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PROBLEMATIC ASPECTS OF INFORMATION AND ANALYTICAL SUPPORT FOR THE MANAGEMENT BODIES OF UKRAINE'S SECURITY FORCES

The contradictions existing in the military management system are considered. An analysis of the information and analytical support for management bodies is conducted, and the impact of decision-making quality on the capability of managing military forces in modern conditions is determined.

The problematic aspects of information and analytical support for the management bodies of Ukraine's security forces are highlighted, in particular: an insufficient level of development of the regulatory and legal framework regarding the creation of information resources and products in Ukraine's security forces, the provision of information services, and the functioning of the information and analytical support system; a lack of functional, technological, and technical integration among the information and analytical units of the security forces; the absence of a unified system for classifying and coding information within Ukraine's security structures; insufficient development of general information resources and the lack of an integrated database, which should become a critical element of the nationwide information infrastructure; a shortage of certified information protection tools; the absence of a clearly defined suite of specialized software and mathematical support for information activities; an inadequate level of training for specialists capable of working with modern information and analytical systems; insufficient funding and a lack of a comprehensive approach to organizing research aimed at solving these problems. All of the above complicates the development of an effective information support system for Ukraine's security forces.

Keywords: *state security, conceptual foundations of public administration, security forces, information and analytical support, management bodies, decision-making.*

Statement of the problem. Modern military conflicts are characterized by decisiveness in achieving political goals, a focus on paralyzing the opponent's state military management systems and critical infrastructure, as well as the dynamism, rapidity, and high technological level of the means employed. There is ongoing improvement of automated systems for troop and weapon control, including a transition to the development of automatic weapon management systems [7, 8, 11, 12].

The modern strategy for achieving information superiority over the enemy, based on the implementation of advanced information technologies (IT) in management systems, is a key factor determining the effectiveness of state and military leadership. Reliable functioning of information systems is now critically important to ensure the resilience of these bodies. Information superiority is an indispensable tool that enables command to maximize the effective use of dispersed groups of heterogeneous forces in decisive operations, enhance the protection of military units, deploy formations with compositions most precisely suited to assigned tasks, and ensure flexible and targeted logistical support. To achieve and maintain information superiority, it is necessary to implement measures aimed at undermining the opponent's management systems, decision-making processes, and destroying their computer and information networks and systems [7, 8, 11, 12].

Thus, advanced IT is becoming a fundamental element of modern armed confrontation. Their implementation significantly expands the range of possible scenarios for resolving and conducting armed conflicts, including the use of detailed planning and forecasting of their consequences in political, economic, military, and other spheres.

According to military experts, information and analytical support (IAS) is no less important a component of supporting security and defense forces than traditional types of support (logistical, combat, medical, etc.).

IAS is considered an integral element of modern military operations, ensuring effective management and decision-making at all levels [7, 11].

Analysis of recent research and publications. The regulatory and legal framework of the state regarding the development of information technologies at all levels of public administration is defined in the Acts of Ukraine: "The National Informatization Program Act", "The Fundamentals of Information Security in Ukraine," "The National Security of Ukraine Act", "The Defense of Ukraine Act", "The Basic Principles of Ensuring Cybersecurity in Ukraine Act" and in the "Doctrine of Information Security of Ukraine" [1–6].

The issue of information and analytical support of the security forces of Ukraine is considered in [7, 8, 10, 11, 12]. Such scholars as Yu. Danik, H. Drobakha, M. Yermoshyn, S. Mykus, Ye. Smirnov, V. Solonnikov, I. Kyrychenko, V. Krainov, V. Tkachenko and V. Kryshchenko have made a significant contribution to the study of the problematic issues of the impact of information and analytical support of the security and defence forces of Ukraine on the state security. Paper [9] provides statistical data on the information load on management bodies.

The purpose of the article is to identify the problematic aspects of information and analytical support for the management bodies of Ukraine's security forces.

Summary of the main material. In modern military management systems, information and analytical support plays a key role, not only ensuring effective information processing but also supporting decision-making processes at the strategic level. Taking into account the specifics of the processed information significantly increases the accuracy and reliability of military planning and management, ultimately enhancing the effectiveness of the entire military operation [7, 8, 11, 12].

One of the most important components determining the effectiveness and capabilities of a management system is its resources. These include elements of hierarchical search and information distribution, encompassing all sources from which the system receives information. Additionally, the potential of the management system is significantly influenced by resources that provide active impact on the enemy during decision implementation. Such resources include information flows reflecting the capabilities of security forces. Information resources become an integral part of the management system when they are deployed and integrated into the overall management structure. A management system equipped with an appropriate information and analytical subsystem demonstrates high adaptability to the type of incoming information, the current situation, and the state of combat forces, which are constantly monitored. This enables the system to make prompt decisions in sync with the pace of headquarters operations, which is its primary objective [7, 8, 11, 12].

