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How to cite this article [Chicago]: Krakhmalyov, Oleksandr, Olena Zinchenko, Vitalii Brusentsev, Leonid Razarenov, and Anna Shelestova. "Key Aspects of the Production of Modern Armaments and Military Equipment Systems." *Novum Jus* 17, no. 1 (2023): 117-135. https://doi.org/10.14718/NovumJus.2023.17.1.5

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Código: 1317950512 • Autor: iStock

https://doi.org/10.14718/NovumJus.2023.17.1.5

Key Aspects of the Production of Modern Armaments and Military Equipment Systems

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Received: September 20, 2022 **| Evaluated:** October 10, 2022 **| Accepted:** November 15, 2022

Abstract

The relevance of scientific research on the production of modern armaments and military equipment systems obeys to the prevalence of high geopolitical tensions in several zones of the globe, often leading to armed conflicts and thereby increasing the use of armaments and military equipment. The purpose of this article is to examine key aspects of the production, use, and operational reliability of armaments and military equipment used in real-world combat situations. The methodological approach is a combination of a systemic analysis of the current state of the military and industrial complex in a range of countries around the world with an analytical study of the specifics of using weapons and military equipment in actual combat and the related trends in the development of the military and industrial complex. The results highlight various aspects of the practical use of armaments and military equipment in the defense strategy of individual states and the role of armaments and military equipment in today's global social and economic system. These results are of significant practical importance to the employees of the military and industrial complex, whose direct responsibilities include the design and development of the latest weapons and military equipment, to the members of the various branches of the military who operate such equipment, and to the representatives of the military and industrial complex of individual states, whose direct tasks include bidding in international markets for armaments and military equipment.

Keywords: armaments, military equipment, weapons, ammunition, arms market, combat.

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https://doi.org/10.14718/NovumJus.2023.17.1.5

Aspectos clave de la producción de armamentos modernos y sistemas de equipos militares

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Recibido: 20 de septiembre de 2022 **| Evaluado:** 10 de octubre de 2022 **| Aceptado:** 15 de noviembre 2022

Resumen

La relevancia de esta investigación obedece a las altas tensiones geopolíticas presentes en varias zonas del globo, que muchas veces derivan en conflictos armados que requieren armamento y equipo militar. El propósito de esta investigación es examinar los aspectos clave de la producción, el uso y la confiabilidad operativa de armamentos y equipos militares que se usan en situaciones de combate real. El enfoque metodológico de este trabajo de investigación se basa en la combinación práctica de un análisis sistemático del estado actual del complejo militar e industrial en varios países del mundo con un estudio analítico de las especificidades del uso de armas y equipos militares en combates reales y con las tendencias relacionadas en el desarrollo del complejo militar e industrial. En esta investigación se obtuvieron resultados que resaltan varios aspectos del uso práctico de armamentos y equipos militares en la estrategia de defensa de los Estados y su papel en el sistema social y económico global actual. Estos resultados son de gran importancia para los empleados del complejo militar e industrial, cuyas responsabilidades directas incluyen el diseño y desarrollo de armas y equipos militares de última generación, para los miembros de las distintas ramas de las fuerzas armadas que operan tales equipos, y para los representantes del complejo militar e industrial de los Estados, cuyas tareas directas incluyen la adquisición de armamentos y equipos militares en los mercados internacionales.

Palabras clave: armamento, equipo militar, armas, municiones, mercado de armas, combate.

Introduction

The global market for armaments and military equipment differs significantly from other markets and has its own specific characteristics. Essentially, the key players in this market are states. They establish the military budget and the orders for the industrial complex. This determines in turn the volume of the strictly controlled production of armaments and military equipment (AME) and its international. The states also decide to or from they sell or buy AME and on what basis. At the same time, the countries involved in this market are guided primarily by political considerations: all states export arms to strengthen and expand their own geopolitical sphere of influence[1]. At the same time, it is believed that the export of weapons contributes to improve the trade balance of exporting states, preserve jobs, stimulate innovation, and increase the competitiveness of the national defense industry.

