critical in large-scale and geographically dispersed supply systems [16]. This leads to increased logistics costs, prolonged logistics cycles, and reduced overall efficiency of the MTS system.

Fourth, an additional constraining factor is the insufficient level of digitalization of MTS management. The limited implementation of modern information systems, the absence of a unified digital resource management platform, and the low level of data integration do not allow for full monitoring of material flows, demand forecasting, and real-time decision support [9]. This reduces the transparency of supply processes, complicates control over resource utilization, and limits the application of advanced analytical tools, particularly big data technologies.

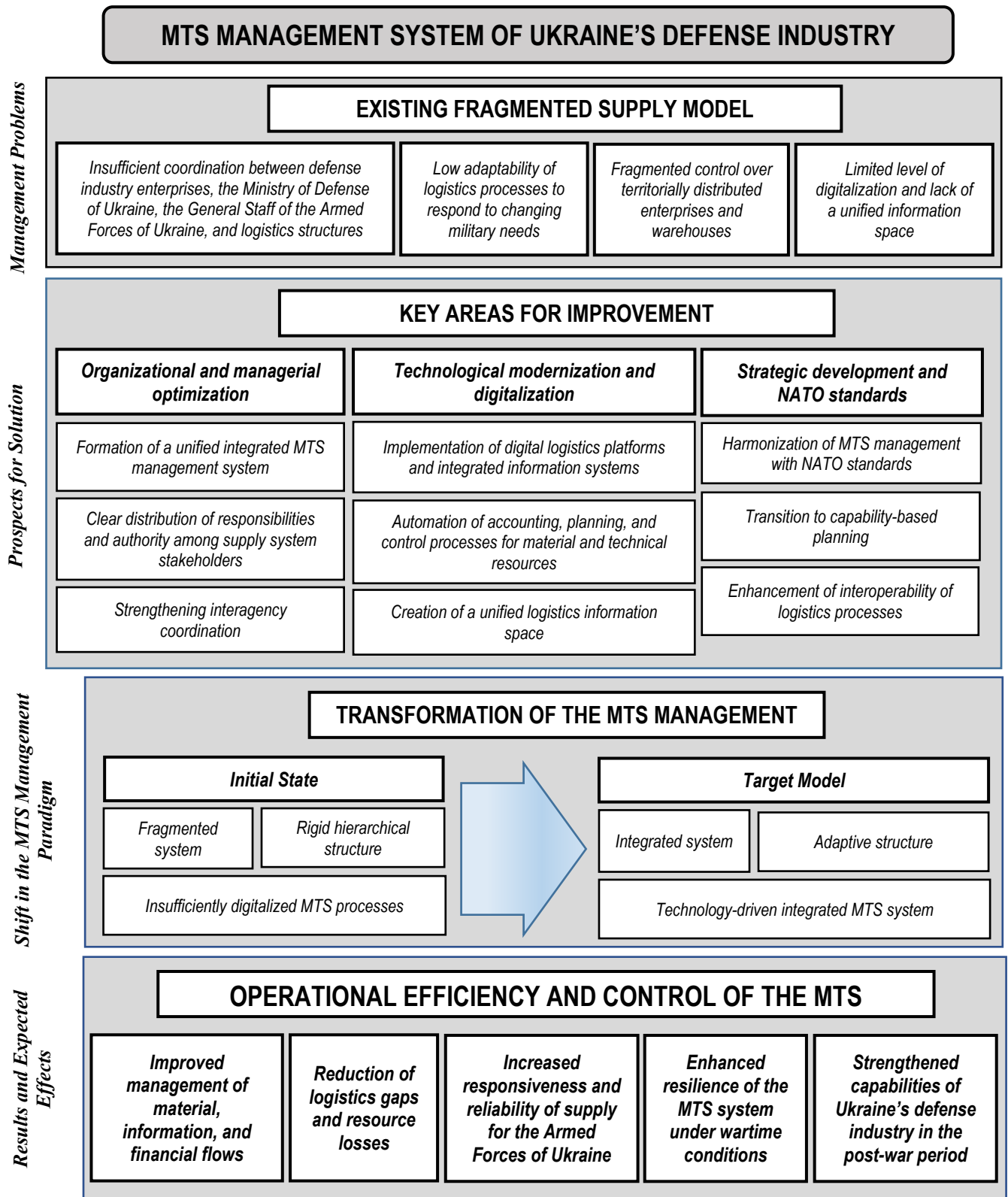


Figure 1 – Model of Transformation of the MTS Management System of Ukraine's Defense Industry

A comparative analysis of MTS systems in Ukraine and NATO reveals significant differences in approaches to organization, digitalization, and resource management



(Table 3). The Ukrainian system retains features of centralized management and remains in a stage of transformation, whereas the NATO system is based on decentralized network logistics and a high level of digitalization. Differences are also observed in

supply approaches: from a reactive model in Ukraine to proactive, multi-level planning in NATO. This highlights the need to accelerate reforms in order to achieve full interoperability and improve the efficiency of MTS systems.

