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Upgrade the park of weapons and military equipment the way to the combat capability of the Armed Forces of Ukraine

Resume. The analysis of the current state of weapons and military equipment, what is based of the statistical data derived from observations in the course of anti-terrorist operation. The contribution of modern weapons and military equipment to maintain the combat capability of troops (forces) and an increase in their combat potential has been considered.

Keywords: WME, military-technical policy, anti-terrorist operation, upgrade, modernization, combat capability, combat potential, new generation of sample.

Rising of problem. The armed conflict that takes place today on East of Ukraine became the real litmus scrap of paper of battle-worthiness of the Armed Forces and other soldiery forming, their possibility to execute the tasks in relation to defence of the state. As known, most standards of armament and military technique (AMT), those are equip the Armed Forces of Ukraine or fully spent the resource, or are on verge of his use. Such state it the result of the long-term ignoring by guidance of country, Department of defense and other soldiery forming of implementation of basic directions of military-technical politics from updating of park OBT, and also organization of exploitation of OBT and repair in accordance with a plan. A consequence is that with beginning of bringing an armament over and military technique to the battle-worthy state (a removal is from storage) previous indexes of level of good condition, that were considered at the level of 88%%, not confirmed. The actual level of good condition of OBT appeared on 38-42%% more subzero. To 50%% standards needed additional technical service and permanent repair.

Principal reasons of such unsatisfactory state are also such factors:

subzero reliability of standards of AMT;

non-fulfillment of measures of technical service and repair;

ignorance of order and rules of exploitation of AMT, admitting, a personnel is to exploitation of OBT of unprepared personnel;

failure to observe of set by the normative documents of rules of exploitation of AMT is maintenance of AMT on storage.

The level of death OBT during an anti-terror operation on East of Ukraine considerably exceeds losses in comparing to the battle actions in Afghanistan, during east campaigns at Russian FEDERATION and Russian-Georgian war of 2008. Yes, as a result of the battle operating on East of Ukraine for period from June for December, 2014 battle losses laid down : tanks - 78%%; БМП and БТР - 50%%; other standards of OBT from 28 to 50%%, from those that were brought over to the operation. In addition, the resource of separate elements of OBT closes through aging and high intensity of application (first of all, it is barrels of the artillery systems, engines and reducing gears of helicopters and others like that), and limit nature of ЗІП (and sometimes and him complete absence) is considerably reduced by productive possibilities of soldiery repair restoration organs.

Analysis of basic researches and publications. Question of updating of existent park OBT, influence of the newest armament on the increase of battle-worthiness of troops (forces), them battle potential in open mass medias, as a rule, not examined. Almost in all existent open sources of information even if examine this subjects, then the brought information over is or very out-of-date, or have openly fragmentary character. Most successfully this difficult theme was exposed in works [1-3], but also there not in full.

The aim of the article is exposition of modern looks to the necessity of replacement of old park OBT and achievement modern standards due to this necessary effect of increase of battle-worthiness of troops (forces).

Exposition of basic material. Absence of capable of working standards of OBT or substantial decline of possibilities is directly represented their functional on the battle-worthiness of troops (forces), considerably reducing them battle potential. For example, battle worthiness of complexes of artillery secret service, absence of modern radiolocation and sound-ranging complexes (facilities) of artillery secret service did not give possibility to a full degree to realize battle possibilities of present complete set

of rocket troops and artillery.

Also it follows to bear in a mind, that the modern armed conflicts are characterized: by the massed application of the systems of high-fidelity armament; to the aviation; facilities of radio electronic fight; to the weapon on new physical principles, that after efficiency can be compared to the nuclear weapon; informative managers systems, and also pilotless aircrafts; guided standards of AMT on all depth of territory of the state simultaneously in informative and aerospace space, on land and at the seaside [1, 2]. Certainly, from OBT of old park the standards of that almost used the resource, to conduct the successful battle operating under an opponent, equipped that by a high-fidelity weapon or weapon on new physical principles, considerably more difficult than having on an armament a modern technique that answers present tense. For example, subzero possibilities of out-of-date facilities of secret service and defeat, absence of the system of the automated management troops and weapon, insufficient amount of battle parts (subdivisions) and them the quality state was considerably limited by possibilities of the Armed Forces of Ukraine in relation to effective application in an anti-terror operation.

During the rebuff of aggression also the problems of imperfect military-technical politics, that showed up in that assignations on retooling of troops (forces) and maintenance of technical readiness of their systems and complexes of armament were not attributed to priorities of fiscal policy of the state, found the confirmation the Armed Forces. It resulted in a volume, that the term of calendar and resource limitations of the use of most hi-tech systems of OBT of airplanes, ships, complexes of air defense (AIR DEFENCE), rocket systems of the different setting made off and others like that.

Some lines of the modern armed conflict are, certainly, and on East of Ukraine, where the Russian troops apply the newest developments widely, examining a conflict as possibility of their approbation in battle conditions.