To date, there is no consensus on the extent to which exports of armaments and military equipment affect national economies. Numerous figures on the export revenues of modern armaments and military equipment conceal the collateral costs of public investment in the military and industrial complex. At the same time, the current state and dynamics of the arms market are directly influenced by the scale and quality of actual armed conflicts. All states that have territorial disputes are potential customers of armaments and military equipment. This fact determines the peculiarities of this market and its division into "grey" and "black" markets.

The issue of the internal legal regulation of the production and sale of weapons does not have a single generally accepted point of view. Mechanisms for controlling the production and trafficking of weapons can vary greatly from country to country. States with an authoritarian bent are often more active in the production of weapons and their export, also sometimes using their own military-industrial complex as a tool of populism and influence. In more democratic states with a liberal bias, the situation is more often the opposite: the activities of the military-industrial complex and the arms trade are rarely mentioned, although they are characterized by greater transparency in terms of budgeting and turnover. In the conditions created by the Russo-Ukrainian war, the first full-scale war between two large and relatively equal armies since the Second World War, the global military-industrial complex and the arms traffickers showed their previously unobtrusive qualities, both positive

[1] Cyrille Bret, "Arms Exports: A Lever of Geopolitical Influence for Russia," (2017), https://www.diploweb.com/Les-exportations-d-armes-un-levier-d-influence-geopolitique-pour-la-Russie.html.

and negative. Under these conditions, the international community needed to reconsider its approach to arms trafficking, in particular its legislative component and its enforcement. Against this background, one can notice the intensification of the illegal arms supplies and the strengthening of military cooperation between sanctioned authoritarian states, which may raise questions about the effectiveness of international instruments to prevent "black" arms trafficking.

One of the most important aspects of the production of the latest weapons and equipment is ensuring their environmental safety at all stages of the production cycle. These stages include the design, manufacture, testing, and adoption of a new weapon, as well as its operation, decommissioning, and destruction (utilisation). At the design stage, an armaments and military equipment safety program is formed, which establishes requirements aimed at complying with environmental quality standards and minimising the impact of hazardous and harmful materials on the personnel, population, and nature.

The Second World War was the first time that the complexity of weapons and military equipment used in combat situations became apparent. In the years that followed, many nations' military leaders set out to study statistically this process to reduce future production costs and maintain a given readiness and life-cycle cost of weapons and military equipment.

This study aims to investigate key aspects of the production and practical use of weapons and military equipment, and of the operational reliability of the latest weapon models when used in real-world combat. The novelty of this research lies in an assessment of the relationship between the quality of modern armaments and military equipment and the effectiveness of their use in real combat conditions.

Materials and Methods

The methodological approach in this research is a combination of a systematic analysis of the current state of the military and industrial complex in several countries around the world with an analytical study of the specifics of using weapons and military equipment in actual combat and the related trends in the development of the military and industrial complex[2]. During this research, a theoretical basis was

[2] Sylvia Ospina, "Latin American Space Activities in the 21st Century: An Update," *Novum Jus 11*, no. 1 (2017): 15-38, https://doi.org/10.14718/NovumJus.2017.11.1.1.

prepared with the results of research conducted by domestic and foreign scientists about the current trends in the armaments and military equipment market, and in the development of the military and industrial complex of individual countries.

A systematic analysis of the current state of the military and industrial complex involves assessing the state of the current arms and military equipment market. The key branches of a state's military and industrial complex in their systemic relationship were identified. A schematic representation of the systemic dependence of various branches of the military and industrial complex of a given state was provided. The systemic analysis of the military and industrial complex also identified individual sectors of defense production and provided a schematic representation in the context of the defense production of a single state. This research study presents the structure of defense production using the example of countries with the most developed military and industrial complex (the USA, China), to illustrate the key sectors of defense production as fully as possible and to demonstrate their systemic interconnection.

An analytical study of the use of weapons and military equipment implies a study of the formation of a state's military strategy, including the development of its military and industrial complex. In this context, it's necessary to identify the combat properties of weapons and military equipment that correspond to the principles of warfare, which are decisive when performing combat tasks in a real armed confrontation. In this research study, the key combat characteristics of modern weaponry and military equipment in relation to the principles of warfare are presented in Figure 1, giving a holistic view of the interrelationship of these aspects.