Table 3. Key Differences Between MTS Systems of Ukraine and NATO

Aspect	Ukraine	NATO
Structure	Centralized planning with elements of decentralization; issues of coordination and bureaucracy	Decentralized network logistics integrated through NSPA (NATO Support and Procurement Agency) and STANAG standards
Digitalization	Initial stage of implementation of digital monitoring platforms; insufficient integration	Full digitalization (ERP systems, AI-based forecasting, real-time inventory tracking)
Supply System	Focus on ammunition and import substitution; shortages caused by wartime conditions	Echeloned reserves, multinational contracts, mission-based logistics
Reforms	Corporatization of the defense industry; more than 219 NATO standards partially implemented	Continuous transformation, adaptation to hybrid threats, focus on interoperability

Source: compiled based on [5, 9, 19, 20, 25, 26].

Ukraine is adapting its MTS system to NATO standards through cooperation and partnership; however, it lags behind due to wartime challenges compared to the mature system of the Alliance. According to the partnership objectives, Ukraine is required to implement 219 NATO standards, of which 109 have already been processed: 82 have been implemented through 101 national documents, 16 are planned for implementation, and 11 have been deemed inappropriate. In addition, since 2020, the implementation of standards beyond the partnership objectives has continued, resulting in a total of 231 NATO normative documents adopted through 250 national documents. This represents a large-scale transformation that ensures operational and technical interoperability between the Ukrainian Armed Forces and those of NATO member states [25, 26].

Moreover, the existing MTS system insufficiently incorporates the principles of integration with international logistics

systems, particularly NATO standards, and faces a number of systemic challenges, including technical, organizational, and financial barriers that hinder MTS transformation (Table 4). This complicates the achievement of interoperability and coordination within the framework of international military-technical cooperation. The insufficient level of standardization of procedures, data exchange, and harmonization of logistics processes limits Ukraine's ability to effectively integrate into the Euro-Atlantic security space.

The most significant constraints are limited resources and a shortage of qualified personnel, which directly slow down the pace of transformation. At the same time, incompatibility of standards and terminological barriers complicate integration with international partners. This necessitates a systemic approach to the adaptation of standards and the development of human capital.



Table 4. Key Challenges in the Implementation of NATO Standards in Ukraine's MTS System

Problem Group	Nature of the Problem	Implications for MTS
Financial	Significant costs associated with re-equipment and implementation of standards (in particular STANAG, AQAP) under limited budget conditions	Slower modernization and increased dependence on external financing
Human Resources	Shortage of specialists with English language proficiency and experience in working with NATO standards	Delays in implementation and errors in adaptation
Technical (Standardization)	Incompatibility between Soviet-era GOST standards and STANAG standards; partial lack of adaptation of norms	Complications in integration and duplication of processes
Terminological	Lack of unified bilingual terminology	Difficulties in cooperation with partners and codification processes
Organizational	Uneven implementation across sectors (Armed Forces of Ukraine, other security and defense institutions, private defense industry)	Imbalance in the development of the MTS system

Source: compiled based on [27, 28].

Thus, the current state of the MTS system of defense industry enterprises is characterized by the presence of complex systemic problems encompassing organizational, managerial, logistics, and technological aspects. Addressing these challenges requires a transition to a new MTS management model based on the principles of digitalization, integration, adaptability, and coordination among all stakeholders within the supply system, which is a prerequisite for enhancing the efficiency of the defense industry under conditions of a wartime economy.

Further development of the MTS system of Ukraine's defense industry should be directed along several interrelated strategic directions (Fig. 1), the implementation of which will ensure improved performance under conditions of a wartime economy and post-war recovery.

First, a priority direction is the formation of a unified and integrated MTS management system that ensures the synchronization of material, information, and financial flows among defense enterprises, military authorities, and logistics units. Such a system should be based on centralized strategic planning combined with elements of

decentralized operational management, enabling a balance between coordination and flexibility in responding to changing demands. Its implementation requires a clear distribution of responsibilities among stakeholders, improvement of defense planning procedures, integration with the budget process, and the establishment of coordination and resource control mechanisms. As a result, this will reduce duplication of functions, enhance transparency of management, and optimize the use of material and technical resources.

