BALTIC BLACK SEA UNION MODELING: FACTORS AND PERSPECTIVES

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Abstract. An important feature of the current stage of world development is the increase in turbulence and tension, the increase in threats and the actualization of security issues. The creation of military-political and economic associations of countries makes it possible to unite efforts in solving security problems and ensuring their development. One of such promising associations can be cooperation between the countries of the Baltic-Black Sea region. *The purpose* of the article is to assess the prerequisites and possibilities for creating the Baltic-Black Sea union, modeling its various combinations. *The subject* of the research is the model of the economic and military union of the countries of the Baltic-Black Sea region. The implementation of the analytic hierarchy process (AHP) *method* made it possible, using mathematical tools, to assess the conditions and probability of creating a BBS union, based on a multi-criteria analysis of the military, political or economic potential of states, and also to model options for its composition. *Results.* The idea of creating a BBS has a long history, which is due to a whole range of historical, geographical, political and military prerequisites. Ensuring the security of the BBS countries includes not only a military aspect, but also involves the development of economic cooperation and development. The composition of the BBS can vary considerably: from a basic number of core countries to a broad open participation of the countries of the Baltic, Black and Adriatic Sea regions and all neighboring countries. The Baltic-Black Sea cooperation can become a very powerful economic entity. Focusing on multilateral cooperation of partner countries in various fields will unite both resource-rich countries and fairly developed countries that have formed their specialization in the new conditions of the digital economy. *Practical implications.* Of particular importance is the creation of unified transport corridors between the northern and southern seas of the European continent. BBS can become part of a multi-stage and multi-level security system in Europe and in the world as a whole. *The value/originality* of this publication is due to the high relevance of the issue in the context of open military aggression and the need to find new mechanisms for ensuring collective security in Europe.

Key words: Baltic-Black Sea Union, regional security, collective security, economic cooperation, alliances.

JEL Classification: D81, E61, F02, H56

1. Introduction

The need for a radical overhaul of the system of collective security, both in Europe and in the world, is being renewed by the highly turbulent processes in the modern geopolitical space. The formation of a new world order and, in general, global civilisational shifts are characterised by an increase in tension, chaos, uncertainty, etc. Despite the successes achieved since the Second World War in establishing stable peace and order, one can observe a constant increase in the number of new security threats to countries, peoples and individual citizens. The need to build a radically new system of regional, collective, pan-European and even global security is becoming apparent.

A necessary condition for ensuring security in modern conditions is the creation of military-political and economic associations of countries, alliances. For most countries, solving security problems is possible only through joint efforts. It seems that security in the European region and in the world can be ensured by a complex and multi-level system of alliances. Regardless of the peculiarities of the new configuration of international security and the agreements reached after the end of active hostilities

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in Europe, the development of cooperation in the Black Sea-Baltic region in the aspect of building the North-South vertical, the Baltic-Black Sea Union, has great prospects. The idea of creating such a union has a long history, and in the modern context it can unite states that are ready to develop military, economic and other forms of cooperation to counter imperial ambitions.

2. Analysis of recent researches and publications

An urgent problem of security issues is the study of various aspects (military, political, economic) of the creation of alliances, military alliances. The practice of alliances has a long history, and there is no doubt about their usefulness and effectiveness. At the same time, the subject of scientific research is often the calculation of the economic efficiency of combining the efforts of countries, "free riders" in alliances, etc. Sandler and Hartley argue that security is a public good in alliances and is critically determined by factors such as technology and strategic doctrine (Sandler and Hartley, 2001). Other researchers deny the existence of public goods effects in alliances, but confirm the existence of benefits for countries participating in alliances. Moreover, the benefits of alliance participation outweigh the costs, as alliances have "reduced the transaction costs of collective action to address common threats from international terrorism to piracy" (Brands and Feaver, 2017).

Many studies show that there is a public good effect (Alley, 2021; Barrett, 2010; Garfinkel, 2004; Goldstein, 1995; Gowa, Edward D. Mansfield, 2004; Leeds; Jeffrey, 2002; Modelsky, 1963; Sandler, 1993; Sandler and Hartley, 2001; Walt, 1990; Walt, 2009). The main problem is to study and prove either the presence or the absence of the free rider effect. It is often argued that small countries spend disproportionately less on alliance defence than large countries and thus act as free riders (i.e., they do not pay for the obvious benefits they receive, the benefits of alliance participation, which consist in strengthening their own national security).

