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THE INFLUENCE OF ECONOMIC AND ENVIRONMENTAL CRITERIA ON THE CHOICE OF MILITARY ALTERNATIVES FOR UKRAINE'S DEFENCE CAPABILITY

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Abstract. The purpose of this article is to present a study that demonstrates that the selection of weaponry and its subsequent production in Ukraine are predominantly influenced by the presence of intellectual capital within the military environment and the defence industry. **Methodology.** The methodological basis of the study is modern methods of applying intellectual capital, which ensures the full-fledged defense capability of the state. Prior to the war, Ukraine's adherence to a distinct doctrine resulted in adverse consequences. Ukraine demonstrated a high level of confidence in its ability to halt the advance of its adversary. The opposing force initiated hostilities with a surprise attack. As time passed, the situation underwent a series of changes, leading to significant losses in manpower and military equipment for Russia. These losses were initially attributed to the rise of patriotism among the Ukrainian population, but this was subsequently addressed by the actions of destructive forces that the authorities initially failed to address. **Results.** According to the constructed multiple regression model, Ukraine's main weapons in January 2025 were tanks, armoured vehicles, and UAVs. The daily destruction of enemy targets, missiles and Russian UAVs had little impact on front-line battles and was aimed at defensive objectives. It is evident that the war in Ukraine is of a more defensive nature. The realisation of victory is possible through a significant augmentation of human capital within the military sphere, in addition to the receipt of assistance from partners in the modernisation of weaponry and the intellectual vision. This will facilitate the mobilisation of patriotic forces for the purpose of purging the army and government of short-sighted, inhibitive forces and total corruption. **Practical implications.** However, it is important to note that the war is a consequence of air, soil and water pollution. The war has had a significant impact on the environment, particularly with regard to carbon dioxide emissions, thereby limiting the available options for selecting alternative environmental measures. The present study investigates the restoration process through the creation of a Kohonen neural network and the subsequent application of the practical results thereof. **Value / Originality.** In light of the findings of this study, it is imperative for Ukraine to ascertain effective strategies for the accumulation and utilisation of its intellectual potential in order to achieve a competitive military position. In order to accomplish this objective, it is imperative to undertake a comprehensive evaluation of the macroeconomic landscape of the primary countries that exert a significant influence on the defence capabilities of nations. Furthermore, a comprehensive analysis of the structure of the intellectual capital indicators that characterise it leads to determining the significance and improving the economic performance of changes in funding for intellectual capital components. The primary challenge inherent in this approach to identifying alternative funding solutions pertains to the selection of appropriate indicators. The environment was adversely affected by elevated levels of carbon dioxide equivalent emissions. The Kohonen clustering neural network makes it possible to predict the funds for environmental restoration by clusters (1=alert, 2=restrained, 3=promising).

Keywords: loyalty, intellectual capital, clustering, indicators, war, environment.

JEL Classification: C53, O31, K14, F35

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1. Introduction

Throughout its history, stretching from antiquity to the present era, Ukraine has been subject to persistent political, economic and military oppression by various states. The geographical location of Ukraine in the centre of Europe, coupled with its history of ineffective leadership, has consistently compelled the nation to defend its legitimate interests, territorial integrity, and independence. In various periods, the country's rating was assessed according to different criteria, which often differed significantly. For example, in the pre-war or war period (Porokhnya, Ostapenko, 2019).

As a rule, the state's firepower was determined by parameters that did not always carry significant weight in the assessment. In some cases, intellectual capital played a minor role. Although it is used as a measure of firepower in wartime, the presence of science-intensive and high technologies, and the level of human capital, are often overlooked. Initially, attention was paid to indicators that included the size of the territory, population, natural resources, combat power of the armed forces, educational qualifications, gross domestic product, and so on. Furthermore, quantitative assessment was found to predominate over qualitative indicators.

Intellectual capital can be defined as a set of intangible assets that contribute to the assessment of added value. In light of the pivotal role that human and customer capital play in the pursuit of competitive advantage, companies have devised strategy maps with the objective of converting intangible assets into tangible outcomes (Kaplan, Norton, 2004).

The issues of strategic forecasting of national security in Ukraine are the subject of research and works by V. P. Horbulin and A. B. Kachynskyi. The formalisation of strategic planning in the field of public administration is also devoted to the works of V. Y. Bogdanovych and A. I. Semenchenko, who are dedicated to ensuring the state's national security.

2. Results

When examining the indicators of countries such as the United States, Russia, China, Poland, and Turkey – which played a significant role in economic policy and political relations during the pre-war period up to 2022 – including GDP (billion USD), imports and exports, trade in goods and services, value added in the manufacturing sector, household consumption expenditure, gross capital formation, market capitalisation of companies, GDP per capita, government net debt, net outflow and inflow of foreign direct investment, primary energy production, primary energy consumption, and net energy imports as a share of energy use, it becomes evident that Ukraine entered the wartime period under complex and challenging conditions (Table 1; Porokhnya & Ostapenko, 2019).

