Combating cross-border organized crime in the border region of the state: strategy development methodology

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COMBATING CROSS-BORDER ORGANIZED CRIME IN THE BORDER REGION OF THE STATE: STRATEGY DEVELOPMENT METHODOLOGY

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Abstract: *The article describes the methodology for the following successive stages: data collection on cross-border organized crime; analysis of the impact of PEST factors of the border region on the number of cross-border crimes committed by organized criminal groups; generalization and analysis of parameters for assessing the capabilities of organized criminal groups; assessment of the level of capabilities of organized criminal groups to commit cross-border crimes; passporting of organized criminal groups specializing in cross-border crimes; modeling of scenarios of the development of organized criminal groups illegal activities by types of cross-border crimes; selection of options for fighting cross-border organized crime by the targeted impact on organized criminal groups. The strategy envisages a complex of the following measures: rapid (operational) interventions in critical situations; anti-crisis measures of the border guard operation to neutralize threats; other regime and control measures to strengthen the protection of the state border; standard planned and preventive measures; measures of sustainable development of the border security system. Implementing the methodology in practice enables the development of a strategic approach to effectively utilize the resources of state law enforcement agencies in combating cross-border crime.*

Keywords: *Organized Crime; Cross-Border Crime; Strategy; Criminal Group; Border Region*

INTRODUCTION

The modern security space of many countries of the world is characterized by military and political, social and economic, and ecological instability (Threats without borders 2022) due to the influence of many factors, which, in particular, include (On the National Security Strategy of Ukraine 2020): the rapid globalization of crime; imbalance of countries' development; consequences of financial and economic crises; deterioration of the socioeconomic situation of the population; strengthening of international competition of states for spheres of influence, their regional associations and subjects of international relations; aggravation of international relations and escalation of various conflicts; etc. The negative impact of these factors contributes to the growth of organized crime and the spread of its activity threats. In this regard, the most unstable (dangerous) are the border (peripheral) regions of the states, which open the way for transnational crime. So, for example, according to the Unified Reports of Ukraine on criminal offenses from 2014 to 2022, there is a constant increase in the number of organized criminal groups (OCG) and crimes committed by them (On Registered Criminal Offenses 2022) in

Ukraine. At the same time, terrorist activities rapidly spread in Ukraine during the escalation of the conflict from 2014 to 2015 and the full-scale armed invasion of the aggressor state in 2022, which significantly increased the global index of terrorism in Ukraine among 163 countries of the world (Ukraine Terrorism Index 2022). As a result, according to the United Nations Organization for the Coordination of Humanitarian Affairs, as of 20 December 2022, 7 million 863 thousand people emigrated from Ukraine to EU Member States, 99.5 thousand people emigrated to the Republic of Moldova (Status Humanitarian Situation in Ukraine 2022).

The need to combat transnational organized crime is stipulated by international acts, in particular by the mentioned Convention and the Protocols to it, as well as by the national legislation of the states (for example, the Law of Ukraine "On the Organizational and Legal Basis of Combating Organized Crime" (On the organizational and legal foundations of combating organized crime 1993), the Strategy for Combating Organized Crime (2020).

The effectiveness of combating cross-border organized crime (COC) is achieved by the involvement of competent law enforcement agencies of various states and international organizations, whose powers extend to the territory of the OCG. Instead, the neutralization of transnational organized crime as cross-border organized crime can be effective within a separate border region. This especially applies to neighboring states, between which friendly relations are not maintained, and accordingly, issues of ensuring the security of the state border are not jointly resolved. At the same time, it should be noted that each border region has both common features and specific conditions for the genesis of OCG and the spread of COC. These conditions determine the activity of the OCG regarding the constant search for effective methods and schemes for committing cross-border crimes.

Given the complex criminogenic situation in the border regions of Ukraine, and taking into account the severe consequences for society due to the influence of COC, the priority task of state law enforcement agencies is to respond to relevant threats adequately. This is achieved by forming the necessary capabilities of the region's security system, continuous monitoring of threats, and comprehensive risk analysis. However, the current state of anti-terrorist operations in the border regions of Ukraine is characterized by the presence of acute problems in the activities of law enforcement agencies, which leads to a decrease in the effectiveness of the security system, in particular, due to: the imperfection of the model for monitoring the criminogenic situation; the absence of a single methodology for assessing threats and analyzing the risks of organized crime for law enforcement agencies; gaps in the interaction of entities fighting against organized crime; deficiencies in regulatory and legal support for combating organized crime; use of outdated crime combating approaches (forms and methods).

A systematic approach to combating cross-border organized crime (COC) is deemed necessary to ensure safety and address the abovementioned issues. Implementing a strategy for combating COC in the state's border region is believed to be a primary means to address these issues. This factor substantiates the practical relevance of the research topic.

LITERATURE REVIEW

Due to their exceptional importance, problematic issues related to ensuring border security and combating the manifestations of COC have been studied in the publications of many scientists.

Cam (2021) examined the regulation issue of intercontinental migration to the United States of America by law enforcement agencies of transit states. Based on statistical information about migrants in Mexico from Asian and African countries, he established the main grounds for their legalization.

Covadonga (2023) studied the practice of Frontex's daily activities in organizing state border protection. It determined the role of "humanitarian rescue" and "deterrence" concepts in border control.

Farion, Balendr, Androshchuk, Mostovyi, and Grinchenko (2022) developed various techniques and methods with innovative procedures for obtaining and analyzing information about cross-border organized crime from various sources, including the Internet. The technology of operational protection of the state border was proposed based on the relevant construction of a source network for obtaining information about cross-border crime.

Gonzalez-Sanchez (2020) investigated organized crime in one of the criminogenic regions of Spain, which specializes in narcotics and includes the following interrelated criminal groups: drug users; drug dealers; police officers; a group of persons influencing the reduction of harm to society from drug trafficking.