In modern conditions, any country, regardless of its size, can gain additional competitive advantages by joining the alliance, for example, in the production of technologies, spare parts or drones. Within the alliance, advantages can be created that did not exist before the alliance was formed (Tollison, Willett, 1979; Hoekman, 1989; Morgan T. Clifton, 1994; Davis, 2004).

Sandler T. (2022) in her latest article also explores the economic theory of alliances to reveal the distribution of the burden of military spending in NATO during the period from 1991 to 2020, before the Russian invasion of Ukraine in February 2022. Sandler T. concludes that allies' free access to each other's total military spending led to a reduction in the military spending of NATO allies located near Russia. This division, the asymmetry within NATO, contributed to the Russian invasion.

Despite these different approaches and outcomes, there remains a generally accepted view of the importance of collective action in international politics. Undoubtedly, the creation of military alliances increases security both internally and externally. By pooling the military potential of countries, such an alliance becomes a deterrent against possible external threats. For each country, participation in the alliance allows it to multiply its military power and optimise its defence portfolio. Moreover, this can be achieved without a significant increase in military budgets.

The problem of developing multilateral cooperation in the Baltic-Black Sea region is also very topical. A comprehensive study of the cultural, political and socio-economic issues of the Baltic Sea region, including the problems of security and cooperation between the countries of the Baltic and Black Sea regions, has become the subject of research in the scientific works of a significant number of scientists (Maciejewski, 2002; Melchiorre, 2009; Tassinari, 2005); in the Black Sea (Aydin, 2005); issues of political cooperation and security of the BBS Union (Volovich, 2016; Georgievska, 2020; Gladysh, Krayevska, Golovko-Havrysheva, 2020; Ryzhenko, 2021; Yakovenko, 2016) etc.

At the same time, the question of the formation of military associations and alliances of countries becomes extremely relevant in the context of the turbulent events of 2022. It is obvious that the system of collective security requires new solutions and approaches. It is promising to study the problem of creating the BBSU as a single corridor between the Baltic and the Black Seas, which will allow to establish stable traffic, develop economic cooperation and provide a reliable security shield.

The main purpose of the article is to assess the prerequisites and possibilities for the creation of the Baltic-Black Sea Union, modelling its various combinations.

3. Research methods

In order to assess the conditions and probability of the formation of a BBSU alliance, the following mathematical methods will be used, based on a multi-criteria analysis of the military, political or economic potential of the states. Science has already developed methods for analysing conflicts (political, military), making decisions about the creation of unions, alliances, etc. As a rule, two problems arise in the application of mathematical modelling of situations of confrontation, balance of power, cooperation between states and creation of alliances. Firstly, how

to obtain accurate and complete data, and secondly, how to evaluate (measure) them and check their reliability. And despite the huge amounts of money spent on analysis, the accuracy of the answer remains low. This is because there are always parameters that are difficult to quantify. The fact that subjective factors play a very important role in military-political issues is confirmed by the erroneous conclusions about the prospects of Russia's aggression before the start of the war.

Nevertheless, the relevance of scientific modelling remains an important task and its toolkit is constantly expanding. One of the best known methods for the quantitative treatment of subjective judgements is the Analytic Hierarchy Process (AHP), a mathematical tool of a systematic approach applied to complex decision problems. This method was developed by the American scientist Thomas L. Saaty in 1970 and can be used not only to compare objects, but also to solve more complex problems of control, forecasting, and so forth (Saaty, 2005).

The main advantage of the hierarchy analysis method is its high versatility – the method can be used to solve a wide variety of problems: analysis of possible scenarios for the development of various situations, resource allocation, ratings, personnel decisions, etc. The disadvantage of the hierarchy analysis method is the need to obtain a large amount of information from experts. The method is best suited to cases where the bulk of the data is based on the preferences of the decision maker in the process of choosing the best solution from a variety of existing alternatives.

In a typical decision situation
– several solutions are considered;
– a criterion is set to determine the extent to which this or that solution is appropriate;
– knowing the conditions under which the problem is solved and the reasons that influence the choice of one solution or another.

Formal statement of the problem in the process of applying the method of hierarchy analysis: Given a set of alternatives (solutions): A1, A2, ... Ak. Each of the alternatives is evaluated according to a set of criteria: K1, K2, ... Kn. It is necessary to find the best solution.

Stages of applying the method of analysis of hierarchies:

1. Preliminary ranking of the criteria, as a result of which they are ranked in descending order of importance (significance).