Cluster analysis of the data indicates that Ukraine's pre-war strategy of fortifying its borders against Russia did not achieve its objective without substantial losses (Fig. 1). The state should rely on macroeconomic development indicators that are of particular importance for the country's defence capability (see Table 2 and Fig. 2).

Nevertheless, Ukraine's intellectual capital level was significant and substantial. Consequently, it is imperative to undertake a comprehensive study that investigates the impact of intellectual capital on the nation's developmental level. In the context of economic relations, it is imperative for a nation to ascertain effective strategies for the utilisation of intellectual capital, thereby ensuring a competitive standing among other countries.

This necessitates a comprehensive examination of intellectual capital, encompassing the interplay of indicators that define its composition. Furthermore, it is imperative to ascertain the significance of fluctuations in intellectual capital components on enhancing economic performance, as elucidated in Table 3 (Yanyshivskyi, 2010).

As demonstrated in Table 3 and illustrated in Fig. 3, there was a notable level of intellectual capital present in unoccupied areas in the period preceding the war. This was evident in the context of the reorganization of the defence industry.

It is evident that the presence of intellectual capital does not guarantee the state's complete defence capacity. In the context of future projections, the subject plays a pivotal role in the process of updating weaponry during periods of armed

Table 1
Data on indicators and indicators of macroeconomic development of states

Country	GDP	Import	Added value	Gross capital	Government debt
China	13407.4	1.015	29.00	44.00	50.50
USA	20494.1	0.801	10.60	21	80.90
Ukraine	109.32	1.160	3.60	20.40	75.60
Poland	524.89	0.923	4.30	-7.90	51.40
Russia	4007.8	0.795	13.70	-1.80	17.40
Turkey	849.48	1.131	3.80	29.30	22.70

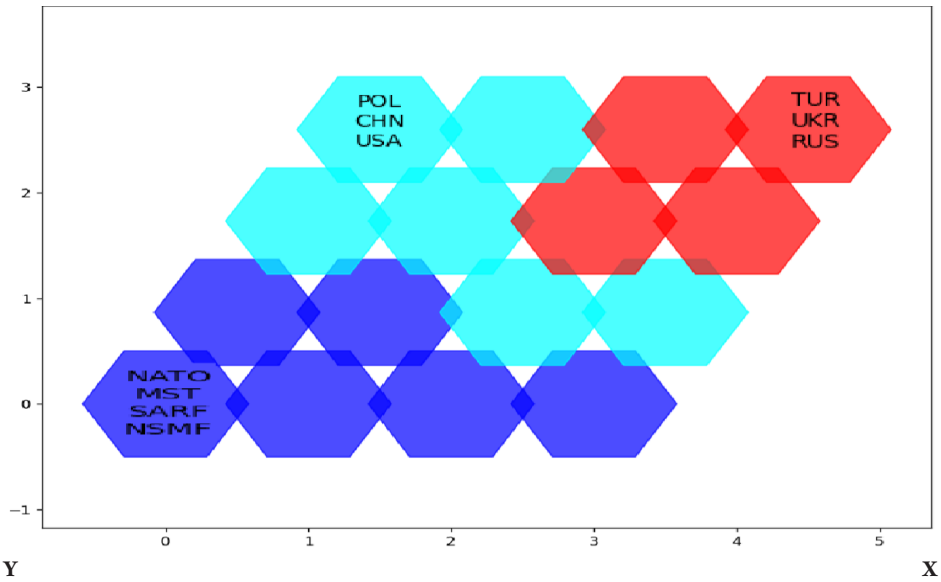

Figure 1. Clustering of competitiveness of states, emphasising the country's defence capability (pre-war period)

Table 2

Indicators that characterise the defence capability of a country

INDICATOR	NATO	China	USA	Ukraine	Russia	Turkey
Indicators of macroeconomic development	1.5	1.06	12785	0.24	0.16	0.38
Indices of innovation and economic potential	2.5	1.09	27791	0.74	1.15	0.73
Indices of social health of the population	2	1.65	20455	0.79	1.01	0.60
The share of exports of high-tech products	0.7	1	0.57	0.29	0.36	0.1
Development costs as a share of GDP	2	2.1	2.7	0.60	1.00	1.00
Indicators of influence of the environment	1	0.72	0.30	0.32	0.16	0.16
Human Development Index	0.9	0.75	0.92	0.74	0.86	0.77
Resources (dollars) for defense	3	1.9	3.2	1.41	1.96	2.2
Import and export of weapons, dollars	0.8	0.2	1	0.5	0.08	0.9
Total number of military personnel	5	4	3.5	1.5	0.5	1
Nuclear weapons	0	0.7	0.90	0	0	0
Strategic Missile Forces (SMF)	3	2	4	0.6	0.5	0.5
Missile and Space Forces	4	2.5	4	2	1.5	1.3