Hai (2020) studied the nature of persistent transnational crime in Vietnam, specializing in drug trafficking and human trafficking. He analyzed its differences from the crime of Southeast Asian states and specific ways of committing crimes. The author emphasized the tricks associated with the flexible actions of criminals to avoid responsibility and the influence of law enforcement agencies.

Ilijevski, Babanoski, and Dimovski (2019), based on the analysis of statistical data on trials and sentences, studied the circumstances of terrorist attacks (failed, prevented, and completed) in the EU Member States, as well as the conditions for committing criminal acts.

Kox and Staring (2021) investigated the implementation of intra-state control of illegal migration in the Netherlands. They emphasized the importance of using this mechanism by individual states during the deportation of illegal migrants.

Kupriienko (2016) worked out a method of managing the development of the border security system of Ukraine in the conditions of a differentiated security environment for the border protection concepts formation. For various concepts of border security, he developed a system of criteria, functions, and organizational and technical measures considering the military, political, social, and economic conditions and the estimation of changes for a certain period concerning certain sections of the state border.

Kushnir and Hutsuliak (2021) formed a typical criminological characteristic (profile) of a person who committed a criminal offense in state border protection.

Machado, Granja, and Amelung (2020) developed a technological system that ensures the exchange of information from DNA databases between the Member States of the European Union

in the context of police and judicial authorities cooperation in the fight against cross-border crime and terrorism.

Oomen, Baumgartel, Miellet, Sabchev, and Durmuş (2021) examined border practices in Greece, Tercia, the Netherlands, Italy, and Germany and the factors that facilitate migration or create barriers to migrant mobility locally. The role of social, economic, and spatial factors in migration processes was determined.

Peirce (2020) investigated organized criminal activity in the context of economic development in Latin America and the impact of crime factors catalysts to understand the trends of its spread in certain regions of the state at the macro level.

Pryimachenko, Ivanskyy, Lipynskyi, Matvieiev, and Povoroznik (2021) investigated the relationship between the illegal crossing of the state border and human trafficking and provided them with a comparative description and recommendations for combating these phenomena.

Traistaru (2021) investigated the scale of the phenomenon of organized cross-border crime in Romania, the consequences of this phenomenon in Romania, the factors influencing the development of organized cross-border crime, the necessary legislative changes to combat this phenomenon and promote the proper functioning of competent institutions, and what can be done to strengthen institutional cooperation in the fight against organized cross-border crime.

Wonders and Fernandez-Bessa (2021) investigated the problems of national migration policy and state border protection, which led to new locations (cities of refuge) for migrants in the United States of America and Spain.

Woude and Staring (2021) studied migration processes and the practice of their control in different countries. These processes were characterized, and the origin nature of the illegal migration channels from Asian and African countries was substantiated.

Zahorodnii, Manuyilova, and Belogubova (2019) identified and structured the main trends of the state political situation influence on transnational organized criminal activity in the circulation of drugs, psychotropic substances, firearms, explosive charges and devices, and vehicles. They proposed a complex of effective countermeasures against the outlined manifestations of transnational organized crime.

Summarizing the literature review, it should be noted that the analyzed scientific works considered only certain aspects of combating COC. At the same time, complex studies of COC in the border region to form a countermeasure strategy were not conducted. This determines the scientific relevance of the research.

METHODOLOGY

The object of the study was the system of combating organized criminal activity, and the subject of the study was the process of justifying the strategy of combating cross-border organized crime in the state's border region. The article aims to develop a methodology for forming a strategy for combating cross-border organized crime in the state's border region. It is proposed to solve seven partial research tasks to achieve the goal according to the block diagram shown in Figure 1.
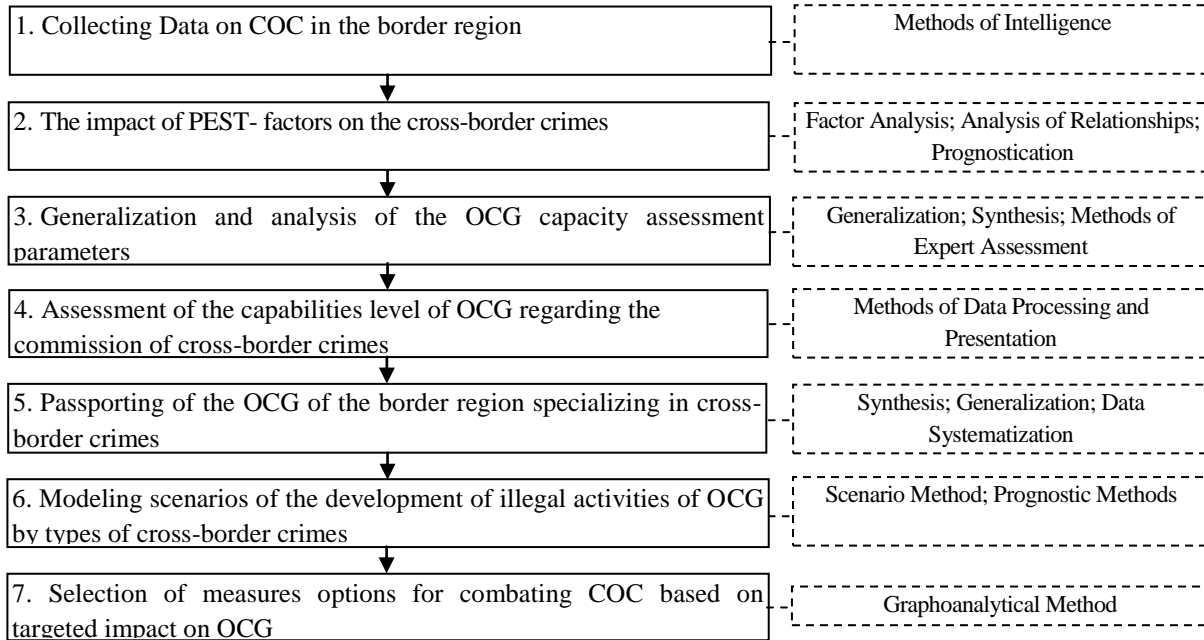
1. Collecting Data on COC in the border region	Methods of Intelligence
2. The impact of PEST- factors on the cross-border crimes	Factor Analysis; Analysis of Relationships; Prognostication
3. Generalization and analysis of the OCG capacity assessment parameters	Generalization; Synthesis; Methods of Expert Assessment
4. Assessment of the capabilities level of OCG regarding the commission of cross-border crimes	Methods of Data Processing and Presentation
5. Passporting of the OCG of the border region specializing in cross-border crimes	Synthesis; Generalization; Data Systematization
6. Modeling scenarios of the development of illegal activities of OCG by types of cross-border crimes	Scenario Method; Prognostic Methods
7. Selection of measures options for combating COC based on targeted impact on OCG	Graphoanalytical Method

