

# INTEROPERABILITY FOR BORDER AND MARITIME SURVEILLANCE AND SITUATIONAL AWARENESS IN THE BORDER SECURITY ENVIRONMENT OF UKRAINE

**Dmytro Kupriyenko<sup>1</sup>, Denys Zakharchuk<sup>2</sup>**

<sup>1</sup>Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine, (Military Unit 9960), e-mail: dakuprienko@gmail.com, Khmelnytskyi, Ukraine

<sup>2</sup>Bohdan Khmelnytskyi National Academy of the State Border Guard Service of Ukraine, (Military Unit 9960), e-mail: den\_zachar@i.ua, Khmelnytskyi, Ukraine

**Abstract.** *The purpose of the study is to create methodological tools, practical recommendations, draft regulatory documents and technical solutions for evaluating and ensuring the legal, organizational, semantic and technical interoperability of the border security system of Ukraine with a similar system of the European Union in the context of acquiring compliance with the requirements of European security standards (in particular, the priorities of the European Border and Coast Guard and its Agency Frontex), taking into account the differentiated conditions of the security environment of Ukraine and observance of recognized human rights;*

*development of capabilities and improvement of the effectiveness of the State Border Guard Service of Ukraine and other subjects of the integrated border management of Ukraine to ensure the inviolability of the state border and protection of the sovereign rights of Ukraine in its adjacent zone and exclusive (maritime) economic zone;*

*increasing the efficiency of the management of the external borders of the European Union and its associated members in accordance with the goals defined, in particular Security Union Strategy [COM (2020) 795 final.], New Pact on Migration and Asylum [COM (2020) 609 final.], Strategy on the Schengen Area [COM (2021) 277 final.], Regulation (EU) 2019/1896 on the European Border and Coast Guard, Technical and operational strategy for European integrated border management.*

**Keywords:** *border security, European border and coast guard, integrated border management, interoperability,*

## Introduction

For more than thirty years, Ukraine has been building its statehood in a complex geopolitical and geostrategic environment of competing mutual influence of East and West-oriented states and their regional associations.

The de facto geospatial location of Ukraine on the “border of civilizations” (Brzezinski et al., 2006; Huntington, 1996) and the long-term struggle for survival with the Russian Federation (Decree of the President of Ukraine, 1999) have led to the irreversibility of the European and Euro-Atlantic strategic course of the Ukrainian people (Hrytsiak et al., 2013; Law of Ukraine, 2019). In view of this, on February 7, 2019, the Law of Ukraine amended the Constitution of Ukraine to determine the strategic course of the state for Ukraine's full membership in the European Union (hereinafter - the EU) and the North Atlantic Treaty Organization. Thus, the historical path of Ukraine's



development, chosen by the Ukrainian people, was enshrined at the highest legislative level.

In the process of Ukraine's European and Euro-Atlantic integration, it is important to carry out a set of reforms in the key areas of its life in order to prepare (adapt) them in advance to European and North Atlantic policies, standards, legal norms, administrative approaches, etc.

In particular, it is necessary to take into account the fact that the EU focuses on border security, for which a mechanism called “European Integrated Border Management” (EIBM) has been introduced. This mechanism envisages “national and international coordination and cooperation between all competent authorities and institutions involved in border security and international trade facilitation in order to establish effective, efficient and coordinated management of the EU's external borders in order to achieve open, but well-controlled and secure borders”. To fully implement the ENIUC, the European Border and Coast Guard (EBGS) was established, whose activities are based on the integrated framework of the European Border Surveillance System (hereinafter referred to as the EUROSUR system). The EUROSUR system is designed to monitor border security, ensure information interaction and operational cooperation of the subjects of European integrated border management in the legal field of the Schengen acquis (Regulation (EU), 2019; Regulation (EU), 2013, Special Report of the European Court of Auditors). The importance of this system for the functioning of the EIBM is, in particular, explained in the content of the EIBM Technical and Operational Strategy, which states: “Only cooperation and interoperability in all areas of policy and authorities - at the national and European levels, with third countries and with international organizations - through the full implementation of the EUROSUR system and enhanced exchange of information and intelligence through other appropriate channels, will enable effective forecasting and prevention of crises and events”.