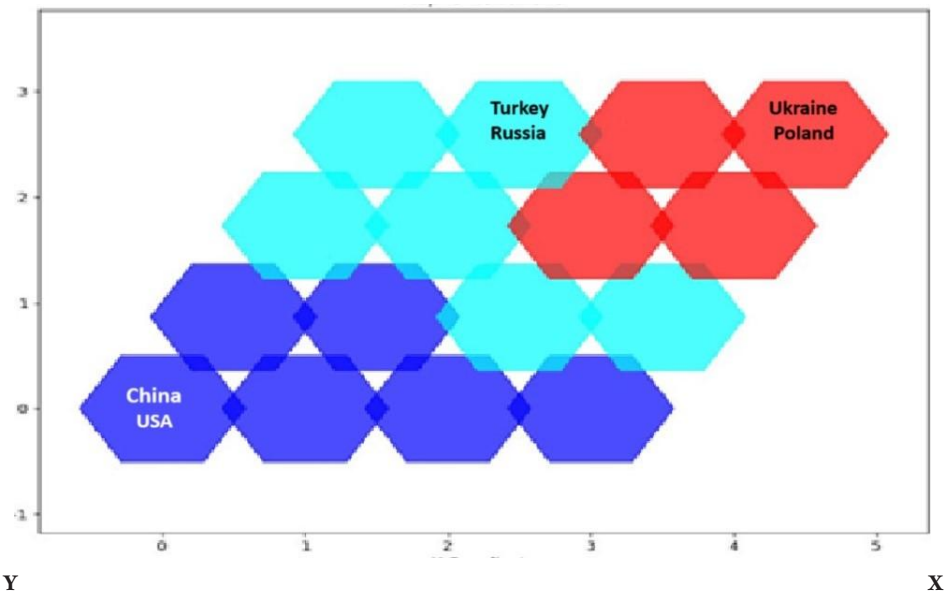

Figure 2. Data clustering: indicators characterising the country's defence capability (pre-war period)

Table 3

Indicators that characterise the defence capability of a country

Region	Human capital	Social capital	Organisational capital	Intellectual capital
Ukraine	0.456	0.58	0.344	0.448
AR Crimea	0.349	0.558	0.174	0.342
Vinnytsia	0.342	0.602	0.302	0.388
Volyn	0.329	0.742	0.085	0.346
Dnipro-petrovsk	0.496	0.486	0.464	0.484
Donetsk	0.458	0.51	0.462	0.471
Zhytomyr	0.289	0.665	0.106	0.317
Zakarpattia	0.316	0.573	0.113	0.31
Zaporizhzhia	0.467	0.456	0.363	0.432
Ivano-Frankivsk	0.327	0.658	0.205	0.363
Kyiv	0.306	0.629	0.194	0.344
Kirovohrad	0.278	0.601	0.217	0.332
Luhansk	0.373	0.481	0.29	0.371
Lviv	0.401	0.633	0.303	0.423
Mykolaiv	0.283	0.589	0.398	0.388
Odesa	0.337	0.516	0.325	0.374
Poltava	0.427	0.594	0.322	0.431
Rivne	0.365	0.655	0.122	0.354
Sumy	0.438	0.575	0.245	0.408
Ternopil	0.372	0.723	0.251	0.413
Kharkiv	0.519	0.597	0.705	0.595
Kherson	0.281	0.507	0.249	0.322
Khmelnytskyi	0.344	0.63	0.081	0.326
Cherkasy	0.354	0.596	0.176	0.353
Chernivtsi	0.373	0.639	0.267	0.4
Chernihiv	0.325	0.594	0.143	0.329
Kyiv city	0.761	0.671	0.941	0.797
Sevastopol city	0.463	0.563	0.296	0.433

conflict, particularly within the domain of the missile industry. The following discussion will examine the indicators which characterise the country's defence capability. One can see the following: the share of exports of high-tech products, indicators of the influence of the environment of the territory on the support of the armed forces from the state, Human Development Index, import and export of weapons, nuclear weapons, indices of social health of the population, total number of military personnel (M), indicators of macroeconomic development, Strategic Missile Forces (SMF), Missile and Space Forces and Tactical Air Defence (MSFTAD), indices of innovation and economic potential of the state, research and development costs as a share of GDP, averaged, resources (dollars) for defence and security. The analysis of global state clustering indicates that Ukraine's defence capabilities were not optimally prepared at the onset of the war, as depicted in Figure 4.