Figure 1: Block Diagram of a Strategy Forming Methodology for Combating COC in the Border Region of the State (Source: Authors' research)

In Figure 1, in addition to each methodology stage, a list of relevant methods is presented in dotted blocks (Kupriienko and Farion 2016). The research methodology involves the following limitations:

- Combating OCG is investigated in the border region of one state;
- the territorial boundaries of the border region are determined by the specific conditions for committing cross-border crimes;
- the effectiveness of the COC strategy in the border region of the state depends on the timeliness, completeness, and reliability of the initial data, as well as the availability of appropriate capabilities for its implementation;
- the article provides examples with such initial data that allow a clearer understanding of the processes under investigation.

In a general sense, the strategy involves defining general principles, priorities, tasks, and a mechanism for protecting the vital interests of the individual (person), society and the state from external and internal threats of a non-military nature. Combating COC in the border region is a mechanism of current and prospective influence on OCG to reduce or eliminate their activity significantly.

Within the scope of the research topic, the goal of the strategy is the formation of a complex of measures to combat COC in the border region of the state: rapid (operational) intervention in critical situations - in the case of a critical situation; anti-crisis measures of the border operation to neutralize threats - to neutralize threats; other regime and control measures to strengthen the protection of the state border - to strengthen the protection of the state

border; standard planned and preventive measures - in daily activity; measures of sustainable development of the border security system - on an ongoing basis.

So, according to the description of the above stages, the method of forming a strategy for combating COC in the state's border region has been presented. This technique provides an opportunity to determine the priorities and options for measures to combat COC based on the targeted impact on each of the OCG, which is necessary for the targeted application of existing capabilities and the formation of new capabilities of the subjects of combating organized crime. It has been proposed to implement the strategy formation process for combating COC using a graph-analytical method of analyzing the scenarios of OCG spreading, considering the opportuneness of the identified factors.

RESEARCH RESULTS

According to the chosen topic of the article, the main terms to be investigated are "cross-border crime" and "organized criminal group".

The United Nations Convention against Transnational Organized Crime (2004) gives the following interpretation to the mentioned concepts:

- Organized crime refers to the activities of a group of individuals who are organized in a specialized structure designed to commit crimes;
- organized criminal group - a structurally organized group consisting of three or more persons that exist during a certain period and acts in concert to commit one or more serious crimes or crimes for receiving, directly or indirectly, financial or other material benefits;
- cross-border crime - a crime committed: in more than one state; in one state, but a substantial part of its preparation, planning, leading, or control takes place in another state; in one state, but with the participation of an organized criminal group that commits criminal activities in more than one state; in one state, but its significant consequences take place in another state.

According to Europol (2023), cross-border crimes are classified according to the following groups: illegal arms trafficking; human and organ trafficking; illegal importation of migrants; production, trade, and distribution of drugs; cybercrimes (in particular, sexual exploitation of children in cyberspace); forgery of payment means; fraud in the field of information technology; transportation of hazardous waste; crimes against intellectual property; organized crimes against property; corruption; trade of "red book" species of nature.

The list of the main types of cross-border crimes committed by OCG in the border regions of Ukraine across the state border with the countries of the European Union is indicated in Table 1 according to the title of the articles of the Criminal Code of Ukraine (2001).

Table 1: List of Certain Types of Cross-Border Crimes Committed by OCG in the Border Region (according to the title of the articles of the Criminal Code of Ukraine) (Source: Authors' analysis)

No.	Article Number	The name of the type of cross-border crime according to the articles of the Code
1	305	Smuggling of drugs, psychotropic substances, their analogs or precursors, or falsified medicinal products
2	332	Illegal transportation of persons across the state border
3	332.2	Illegal crossing of the state border
4	149	Human trafficking
5	200	Illegal actions with transfer documents, payment cards, and other means of access to bank accounts, electronic money, equipment for its production
6	201	Smuggling
7	201.2	Illegal use of humanitarian aid, charitable donations, or free aid for profit
8	249	Illegal occupation of fish, animals, or other water extractive industry
9	258	Terrorist act
10	258.3	Creation of a terrorist group or terrorist organization
11	258.5	Financing of terrorism
12	201	Smuggling

Combating organized crime in the border region is carried out in the form of:

- *prevention* (prophylactic and preventive activities), which is aimed at identifying signs and eliminating the causes of illegal (criminal) activity;
- *counteraction* aims to stop, reveal, investigate crimes, and bring guilty persons to justice.

Several analytical tools are used to form a complex of measures to combat COC by law enforcement agencies of Ukraine, such as, for example, strategic criminal analysis (Farion 2020), SOCTA (Serious and Organized Crime Threat Assessment 2017), Sleipnir (OSCE Guidebook Intelligence-Led Policing 2017), SWOT analysis. However, the results of their use in practice are not sufficiently effective, confirmed by the increase in cross-border crimes, organized criminal groups, their spread, and the significant consequences of their manifestation (serious crimes). One of the scientific approaches that will help to solve this urgent issue comprehensively is the combined use of these and other instrumental means of analytical research of organized crime and, based on this, the development of a methodology for the formation of a strategy for combating COC in the border region of the state. Hence, a more detailed examination of the content of the stated methodology can be undertaken by analyzing its stages.