2. Pairwise comparison of the criteria in terms of importance on a nine-point scale with the compilation of an appropriate matrix (table) of size (n x n). The system of paired information leads to a result that can be represented as an inversely symmetrical matrix. The element of the matrix a(i,j) is the intensity of the manifestation of hierarchy element i relative to hierarchy element j, estimated on an intensity scale from 1 to 9, where the estimates have the following meaning.

– At the same time, when pairwise comparisons are made, the following questions are mainly asked when comparing elements, e.g., K1 and K2:
– Which is more important or has more impact?
– Which is more likely?
– Which is preferable?

4. Results and discussions

Under the conditions of open military aggression in Europe, the problem of the formation of a new system of world order is becoming topical. An important aspect in this respect is the creation of new military-political alliances (both formal and informal), which is particularly important for small countries with relatively insignificant military potential.

The formation of alliances must be considered taking into account all circumstances: military, political, economic, historical, security. In connection with the open aggression of Russia against Ukraine, the open support of Belarus for such an invasion by the world community, various options and new models for the formation of a collective security system are being considered, including the question of

Table 1

Matrix of elements and scores ranked by intensity scale

Significance vij	Definition		Explanation
1	Equal Importance, or Equal Importance		Two actions contribute equally to the achievement of an objective
3	Some predominance of the importance of one action over others (weak/moderate importance)		There are some arguments in favour of one of the actions, but they are not convincing enough
5	Significant importance (superiority)		There are reliable judgements or logical conclusions for preferring one of the actions
7	High importance (strong superiority)		Strong evidence in favour of one action over another
9	Absolute importance (very strong superiority)		The degree of preference is absolute
2, 4, 6, 8	Intermediate values between two neighbouring assessments		For a situation where a compromise judgement is required
inverse values 1/vij	The action j compared to i is assigned the inverse value		When two actions are compared in reverse order, the value of the vij scale becomes the inverse of 1/vij.

the creation of the Baltic-Black Sea Union or a union of the Baltic countries, Poland and Ukraine. All the countries belonging to the Black Sea-Baltic bloc occupy rather high positions in the global ranking of military power, but the highest positions are occupied by large countries.

It is worth noting that the Russian invasion of Ukraine has significantly updated the issue of military potential, military power and weapons for the Baltic countries, which have repeatedly become the object of threats from Russia and Belarus, both individually and as partners. Despite the successes achieved after the Second World War in establishing stable peace and order, it is possible to note the constant growth of new threats to the security of countries and peoples. The emergence of a phenomenon such as terrorism as a threat in its own right. Aggravation of the painful imperial ambitions of the Russian Federation. The creation of any alliance is always conditioned by the presence of external threats. Naturally, the increase in the number of threats creates conditions for the development of new forms of cooperation within existing military alliances.

Obviously, due to the current situation in connection with the military conflict and military aggression of Russia in Ukraine, as well as its constant threats, including to the Baltic countries, there is a need to strengthen the eastern flank of Europe. The creation of an additional shield can be facilitated by the formation of such a sub-alliance, capable of protecting the eastern border of Europe and creating a certain border between the European countries and the aggressor countries. The Baltic countries and all the countries bordering the Russian Federation are interested in strengthening their defence, and therefore they are the ones who can join the new military alliance proposed by Great Britain, which will unite Poland, Ukraine, the Baltic countries and possibly Great Britain. In some sources, Britain is included in this regional alliance as a special subject and coordinator. The announcement of such an alliance was made by Boris Johnson.

It should be noted that the idea of creating such a union has a very long history. Mentions of the existence of a trade route "from the Varangians to the Greeks", running from the Baltic Sea through Eastern Europe to Byzantium, appear as early as the 10th – 111th centuries. In more recent history, the idea of creating such a single axis arose at the beginning of the 20th century, when the Baltic-Black Sea Union (BBS) programme was developed by the Latvian diplomat Siegfried Meierovits. In August 1919, at a conference near Riga, a confederation of states was created – the Baltic-Black Sea Union (BBS), with the aim of developing cooperation in the fields of defence, economy, a common banking and monetary system, a political convention on mutual support and common foreign policy, and ensuring a free route from the Baltic to the Black Sea (Gladysh, 2020). Signed a programme document on the creation of countries such as Finland, Estonia, Lithuania, Latvia, Poland and Ukraine.

Russia also showed some interest in creating a single transport route from the Baltic to the Black Sea. At the beginning of the twentieth century. The idea of building the Baltic-Black Sea Canal was obviously of special geographical, geostrategic and military importance for Russian imperial policy.