However, in such cases, it is recommended that the indicators shown in Fig. 5 be considered, following their clustering for developed countries, with a view to enhancing defence capability.

Prior to the war, Ukraine's adherence to a distinct doctrine resulted in adverse consequences. The question that arises from this is why Ukraine chose to halt its adversary, who had launched an unexpected attack on a sovereign state, or at least not an entirely unexpected one. These assertions are corroborated by the comparison table of the military power of Ukraine and Russia at the onset of the war, Table 6.

Later, the situation changed somewhat. Russia suffered significant losses in terms of manpower

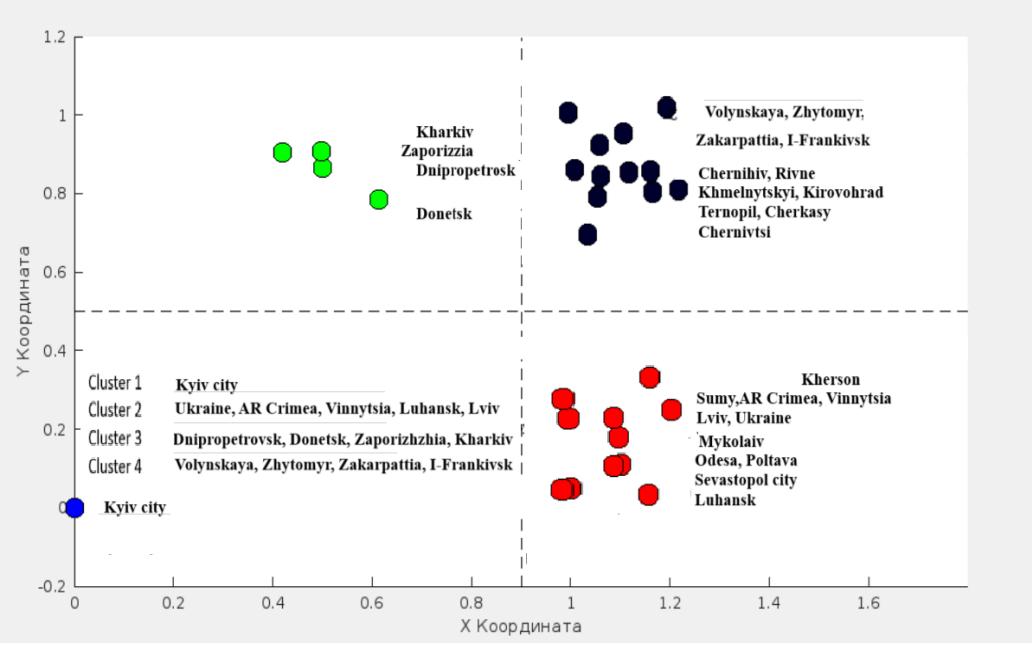

Figure 3. Cluster analysis of intellectual capital in Ukraine

Clusters	Clasters that characterise the defence capability of a country
Cluster 1	Norway, Switzerland, Australia, Ireland, Germany, Iceland, Hong Kong, Sweden, Singapore, Netherlands, Denmark, Canada, USA, United Kingdom, Finland, New Zealand, Belgium, Liechtenstein
Cluster 2	Japan, Austria, Luxembourg, Israel, Korea Republic, France, Slovenia, CzechRepublic, Italy, Malta, Estonia, Cyprus, Poland
Cluster 3	Slovakia, Latvia, Hungary, Croatia, Russian Federation, Bulgaria, Romania, Belarus, Kazakhstan
Cluster 4	Spain, Greece, Andorra, Saudi Arabia, Portugal, Bahrain, Chile, Argentina
Cluster 5	Oman, Montenegro, Bahamas, Uruguay, Malaysia, Barbados, Iran, Seychelles, Costa Rica, Turkey, Mauritius, Panama, Albania, Antigua and Barbuda, Saint Kitts and Nevis, Bosnia and Herzegovina
Cluster 6	Mexico, Grenada, Brazil, Lebanon, Macedonia, Thailand, Algeria, China, Ecuador, Peru, Colombia, Saint Lucia, Dominican Republic, Tunisia
Cluster 7	United Arab Emirates, Qatar, Brunei Darussalam, Kuwait
Cluster 8	Palau, Georgia, Cuba
Cluster 9	Serbia, Trinidad and Tobago, Sri Lanka, Venezuela, Azerbaijan, Armenia, Ukraine, Fiji, Mongolia, Jordan

Figure 4. Clusters and indicators that characterise the defence capability of a country