Collecting Data on COC in the Border Region

At the stage of collecting data on COC in the border region of the state, information is obtained about the general and criminogenic situation in the state's border region. The data collection process involves constant monitoring of the situation in the border region to identify informational signs that are indicators of the activities of the OCG and the cross-border crimes committed by them. In addition, information is received from all available sources - territorial and regional units of entities fighting against organized crime and their other representatives.

Organized criminal groups that commit cross-border crimes are characterized by a certain complex of characteristics, the main ones of which are: the presence of a common fund or centralized financing, a collegial form of management, where the leadership of the group is carried out by one or a group of persons who have an equal position; the presence of informal norms of behavior, laws, traditions and rules for their observance; the presence of a functional and hierarchical structure and the distribution of functions among members of the group by purpose and field of activity; collection and accumulation in information databases necessary for the implementation of illegal activities. In addition, in recent years, cross-border organized criminal activity has been characterized by an active tendency to cooperate in efforts and integrate into various spheres of society. This gives OCG competitiveness and the opportunity to legalize capital and expand spheres and territories of influence.

Data on OCG are summarized and systematized, and if necessary, they are obtained through the capabilities of interacting structures, for example, from subjects of integrated border management. At the same time, attention is focused on several elements, in particular: the presence of organized crime, spheres of influence, the scale and factors of its manifestation, the composition of persons involved in illegal activities, and other information that can characterize the quantitative and qualitative parameters of OCG. For this purpose, reliable data is collected on:

- organized criminal activity, spheres of its influence, and types of related crimes; cross-border organized criminal groups;
- single offenders involved in cross-border crimes;
- specifics of the activity environment;
- consequences and damage caused to society and the state, etc.

The information processed as a result of the analysis is systematized and summarized in the relevant databases.

In the following, secondary information is obtained based on a complex analysis of the information, that is, intelligence data that provide the OCG's characteristics and define a specific type of cross-border crime (see Table 1). In addition, information is obtained on all factors affecting cross-border organized criminal activity in the border region. Every threat from COC arises due to the influence of several factors that, over time, can increase or reduce to a minimum or leave the OCG activity unchanged in committing cross-border crimes. So, such factors are divided into two groups: stimulators and destimulators. At the same time, destimulating factors are arranged to the format of stimulating factors. An example of stimulating factors for cross-border crimes (specific to the territory of Ukraine) is given in Table 2.

The content of factors-stimulators of COC, indicated in Table 2, has been synthesized from general information obtained on the spheres of societal activity in the border region, the nature of the criminal activity, OCG, types of cross-border crimes committed by them, etc. The list of factors indicated in Table 2 is not comprehensive. It is intended only to demonstrate the essence of the methodology stages.

Describing the factors related to COC provides an opportunity to clarify better the current and future opportunities or obstacles for OCG and the spheres of their criminal activity.

Table 2: Stimulating Factors for Cross-Border Crimes (Source: Authors' research)

No. (j)	The name of the factor (w_s) according to the PEST analysis specifics
1.	*A group of political factors*
1.1.	Gaps in the strategy implementation for the border region development (correspondence of the implemented measures to the planned ones)
1.2.	The state of aggravation of the social and political situation in the border region
...	...
2.	*A group of economic factors*
2.1.	The average level of population unemployment in the border region
2.2.	The average level of the population income decreased in the border region
...	...
3.	*A group of social factors*
3.1.	Persons involved in corruption in state authorities of the border region
3.2.	The average level of the population dissatisfaction with the social conditions of life in the border region
...	...
4.	*A group of technological factors*
4.1.	The part of the area of the border region with internet coverage relative to its total area
4.2.	Lack of software and technical means of Internet monitoring for the subjects combating organized crime
...	...

The use of factors provides an understanding of current conditions and major changes that may occur in the operational and criminogenic situation in the border region. Also, it makes it possible to substantiate the expediency of certain priorities in combating COC, following which more specific and targeted recommendations should be developed.

The Impact of PEST Factors on the Cross-Border Crimes

At this stage, the data reflecting the dynamics of the dependence of the number of cross-border crimes committed by OCG on PEST-factors impact in the border region have been summarized and analyzed. The dynamics of this dependence are presented in Table 3.

Table 3: Dynamics of the Dependence of the Cross-Border Crimes Number on the Influence of PEST-Factors in the Border Region (Source: Authors' research)

w_s	u	D_z	Types of Cross-Border Crimes (No. in Table 1)										$\overline{k_z}$	k_{vw}
			No. 1				No. 2				...	No. 12		
			N_{zl}	R_z	v_w	k_z	N_{zl}	R_z	v_w	k_z	...	k_z		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.1.	$r + 1$	0.07	88	-0.28	-0.02	0.15	254	-0.16	-0.01	0.07	...	0.35	0.16	0.07
	r	0.09	123	0.58	0.05	-	301	0.14	0.01	-	...	-	-	-
	$r - 1$	0.06	78	0.22	0.01	-	263	0.33	0.02	-	...	-	-	-
	$r - 2$	0.07	64	0	0	-	198	0	0	-	...	-	-	-
1.2.	$r + 1$	0.07	88	-0.28	-0.02	0.14	254	-0.16	-0.01	0.10	...	0.29	0.13	**0.12**
	r	0.07	123	0.58	0.04	-	301	0.14	0.01	-	...	-	-	-
	$r - 1$	0.09	78	0.22	0.02	-	263	0.33	0.03	-	...	-	-	-
	$r - 2$	0.04	64	0	0	-	198	0	0	-	...	-	-	-
2.1.	$r + 1$	0.22	88	-0.28	-0.06	0.49	254	-0.16	-0.03	0.22	...	0.61	0.49	**0.25**