Exactly to implementation of tasks the Armed Forces of Ukraine must today prepare in such terms. But analysis of them the modern state testifies that they are not able on such conditions in full to conduct military operations, because forces and facilities for realization of classic offensive or defensive operations we do not have already, but hi-tech standards of armament for realization of modern military operations we do not yet have. The decision of tasks already is not possible the Armed Forces only on the basis of perfection of traditional technologies in connection with their considerable lag from the level of leading countries of the world.

Analysis of application of troops (forces) of the Armed Forces of Ukraine during realization of anti-terror operation, allow specifying basic directions of development of OBT of the Armed Forces of Ukraine on a medium-term prospect.

Basic efforts, first of all, it must point at development of such base military-technological directions, as secret service and illumination of situation, copulas and management troops, navigation and management AMT, providing of actions and vital functions of personnel, an armament in regular and extreme terms. Needs development of armament of all kinds of the Armed Forces of Ukraine.

To near-term priorities it follows to take:

modernization of the armored armament by establishment of new aiming complexes, expansion of spectrum of high-efficiency live (rockets of anti-aircraft action and anti-tank) ammunition of new armor-piercing and cumulative projectiles, active and passive facilities of defence, increase of supply of motion due to establishment of more powerful and economic engines;

an increase of vitality of the fighting reserved machines, tanks is from a defeat, anti-tank rocket complexes, artillery and rocket systems of a volley fire, cumulative charges;

improvement of defence of motor-car technique and capsule implementation of separation for placing of driver and commander with providing of defence of him the ground part;

rigging of parts (subdivisions) by the modern pilotless aircrafts of home production, that will determine a location and character of aims of opponent; by modern multifunction facilities for providing of firing (navigation, meteorological providing, secret service), in particular, by the complex of home production on the base of vehicle of CH-3003M and laser to the range-finder; by modern portable communication means with the closed channels for organization of the hidden management; by the hand-held personal computers (for example, TDS NOMAD) for the decision of tasks of preparation and fire-control of artillery; by modern facilities of the meteorological providing (by weather-stations, meteorological complete) for the increase of exactness of firing in difficult meteorological terms;

modernization of self-propelled howitzers and artillery systems 2С1, 2С3, Д- 30, Д- 20 (in particular, in directions of increase of distance of their application and exactness of aiming, rigging and orientation, optical-electronic secret service, equipment special calculators facilities of

topographical attachment for the rapid working of information about coordinates whole, meteorological and ballistic terms of firing and others like that).

Actual for today there are directions from development of modern portable devices of night vision and rigging by them posts of visual supervision (in particular, for the exposure of БПЛА in a sunset-to-sunrise), newest portable coded communication means with distance of action a not less than 20 km with possibility of lick-up and transmission of coordinates (for rigging air one who aims a gun, task forces and others like that), portable laser devices (markers), their adaptation for the use with side decimators, illuminating from beneath of surface aims (for rigging air one who aims a gun, task forces and others like that) [4].

Direction of development of more reliable facilities of individual reserved defence, equipped by the system MOLLY, modern facilities of supervision and secret service (by the binoculars of night vision, individual glasses of night vision), appeared important direction of development of OBT.

The special attention is deserved by efforts on the improvement of aviation of Ground forces. It touches the rearmament of her on the modernized battle helicopters the equipped of that must : to provide possibility of firing on aims with the use of the laser breech-sights set hellebore, and also laser devices (markers) that is equip aviation one (task forces) who aims a gun; to have in the composition the thermal, television, infra-red systems of determination of aims with providing of possibility of automatic transmission of their coordinates on the points of management and other aircrafts real-time; to have movable equipment for more effective use of rifle armament. In addition, needs the decision of question of rigging of helicopters CRT-exhaust devices for the increase of level of security from a defeat, rigging of equipment of crews of helicopters, portable zenithal complexes by glasses of night vision.

System OBT, that will be produced or bought in, must answer modern operational-strategic requirements and be solvent to functioning in the conditions of maximal no interaction, to be technological in a production and repair, to provide firmness to the striking factors of the existent and perspective systems of armament, including on new physical principles.

At development and perfection of AMT, first of all, it is necessary to take into account tendencies in development of facilities of the armed fight, it is possible to take to that [4, 5]:

the technical and moral aging of facilities of the armed fight that needs their more frequent updating a speed-up in recent year;

appreciation of value of development and production of OBT in connection with wide introduction in the complexes (systems) of armament of front-rank achievements in the sphere of artificial intelligence, new element base, technologies, physical principles, and also facilities of automation. All of it results in the necessity of development of the difficult mathematical and programmatic providing; the cost of creation of that in a number of cases is compared to the cost of the created systems of armament;

an origin of additional problems of site-specific and inter-branch character is at general application or co-operation of the difficult systems (complexes) of armament of different luring-ins, types of troops (forces);

an increase of requirements is to providing of high battle firmness and vitality in the conditions of natural and organized counteractions.