Second, a promising direction is the deepening of digitalization of logistics processes through the implementation of integrated digital MTS management platforms. This involves the creation of a unified digital environment integrating real-time information flows on the availability, movement, and utilization of resources. The use of modern information systems, data analytics, and automated decision-support tools will improve responsiveness, accuracy of demand planning, and efficiency of resource allocation. At the same time, the effectiveness of digital transformation largely depends on the level of personnel training, the development of digital competencies,



adaptation of organizational procedures, and the provision of cybersecurity. In the long term, this creates the foundation for a transition to a proactive MTS management model based on forecasting and preventive response.

Third, the harmonization of the MTS system with NATO standards becomes strategically important, involving the unification of planning, accounting, control, and logistics procedures. This approach will enhance interoperability of logistics processes, ensure effective cooperation with partners, and facilitate Ukraine's integration into the Euro-Atlantic security space. Furthermore, the implementation of NATO standards will improve data standardization, enhance information exchange among stakeholders, and ensure coordinated actions in multinational operations. This, in turn, will strengthen the resilience of the MTS system

and support its long-term recovery and development capacity.

Accelerating the transformation of the MTS management system in the defense industry according to the NATO model requires a comprehensive approach with a focus on standardization, digitalization, and international integration (Table 5). A key element is the implementation of modern IT solutions and NATO standards that ensure transparency and interoperability of logistics processes. The development of human capital and the decentralization of management play an important role in reducing bureaucratic barriers. The involvement of international partnerships and new financial mechanisms contributes to strengthening the industrial base of the defense sector. Systematic monitoring and the incorporation of combat experience ensure flexibility and adaptability of reforms under wartime conditions.

Table 5. Directions for Accelerating the Transformation of Ukraine's MTS System Based on the NATO Model

Direction	Key Measures	Expected Results
Digitalization	Implementation of LogFAS and RFID; integration with "Delta" and "Kropyvva" software systems	Real-time resource monitoring; increased transparency and management speed
Standardization	Adaptation of STANAG standards (including AQAP, STANAG 4107) to national conditions	Improved quality and interoperability of MTS in line with NATO requirements
Human Resources and Management	Personnel training, development of English-language terminology skills, establishment of logistics hubs	Reduced bureaucracy; increased management efficiency
Financing and Partnerships	Corporatization of the defense industry, cooperation with NSPA (NATO Support and Procurement Agency), import substitution, use of 3D printing	Attraction of investments; development of production capacity and strategic autonomy
Monitoring and Control	Annual audits of standard implementation; integration of combat experience	Timely adjustment of reforms and increased effectiveness

Source: compiled based on [20, 25, 29].

In the long term, the implementation of the outlined directions will create the conditions for a transition from a fragmented supply model to a comprehensive, adaptive, and technology-driven MTS system. This will ensure more efficient use of resources,

reduction of logistics gaps, and strengthening of the capabilities of Ukraine's defense industry both during wartime and in the period of post-war recovery.

In addition to the identified directions, the development of adaptive MTS



management mechanisms is essential, involving the implementation of flexible logistics models capable of rapidly responding to changing operating conditions. This includes the use of scenario planning, risk management, diversification of supply channels, and the development of reverse logistics to enable resource reuse and cost reduction. Such an approach enhances the resilience of the MTS system under crisis conditions and ensures continuity of supply.

Thus, the implementation of the proposed transformation directions will contribute to the formation of a modern, integrated, and digitalized MTS management system for defense industry enterprises, capable of operating effectively under a wartime economy, meeting the needs of the Armed Forces of Ukraine, and complying with international security standards.

The proposed framework provides a scalable foundation for the long-term transformation of Ukraine's defense logistics system.

Conclusions. The conducted study has established that the current MTS management system of Ukraine's defense industry enterprises is characterized by systemic problems, including insufficient coordination, fragmented management, limited adaptability, and a low level of digitalization.

The necessity of transitioning to an integrated MTS management model based on the principles of digitalization, adaptability, transparency and

interoperability with NATO standards has been substantiated. The proposed conceptual transformation model enables the synchronization of material, information, and financial flows, improves resource utilization efficiency, and reduces logistics gaps.

It has been demonstrated that the key directions for improving MTS efficiency include:

- implementation of a unified digital resource management platform;
- development of decentralized logistics;
- harmonization with NATO standards;
- enhancement of human capital and digital competencies;
- expansion of international cooperation and partnerships.

The practical significance of the results lies in their applicability for the development of strategic frameworks for defense industry enterprises, the improvement of logistics support systems, and the implementation of reforms in the security and defense sector.

Prospects for further research should focus on the development of applied mechanisms for implementing the proposed model, the assessment of its economic efficiency, and the modeling of digital logistics systems under conditions of a wartime economy.

The study contributes to the development of a resilient, interoperable, and digitally enabled MTS framework for defense industry transformation.

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