	r	0.28	123	0.58	0.16	-	301	0.14	0.04	-	...	-	-	-
	r - 1	0.20	78	0.22	0.04	-	263	0.33	0.07	-	...	-	-	-
	r - 2	0.18	64	0	0	-	198	0	0	-	...	-	-	-
	r + 1	0.15	88	-0.28	-0.04	0.45	254	-0.16	-0.02	0.26	...	0.54	0.39	**0.22**
2.2.	*r*	0.23	123	0.58	0.13	-	301	0.14	0.03	-	...	-	-	-
	r - 1	0.21	78	0.22	0.05	-	263	0.33	0.07	-	...	-	-	-
	r - 2	0.02	64	0	0	-	198	0	0	-	...	-	-	-
	r + 1	0.14	88	-0.28	-0.04	0.33	254	-0.16	-0.02	0.17	...	0.38	0.27	**0.15**
3.1.	*r*	0.19	123	0.58	0.11	-	301	0.14	0.03	-	...	-	-	-
	r - 1	0.14	78	0.22	0.03	-	263	0.33	0.05	-	...	-	-	-
	r - 2	0.10	64	0	0	-	198	0	0	-	...	-	-	-
	r + 1	0.21	88	-0.28	-0.06	0.62	254	-0.16	-0.03	0.35	...	0.57	0.52	**0.21**
3.2.	*r*	0.32	123	0.58	0.18	-	301	0.14	0.05	-	...	-	-	-
	r - 1	0.28	78	0.22	0.06	-	263	0.33	0.09	-	...	-	-	-
	r - 2	0.04	64	0	0	-	198	0	0	-	...	-	-	-
	r + 1	0.11	88	-0.28	-0.03	0.28	254	-0.16	-0.02	0.13	...	0.31	0.23	0.09
4.1.	*r*	0.16	123	0.58	0.09	-	301	0.14	0.02	-	...	-	-	-
	r - 1	0.10	78	0.22	0.02	-	263	0.33	0.03	-	...	-	-	-
	r - 2	0.06	64	0	0	-	198	0	0	-	...	-	-	-
	r + 1	0.19	88	-0.28	-0.05	0.40	254	-0.16	-0.03	0.24	...	0.29	0.29	**0.12**
4.2.	*r*	0.22	123	0.58	0.13	-	301	0.14	0.03	-	...	-	-	-
	r - 1	0.21	78	0.22	0.05	-	263	0.33	0.07	-	...	-	-	-
	r - 2	0.13	64	0	0	-	198	0	0	-	...	-	-	-

In Table 3, the following designations are adopted: w_s - COC factor according to the order number in Table 2; u - the assessment period of the factor, which is divided into the current year (r), the previous year (r - 1), two years later (r - 2) and the next year (r + 1); N_{zl} is the total value of the number of cross-border crimes detected at the state border by the State Border Guard Service of Ukraine and law enforcement agencies of an adjacent state for a certain period (u); R_z is the level of changes in cross-border crime, which is determined respectively to the previous year; v_w - the influence of the factor on the level of cross-border crime; k_z - prognostic coefficient of changes of the factor influence; $\overline{k_z}$ - the average value of the coefficients of changes in the influence of the factor; k_{vw} - weight coefficient of the factor influence; D_z is the dynamics of the factor level that corresponds to the result value of the statistical data analysis.

Various prognostic methods can determine the value of the dynamics of the factor level and the number of cross-border crimes for the next year. The easiest method for perception is the average arithmetic value for the last three years. In Table 3, in column 5, the level of changes in cross-border crime according to the control factor is determined by the expression:

$$R_z(u) = \frac{N_{zl}(u) - N_{zl}(u-1)}{N_{zl}(u-1)} \qquad (1)$$

where $u = r$, r -1, r -2, r +1.

The formula determines the influence of the factor on the level of crime:

$$v_w(u) = D_z(u) \cdot R_z(u) \qquad (2)$$

Then the prognostic coefficient of changes of the factor influence is determined by the expression:

$$k_z(r+1) = \frac{\left(v_w(r) + v_w(r-1) + v_w(r-2)\right) \cdot 10}{3}, \tag{3}$$

where 10 is the factor of increasing the digit of the value.

The average value of the coefficients of changes in the influence of the factor ($\overline{k_z}$) is defined as the arithmetic mean value of the prognostic coefficients of changes in the influence of the factor on each of the cross-border crime types. Based on the results of the calculations, the weight coefficient of the factor influence (k_{vw}) is determined by the formula:

$$k_{vw}(u) = \frac{\overline{k_z}(u)}{\sum\limits_{j=1}^{J} \overline{k_z}(u)}, \tag{4}$$

where j=1 - the first factor of cross-border crimes specific to the territory of Ukraine according to the order number from Table 2; J is the total number of factors (according to Table 2) that are calculated.

Data on future changes in PEST factors of the border region and COC obtained from the analysis at this methodology stage can help law enforcement agencies detect new and/or current cross-border crimes. Further, the parameters of OCG capacity assessment based on available and retrospective data are analyzed.

Generalization and Analysis of OCG Capacity Assessment Parameters

According to the analysis of the collected data on organized criminal activity in the border region, the parameters of the OCG are summarized. All parameters are evaluated using the scale in Table 4.

Table 4: Quantitative and Qualitative Scale for Expert Assessment of Parameters' Impact on the OCG Capacity and Factors' Impact on the Environment Favorability for the OCG Capacity Realization
(Source: Authors' work based on experts' answers)

Parameters (P) Impact on the OCG Capacity	Parameter quantitative and Qualitative Assessment (Z_p)/(Z_f)	Factors Impact (F) on the Environment Favorability for the OCG Capacity Realization
The parameter does not affect the OCG capacity	0 zero	The factor does not affect the environment's favorability
The parameter does not significantly affect the OCG capacity	1 low	The factor does not significantly affect the environment's favorability
There is no information about OCG. The available information does not allow for assessing the parameter impact on the OCG capacity. The available information is contradictory.	2 unknown	There is no information about the factor that impacts the environment's favorability. The available information does not allow for assessing the factor influencing the environment's favorability.