Implementation the brought measures over will allow to define priorities rigging of the Armed Forces, basic from that must be, :

updating of facilities of secret service of kinds (luring-ins of troops (forces), special troops) and integration of them is in the single system of secret service, able to disrobe the objects of opponent with necessary exactness, authenticity and timeliness;

creation of effective CAS of management on all levels from strategic to tactical, able to function in the conditions of continuous radio electronic influence and massed air-space shots of opponent, carry out collection and treatment of information about a situation in a scale to time near to the real, quickly opened out and transformed depending on character of actions of groupments of the Armed Forces;

development of the active system of air defense of the state is on the basis of complexion of modern forces and facilities of different types (luring-ins of troops, special troops) of the armed forces (fighter aircraft, zenithal rocket troops of Aircrafts, aviation, troops of air defense of Ground forces, facilities of air defense of Naval Forces, facilities of secret service and radio electronic fight, engineering troops, radiation, chemical and bacteriological defence and others like that) [6]. Development of subsystems of air defense of the state of the automated management, secret service and notification, radio electronic fight and defeat;

creation of the system of complex fire defeat on the basis of integration of facilities of secret service, automated management and high-fidelity decimators on the base of reconnaissance-shock

complexes of operative commands and reconnaissance-fire complexes of the mechanized brigades in the close co-operating with shock aviation.

In the modern terms of updating of park of armament and military technique it is an only way to the achievement of high battle-worthiness of the Armed Forces of Ukraine, all other are erroneous that can have very annoying consequences. Such conclusion can be done, being based on existent experience of development of standards, complexes and systems of armament.

For example the processes of change of OBT can serve as on the navy of the USSR. First of all, it follows to name rigging of ships the by a ship wing-rockets of the various setting, began that to equip a fleet in the second half of 1960th. Yes, ship wing-rockets of П- 15, which acted on the armament of rocket cutters and small rocket ships, and П- 35, which were set on rocket cruisers, and also on coastal options, considerably increased potential of fleets in a fight against different forces on marine theatres and during the defensive of coast. For to the estimations of soviet НДІ- 4, such retooling allowed to increase battle potential of groupment of ships on 9-12%%.

Other example - rigging ballistic rockets. In the first half of 1970th was worked out and accepted on the armament of new atomic rocket transmitters of type moray “Eel” rocket complex Д- 9 с by the ballistic rocket of РМС- 40 intercontinental distance of firing. Thus on 14%% grew value to the coefficient of the operative use of submarine rocket transmitters and them battle firmness.

Development of OBT in the conditions of co-operating of different types and types of armament and competitive activity with analogical and opposing facilities of opponent assumes continuous perfection of all totality of wares of this kind also. Updating of standards comes true as a result or modernizations, or changes of generations.

Modernization is bringing to the serial standard that is on an armament, structural and technological changes with the aim of improvement of him battle and technical descriptions, and also continuation of life cycle. In opinion of specialists, modernization allows in short spaces are compared at limit charges to obtain the increase of efficiency of standards of БТТ and bring them to conformity with requirements that grow constantly, but on short space.

Modernization comes true both during a current production and on earlier produced standards, large and small modernization differentiates thus. *Large modernization* is executed, as a rule, on plants that produce serial standards, for the improvement of one or two of complex battle indexes (to fiery power, security, mobility and command divisibility). For example, it is possible to consider setting of dynamic or active defence, electromagnetic defence, new armament or devices of secret service large modernization on new physical principles

When the *small* upgrades improving some characteristics and relevant work carried out, as a rule, troops in the repair of BBT. An example of equipment of the tank or another BBT new communications or surveillance device.

The change of generations is characterized by a significant increase in fighting properties and the efficiency of the sample, but the creation of new designs associated with the great cost of time and money. So, the development of the tank “Leopard-1” took about nine years, the English ”Čiften” – almost ten American M60a1-ten. The program is the creation of the American tank M1 "Abrams" cost more than 1 billion. dollars.

In real-world conditions as part of the Park BBT may be samples of two or even three generations. As a rule, the adoption of the new generation of the sample takes place after carrying out two-three evolutions of the samples of the previous generation, which for a time also remain on the service.

Rushing to keep in mind that the sample Depot OVT defining impact do:

the pace of scientific and technical progress that influences, on the one hand on the accumulation of technical princely state, on the other hand, moral ageing of samples that are deployed.

the level of financial resources;

production capacity of the industry;

temporary restrictions.