To clarify and summarise the results obtained in our research, they are compared analytically with the results of other domestic and foreign researchers on the problems of the modern arms and military equipment market. This article presents the assessments of foreign military experts on the issues related to modern weapons systems acquisition, the strengthening of the defense capabilities of a particular state and the key trends in the development of the arms and military equipment market in the current economic realities.

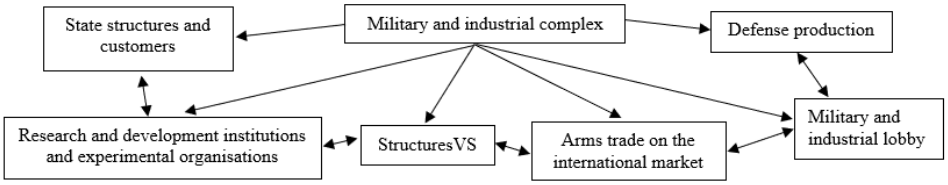
Based on the results of this study, final conclusions are formed, summarising the research. In general, the results and conclusions can serve as a qualitative methodological basis for further research on a wide range of issues related to the key trends in the development of the modern arms and military equipment market.

Results

Today's global market for armaments and military equipment is a segment of the high-tech goods market, which is undergoing an intensive and dynamic development. During the last two decades, this market has undergone significant changes.

Current trends in the global market for armaments and military equipment are closely linked to the current state of the military and industrial complex of the dominant states in this area. Figure 1 presents a diagram of the branches of a state's military and industrial complex in their structural relationship.

Figure 1. *Military and industrial complex sectors of the state*



Source: Compiled by the authors.

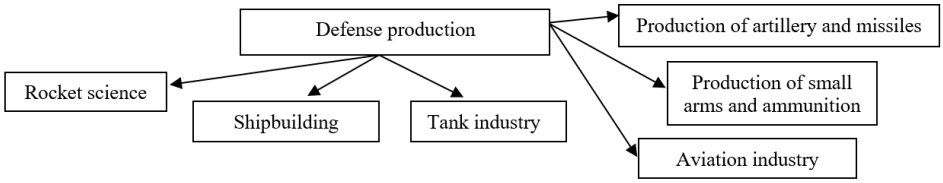
- The government agencies and purchasers of weapons and military equipment may be representatives of the Ministry of Defense, or they may be related to other power structures and defense agencies. These types of organisations are responsible for making decisions about the rearmament of the military and the development of new weapons and equipment.
- Defense production includes the manufacturers of armaments and equipment. This includes all possible types of weapons, from small arms to artillery, from multiple rocket launchers to tanks and aircraft.
- Research and development institutes and experimental organisations design state-of-the-art weapons and military equipment and create experimental models. States with developed market economies engage private companies in such tasks, subject to secrecy regulations.
- The structural subdivisions of the armed forces are responsible for testing the weapons and military equipment that pass the stage of design and development. They are also responsible for the armament acceptance and for the decommissioning of obsolete weapons, including their storage.

- The international arms trade involves ad hoc organisations accredited to the global arms and military equipment market.
- The military and industrial lobby is a conglomeration of businesses and military and industrial structures that support government policies on the military and industrial complex by backing loyal politicians to make appropriate decisions in the legislative bodies.

All branches of the military and industrial complex of the state are in a systemic relationship, which predetermines their functioning and development. The military and industrial complex of the state has its own specific features, which are conditioned by the military and political activities inside and outside the country, and by the international trade and economy.

Defense production occupies a separate place in the system of the military and industrial complex of a state. It includes a complex of research and testing organisations and military production enterprises responsible for the development, testing, and production, on an industrial scale, of modern weapons and military equipment. In the states with the most developed military and industrial complexes (USA and China) defense production has practically acquired the status of a defense industry. Figure 2 shows the main defense production sectors of the states with the most developed military and industrial complex.

Figure 2. *Key sectors of defense production in the states with the most developed military and industrial complex*



Source: Compiled by the authors.