		The available information is contradictory.
The parameter has an insignificant (indirect) impact on OCG capacity.	3 average	The factor has an insignificant (indirect) effect on the favorable environment.
The parameter has a significant (direct) impact on OCG capacity.	4 high	The factor has a significant (direct) impact on the environment's favorability.

A variant of the OCG capabilities evaluation results according to the scale in Table 4, obtained on the example of a certain border region, is presented in Table 5.

Table 5: Parameters for Assessing the Capacities of OCG (on the example of a border region of the state) (Source: Authors' research)

No.	OCG Capacity Parameter (p)	Evaluation		Weight Coefficient (k_p)
		Qualitative	Quantitative	
1	Numerical composition: the number of people in OCG	low	1	0.025
2	Monopoly regarding the commission of a specific type of cross-border crime	average	2	0.051
3	Ability to interact with other OCGs	high	4	**0.103**
4	Corporate cohesion: identity, trust, accessibility, interaction of its OCG members, etc	zero	0	0
5	Duration of criminal activities	average	2	0.051
6	Criminal activity for various types of cross-border crimes	average	2	0.051
7	Stability of the OCG structure: personnel structure, integrity, self-preservation, etc.	high	4	**0.103**
8	Ability to oppose law enforcement agencies	average	2	0.051
9	Planning character of organized crime	average	2	0.051
10	Legalization of income	high	4	**0.103**
11	Operational flexibility and latency of crime manifestation	average	2	0.051
12	Technical equipment and use of modern technical means and innovative technologies	average	2	0.051
13	Availability of authorized capital, special cash fund, diversification of existing assets in non-cash offshore accounts	unknown	2	0.051
14	Receiving significant profits	high	4	**0.103**
15	Integration into state authorities, institutions, and organizations that directly or indirectly carry out activities across the state border	unknown	2	0.051
16	Contacts with corrupt persons from state authorities, institutions, and organizations both in the country of permanent residence and in the neighboring country	high	4	**0.103**

In Table 5, the weight factor of the OCG capacity evaluation parameter (k_p) is calculated as the ratio of the numerical value of the parameter to the sum of the numerical values of all OCG parameters. The OCG parameter, which has a weight value higher than 0,1, is considered significant for the development of OCG (spread of criminal activity and increase in the number of COC) in the short term.

Further, the interconnection between the parameters of OCG capabilities in the border region is analyzed. The analysis results of the OCG capacity parameters dependence are presented in Table 6 on the example of one of the border regions of the state.

In Table 6, the following designations are adopted: "0" - if it is a connection between the same parameters or it is unconfirmed (unknown); "+"- if the connection is confirmed; "-" - if there is no connection between the parameters (one parameter has no impact on another).

Further, based on the analysis of the interdependence between the parameters specified in Table 6, the strength of the connection between each of the parameters is determined (k_{sz}) is calculated as the ratio of the numerical value of the parameter to the sum of the numerical values of all OCG parameters. As a result of the analysis of interconnections by their strength, the most important OCG parameters are revealed (the value of the connection strength is higher than 0.05), significantly influencing others and favoring the spread of COC.

Table 6: Results of the Analysis of OCG Capabilities in the Border Region (Source: Authors' research)

Parameter (p)	Parameter (p)																Number of Interconnections	Connection Strength (k_{sz})
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
1	0	+	-	-	0	+	+	-	0	-	-	-	-	+	+	+	6	0.053
2	+	0	-	+	+	0	+	0	-	-	-	0	-	+	+	+	7	0.061
3	-	-	0	+	-	+	0	+	+	0	+	-	-	+	-	+	7	0.061
4	-	+	+	0	+	+	+	+	-	-	+	-	-	-	-	-	7	0.061
5	0	+	-	+	0	+	+	+	-	0	-	-	+	+	-	+	8	0.070
6	+	0	+	+	+	0	-	-	0	-	+	+	0	-	+	+	8	0.070
7	+	+	0	+	+	-	0	+	-	-	-	0	+	-	-	-	6	0.053
8	-	0	+	+	+	-	+	0	+	-	+	+	-	-	+	+	9	0.079
9	0	-	+	-	-	0	-	+	0	-	+	-	+	-	-	-	4	0.035
10	-	-	0	-	0	-	-	-	-	0	-	-	+	+	-	+	3	0.026
11	-	-	+	+	-	+	-	+	+	-	0	-	-	+	+	+	8	0.070
12	-	0	-	-	-	+	0	+	-	-	-	0	+	+	-	-	4	0.035
13	-	-	-	-	+	0	+	-	+	+	-	+	0	+	+	+	8	0.070
14	+	+	+	-	+	-	-	-	-	+	+	+	+	0	+	+	10	0.088
15	+	+	-	-	-	+	-	+	-	-	+	-	+	+	0	+	8	0.070
16	+	+	+	-	+	+	-	+	-	+	+	-	+	+	+	0	11	0.096

Assessment of the OCG Capabilities for the Cross-Border Crimes Committing

At this stage, the formula is used to determine the numerical value of the OCG's ability to commit cross-border crimes:

$$Q_{ozu} = \sum_{p=1}^{P} \left(k_{sz} \cdot k_p \right), \qquad (5)$$

where k_{sz} is the value of the parameter connection strength (Table 6); p - OCG parameter (Table 5); P is the total number of parameters (Table 5); k_p - is the value of the parameter weight coefficient (Table 5).

In the following, a gradation scale is used to evaluate OCG capabilities (see Table 7), according to which, by comparing the numerical value obtained from expression (5) with the numerical values of column 1, the level is determined. The qualitative value of OCG capabilities for committing cross-border crimes in column 2 is obtained.

Table 7: Scale of OCG's Capabilities Levels Gradation to Commit Cross-Border Crimes (Source: Authors' work based on experts' answers)

Quantitative Assessment of the Level of Capabilities	Qualitative Assessment of the Level of Capabilities
1	2
[0.0 ... 0.2)	Very High
[0.2 ... 0.37)	High
[0.37 ... 0.64)	Average
[0.64 ... 0.8)	Low
[0.8 ... 1.0]	Very Low

Thus, based on the results of the OCG capabilities evaluation parameters analysis, the value is calculated. It determines the level of the OCG's capabilities to commit cross-border crimes in the border region. A quantitative and qualitative assessment of the capabilities level is recorded in each passport from the OCGs that commit illegal activities in the border region.