Polish politicians were also interested in BCS. Jozef Pilsudski proposed the idea of a confederal state consisting of Poland, Lithuania, Belarus and Ukraine, i.e. those countries that could become a counterbalance to the dominance of Germany and Russia in Eastern Europe. Such a confederation was proposed under the name of "Intermarium" (Polish – Międzymorze, Latin – Intermarium) and envisaged the inclusion of all countries from the Black and Adriatic Seas to the Baltic Sea.

After the Second World War, the idea of a union of countries between the Baltic, Black, Aegean and Adriatic Seas was also put forward by the Polish government in exile, led by Vladislav Sikorsky. The concept of Jerzy Giedroyc deserves special mention, who believed that what was important for Poland was not imperial ambitions but equal relations with the countries of Eastern Europe – Ukraine, Lithuania and Belarus. In his opinion, a developed Poland should act as a "guide" of the East to Europe, representing and protecting the interests of these countries in Europe. He attached particular importance to Ukraine, which he considered to be part of Western civilisation and its most important partner. In his view, Poland's historical mission was to support the democratic construction of the nation states of the ULB (Ukraine, Lithuania, Belarus). He saw the development of relations with Russia in the same way – through diplomacy and overcoming historical grievances. Giedroyc and his colleague Juliusz Mieroszewski believed that only a non-imperialist Russia and a non-imperialist Poland had a chance of establishing and rationalising their relations. The Soviet Union and other allies reacted very negatively to these ideas (Brzeziecki).

The revival of the BBS project took place at theend of the 20th century, when the idea of "Intermarium" or "Intermarium" was raised by the politicians of Belarus, Lithuania, Poland and Ukraine. The first stage of the project was to include Ukraine, Poland, Georgia, Lithuania, Latvia and Estonia. The next stage is the possible expansion of the alliance into the Adriatic-Baltic-Black Sea Union with the inclusion of countries such as Moldova, Croatia, Slovenia, Hungary, Slovakia, the Czech Republic,

Azerbaijan and Turkey. In addition to these states, Romania, Bulgaria, Belarus (after the liquidation of the Lukashenka regime) and Finland, which also waited in vain for help from the Western Allies in the winter of 1939–1940, could theoretically join in the future. Austria and Sweden, which were not part of the bloc, were also considered potential partners (Yakovenko, 2016).

In the recent past, the World Cup in the region has laid serious foundations for the development of comprehensive cooperation (economic, trade, cultural, scientific, etc.). And although it cannot be characterised as dynamic, such a vector of development would certainly contribute to further strengthening the potential of the region. The Organisation of the Black Sea Economic Cooperation (BSEC) was established in 1992. The BSEC includes 6 countries with direct access to the sea (Russian Federation, Georgia, Turkey, Romania, Bulgaria and Ukraine) and 6 neighbouring countries (Albania, Armenia, Azerbaijan, Greece, Moldova and Serbia). Since 2004, Serbia and Montenegro have been full members, while Poland, Slovakia, Austria, France, Germany, Italy, Egypt, Israel, Tunisia, the BSEC Business Council and the International Black Sea Club have observer status. Half of the coastline consists of EU countries (Turkey, Bulgaria and Romania), NATO members – Greece, Turkey, Bulgaria, Romania and Albania. Thus, within the framework of the potential Baltic-Black Sea Union, a separate economic forum, the Baltic-Black Sea Economic Forum (About Forum), has been formed. Russia's aggression in 2014 and 2022 radically changed the configuration of the region, its aspirations, directions and forms of cooperation, in general – the strategic vector of development.

It should be noted that the creation of the BBS is expected only in the general context of the development of the European region, NATO or the EU. At the same time, the existence of common conditions and interests can become the basis for the creation of such an alliance with its own goals of cooperation. According to the author, the main goal of the creation of the BBS sub-alliance is the development of sub-regional cooperation in the economic, political, cultural, educational and military spheres. The main areas of cooperation, in the author's view, should be: investment cooperation (including in the military sphere); creation of unified transport systems and corridors; all possible promotion of cultural and educational cooperation at the national, regional and local levels; creation of a sub-regional security system (under the auspices of NATO); multilateral economic and trade cooperation; mutual production and supply of military products; creation of a single financial space to promote investment; a common information and communication system.

The following are also mentioned as more detailed forms of cooperation: multilateral coordination of economic and other sanctions; mutual supplies of lethal and defensive weapons; cooperation on energy security and transit of energy carriers; mutual assistance in combat training of troops and modernisation of weapons; exchange of strategic, counterintelligence and other data; joint military-industrial enterprises and developments (especially high-tech); joint international initiatives to counter propaganda; exchange of military advisers and other experts (Volovich, 2016).