The key elements of defense production include enterprises and organisations producing weapons and equipment, parts, and ammunition; engineering infrastructure; communication and control centres. The interaction of the defense production facilities and the other sectors is managed centrally, using all the capabilities of the centre of general command. The role of the traditional commander-in-chief is entrusted to the head of state.

Armaments and military equipment within a given state are designed to perform the following tasks:

- Defense against external aggression.
- Ensuring stable revenues for the state by selling arms and military equipment on the international market.

A state's defense against external aggression involves the use of weapons and military equipment in accordance with the state's military strategy. The use of a particular military strategy implies combining combat preparations with sequential operations of the armed forces to solve strategic tasks in the theatre of war. In this context, a key role is played by the availability of modern weaponry and military equipment capable of ensuring a high performance on all strategic tasks. Table 1 presents the key combat properties of modern weapons and military equipment in accordance with the principles of modern warfare.

Table 1. *Main combat properties of modern armaments and military equipment in accordance with the principles of modern warfare*

Principles of modern warfare	Combat characteristics of armaments and military equipment
Suddenness	Mobility, combat power, high motor endurance, applicability
Instant defeat of enemy forces throughout the entire defense	Mobility, survivability, high rate of fire, combat power, applicability
Ensuring the combat effectiveness of their troops	Combat power, survivability, mobility, high motor life
Mobility and ability to maintain a high combat tempo	Mobility, combat power, survivability, applicability
Focusing on the main attack line to create a decisive advantage	Mobility, firing rate, survivability, applicability

Source: Compiled by the authors.

Modern experience of combat operations dictates various requirements for weapons and military equipment: the ability to operate effectively at any time of day in simple and complex meteorological conditions, and in presence of dust, smoke, radar (R), or infrared (IR) interference in various physical and geographical, natural, and climatic conditions. The capability to function in these conditions define the "suitability" of weapons and military equipment. The applicability should be understood as the capability of the military equipment to solve the combat tasks at a given depth

of action at any time of the day or night, in various physical, geographical, and meteorological conditions, and under any kind of interference.

The key combat properties of modern weapons and military equipment, which include mobility, survivability, firing rate, applicability, long motor life, and combat power, unlock the functional potential of these models in real-world combat encounters. In addition, modern weapons and military equipment systems must be relatively easy to maintain, reliable, and technologically advanced. The latter attribute allows the peacetime and wartime use of weapons and military equipment, provided that the basic requirements for production safety are met.

In the history of armaments and military equipment there have been various instances where all the above features were organically combined in a particular design. Thus, the effectiveness of the practical application of weapons and military equipment depends on the ability of production companies in the military and industrial complex to organically combine the key combat properties in their mass series production[3].

Armaments and military equipment must be compared with similar models of a likely or real enemy, since this allows the most objective assessment and the identification of the strengths and weaknesses of the samples under consideration. An important principle in the development of weapons and military equipment systems is the implementation of the "effectiveness-cost" criterion. It presupposes either achieving the maximum possible effectiveness of an AME specimen at a known cost of the project or creating an AME specimen with the necessary efficiency for combat use, provided that its cost is reduced to a minimum. It should be noted that when complex indicators are used in research, the question of the correctness (accuracy) of particular indicators (efficiency, cost) arises with particular urgency, since the choice of a rational solution depends on it.

Discussion

At the present stage of development of the armed forces, with reforms involving a reduction in the number of personnel and armaments and the deep modernisation of existing weapons systems and military equipment, it's a priority to implement the

[3] Adam Biggs and Dale Hirsch, "Using Montecarlo Simulations to Translate Military and Law Enforcement Training Results to Operational Metrics," *Journal of Defense Modeling and Simulation* 19, no. 3 (2022): 403-415, https://doi:10.1177/15485129211021159.

results of the latest research in the field of weapons and military equipment. The requirements imposed on the quality and effectiveness of armaments and military equipment determine the procedure for carrying out the technical diagnosis of modern armaments. Improving the level of technical diagnostics can be done through the creation and implementation of hardware and software diagnostic complexes[4]. Moreover, for the modern army this is very relevant, since technical diagnostics is currently one of the key types of diagnosis for weapons and equipment[5].