OCG Passporting in the Border Region Specializing in Cross-Border Crimes

To establish the parameters of cross-border organized criminal activity, the passporting of OCG is of great importance. Passporting is carried out based on the generalization of OCG parameters and the specifics of its illegal activity by types of cross-border crimes in their totality. In the course of passporting, the organizational structure of the OCG is revealed with the help of methods of criminal analysis and intelligence analysis of available data on criminal activity.

Table 8 presents an extract from the passport of OCG, in particular, its specialization in illegal people transportation across the state border of Ukraine.

The card file, consisting of OCG passports, enables law enforcement agencies to compile general characteristics (description, profile) of cross-border organized criminal activity in the border region. In the future, available data on criminal activity and OCG can be used by law enforcement agencies of Ukraine to conduct a special border or international operation.

Table 8: Extract From the Passport of an Organized Criminal Group in Terms of its Specialization in People Smuggling Across the State Border (Form Version) (Source: Authors' research)

The Object of the Crime	Public relations on state sovereignty protection, the integrity, and inviolability of its borders.
The Subject of the Crime	A person who has reached the age of 16.
The Objective Side of the Crime	Illegal people transportation across the state border.
	Organization of illegal people transportation across the state border.
	Management of illegal people's transportation across the state border.
	Assistance in illegal people's transportation across the state border.
The Subjective Side of the crime	The guilt of a person in the form of direct intent.
Specifics of the Crime Composition	Organizational activities, regardless of whether it got possible to cross the state border or not.
	Management of illegal people's transportation across the state border is considered as committed crimes (crimes with a shortened composition).
	Persons who carry out illegal transportation and facilitate this by providing advice, instructions, providing means, or removing obstacles are considered perpetrators of the crime.
Illegal People Transportation Across the Border of Ukraine	Actions of a person ensure the crossing (transportation, transfer, entry) of the state border by other persons.
	Actions may be committed in complicity with other subjects of the crime directly or by using persons not subjected to criminal liability according to the law.

Organization	Actions manifest in developing plans, determining the place and time of illegal transportation, finding accomplices, creating an organized group, financing, arming, etc.
Leading	Activity to ensure the actual transportation of persons across the state border of Ukraine, which includes: giving certain orders, arranging participants, distributing their responsibilities, etc.
Assistance	Any act that helps to carry out illegal transportation.
Means of Assistance	Advice, guidance, provision of means, or removal of obstacles.
Organized Group	Three or more persons who previously organized themselves to commit crimes into a stable group according to a single plan with the division of functions of the group members aimed at achieving the plan known to the group members.
Crime Specifics	Availability of corruption contacts.

Modeling Scenarios of the OCG Illegal Activities Development by Types of Cross-Border Crimes

At this stage, the interconnection between important parameters of OCG capabilities and factors contributing to their emergence and implementation has been analyzed (see Table 9). Table 9 is formed by values calculated as follows.

For compiling the list of factors, it is advised to select from Table 3 the factors with weight coefficients of impact higher than 0.1.

To compile a list of OCG parameters, it is advised to select from Table 5 those parameters that have the value of weight coefficients k_p = "high".

Filling in columns 3-7 of Table 9 is carried out according to the results of statistical studies or using heuristic methods using numerical evaluation values (see Table 5).

Table 9: Results of the Analysis of the Interconnections between Favorable to OCG Factors and Capabilities Parameters (Strengths) (Source: Authors' research)

List of Factors with k_w > 0,1		List of OCG Parameters with k_p = "high" (from Table 5) (z_p)					The sum of Connections (Y_i)	The Strength of the Factor Impact ($k_z(w)$ from Table 3)	Weight Coefficient of the Factor Impact (k_w from Table 3)	The Strength of the Factor Impact (S_{ozu}^f)
No.	Factor No. (from Table 2)	3	7	10	14	16				
1	2	3	4	5	6	7	8	9	10	11
1	1.2	3	2	3	3	3	14	0.13	0.12	0.22
2	2.1	2	2	1	3	2	10	0.49	0.25	1.23
3	2.2	2	2	1	2	3	10	0.39	0.22	0.86
4	3.1	2	3	4	4	4	17	0.27	0.15	0.69
5	3.2	2	1	1	1	4	9	0.57	0.21	1.08
6	4.2	3	2	2	2	2	11	0.29	0.12	0.38
The Sum of Connections (Y_p)		14	12	12	15	18				
Strength of Connection (k_{sz} from Table 6)		0.06	0.05	0.03	0.09	0.10	The favorability of factors for the realization of the capabilities of an OCG is 4.45			
Weight Coefficient (k_p from Table 4)		0.1	0.1	0.1	0.1	0.1				
The Strength of the OCG Parameter Impact (S_{ozu}^p)		0.09	0.06	0.03	0.13	0.17	OCG capacity is 0.49			

In the line for each factor, the values of the quantitative assessment of the parameters are indicated (see Table 5), which characterize the impact of the factor on the development of OCG capabilities according to each parameter.

The value of the parameter connection strength (k_{sz}) is taken from Table 6.

The value of the sum of parameter connections by factor is calculated:

$$Y_f = \sum_{f=1}^{F} z_f \qquad (6)$$

The value of the factor impact strength on OCG is calculated:

$$S_{ozu}^{f} = Y_f \cdot k_z(w) \cdot k_{vw} \qquad (7)$$

The total impact strength of the development factors of the strengths of OCG is the sum of the values S_{ozu}^{f} for each factor (column 11, Table 9).

The formula calculates the sum of connections (Yp) of OCG parameters:

$$Y_p = \sum_{p=1}^{P} z_p, \qquad (8)$$

where z_p is the numerical value of the sum of connections for each OCG parameter with k_p = "high" (columns 3,…,7).