In view of the above, for successful European integration, Ukraine needs to carry out a large-scale re-engineering of the national border security system to ensure its full compatibility with the European one, which operates on the basis of EUROSUR. In particular, the creation of methodological tools, practical recommendations, draft regulations and technical solutions to assess and ensure the legal (legal), organizational, semantic and technical interoperability of Ukraine's border security system with a similar system of the European Union in the context of gaining compliance with the requirements of European security standards (in particular, the priorities of the European Border and Coast Guard and its Frontex Agency), taking into account the differentiating features of the Ukrainian system.

At the same time, there are no comprehensive studies in Ukraine that consider the aspects of the formation of the national SPSS - an interoperable analog of the EUROSUR system - from the standpoint of a systematic approach.

Also, this issue is not addressed in the current regulatory framework. Therefore, we can objectively state that the task of ensuring interoperability between the SIS and the EUROSUR system is important in the context of Ukraine's European integration, but remains unexplored and legally unclear, which makes it highly relevant.

Thus, there is a discrepancy between the declaration in the legislation of Ukraine of the intention to integrate into Europe (in particular, the implementation of European border security standards), on the one hand, and the lack of organizational, regulatory and legal framework, methodological apparatus and design (technical) solutions for the formation of the BMS.

The scientific task of the study is aimed at eliminating this discrepancy and consists in the theoretical substantiation of the regulatory, legal, organizational and methodological frameworks necessary for the formation of a border security monitoring system as a comprehensive basis for the integrated border management mechanism in the context of Ukraine's European integration.

The purpose of the study is to substantiate the scientific basis for regulating the formation of a border security monitoring system in the context of Ukraine's European integration and to propose proposals to the authorities for its implementation.

Limitations: in this article, we do not study the problems of ensuring border security related to the full-scale armed invasion of the Russian Federation.

### **Analysis of existing approaches to monitoring the border security space of Ukraine and systematization of factors influencing the formation of a promising BMSMS**

The need to increase efficiency in various aspects of the State Border Guard Service of Ukraine and ensure that its capabilities meet modern needs to adequately identify and respond to threats to border security determine the priority and scale of tasks for its further reform, and necessitate more thorough strategic planning and management, in particular, to determine the appropriate stages and measures for introducing the latest border security technologies.

The goal of further development of the State Border Guard Service of Ukraine is to minimize threats to Ukraine's border security, ensure the implementation of the state's strategic course towards full membership in the European Union and NATO, and strengthen the role of the State Border Guard Service of Ukraine in combating cross-border and transnational crime.

Within the framework of this strategic goal, we focus on the formation and effective functioning of border and maritime surveillance systems, situational awareness for the purpose of developing high-quality solutions to counteract threats to border security.

In this context, analyzing the current state of Ukraine's border security environment is relevant in the national, regional and international security aspects.

The results of the analysis of current threats to border security and the peculiarities of the system of countering them indicate that, despite the use of available forces and means and various ways of performing tasks, the achievements of the subjects of integrated state border management (ISBM) remain clearly insufficient.

The above facts show that today the level of offenses related to the illegal transportation of persons, weapons, terrorist means, drugs and other types of contraband across the BC is unacceptable.

At the same time, the Integrated Border Management Strategy for the period up to 2025 (On approval 2019) states that: border protection outside checkpoints is complicated by a number of factors that were not resolved in previous years, in particular, the insufficient level of engineering and technical equipment and logistical support for state border protection; a technically imperfect and fragmented system of monitoring shipping and covering the maritime situation does not allow the concerned agencies to have complete operational information about the situation at sea, including during search and rescue operations.