Given that the BBS is initially considered as a sub-alliance, its formation may include a system of national, multinational, joint initiatives to achieve the goals set. Particular attention should be paid to projects of strategic importance: economic, transport and security.

The BBS should focus on joint projects of regional importance. First of all, the creation of a unified transport infrastructure. For example, it has already been pointed out that such projects have been implemented in the past (at the beginning of the 20th century – the Baltic-Black Sea Canal). This canal was supposed to connect Riga and Kherson with a single water artery, which would allow ships (including military ones) to move freely from one sea to another. This idea was later also expressed. In particular, in 2017, the Ukrainian seaports administration and the Belarusian company Beltopenergo signed a memorandum on the restoration of river navigation between the countries and dredging of the Dnipro River at the port of Nizhniy Zhary. It was assumed that the ship could cover the distance to Odessa in five days (one way) (The Baltic-Black Sea Waterway, 2016). The development of the E40 international waterway (Odesa – Kyiv – Pripyat – Orsha – Vitebsk – Gdansk – Riga) is a strategic and well-developed project. However, its implementation is impossible in today's conditions due to the fact that its important link is the territory of Belarus, which is an active party to the military aggression against Ukraine. If the geopolitical situation changes, the Baltic-Black Sea waterway can become a real and effective economic driver for the regional development of all potential partner countries.

The implementation of the Baltic-Black Sea Union project can also become an important component of the revitalisation of the European Union's interregional TRACECA (Transport Corridor Europe-Caucasus-Asia) programme, which aims to create a transport corridor from Europe through the Black Sea, the Caucasus and the Caspian Sea to the countries of Central Asia and China.

Undoubtedly, the idea of developing trans-national energy projects is also important. The idea

of creating the Euro-Asian Oil Transport Corridor (EANTC) on the basis of the Ukrainian Odessa-Brody pipeline, ending in Gdansk, is well known. The oil pipeline was built in 1996–2001 to transport Caspian oil to Central Europe, bypassing Russian territory. An oil pipeline was built with the prospect of further extensions, first from Brody to the Polish town of Adamova Zastava and then to the Baltic Sea ports.

During all this time, the pipeline has not been fully operational. Its importance is demonstrated by the fact that the European Commission has once again included the completion of the pipeline among its priority energy projects for 2020. In accordance with the decisions of the 18th meeting of the Council of Ministers of the Energy Community (the Energy Community is an international organisation bringing together the European Union and its neighbours to create an integrated pan-European energy market (Energy Community)), which took place on 17 December 2020, the list of projects of interest to the Energy Community (PECI – 6 projects) and the list of projects of common interest (PMI – 11 projects) were approved. The project for the construction of the Brody-Adamova Zastava oil pipeline was included in the PECI list and the decision entered into force on 14 January 2021. Important areas for co-operation on the project at the intergovernmental level in the near future are as follows:
– to raise the issue of resuming negotiations on the preparation of an intergovernmental agreement on the EAOTC project, which should provide the legal framework for the project and serve as evidence to potential investors of the full support of the participating States for the project;
– creation of a favourable legislative climate for the implementation of the project, in particular the extension of the Polish law on the preparation and implementation of strategic investments in the oil sector;
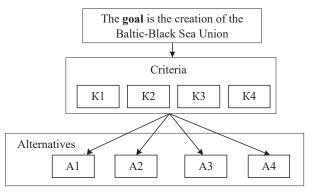
– assistance in attracting strategic investors and their subsequent entry into the circle of project participants (2020 PECI).

A simple list of these projects speaks to the great potential of this region. Perhaps now that the threat from the Russian Federation is so obvious and that country is no longer a strong and influential player, all the conditions are being created to strengthen the Baltic-Black Sea axis in many ways.

In general, all projects within the potential Intermarium Alliance can be implemented in both the medium and long term. In peacetime, the distribution of resources is based on the formation of long-term plans, according to which medium-term and, accordingly, tactical-level plans are formed. Medium-term plans include indicative forecasts of military requirements, an estimate of available resources and the possibility of their deployment or investment.