Clusters	Clusters and indicators characterising a country's defence potential
Cluster 1	Share of high-tech exports, indicators of the impact of the territory's environment with the support of the armed forces by the state, Human Development Index / Arms Import/Export Index, nuclear weapons
Cluster 2	Indices of social health of the population
Cluster 3	Total number of military personnel, persons, M
Cluster 4	Indicators of macroeconomic development
Cluster 5	Strategic Missile Forces (SMF)
Cluster 6	Missile and Space Forces and Tactical Air Defence (MSFTAD).
Cluster 7	Indices of innovation and economic potential of the state, research and development costs as a share of GDP
Cluster 8	Averaged
Cluster 9	Resources (dollars) for defence and security and their % of GDP

Figure 5. Clusters that characterise the defence capability of a country

and weapons. This was initially due to the patriotic uprising of Ukraine's indigenous population, but the authorities were slow to combat the destructive forces that prevented this.

The choice and production of weapons in Ukraine largely depends on the availability of intellectual capital within the military and defence industries. Most importantly, it depends on how quickly all available opportunities can be reorganised to increase military capabilities and update technologies in a short period. This can be achieved by strategically strengthening intellectual capital and with the help of partners.

In order for a nation to achieve a satisfactory competitive position in the military sphere, it is imperative to ascertain the most efficacious manner in which to actualise its intellectual potential, thereby ensuring the optimum utilisation of said potential.

With regard to the matter of clustering, particular attention should be paid to indicators of defence capability, including the share of high-tech exports and indicators of environmental impact on the territory.

These include: 1. Human Development Index, arms import/export index, nuclear weapons, social health indicators, military (human resources), macroeconomic indicators, M), macroeconomic development indicators, Strategic Missile Forces (SMF), Missile Forces and Space Forces and Tactical Air Defence (MFSFTAD), innovation and economic

Table 4

Influence of criteria on the choice of alternatives (properties) in decision-making

Indicators	Ukraine	Russia	Difference	Losses RU
Total population size	43306477	141698923	98392446	0
Fitness for duty	15460412	46477247	31016835	0
Active staff	900000	1320000	420000	0
Reserve personnel	1200000	2000000	800000	0
Military forces, people	100000	250000	150000	800000
Defence budget	42000000000	109000000000	67000000000	0
External debt	500000000000	120000000000	380000000000	0
Foreign reserve	30697000000	632242000000	601545000000	0
Purchasing power	379893000000	4078000000000	3698107000000	0
Total number of aircraft	321	4255	3934	370
Fighter jet	72	809	737	0
Transportation	24	453	429	0
Helicopters	130	1547	1417	0
Attack helicopters	33	559	526	331
Tank strength	1777	14777	13000	9700
Armored vehicles	22110	161	139272	20300
Artillery	1205	6208	5003	21750
Rockets	491	3065	2574	3014
The fleet	104	0	677	28
Submarines	0	0	65	1
Destroyers	0	14	14	0
Corvettes	0	83	83	0
Drones	0	0	0	21750
Airports	187	1218	1031	0
Oil production, barrels	60000	10750000	10690000	0
Common border km	5581	22407	16826	0
Gas production, barrels	19511040000	701544189000	682033149000	0

potential indices, research and development expenditure as a share of GDP, average cost, resources (in dollars) for defence and security.

When it comes to human capital, it is important during military operations to pay attention to the investment process and divide it into several stages, which will allow for its level to be raised as part of intellectual capital:

1. Expenditures related to patriotic education of youth and anti-corruption initiatives within government institutions.
2. Access to and attainment of quality education.
3. Recruitment and selection costs for military personnel.
4. Training-related expenditures for enlisted military personnel.
5. Financial support provided during the capacity-building phase of military service.
6. Costs associated with the professionalisation phase of military personnel.
7. Cumulative expenditures for both training and professional development of military personnel.
8. Costs incurred during the period of decline and 'moral ageing' in military professionalism.
9. Investments in human capital aimed at fostering innovation and reproducing intellectual capital.
10. Expenditures related to the development of individual capacity to transform information into actionable knowledge for organisational needs.
11. Costs associated with establishing and maintaining a culture of information ownership.