Thus, despite certain achievements, the problem of organizing a continuous surveillance zone on the land section of the BC is still difficult to solve, where the basis for strengthening the protection of the BC should be provided by such technical means of surveillance of the border space of land, sea, air and space-based.

The tense, dynamic and unpredictable situation at the state border significantly affects the ability of the border security system of Ukraine to perform its tasks and, in particular, requires the authorized state authorities to: significantly improve the quality (timeliness, completeness and objectivity) of information support (situational awareness) on the state of the border security environment of Ukraine;

developing the capabilities and increasing the efficiency of the State Border Guard Service of Ukraine and other entities of the integrated management of the state border of Ukraine to ensure the inviolability of the state border and protection of Ukraine's sovereign rights in its adjacent zone and exclusive (maritime) economic zone;

effective cooperation with the EU institutions in the management of the external borders of the European Union and its associated members in accordance with the objectives set out in, inter alia, the Security Union Strategy [COM (2020) 795 final], the New Pact on Migration and Asylum [COM (2020) 609 final], the Strategy on the Schengen Area [COM (2021) 277 final], Regulation (EU) 2019/1896 on the European Border and Coast Guard,

Technical and operational strategy for European integrated border management.

Important aspects of the formation of the Ukrainian SBGS are the engineering and technical arrangement of the state border, its engineering and aviation support, maritime and satellite surveillance.

Building up engineering and technical capacities at the SC of Ukraine is envisaged in the legal framework for strategic planning. The main documents include: The Concept for the Development of the Security and Defense Sector of Ukraine, the Concept of Integrated Border Management, the Strategy for Integrated Border Management until 2025, the Strategy for the Development of the State Border Guard Service of Ukraine, the Strategy for the Development of the System of Protection and Engineering and Technical Equipment of the State Border of Ukraine for the Period up to 2030, as well as annual action plans of the Government and agencies for their implementation.

For example, the main ones are:

Increasing the number of SBGS bodies and units, creating infrastructure to support their activities and strengthening their technical equipment;

creation of a system of engineering structures, arrangement of places of service and strongholds of the state border guard units;

modernization of the departmental system of radio, thermal imaging and visual surveillance in the maritime area of the state border, development of information interaction with the Navy of the Armed Forces;

introduction of unmanned aerial systems for state border protection, etc.

The results of the analysis of the functioning of the monitoring systems of the world's leading countries allow us to decompose the technological process of border security monitoring, which is a necessary procedure for diagnosing the existing potential of the SBGS, i.e., comparing the real monitoring mechanism with the abstract (reference) model (Table 1).

**Table 1 Decomposition of the technological process of border security monitoring**

General stages of monitoring	Main forces and means of monitoring
I - obtaining sufficient primary information about the state of the border area in the areas of responsibility in a time mode close to real time with the help of various forces and means and entering it into a specialized integrated information and telecommunication system.	Personnel. Technical means of surveillance of the border space of land, sea, air and space-based. Integrated information and telecommunication system. Software for entering primary data.
II – processing of primary information in an integrated information and telecommunication system for the subsequent formation of local and national situational pictures.	Integrated information and telecommunication system. Risk analysis and geospatial analysis software.

III – qualitative (timely, complete and objective) awareness of stakeholders in order to ensure their adequate and systematic response to threats to border security and minimize vulnerabilities of the border security system.	Integrated information and telecommunication system and/or other means of communication.
--	--

(Source: compiled by the authors)

The priority and scale of the tasks of engineering and technical arrangement of the state border necessitate its strategic planning, in particular, to determine the appropriate stages and measures for the introduction of the latest security technologies, to attract the scientific and production potential of Ukraine, foreign countries and technical assistance from international organizations, as well as to improve coordination and interaction between border security actors at all levels (border, national, interstate and international).