In the context of this work, the task was set: to determine the optimal composition of the Baltic-Black Sea Union (BBS). The set of countries included in the alliance represents various alternatives and forms the third level of the hierarchy. The criteria are: economic, military, geographical and human potential of the BBS. The criteria form the second level of the hierarchy. The top (first level) of the hierarchy is the goal – to choose the optimal composition of countries participating in the BBS. The hierarchical model of the task is shown in Figure 1. For the hierarchy, 5 matrices are created: one for the second level and 4 for the third level, which are presented in the form of tables.

The purpose of this model is to create a military-political alliance – the Baltic-Black Sea Union – to ensure reliable protection of European countries from aggressive neighbours and the comprehensive development of cooperation.

The following criteria were chosen for the creation of the BBS:

K1 – economic potential, the assessment was made on the basis of the average GDP per capita of each of the alliances;

K2 – military potential, i.e., the existence of a common military and defence power of such an alliance;

K3 – geographical potential, i.e., what part of the border will be closed by such an alliance;

K4 – Human potential, i.e., the number of persons in military service in the armed forces of the Union.

The study of the influence of the criteria on the overall objective is presented in Table 2.

World Bank data on GDP per capita were used to assess and compare countries' economic potential (Table 5). The next level of the hierarchical model compares alternatives for each criterion (Table 4). The following possible alternatives were proposed for the countries participating in the BBS:

Figure 1. Hierarchical model for the selection of countries in the Baltic-Black Sea Union

Source: developed by the author

Table 2
Criteria comparison matrix

Criteria	K1	K2	K3	K4	Own vector	Weight
K1 – economic potential	1	3	3	5	2,59	0,469
K2 – military potential	0,333	1	5	7	1,85	0,335
K3 – geographical potential	0,333	0,200	1	7	0,83	0,150
K4 – human potential	0,200	0,143	0,143	1	0,25	0,046
				Total	**6,79**	

Source: calculated and compiled by the author

Table 3
Scale of relative importance of criteria/alternatives

Quantitative value	Degree of importance/significance
1	Equal importance
3	Some predominance of the importance of one action over others (weak/moderate importance)
5	Significant importance (superiority)
7	High importance (strong superiority)
9	Absolute importance (very strong superiority)

Source: (Saaty, T.L., 2005; Saaty, T.L., 2008)

Table 4
Matrix of pairwise comparisons of the importance of alternatives for each criterion

By criterion K1 – economic potential					Own vector	Weight
Alternative	A1	A2	A3	A4		
A1	1	1/5	1/9	3	0,51	0,092
A2	5	1	1/7	5	1,37	0,249
A3	9	7	1	9	4,88	0,884
A4	1/3	1/5	1/9	1	0,29	0,053
				Total	7,06	1,0
By criterion K2 – military potential					Own vector	Weight
Alternative	A1	A2	A3	A4		
A1	1	1/3	1/9	1/4	0,31	0,046
A2	3	1	1/7	1/4	0,57	0,084
A3	9	7	1	1	2,82	0,415
A4	4	4	1	1	2,00	0,295
			Total		5,70	1,0
By criterion K3 – geographical potential					Own vector	Weight
Alternative	A1	A2	A3	A4		
A1	1	1/5	1/9	1/5	0,26	0,047
A2	5	1	1/8	1/3	0,68	0,122
A3	9	8	1	1/3	2,21	0,401
A4	5	3	3	1	2,59	0,469
				Total	5,74	1,0
By criterion K4 – human potential					Own vector	Weight
Alternative	A1	A2	A3	A4		
A1	1	1/5	1/9	1/3	0,29	0,053
A2	5	1	1/7	1/3	0,70	0,127
A3	9	7	1	1/3	2,14	0,388
A4	3	3	3	1	2,28	0,413
				Total	5,41	1,0

Source: calculated and compiled by the author

A1 – the BBS includes Latvia, Lithuania, Estonia and Ukraine, in this composition the alliance will close a significant part of the land part of the border and partly the basins of the Black and Baltic Seas. With such an alternative, the question of border areas (geographical potential) and human potential is largely closed. However, the military and defence potential is not sufficiently exploited.

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A2 – Poland is added to the countries in A1. This increases the military, defence and human potential.

A3 – Finland is added to the countries included in A2. This will increase the military, defence and human potential. In addition, the length of the border with the Russian Federation, which will also be under the control of the BBS, will increase.

A4 – an option if Belarus joins the countries of Latvia, Lithuania, Estonia, Ukraine, Poland and Finland. Yes, such an option is unlikely, at least until the political power in Belarus changes, but it is possible. This would reduce the military threat to the Baltic states and increase the geographical potential of the BSS. There will be no significant changes in military and defence potential.