A particular role in military operations is played by organisational capital, which consists of technological capital, branded capital, business culture, capital efficiency of added economic value, capital of the strategy for attracting innovations, and information potential. The assessment of organisational capital is predicated on a number of key indicators, including, but not limited to, technological efficiency, productivity, innovation, co-operativeness, adaptability, and effectiveness. In times of war, these indicators are often reduced to the primary issue of procuring high-tech armaments for the military through foreign investment. The accumulation of own funds is ordinarily a gradual process characterised by an element of uncertainty. This poses a significant threat to the operational sustainability of the defence potential. Furthermore, human and customer capital play a crucial role in the strengthening of organisational capital, which, in turn, is contingent on the presence of patriotic achievements of the Ukrainian nation. Researchers in the field of intellectual capital

consider customer capital to be a key component, along with human and structural capital (Yanyshivskyi, 2010; Porokhnya, 2014). The successful management of customer capital is predicated on the expansion of interactions with customers, the rapid response to their needs, the retention of existing customers, and the attraction of new customers. In consideration of the configuration of customer capital as an aggregation of its components and their interrelationships that exert a direct influence on the state's capacity, the full spectrum of possible assessment options can be encompassed. It is imperative to acknowledge that customer equity constitutes a form of capital with the capacity to generate revenue. The measurement of this index is derived from the military's interactions with its customers in the field of arms supply. The strength of customer capital's impact on the army's competitiveness increases the state's interest in its growth and greater efficiency. In order to ascertain the influence of client capital on financial indicators, a quantitative assessment is necessary. Customer capital consists of five main components:

The index is a reliable metric for evaluating customer satisfaction and gauging their propensity to continue their business relationship with the company. It is evident that a high level of customer loyalty is conducive to revenue stability and enhances the reputation of the military. Customer relations: This encompasses customer interaction at various levels, including service, consultation and support. Maintaining and developing the customer base requires high-quality customer relationships, which increase customer satisfaction. Brand and reputation: a company's brand and reputation are important in building customer equity because they influence customer perceptions and willingness to co-operate with the government.

Customer knowledge: understanding customers' needs, preferences and behaviours enables the state to develop and offer products and services that meet their expectations, thereby increasing its ability to fulfil military requirements. Customer network: it includes various channels of communication and interaction with the country's defence industry, which allows the state to maintain the sustainability and growth of its customer base. A developed client network is seeking new clients through positive reviews and recommendations from military personnel. From the military. Consequently, some people forget the importance of customer loyalty, which ensures stable revenue for the army. Clearly, many people do not understand this concept, which stems from sedentary people's centuries-old connection to their roots.

Therefore, it is necessary to study these population groups and inform them that they own this land and must protect everything that concerns their lives. To achieve this, we will establish the decision-making parameters for enhancing the country's defence capabilities. The weights of the indicators enable the selection of the optimal option for customer capital, the results of which are presented in Table 7.

The subsequent stage of the process is to divide the criteria into clusters and act in accordance with their respective priorities. As illustrated in Figure 6, the indicators that exert the most significant influence on decision-making are those contained within the first cluster. Among these, innovation, service, and pollution are found to be considerably distant from loyalty and satisfaction.

The initial two years of the war resulted in considerable suffering for Ukraine. In addition to the contamination of air, soil, and water, the environment was severely affected, with the emission of approximately 175 million tons of carbon dioxide equivalent (Ovchynnikov, 2024). According to the organisation Ecoaction, 150 million tons of CO2 equivalent were emitted into the atmosphere of Ukraine (Severyanin, 2023). The estimated damage caused by emissions due to the hostilities is approximately 37 million tons of CO2e, with the corresponding fire damage estimated at 22.2 million tons. The total amount of CO2 equivalent that was absorbed as part of the environmental restoration initiatives was 57 million tons. A methodology for assessing greenhouse gas emissions is outlined in the report "Climate Damage Caused by Russia's War in Ukraine" by Ecoaction experts (Lennard de Klerk, 2023). Experts estimated that the amount of carbon dioxide equivalent would be 64 million tonnes for the 2022–2023 period, which is almost equivalent to 9.6 billion tonnes. The present study employs the Kohonen neural network to analyse environmental input factors without the necessity of acquiring information regarding the desired output indicators. The input indicators that influence ecological restoration are as follows: It is possible

Table 5
Influence of criteria on the choice of alternatives (properties) in decision-making

Criteria.	Interaction	Speed	Technology	Service	Involvement
Satisfaction	0.35	0.20	0.17	0.2	0.17
Loyalty	0.25	0.15	0.13	0.2	0.3
Feedback	0.15	0.25	0.2	0.15	0.15
Innovation	0.15	0.25	0.35	0.25	0.25
Quality of service	0.10	0.15	0.15	0.2	0.13