The above analysis (On approval 2019) shows that the SBGSU's existing approaches to border security monitoring have significant vulnerabilities that need to be addressed to ensure effective counteraction to threats and compatibility with the EUROSUR system, and thus the full implementation of the IBM mechanism at all levels.

### **Conclusions and suggestions**

This article provides a general description of the vision of ensuring the border security of Ukraine, systematizes the factors influencing the formation of a promising system for monitoring the border security of Ukraine, and highlights the formulation of the relevant scientific task.

The author establishes that the number of sources and the rate of receipt of heterogeneous information about events and processes in the border area are constantly growing, which correlates with the technological progress of society and the activities of the subjects of integrated border management. Therefore, one of the main principles of ensuring the border security of Ukraine is the high-quality (timely, complete and reliable) provision of information to the subjects of integrated border management at various levels necessary for making management decisions.

At the same time, the SBGS approaches to border security monitoring have significant vulnerabilities. This indicates the need to launch a large-scale strategic project to modernize Ukraine's border security monitoring system, interoperable with a similar EU system.

### **References**

1. Binkovskyi, O., & Kuprienko, D. (2018). Actual issues of coordination of activities of military formations and law enforcement agencies related to the protection of the state border of Ukraine. In *Participation of law enforcement agencies and military formations*

*in ensuring public safety: Collection of materials of the III All-Ukrainian Scientific and Practical Conference.*

2. Brezhneva, T., Yizhak, O., & Shevtsov, A. (2003). *Euro-Atlantic Integration of Ukraine: Military-Political Aspects* (V. Horbulin, Ed.). Dnipropetrovs'k: Porogi Publishing House.
3. Brzezinski, Z. (2026). *Ukraine in the geostrategic context*. Kyiv: Kyiv-Mohyla Academy Publishing House.
4. European Commission. (2019). European integrated border management. Retrieved from [https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary/glossary/european-integrated-border-management\\_en](https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary/glossary/european-integrated-border-management_en)
5. Hrytsiak, I., & Dzvinchuk, D. (2013). *European Integration: A textbook for students of higher educational institutions and students of master's degree in Public Administration*. Ivano-Frankivsk: Publishing house "Misto NV".
6. Huntington, S. P. (1996). *The Clash of Civilizations and the Remaking of World Order*. New York: Simon & Schuster.
7. Law of Ukraine No. 2680-VIII. (2019). *On Amendments to the Constitution of Ukraine (regarding the strategic course of the state for Ukraine's full membership in the European Union and the North Atlantic Treaty Organization)*. Bulletin of the Verkhovna Rada of Ukraine, (9), Art. 50. Retrieved from <https://zakon.rada.gov.ua/laws/show/2680-19#n7>
8. Cabinet of Ministers of Ukraine. (2019). *On approval of the Integrated Border Management Strategy for the period up to 2025*. Resolution No. 687-p, July 24, 2019. *Official Gazette of Ukraine*.
9. President of Ukraine. (1999). *On measures to implement the Concept of Administrative Reform in Ukraine*. Decree No. 810/98, July 22, 1998. *Official Gazette of the President of Ukraine*.
10. European Parliament and Council. (2019). *Regulation (EU) 2019/1896 of November 13, 2019, on the European Border and Coast Guard and repealing Regulations (EU) No 1052/2013 and (EU) 2016/1624*. Retrieved from <https://cutt.ly/lcbq11A>
11. European Parliament and Council. (2013). *Regulation (EU) No 1052/2013 of October 22, 2013, establishing the European Border Surveillance System (Eurosur)*. *Official Journal of the European Union*, L 295, 11. Retrieved from <https://cutt.ly/Kx7i6Ct>
12. European Court of Auditors. (2019). *Special Report: EU information systems supporting border control - a strong tool, but more focus needed on timely and complete data*. European Union. Retrieved from <https://cutt.ly/qcw9e2K>
13. Frontex. (2019). *Technical and Operational Strategy for European Integrated Border Management*. Retrieved from <https://cutt.ly/Lx7iDWI>