As evidenced by the experience, the actual duration of the stage of development of the OVT, statistics, changes in significant: from 2 to 9 years old, for example, the duration of the development of the BBT, the average is 5-6 years. In Ukraine, this figure is higher because of the unstable funding and reaches 15 years of age. But as a result of scientific and technical progress this term is significantly reduced: for example, the distribution of powder and its application in military terms lasted for about 600 years, the introduction of Silicon Castle to small arms – about 200 years, from the moment of invention to practical

application – 12 years e-card – 5 – 6 years, "chips and microprocessors – 2-3 years.

Conclusion. Special importance becomes long-term (10-15 years) planning, because the implementation of targeted programmers requires the involvement of significant resources for a long time. Up to 2020-2030 years expected introduction of the combat composition of the armies of industrialized countries of a number of new weapon systems developed and tested: reconnaissance information systems, high-precision weapons, unmanned different aviation systems, unified mobile land force combat platforms.

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Оновлення парку озброєння та військової техніки - шлях до боєздатності Збройних Сил України

Резюме. Проведено аналіз сучасного стану зразків озброєння та військової техніки, відштовхуючись від статистичних даних, отриманих у результаті спостереження у ході ведення антитерористичної операції. Розглянуто внесок сучасного озброєння та військової техніки у підтримання боєздатності військ (сил) та збільшення їх бойового потенціалу.

Ключові слова: озброєння та військова техніка, військово-технічна політика, антитерористична операція, оновлення, модернізація, боєздатність, бойовий потенціал, зразок нового покоління.

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Обновление парка вооружения и военной техники - путь к боеспособности Вооруженных Сил Украины

Резюме. Проведен анализ современного состояния образцов вооружения и военной техники, на основе статистических данных, полученных в результате наблюдений в ходе ведения антитеррористической операции. Рассматривается вклад современного вооружения и военной техники в поддержание боеспособности войск (сил) и увеличение их боевого потенциала.

Ключевые слова. Вооружение и военная техника, военно-техническая политика, антитеррористическая операция, обновление, модернизация, боеспособность, боевой потенциал, образец нового поколения.

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Analysis approaches for justification of combat composition of Ground Troops of the Armed Forces of Ukraine.

Resume. Conducted the analysis approaches for justification of combat composition of Ground Troops of the Armed Forces of Ukraine, which allowed to identify main weaknesses and directions of its improving with the use of additional indicators and criteria's.

Keywords: approaches for justification of combat composition, Ground Troops, prevented damage, rational combat strength.

Rising of the problem. Now the question of the rational justification of the composition of the Armed Forces (AF) of Ukraine pays considerable attention [2-4]. The leadership of the armed forces, and research institutions are actively improving the structure and composition of the armed forces and examines the issues of development of the methods of a substantiation of rational structure of the armed forces with the purpose of increase of efficiency of their application based on the experience of conducting command and staff exercises and economic capacity of the state.

Experience in the development of Ground Troops (GT) shows that their improvement should be based on a scientific approach, which is based on the analysis of the current factors affecting the rationale for their fighting strength, conformity assessment and principles of construction and development. GT consist of the following types of troops: mechanized, tank troops, missile troops and artillery, air defense forces GT, GT aviation, special forces (reconnaissance, engineering, radiation, chemical, biological (NBC) protection, communications, electronic warfare (EW), geoinformation, technical support, logistics and

Therefore, in modern conditions is relevant, along with questions to study trends and prospects of development of the AF of Ukraine, there are problems of improving the methodological apparatus through which can be identified programmers and development plans of the AF of Ukraine.

Analysis of recent researches and publications on the subject [2-4] shows that in modern conditions of development of GT, AF of Ukraine, taking into account the factors of influence on them, the approaches to the justification of their fighting strength, and developed an appropriate methodological apparatus. However, for the search of new approaches, improvement of techniques, methods and models that allows to take into account other factors in connection with the emergence of new forms and methods of warfare, new weapons and military equipment and improvement of existing there is a need for analysis of existing methodological apparatus [2; 3].

Also presented in [2-4] experience approaches to the justification of the fighting strength GT AF requires analysis, synthesis and determination of rational variants of development of the types of troops, prioritize determination.

The aim of the article lies in the analysis of approaches to substantiation of the combat composition of GF AF of Ukraine and to identify ways to improve them.

Presentation of the basic material. Justification the combat composition of GT AF of Ukraine is the most important task of their preparation to repel aggression, the methodology of which is one of enough difficult problems of the theory of military construction. However, the majority of works devoted to the solution of this problem, is empirical in nature and based on the experience of construction and development of troops (forces).

The combat strength of GT AF of Ukraine are the connections and units that are directly intended to combat, have combat capabilities and armed with military equipment. Usually the initial combat strength of the GT is formed as a result of the military policy of the state, namely, views on the role and place of military force in resolving the military crisis, and possible political and military goals and tasks of the AF, the resources required for their application. This fully applies to GT AF of Ukraine.