The current system of military and economic substantiation of proposals for the development of weapons and military equipment, based on a systematic approach and a targeted, integrated planning, has recently undergone significant changes[6]. This is due to several factors, such as a significant reduction in the allocation for research and development in the industry; a significant reduction in the time allocated for the preparation and justification of proposals for the inclusion of new R&D; the diversification and conversion of defense sector enterprises; and the introduction of market mechanisms into the system of military orders, development, and serial production of weapons and military equipment.

In the history of warfare there have been many instances when quality protective equipment saved the lives of soldiers on the battlefield. The basic requirements for soldiers' uniforms include practicality, functionality, and the ability to effectively protect against dust, dirt, and low-toxic chemical and bacteriological elements[7]. The development of quality army gear is a crucial branch of the military and industrial complex, since protective gear is needed both in everyday army life and for a wide range of tasks related to the activities of military units in real-world combat[8].

The unification of modern armaments and military equipment makes it possible to bring them to a unified system of weapon and ammunition types, which in the

4 Dean Farrer, "The Military Market Analyst and the Product Life Cycle Planning Concept," *Industrial Marketing Management 1* (2017): 27-38, https://doi.org/10.1016/0019-8501(71)90006-X.

5 Swatilekha Chakraborty, "Artificial Intelligence and Human Rights: An Analysis of whether both are Convergent or Parallel to Each Other?," *Novum Jus* 12, no. 2 (2018): 13-38, https://doi.org/10.14718/NovumJus.2018.12.2.2.

6 Kamel Moniri, "A Comparative Study of the Pattern of Human Resource Forces Defending the Country through the Transformation Military Service to the Professional Army," *Geopolitics Quarterly* 18, no. 65 (2022): 254-296.

7 Eugene Wilusz, *Military Textiles* (Cambridge: Woodhead Publishing, 2008), 384.

8 Ivonne Español, Julio Quiñones Páez and Pablo Reyes Beltrán Páez, "The Armed Forces of Colombia in Peacekeeping Missions: Prospects and Opportunities in the Post-Agreement Context," *Novum Jus* 16, no. 1 (2022): 279-306, https://doi.org/10.14718/NovumJus.2022.16.1.12.

future will greatly facilitate their use. In addition, the basic principles of unification that make it possible to develop a certain sequence of actions aimed at achieving the desired effect with some degree of savings in material and time resources, have a long history in different countries. At the same time, the basic principles of unification are characteristic for setting such kind of tasks, determining its necessity and the sequence of implementation.

The global market for armaments and military equipment is a segment of the high-tech market, which is in constant dynamic development and ready for rapid and qualitative changes within a short period of time. At the turn of the millennium, this market was subject to qualitative technological changes which largely determined the key trends of its further development. Such changes were closely related both to factors and conditions specific to this market segment, and to phenomena and processes of general economic nature[9].

On the other hand, chemicals released into the environment by the military industry pose a serious environmental hazard. The production of the latest models of weapons and equipment is inextricably linked to environmental pollution and requires the mandatory implementation of solutions and prevention measures[10]. The environmental situation in the regions where the facilities of the military and industrial complex are located, and also the efficiency of the use of modern armaments and equipment, in terms of their impact on the health of the military personnel involved in its maintenance, largely depend on the quality and efficiency of the solutions[11].

At its current stage of development, the global economy assigns one of its key roles to the arms and military equipment market. Cooperation between the world's leading powers in the production of the most advanced weapons and military equipment is a specific area of foreign policy, because it organically combines the geopolitical, military, economic, and international spheres of state activity[12]. The quantity and quality of modern armaments held by an individual state, and the

9 Andrew Mtewa and Chukwuebuka Egbuna, *Phytochemistry. The Military and Health* 4 (Oxford: Elsevier, 2021), https://doi.org/10.1016/C2019-0-03759-4.

10 Marc Williams, Gunda Reddy, Michael Quinn, and Mark Johnson, *Wildlife Toxicity Assessments for Chemicals of Military Concern*, (Oxford: Elsevier, 2015.), 772, https://doi.org/10.1016/C2013-0-13473-3.

11 David Looney et al., "Modeling the Metabolic Costs of Heavy Military Backpacking," *Medicine and Science in Sports and Exercise* 54, no. 4 (2022): 646-654, https://doi:10.1249/MSS.0000000000002833.