Global practice shows that the information load on management bodies is steadily increasing. For example, EMC Corporation published research results demonstrating an explosive growth in the volume of information created and used in the global community. According to their data, in 2006, 161 exabytes of digital information were created and copied, which is approximately 3 million times the volume of all books ever written by humanity. This represents only the beginning of an unprecedented increase in information volume. According to IDC (International Data Corporation), by 2010, this volume had grown more than sixfold, reaching 988 exabytes, with an annual growth rate of 57 % [9].

A significant increase in the information load on military management bodies is also observed. In a few years, without the use of modern information and analytical support systems, the decision-making process for leadership may become problematic. The first significant contradiction arises in management systems: the objective growth in information volumes and the inability of management bodies to process the provided information in a timely manner to make optimal decisions [7, 12].

Today, the primary task for scientists and the military-industrial complex of each country is to find ways to automate creative processes in the activities of military management bodies, particularly in the context of real-time decision-making during the operational management of service and combat actions.

This, in turn, generates the second contradiction in the military management system: the increasing importance of organizational tasks and functions of management bodies amidst the insufficient development of scientific methods that ensure decision-making under conditions of uncertainty [7, 12].

There is an urgent need to develop theoretical foundations for decision-making in military management bodies, enabling researchers in the field of military cybernetics to design systematic algorithms that encompass management and decision-making processes.

The concept of information and analytical support is one of the categories of management theory; therefore, the functions of the information and analytical support system for management processes (IASMP) must include support for weapon management processes at the tactical level. One of the most important tasks of IASMP is to support the processes of preparation and decision-making by the management bodies of

Ukraine's security forces, which is critically important for the effective functioning of the national security system [7, 8].

It is worth noting that the technology for preparing and making decisions in the military sphere has remained virtually unchanged for many decades (since World War II). This has led to serious consequences for the quality of real-time combat management, the comprehensive support of these processes, and the effectiveness of the day-to-day activities of military organizations. Against the backdrop of the rapid implementation of new technologies in other areas of public administration, outdated methods of preparation and decision-making in complex conditions negatively impact the coordination of cooperation between military structures and public administration bodies that already use modern technologies and set new requirements for decisions made in the defense sector [7, 8, 11, 12].

The third contradiction lies in the necessity of applying advanced decision-making methods aimed at reducing the impact of uncertainty on their effectiveness, in the context of an existing deficit of appropriate technologies for substantiating and formulating proposals for these decisions [7, 12].

Through the formalization of processes that account for vaguely defined factors affecting the content of plans and concepts, the insufficient reliability of mutually independent alternatives can be compensated by their quantitative superiority. This allows for the assumption that the overall reliability of the obtained result will exceed the reliability of each individual alternative. Such an approach is reinforced by considering the physical essence of the factors themselves that influence decisions.

If the uncertainty of the situation during decision-making is considered as a lack of necessary information, the use of information theory allows for determining the level of this uncertainty through the membership function of fuzzy sets. This makes it possible to calculate information entropy and establish the desired reliability threshold, which is considered sufficient for decision-making. Such an approach enhances the effectiveness of decisions during combat operations [7, 8, 11, 12].

In addition to decision-making preparation and technologies, the structure of the information and analytical system, its integration, and the quality of management processes for security forces significantly influence the quality of military force management in modern conditions. The content and completeness of analyzed data play an important role. Since decisions made by management bodies are fundamental to management processes, the information and analytical system must primarily ensure the effective preparation and adoption of these decisions. The quality of decisions made will determine not only the effectiveness of the management system itself but also the outcomes of other service and combat activities, on which the overall success of military operations and security assurance depends.

The main problematic aspects of information and analytical support for the management bodies of security forces at the current stage of development include the following [10]: insufficient development of the regulatory and legal framework regarding the creation of information resources and products in Ukraine's security structures, the provision of information services, as well as the functioning of the information and analytical support system for management bodies as a whole; the lack of an integrated system of information and analytical units within the security forces that are functionally, technologically, and technically interconnected; the absence of a unified system for classifying and coding information in Ukraine's security structures; a low level of development of general information resources in the security forces and the lack of an integrated database that could become an important element of the nationwide information infrastructure.

There is an urgent need to use certified system software and mathematical software that has already proven its effectiveness in practice. In addition, there are no certified information security tools, which creates risks to data security. There is also a lack of a clearly defined set of specialised software and mathematical tools for information activities. This problem requires urgent training of specialists capable of working with modern information and analytical systems.