In the works [2-4] considered the combat strength of army groups during their creation to conduct specific operations. In this approach, the main factors affecting the combat strength of army groups, become conditions of their creation and methods of use in operations. The combat strength of the troops, created to conduct a particular operation is defining and essential part of the overall process of justification of the fighting strength of GT, but not sufficient. The group

considered only land component, namely, its combat strength, the indices of air and sea component are taken as an assumption.

So, according to the views [1-7], the grouping of troops (forces) are created in the framework of the scenarios of hostilities, which are due to the forecast of the military-political situation in peace time or for specific tasks in wartime, but objectively they will have differences in its combat structure. According to these views, the combat strength GT AF should ensure the establishment of certain groups of troops depending on how they are applied in relevant scenarios. In the works of the methodical bases of formation of (justification) fighting strength GT of AF of Ukraine, regardless of the planned groups of troops (forces) and scenarios of combat operations of AF, did not have sufficient space.

There is only reference to the importance for the formation of the GT AF conclusions from military-political situation on the basis of which is determined by the required composition of troops (forces) that are needed for solving interstate conflicts by military means. But, as already mentioned, the combat composition of troops (forces) on various operational and strategic activities necessary to solve problems in military conflicts of various scale, will significantly differ from each other both in quantitative and qualitative characteristics.

It should be noted that while the justification of the fighting strength GT of AF there are contradictions between the need for military strength and resource capabilities of the state to enforce them. Alternatively, the resolution of the contradiction is offered by improving the structure of military formations of GT AF of Ukraine and of different level of subordination as the need to address the scope of problems that can arise, and the possibilities of the art of war (doctrinal systems), and with the resource capabilities of the state.

Most of the existing techniques (methods) study of organizational structures of military units is based on probabilistic indices and statistical data with appropriate processing methods. But they have certain disadvantages, which consist in neglecting the degree of a specialist, special equipment, instruments in the total amount of tasks performed. The latter makes it impossible to determine the specific need for expertise, technology, assets needed to perform tasks.

With the aim of eliminating the disadvantages some authors proposed the solution of a question of justification of organizational structures of military units to lay an analysis of the actions that are used by military units during the execution of the task. Considering this methodical approach, it should be recognized that the proposed transfer of the algorithms of hostilities on the operations of all military forces (created grouping of troops) is not correct through their significant differences (administrative, military, serve the like).

The most detailed definition of a rational military structure GT aircraft have been studied with four approaches.

For the *first approach*, the formation of variants of the composition is carried out using the method of experiment planning [7]. For parameters that vary during the formation of the plan of experiment was adopted the quantitative composition of troops (forces). The General sequence of solution of this problem the first approach is shown in Fig. 1.

The peculiarity of this approach lies in the fact that the plan of the experiment is only used for ordering changes of the parameters characterizing the composition of the grouping of troops (forces) in each option. In this case, the search of rational composition of the grouping of troops (forces), in fact, is carried out within the changing parameters that correspond to the levels of their variation.

Application of planning of experiment for the formation of variants of grouping of troops (forces) determined by the significant limitations of forces and means that can be used to increase the components of the grouping of troops (forces). In addition, the increase (decrease) in these components is due to the change in the number of military units that have a coherent organizational structure.

he *second approach* is to define a rational fighting strength GT of AF of Ukraine on a number of indicators with the use of taxonomic methods, which are methods of multidimensional comparative analysis and have a broad application [5]. The main element used in taxonomic methods, taxonomic distance is. It is defined by the rules of analytic geometry between points indicators located in the multidimensional space. The dimension of this space is determined by the number of indicators that characterize the applications of the grouping of troops (forces). Using taxonomic distances determines the location of the point relative to others and its place in the totality, and therefore, it is possible to classify and organize indicators, and options for grouping of troops (forces).

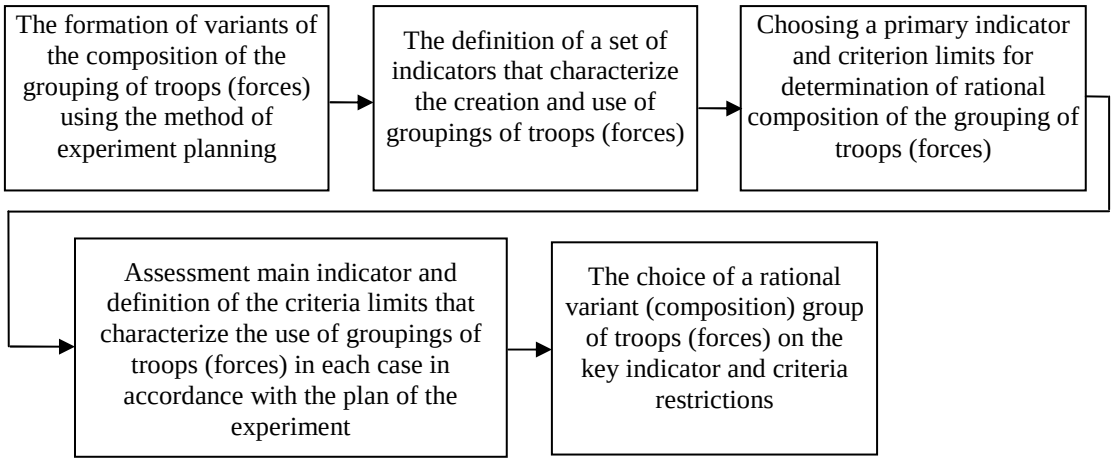

Fig. 1.