12 Franklin Long and Judith Reppy, *The Genesis of New Weapons* (Oxford: Pergamon, 1980), 210, https://doi.org/10.1016/C2013-0-05973-7.

level of development of their production are what determine a state's real military power and capabilities. At the same time, the actual state of the arms market reflects the real geopolitical balance of power in the world, since it allows the countries exporting arms and military equipment to directly influence the geopolitical balance of power by providing services of arms and military equipment delivery[13].

Forecasting the service life of military equipment already at the stage of its production is the paramount task of enterprises of the military and industrial complex[14]. The issues related to the maintenance of armaments and military equipment require an early resolution at the stage of production planning, because the efficiency of armaments depends to a great extent on how timely and qualitatively they will be solved in combat conditions. Therefore, predicting the service life of weapons and military equipment is among the most strategically important tasks of enterprises of the military and industrial complex.

Procurement of armaments and military equipment represents a significant part of the national security expenditure of many states. At the same time, such purchases inevitably carry a certain amount of risk, since they inevitably involve the need to anticipate a set of measures to ensure the full operation of the purchased weapons. It is also important to plan for the provision of spare parts and other components, which the military industry of the importing country is not always able to fully meet, if at all, at the appropriate level of its development[15]. Thus, building relations between states involved in the export-import process of armaments and military equipment requires considering many factors that influence the efficiency of this process and the achievement by both sides of their objectives.

The complications of the current political and military situation combined with the need to strengthen national security makes it necessary for states to take comprehensive measures to further improve the financial instruments in the sphere of defense. In this regard, the study and consolidation of financial mechanisms that ensure the orders for the supply of weapons and military equipment, works, and services are of relevance. Strengthening a state's defense capabilities is of

[13] Yibo Ding, Xiaokui Yue, Guangshan Chen, and Jiashun Si, "Review of Control and Guidance Technology on Hypersonic Vehicle," *Chinese Journal of Aeronautics* 35, no. 7 (2022): 1-18, https://doi:10.1016/j.cja.2021.10.037.

[14] Carl Castro and Sanela Dursun, *Military Veteran Reintegration* (London: Academic Press, 2019), 257, https://doi.org/10.1016/C2016-0-00839-2.

[15] Emma Sparks. *Advances in Military Textiles and Personal Equipment,* 3rd ed. (London: Academic Press, 2012), 350.

paramount importance in the context of modern military and political threats. The state's survival in today's geopolitical realities and its future in general largely depend on the timely adoption of measures to strengthen its national security and defense capabilities.

In the military, specialised and economic literature, armaments and military equipment are grouped under a single term– "military products". In different countries, the production of military products is regulated by separate legislative sections that describe the production procedures for the latest models of weapons and military equipment[16]. Thus, the norms to produce weapons and military equipment, aimed at improving the state's deterrence and defense capabilities against external military threats, are legally established. It is difficult to perform an objective calculation of indicators that can characterise the real state of the arms and military equipment market, because of its opacity at an international scale. In addition, the methodologies for calculating such indicators vary considerably among the various organisations that make such calculations, which complicates the process considerably[17]. In any case, the discrepancies in the final estimates do not negate the need for such calculations, since a holistic understanding of the volumes of weapons, military equipment, components, and related materials, is essential for the military and industrial complex of any state.

Modern large multinational companies in the military and industrial complex, specialising in the production of the latest weapons and military equipment, establish offices outside the country where their headquarters are located[18]. This contributes to a deeper penetration into the global markets of weapons and military equipment, and to the establishment of stable partnerships with competing organisations, which is especially important in the context of ever-increasing costs of producing modern weapon systems, and the improvement of various production aspects[19]. Thus, the development of the world market for armaments and military equipment in the current economic conditions, characterised by increasing globalisation in all

16 Donald C. Daniel and Katherine Herbig, *Strategic Military Deception* (Oxford: Pergamon, 1981), 378, https://doi.org/10.1016/C2013-0-06008-2.