Insufficient funding remains one of the key obstacles to solving these problems. It should also be noted that there is a lack of a comprehensive approach to organizing research aimed at addressing the creation of an effective information support system for Ukraine's security forces. Active research is needed in such critical areas as improving the regulatory and legal framework, developing the system of information and analytical units, creating a comprehensive information protection system, and formulating systemic requirements for the certification of informatization tools and information and telecommunication systems within the structures of Ukraine's security forces [7, 8, 11, 12].

Conclusions

Solving these problems requires not only significant resources but also a strategic approach to implementing innovative technologies and management solutions. Only in this way can an effective information and analytical support system be created that meets modern challenges and ensures reliable support for the management bodies of Ukraine's security forces.

Global practice shows that the information load on management bodies is constantly increasing, significantly complicating the decision-making process, which requires careful planning, analysis, and efficient use of resources. A number of specific problems have been identified:

– an insufficient level of development of the regulatory and legal framework regarding the creation of information resources and products in Ukraine's security forces, the provision of information services, and the functioning of the information and analytical support system;

– the absence of functional, technological, and technical integration among the information and analytical units of the security forces;

– the lack of a unified system for classifying and coding information within Ukraine's security structures;

– insufficient development of general information resources and the absence of an integrated database, which should become an important element of the nationwide information infrastructure.

In addition, there is a need for certified software and mathematical tools that have already proven their effectiveness in practice. However, there is currently a lack of certified information protection tools, as well as a clearly defined suite of specialized software and mathematical tools for information activities.

It is crucial to ensure the training of specialists capable of working with modern information and analytical systems, as their shortage negatively affects the overall level of information support.

Insufficient funding and the absence of a comprehensive approach to organizing research aimed at solving these problems complicate the development of an effective information support system for Ukraine's security forces.

Currently, such important areas as improving the regulatory and legal framework, developing information and analytical units, creating a comprehensive information protection system, and formulating systemic requirements for the certification of informatization tools and information and telecommunication systems within Ukraine's security structures are not being properly researched.

Future scientific research directions may include the development of models and mechanisms for making rational management decisions under the conditions of information load on management bodies, creating mechanisms for integration between information and analytical units of the security forces, and formulating systemic requirements for the certification of informatization tools and information and telecommunication systems within Ukraine's security structures.

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ПРОБЛЕМНІ АСПЕКТИ ІНФОРМАЦІЙНО-АНАЛІТИЧНОГО ЗАБЕЗПЕЧЕННЯ ОРГАНІВ УПРАВЛІННЯ СИЛАМИ БЕЗПЕКИ УКРАЇНИ

Розглянуто суперечності, що існують у системі військового управління. Проведено аналіз інформаційно-аналітичного забезпечення органів управління, визначено вплив якості прийняття рішень на спроможність управління військовими силами в сучасних умовах.

Висвітлено проблемні аспекти інформаційно-аналітичного забезпечення органів управління силами безпеки України, зокрема йдеться про таке: недостатній рівень розроблення нормативно-правової бази щодо створення у силах безпеки України інформаційних ресурсів і продуктів, надання інформаційних послуг і функціонування системи інформаційно-аналітичного забезпечення; бракує функціональної, технологічної та технічної інтеграції між інформаційно-аналітичними підрозділами сил безпеки; немає єдиної системи класифікації та кодування інформації в силових структурах України; недостатній розвиток загальних інформаційних ресурсів і відсутність інтегрованого банку даних, який має стати важливим елементом загальнодержавної інформаційної інфраструктури; бракує сертифікованих засобів захисту інформації; немає чітко визначеного комплексу спеціального програмно-математичного забезпечення для інформаційної діяльності; неналежний рівень підготовки фахівців, здатних працювати із сучасними інформаційно-аналітичними системами; недостатнє фінансування, а також брак комплексного підходу до організації досліджень, спрямованих на вирішення цих проблем. Усе зазначене ускладнює розвиток ефективної системи інформаційного забезпечення сил безпеки України.

Інформаційна перевага являє собою невід'ємний інструмент, що дає змогу командуванню максимально ефективно використовувати розосереджені групи різнорідних сил у вирішальних операціях, підвищувати рівень захисту військових підрозділів, уводити в дію угруповання, склад яких найточніше відповідає поставленим завданням, а також здійснювати гнучке й цілеспрямоване матеріально-технічне забезпечення. Для досягнення та утримання інформаційної переваги необхідно впроваджувати заходи, спрямовані на порушення систем управління противника, процесів прийняття рішень, а також на руйнування його комп'ютерних та інформаційних мереж і систем.

Ключові слова: державна безпека, концептуальні засади державного управління, сили безпеки, інформаційно-аналітичне забезпечення, органи управління, прийняття рішень.

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