The General sequence of the decision of a problem of determination of rational composition of the grouping of troops (forces) with the use of taxonomic methods is shown in Fig. 2.

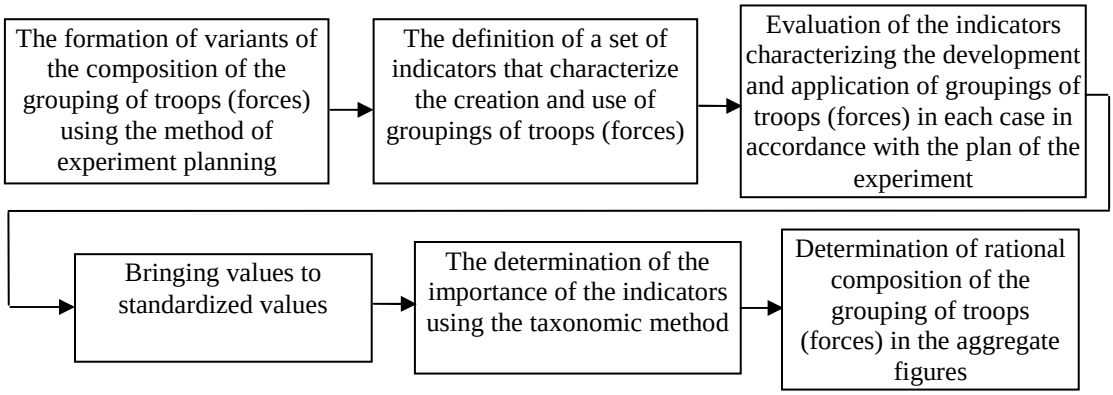

Fig. 2.

As in the first approach, efficient fighting strength of troops (forces) is within the range of variable parameters that correspond to the levels of their variation. In the case of using taxonomic methods, the importance of indicators is determined by the distances between the indicators, that is not taken into

It is believed that a more accurate determination of rational composition of GT AF can be obtained using the method of Pareto [6], which is the essence of the third approach. The General sequence of definition of rational structure of the grouping of troops (forces) with the use of Pareto is shown in Fig. 3.

In this case, the solution of the problem of definition of rational structure of the grouping of troops (forces) is carried out in the multidimensional space of parameters. The dimension of the space is determined by the number of parameters that are investigated. The evaluation of performance in accordance with the experiment plan is created generalized mathematical model of creation and use of groupings of troops (forces), which contains the polynomial dependence of the parameters from the parameters (composition) of groups of troops (forces).

Using special methods of probing the parameter space is formed considerably large as compared with the first approach, the number of groupings of troops (forces). Of these options, respectively, before the procedure selects Pareto Pareto-efficient. Finally a rational version of the combat composition of the armed forces is elected by GT using a variety of decision rules, as well as relying on the person who accepts it [6].

The fourth approach is based on the use of the analytic hierarchy process (AHP) to determine the importance of indicators creation and the use of groupings of troops (forces) in the military conflict and the use of taxonomic method for determining the rational part of GT with martial of AF, given the importance of indicators.

The general sequence of determining the rational part of GT. martial of the armed forces using the method of analysis of hierarchies and taxonomic method shown in Fig. 4.