The formula calculates the OCG parameters' impact strength:

$$S_{ozu}^{p} = Y_p \cdot k_{sz} \cdot k_p \qquad (9)$$

The capacity of the OCG, according to strong parameters, to commit cross-border crimes is the sum of the values S_{ozu}^{p} for each of the parameters of the OCG (columns 3,…,7).

According to the results of the calculations, the following values were obtained:
- the favorability of the factors regarding the OCG strengths development is 4.45;
- the capacity of OCG under strong parameters to commit crimes is 0.49.

For each OCG in the border region, a separate development scenario is modeled according to the types of cross-border crimes according to passporting data. The general idea of such a scenario, for example, the cross-border crime "smuggling of people across the state border", is shown in Figure 2 in a matrix form. The scenario of the organized criminal activity development in the border region is a total of simulating factors and OCG parameters (see Table 10).

Table 10: Matrix of Favorable Factors and Parameters of OCG (Source: Authors' research)

Factors with $k_{vw} > 0.1$	OCG Parameters with k_p = "high"				
	3	7	10	14	16
1.2	3	2	3	3	3
2.1	2	2	1	3	2
2.2	2	2	1	2	3
3.1	2	3	4	4	4
3.2	2	1	1	1	4
4.2	3	2	2	2	2

Selection of Measures Variants to Combat COC by Targeted Impact on OCG

At this stage, the complex of measures regarding the impact on the OCG is determined based on the results of the data analysis from Table 10 due to the impact on the factors and parameters of the OCG. In the following, based on the results of the calculations at stage 6, a graphical analysis of the OCG illegal activities development scenarios is carried out (Figure 2).
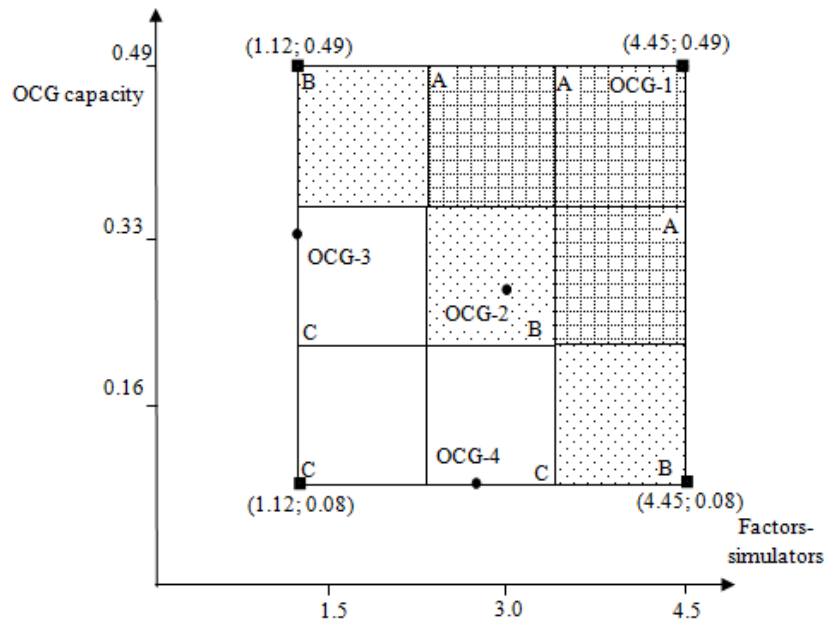

Figure 2: Graphical Analysis of Scenarios of the OCG Illegal Activities Development
(Source: Authors' research)

In the conditions of the example shown in Figure 2, 4 OCGs are operating in the border region. According to the calculations shown in Table 9, the value of the OCG-1 scenario development is marked with a dot (0.49; 4.5). Similar calculations are made, and values are marked for other OCGs. A strategy field is formed within the given designations of the 4 OCGs development scenarios, the sectors of which are marked according to the corresponding index: "A" - the level of threat to border security from the OCG - high, "B" - average, and "C" - low.

The strategy of combating COC in the border region of the state consists in categorizing a set of measures to influence OCG, which in the conditions of the example shown in picture 2 provides:

- for OCG-1 (category of sector "A") - a complex of anti-crisis measures of rapid (operational) intervention according to standard plans following the critical situation;
- for OCG-2 (category of sector "B") - a complex of anti-crisis measures of the border operation to neutralize threats;
- for OCG-3 and OCG-4 (category of sector "C") - a set of other regime and control measures to strengthen the protection of the state border.

At the same time, measures to ensure the sustainable development of the border security system in everyday life should be a special part of the strategy for countering cross-border organized crime.

So, according to the description of the above stages, the method of forming a strategy for combating COC in the state's border region has been presented. This technique provides an opportunity to determine the priorities and measures options to combat COC according to the targeted impact on each of the OCGs, which is necessary for the targeted application of existing and the formation of new capabilities of law enforcement agencies.

CONCLUSION

A methodology containing a new complex of logically consistent and interconnected techniques and methods intended for a comprehensive analytical study of organized criminal activity and OCG, specializing in the cross-border crimes committed in the state's border region, has been developed.

The methodology implementation results in a well-grounded strategy of an appropriate complex of special measures to combat cross-border organized crime in the state's border region. The strategy includes a complex of the following measures:

- rapid (operational) interventions in critical situations - case of a critical situation;
- anti-crisis measures of the border operation to neutralize threats - for threats neutralization;
- additional regime and control measures to strengthen the protection of the state border - for strengthening the state border protection;
- standard planned and preventive measures - in everyday mode;
- measures of sustainable development of the border security system - on an ongoing basis.

The practical implementation of the strategy enables state law enforcement agencies to employ available resources more efficiently, resulting in a more cost-effective and targeted approach to combatting cross-border organized crime in the state's border region. In the ongoing scientific research on combating organized crime, it is advisable to develop a methodology that provides a rationale for a comprehensive set of measures to eliminate international channels of criminal activity.

COMPLIANCE WITH ETHICAL STANDARDS

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