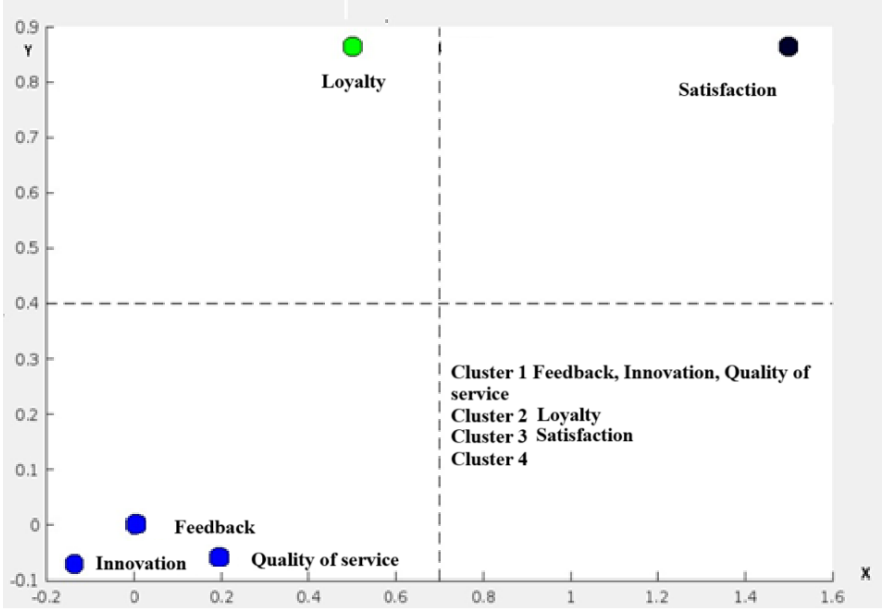

Figure 6. Influence of criteria on the choice of alternatives

to identify three clusters for the input factors of the search for alternatives (1=alarming, 2=restrained, 3=promising). The boundary parameters for evaluating alternative selection strategies are defined as h=newc ([100 200;10 25; 400 900],3,.1)

For example, for input indicators: GHG emissions tons of CO2 = 150; climate damage = 25; environmental restoration = 700, one will identify cluster (y = 100) - 1 = alarming. Depending on this, the state can roughly expect to restore damage within cluster 1. This is confirmed by Fig. 7 for the input indicators: GHG tons of CO2 emissions = 100; climate damage = 25; environmental restoration = 900, one will get a cluster (y = 0 1 0) 2=restrained.

Table 6

Influence of criteria on the choice of alternatives (properties) in decision-making

Indicators	Dimensions				
GHG CO2 tons	140	150	160	170	200
Climate Damage War, dbn.	10	14	18	20	25
Updating the environment, dbn.	300	400	500	600	700

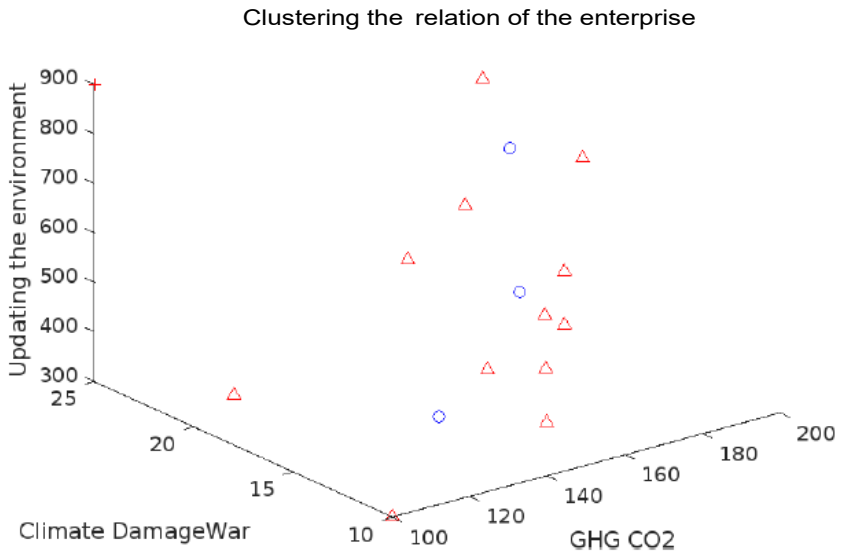

Figure 7. Influence of criteria on the choice of alternatives

The development scenario under consideration involves the emission of tons of CO_2, the resultant climate damage, and the necessary environmental restoration, as illustrated on the Kohonen map. In the following section, the focus will be directed towards the factors delineated in Table 7.

These factors were selected from the General Staff of the Armed Forces of Ukraine's daily reports for January 2025. Several factors were identified as having a significant impact on the outcome of military battles. To ascertain the most significant type of military development that Russia is undertaking in terms of manpower, a multiple regression analysis was conducted on the proportion of wasted military expenditure against the utilisation of military resources. The most important indicators of the armoured offensive will be tanks, Russian drone-UAVs, armoured equipment, artillery, Russian missiles and Ukrainian drone-UAVs.