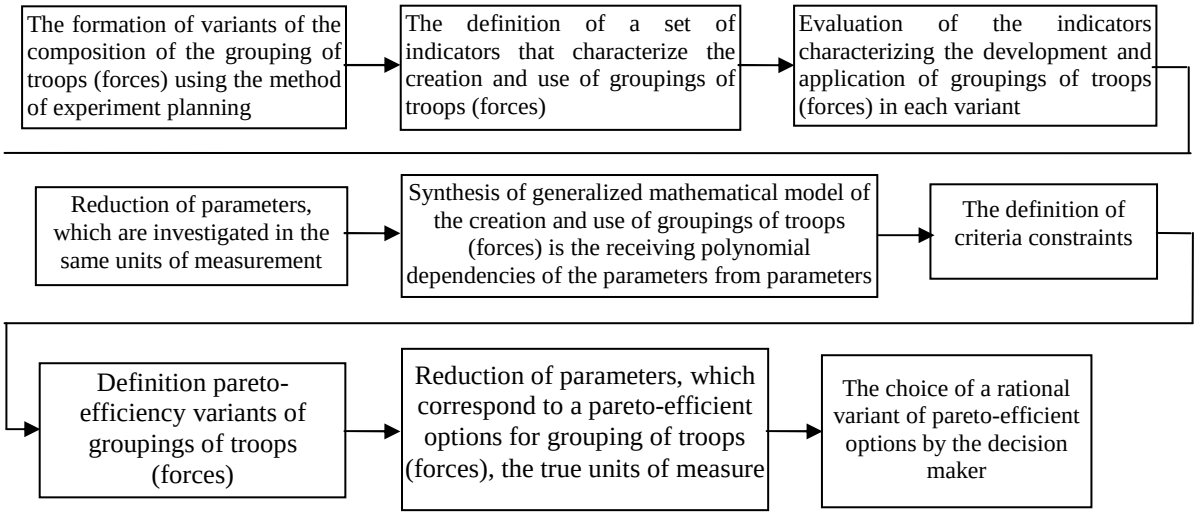

Fig. 3

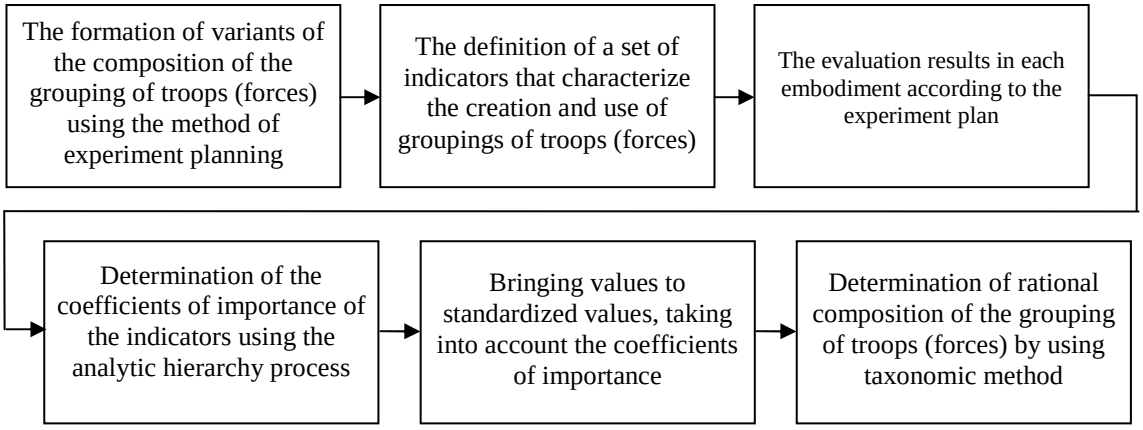

Fig. 4

ANR allows determining the coefficients of importance of the indicators, which are measured relative to units.

For the selection of rational composition of the grouping of troops (forces) using the taxonomic method, the standardized values are multiplied by the coefficients of their significance, which is a feature of the fourth approach.

From the comparative analysis of methodical approaches we conclude that simpler and more appropriate for operational-tactical calculations to determine the rational of the fighting strength of GT AF is the fourth approach. This is because there are established procedures for the application of methods of analysis of hierarchies and taxonomies for such tasks.

These approaches can be considered as an attempt to substantiate scientifically the composition of the grouping of troops (forces), which are not considered such an important indicator as the combat readiness of troops (forces) – both in peacetime and in wartime. At the same time, the analysis shows that today the combat composition of the GT with regard to their security does not allow to fulfill the task with some efficiency and there is a need for justification of the fighting strength of GT of AF of Ukraine.

In the author's opinion, the use of such integral indicator as prevented damage of troops will allow to more objectively assess the combat readiness of troops and, in contrast to the mathematical expectation of the destroyed enemy weapons, to evaluate not only the result of the execution of combat tasks separately in combat arms, but also to determine their influence on the final result of the performance of fighting tasks in General, the Association (connection part) [1]. This figure should choose a criterion of performance evaluation.

Thus, it is proposed to the conceptual bases of the fighting strength GT of AF of Ukraine in the amount of abstract damage of troops in the operation to impose the following concepts:

the concept of determining the necessary quantities of abstract damage;

the concept of determination of rational values of damage you must inflict to ensure the necessary quantities of abstract damage to their troops;

the concept of the justification of the fighting strength GT of AF of Ukraine taking into account the military and economic capabilities of the state.

Conclusions. Thus, the approaches regarding the justification of the fighting strength of GT, to determine what it is based on the consideration of variants of the composition of troops (forces) using the method of experiment planning. The application of this criterion, as prevented damage will more objectively reflect the combat capability of military units of AF and GT, in contrast to the mathematical expectation of the destroyed enemy weapons, to evaluate not only the result of the execution of combat tasks separately for combat arms e, and to determine their influence on the final result of the performance of fighting tasks in General, the Association (connection part).