An analysis of the results shows that the third alternative (A3) has priority according to the criteria "economic potential" and "military potential" with 88.4% and 41.5% respectively. According to the criteria of "geographical potential" and "human potential", the percentage of the fourth alternative (A4) is 46.9% and 41.3% respectively.

The best alternative is determined according to the formula:

$$S_j = \sum_{i=1}^{N} w_i V_{ji}$$

where S_j – indicator of efficiency/quality of the j-th alternative; w_i is the weight of the i-th criterion;

V_{ji} is the importance of the j-th alternative according to the i-th criterion.

For four considerations of strategies (alternatives) for creating BBS, the efficiency is calculated:

$S_{A1} = 0{,}469 * 0{,}092 + 0{,}335 * 0{,}056 + 0{,}15 * 0{,}047 + 0{,}046 * 0{,}053 = 0{,}072$

$S_{A2} = 0{,}469 * 0{,}249 + 0{,}335 * 0{,}104 + 0{,}15 * 0{,}122 + 0{,}046 * 0{,}127 = 0{,}176$

$S_{A3} = 0{,}469 * 0{,}884 + 0{,}335 * 0{,}511 + 0{,}15 * 0{,}401 + 0{,}046 * 0{,}388 = 0{,}664$

$S_{A4} = 0{,}469 * 0{,}053 + 0{,}335 * 0{,}362 + 0{,}15 * 0{,}469 + 0{,}046 * 0{,}413 = 0{,}236$

As the latest generalised calculations show, the quality index for the third alternative (66.4%) is the highest, i.e., this alternative is the best. Thus, the most militarily optimal is the creation of the BBS as part of the following countries: Latvia, Lithuania, Estonia, Poland, Ukraine and Finland.

The next step is to consider options for alternatives with the expansion of the composition of such a military-economic union (BBSU) at the expense of the following countries: United Kingdom, Sweden, Germany, Denmark, Bulgaria, Romania, Turkey, Georgia, Moldova, Croatia, Czech Republic, Slovakia, Hungary, Greece, Belarus. The composition of the BBSU from these countries will significantly increase the combined

Table 5

GDP per capita of possible countries participating in the BCSS (alternatives B1-B4) for 2021 (in current US$)

Countries	GDP per capita 2021 (current US$)
Latvia	21 148.2
Lithuania	23 723.3
Estonia	27 943.7
Ukraine	4 835.6
Poland	17 999.9
Finland	53 654.8
United Kingdom	46 510.3
Sweden	61 028.1
Denmark	68 007.8
Bulgari	12 221.5
Rumania	14 858.2
Turkey	9 661.2
German	51 203.6
Czech	26 821.2
Croatia	17 685.3
Slovak	21 391.9
Hungary	18 728.1
Greece	20 192.6
Belarus	7 302.3
Georgia	5 023.3
Moldova	5 230.7

Alternatives	Average GDP per capita 2021 (in US$)
B1	24 884.3
B2	27 973.7
B3	31 753.6
B4	28 756.4

Source: Calculated and compiled by the author from data https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

military / defence potential and resolve many geopolitical issues / disputes.

A more detailed examination of economic potential shows that the economic performance of countries such as Georgia, Belarus and Moldova worsens the average value of GDP per capita. The volumes of GDP per capita of possible BBS participants and the average values of this indicator for alternatives B1-B4 are shown in Table 6. For example, for alternative B4 (taking into account all the countries mentioned above) the GDP per capita will be the same. If one considers the composition of the alliance for the same alternative, but without Georgia, Belarus and Moldova, this figure increases by more than 10% and amounts to $28,756.4 (Table 5).

Therefore, the following alternatives were considered:

B1 – this alternative assumes the composition of the alliance from the countries that were in alternative A3 (the best) at the previous stage, namely: Poland, Latvia, Lithuania, Estonia, Ukraine and Finland.

B2 – Britain is added to the countries included in alternative B1. This greatly strengthens the borders and increases the economic and military potential.

B3 – Countries with access to the Baltic and Black Seas are added to alternative B2, namely Sweden, Germany, Denmark, Bulgaria, Romania and Turkey.

B4 – the countries included in alternative B3 are added to the countries that do not have access to the sea but are interested in participating: Croatia, Czech Republic, Slovakia, Hungary and Greece.

The analysis of the results shows that the third alternative (B3) has priority according to the criteria "economic potential" and "military potential", with respective values of 59.4% and 62.4%. According to the criteria "geographical potential" and "human potential", the percentages of the fourth alternative (A4) are 48.9% and 54% respectively.