Table 7
Estimated daily losses in Russian manpower in January 2025 in Ukraine

Losses, troops	Losses daily	Aircraft	Armored vehicles	Tanks	Drones RU
790800	1250	0	4	50	13
792170	1370	0	4	69	13
793250	1080	0	1	49	14
794760	1510	0	2	107	23
796490	1730	0	7	91	26
798040	1550	0	14	178	45
800010	1970	0	10	83	25
801670	1660	0	4	19	16
804930	1580	0	17	86	18
806500	1830	0	5	63	18
808070	1570	0	3	72	11
809760	1510	0	11	63	18
811090	1330	0	8	183	28
812670	1330	0	11	72	11
814150	1680	0	13	107	22
815820	1480	0	11	120	20
817160	1670	0	12	63	13
818740	1340	0	0	13	13
819320	1580	0	8	36	18
822120	1680	0	10	153	42
823630	1600	0	12	130	23
824930	1950	0	11	141	8
825320	1340	0	6	72	12
826820	1500	0	2	51	11
790800	4	0	0	0	30
792170	20	0	0	0	104
793250	3	0	0	0	120
794760	23	3	0	0	250
796490	25	0	0	0	96
798040	62	0	0	2	110
800010	45	2	0	4	80
801670	19	0	0	0	320
804930	36	0	0	0	97
806500	22	1	0	0	78
808070	47	0	0	0	56
809760	22	1	0	0	100
811090	37	0	0	25	130
812670	47	0	0	0	170
814150	52	0	0	2	160
815820	40	31	0	0	240

The adequacy of the multivariate model is considered within the selected factors of the equation:

$$VR= 1334+ 20.5*x1+(-1.08) * x2+ +3.26*x3+1.71*x4+(-3.84) *x5+1.71*x6$$

where VR is Russia's daily losses, people; x1 - "tanks", pcs; x2 - "Drones RU", pcs; x3 - "Armored vehicles", pcs; x4 - "Artillery", pcs; x5 - "Rockets", pcs; x6 - "Drones UA", pcs.

Accordingly, on January 27.01.25 and 28.01.25, the following result can be observed:

$$VR=1334+20.5*3+(-1.08) *74+3.26*12+ +1.71*16+(-3.84) *0+0.318*270 =1467 people;$$

$$VR=1339+20,7*3+(-1.13) *74+3.65*12+ +1.77*16+(- 3.2) *0+0.196*270=1442 people.$$

According to the Armed Forces of Ukraine (27.01.25), VR equates to 1,430 individuals; according to the Ukrainian Armed Forces (28.01.25), VR equates to 1,500 individuals. It is evident from the multiple regression analysis that the primary armaments employed in January were tanks, armoured vehicles, and Ukraine's UAVs, which were instrumental in daily destruction of the enemy. In contrast, the deployment of missiles and Russia's UAVs exhibited minimal impact on frontline combat, primarily serving defensive strategies. It is evident that the war in Ukraine is of a more defensive nature. The realisation of victory is possible through a substantial augmentation of human capital within the military sphere, in addition to the receipt of assistance from partners in the field of updating weaponry and intellectual vision. This will facilitate the mobilisation of patriotic forces for the purpose of purging the army and government of short-sighted, inhibitory forces and total corruption. The selection of strategic direction is influenced by various criteria, including satisfaction, loyalty and feedback from the Ukrainian population, innovation of quotidian solutions in all domains and the quality of service.

3. Conclusions

This study has shown that, in order to achieve a decent competitive position in the military sphere, Ukraine must determine how to accumulate and utilise intellectual potential in order to maximise its effectiveness. To achieve this, it is necessary to assess

the macroeconomic situation of the countries that influence defence capabilities. Furthermore, a thorough analysis of the structure of intellectual capital indicators will help to determine their significance and improve the economic performance of changes in funding for intellectual capital components. The main difficulty with this approach to finding alternative funding solutions lies in the correct selection of indicators.

In January 2025, the main weapons used by Ukraine were tanks, armoured vehicles and UAVs for the daily destruction of the enemy. The destruction of Russian missiles and UAVs had little impact on the battles on the front line and was aimed at defensive tactics. Therefore, the war in Ukraine is primarily defensive in nature, and victory can be achieved by increasing and introducing human capital in the military sphere, as well as receiving assistance from partners in updating weapons and providing an intellectual vision. This will enable patriotic forces to eliminate short-sighted and corrupt elements from the army and government. The influence of various criteria, such as satisfaction, loyalty, feedback from the Ukrainian population, innovation in everyday solutions, and service quality, must be considered when choosing a strategy. The first two years of the war caused significant suffering in Ukraine. The country experienced severe air, soil and water pollution. The environment was badly affected by carbon dioxide equivalent emissions.

The Kohonen clustering neural network can be used to predict environmental restoration funding based on cluster classification (1 = alert, 2 = restrained, 3 = promising).

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