17 Julian Robinson, *The Effects of Weapons on Ecosystems* (Oxford: Pergamon, 2018), 70.

18 Wayland Young, *Existing Mechanisms of Arms Control* (Oxford: Pergamon, 1966), 150, https://doi.org/10.1016/C2013-0-01953-6.

19 Li Qingyu et al., "Reprint of: Triboelectric Nanogenerator-Based Wearable Electronic Devices and Systems: Toward Informatization and Intelligence," *Digital Signal Processing: A Review Journal* 125 (2022), https://doi:10.1016/j.dsp.2022.103570.

sectors, depends to a large extent on the actual level of competition in this sphere and the degree of development of inter-industry cooperation.

The current state and key trends in the development of any state's military and industrial complex largely determine the degree of its security and economic opportunities. Armaments and military equipment are labour- and knowledge-intensive products, and their industrial production is associated with significant risks, requiring a high level of organisation of the production processes[20]. At the same time, the planned and high-quality development of production in the military and industrial complex sector leads to an increase in the export of weapons and equipment, which is extremely important from an economic point of view. Today, the global market for armaments and military equipment is one of the most dynamic, with significant prospects for development in the long term[21].

The production of modern weapons and military equipment on an industrial scale requires a significant number of specialists with sufficient qualifications to ensure the specified production volumes and quality[22]. High-quality training of such specialists is a prerequisite for ensuring the cyclicality of the production process and the final conformity of the products with the declared quality standards. And, as a rule, the qualification of such specialists is determined by their ability to ensure the solution of production problems in relation to specific models of weapons and military equipment, which in general fits into the objectives of the production process.

The armed conflicts that have been taking place in recent years in different parts of the world largely determine global trends in the production of the latest weapons and military equipment[23]. At the same time, it should be noted that weapons supplied to one of the parties of the conflict by states not directly participating in it may be used after a certain period of time both against this state and against its strategic allies. This situation is generally characteristic of the military and technological partnership of many arms- and equipment-exporting countries.

[20] Călin Gurai, Léo-Paul Dana, and Erez Katz-Volovelsky, "Spanning Transnational Boundaries in Industrial Markets: A Study of Israeli Entrepreneurs in China," *Industrial Marketing Management* 89 (2020): 389-401, https://doi.org/10.1016/j.indmarman.2020.01.008.

[21] Cristian Ávila Herrera, "Drones vs Civil Aeronautics: Licenses for Pilots and their Procedure," *Novum Jus* 11, no. 2 (2017): 135-165, https://doi.org/10.14718/NovumJus.2017.11.2.6.

[22] Subhabrata Ray and Gargi Das, *Process Equipment and Plant Design* (Oxford: Elsevier, 2020), 841, https://doi.org/10.1016/C2017-0-02434-5.

[23] Leonard Marcus et al., "The POP-DOC Loop: A Continuous Process for Situational Awareness and Situational Action," *Industrial Marketing Management* 88 (2020): 272-277, https://doi.org/10.1016/j.indmarman.2020.05.019.

Conclusions

Modern trends in the development of the armament and military equipment market and the established realities of military science, define a set of requirements for the effectiveness of weapons. The main properties of the latest models of armaments and military equipment corresponding to the principles of modern warfare can be defined as mobility, survivability, firing rate, combat power, and applicability. These combat capabilities should be regarded as indispensable in terms of unlocking the functional potential of these models in real-world combat. It should also be taken into consideration that modern weapons and military equipment systems are designed to be relatively easy to maintain, highly reliable and technologically advanced. The requirement for high manufacturability enables the practical use of weapons and military equipment in peacetime and wartime, subject to the fundamental provisions of production safety.

The capabilities of the military and industrial complex of modern economically developed states ensures the production of weapons of high quality that are essential in real-world combat situations. In this context, the defense strategy of a state represented on the world market of weapons and equipment as a producer or consumer is of fundamental importance. Depending on the chosen defense strategy, weapons and military equipment can be used either to protect the state from external aggression, or to obtain significant revenues from their sale. A combination of these two options is also possible. At the same time, ensuring compliance of the produced systems of modern weapons and military equipment with the tasks assigned to them and the accepted world standards remains mandatory in terms of their effectiveness in real combat conditions and modern methods of warfare.

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