For the four considered enlargement strategies (alternatives) of the BBSU member states, the effectiveness was calculated using the following formula:

$$S_{Б1} = 0,469*0,038 + 0,335*0,036 + 0,15*0,064 + 0,046*0,048 = 0,042$$

$$S_{Б2} = 0,469*0,092 + 0,335*0,102 + 0,15*0,126 + 0,046*0,099 = 0,101$$

$$S_{Б3} = 0,469*0,594 + 0,335*0,624 + 0,15*0,321 + 0,046*0,312 = 0,55$$

$$S_{Б4} = 0,469*0,276 + 0,335*0,239 + 0,15*0,489 + 0,046*0,540 = 0,307$$

According to the latest generalised calculations, the efficiency indicator of the third alternative (55%) is the highest, i.e., this alternative is the best. Thus,

Table 6
Matrix of pairwise comparisons of the importance of alternatives for each criterion

By criterion K1 – economic potential					Own vector	Weight
Alternative	Б1	Б2	A3	A4		
B1	1	1/5	1/9	1/6	0,25	0,038
B2	5	1	1/8	1/5	0,59	0,092
B3	9	8	1	3	3,83	0,594
B4	6	5	1/3	1	1,78	0,276
				Total	6,45	1,0
By criterion K2 – military potential					Own vector	Weight
Alternative	Б1	Б2	A3	A4		
B1	1	1/7	1/8	1/6	0,23	0,036
B2	7	1	1/7	1/5	0,67	0,102
B3	8	7	1	5	4,09	0,624
B4	6	5	1/5	1	1,57	0,239
				Total	6,56	1,0
By criterion K3 – geographical potential					Own vector	Weight
Alternative	Б1	Б2	A3	A4		
B1	1	1/3	1/5	1/5	0,34	0,064
B2	3	1	1/5	1/3	0,67	0,126
B3	5	5	1	1/3	1,70	0,321
B4	5	3	3	1	2,59	0,489
				Total	5,30	1,0
By criterion K3 – human potential					Own vector	Weight
Alternative	Б1	Б2	A3	A4		
B1	1	1/3	1/7	1/7	0,29	0,048
B2	3	1	1/5	1/5	0,59	0,099
B3	7	5	1	1/5	1,85	0,312
B4	7	5	3	1	3,20	0,540
				Total	5,92	1,0

according to the calculations, the best and optimal composition of the enlarged BBSU is as follows Poland, Latvia, Lithuania, Estonia, Ukraine, Finland, United Kingdom, Sweden, Germany, Denmark, Bulgaria, Romania, Turkey.

5. Conclusions

The turbulence of the modern world, the increase in the number and scale of threats create a situation where collective security can only be guaranteed by a multi-level and multi-tiered system of blocs and organisations. Of course, there are key players, such as NATO, which set the tone and overall direction for development and cooperation. But this core structure can be complemented by a whole system of smaller blocs that focus on regional or functional aspects of security. These smaller alliances are within the sphere of influence of the key players, and at the same time they interact at their level to solve common and specific problems. It is this multi-tiered, multi-level system that provides the basis for the flexibility and strength of the overall security system.

The Baltic-Black Sea Union can become a very powerful economic creation, as it will unite both resource-rich countries and fairly developed countries that have formed their specialisation in the new conditions of the digital economy. Of particular importance in the context of economic prerequisites is the transport factor – the creation of a continuous transport corridor between the Black Sea and the Baltic Sea. Moreover, this corridor can be served by almost all types of modern transport: road, rail, pipeline, river. The implementation of this project will undoubtedly increase the flow of traffic and reduce the time of transportation of various goods and passengers from the Eastern regions to Europe. In general, the creation of an alliance is possible, taking into account historical, geographical, political and military conditions, and the task of ensuring military security has not only a military aspect, but also involves a whole range of interrelated instruments. The strengthening of the military sector, the military economy, cannot take place independently of the state and growth of the entire national economy.

Within the framework of the Alliance, any country can become an effective participant. Modern warfare is not so much about having a huge military potential of one's own, but rather about the possibility of cooperation and the availability of advanced technologies that can be used for military purposes, such as drones, artillery technology, and so on. In today's conditions, the armies of all countries of the world must be ready for military operations, taking into account the realities of the new world order. In this situation, joint cooperation is promising for many countries, which can not only contribute to common projects, revitalise the economy, but also become an important tool for strengthening collective security. The configuration of this Union can change and expand with new members and partners who share its goals and values.

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