The use of abstract indicator of damage troops and its relationship with the level of combat readiness, which is set by command in the preparation and during the operation, will be considered in **further studies.**

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Аналіз підходів до обґрунтування бойового складу Сухопутних військ Збройних Сил України

Резюме. У статті проведено аналіз підходів до обґрунтування бойового складу Сухопутних військ Збройних Сил України, який дав змогу визначити основні його недоліки та визначити напрями його вдосконалення з використанням додаткових показників та критеріїв.

Ключові слова: підходи до обґрунтування бойового складу, відвернений збиток, раціональний бойовий склад.

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Анализ подходов до обоснования боевого состава Сухопутных войск Вооружённых Сил Украины;

Резюме. В статье проведен анализ подходов до обоснования боевого состава Сухопутных войск Вооружённых Сил Украины, который позволил определить его основные недостатки и направления его усовершенствования с использованием дополнительных показателей и критериев.

Ключевые слова: подходы до обоснования боевого состава, Сухопутные войска, предотвращённый ущерб, рациональный боевой состав.

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Analysis Main Trends of NATO Operational Capabilities after Warsaw Summit

Resume. The analysis of the decisions of the summit of the North Atlantic Alliance, held in Warsaw in July 2016 on the main directions of the available capacity on the eastern flank of NATO and their impact on European and regional security.

Keywords: North Atlantic Alliance, Warsaw Summit , European Security, Military security, Eastern Europe, the operational capacity

Formulation of the problem. 2016 Warsaw Summit turned the Alliance as a common European system of collective security and territorial defense. This role requires a search for new trends in combating hybrid threats. Evaluations of new trends require a systematic analysis.

Objective. The article is to analysis of these trends.

Main material. As part of the summit addressed the following issues: the deepening of relations with the European Union (EU) in the field of security and defense; defense of cyberspace; European missile defense system (NMD); hybrid warfare; strengthening presence in advanced areas; development of operational capabilities; Distinctive Partnership with Ukraine; relations with Russia.

The strategic objectives of cooperation with the EU classified coordination plans military exercise to counter hybrid threats, intelligence sharing, improving cooperation in maritime operations, address threats in cyberspace, strengthening the military - technical cooperation. Much attention is paid to coordinating efforts to jointly address hybrid threats. The organization combating hybrid threats include primarily the responsibility of the leadership of the countries - participants of the alliance. During the discussion the UK said it "does not turn on European defense, despite BrExit". Thus, European NATO members continue to work as before.

At the summit signed commitment to the defense of cyberspace. Cyberspace defense issue also within the jurisdiction of national governments. Stated initial level of operational readiness of the European missile defense. NATO took over control of the US real defense. Hybrid warfare, cyber, information warfare, the destabilization of the situation in individual countries through the hidden influence, questioned the possibility of implementation of the Alliance fifth article of the Washington Treaty 1949. However, it is believed that the review of the fifth article would be "counterproductive" to look for other ways of combating the enemy.

Announced that the multinational battalions numbering about 1,000 soldiers each are located in Latvia, Estonia, Lithuania and Poland. Approved plans for the protection of the Baltic states of possible blockade. The mechanism of decision-making on the use of rapid reaction force. In fact, had introduced a new form of deterrence. Allied aircraft continue air patrols of the Baltic. Will continue operational planning options to further strengthen the Alliance's eastern borders. NATO refused proposals for revision policy in the nuclear sphere by, for example, placing tactical nuclear weapons in Poland. Verified course to expand operational capabilities for the design forces outside the area of responsibility of the alliance. The Secretary-General will have a new assistant for intelligence and security of the Alliance that will coordinate activities in this area. Important is the decision to create its own intelligence and security services.

As part of the summit meeting of the NATO-Ukraine Commission at the level of Heads of State and Government, whose main issues are: presentation of the Strategic Defence Bulletin of Ukraine; integration of all projects in a single comprehensive package of care "Comprehensive Package" (CRC); create a platform for cooperation in combating hybrid threats; development of Special Operations.

Summit confirmed NATO's position in relation to the Russian Federation (RF) and condemn the illegal annexation of Crimea.

Conclusions. As a result of the transformation of the Alliance was the organization in real international security. Changing key functions of military-political bloc, which ensure the evolution of the global Euro-Atlantic alliance. However, the focus will be on further strengthening the security of countries - members. The summit brought several advantages for Eastern Europe.

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Аналіз основних напрямів розвитку оперативних спроможностей Північноатлантичного альянсу після Варшавського саміту

Резюме. Проводиться аналіз рішень чергового саміту Північноатлантичного альянсу, який відбувся у Варшаві у липні 2016 року щодо основних напрямів розвитку оперативних спроможностей НАТО на східному фланзі та їх вплив на європейську та регіональну безпеку.

Ключові слова: Північноатлантичний альянс, Варшавський саміт, європейська безпека, воєнна безпека, Східна Європа, оперативні спроможності.

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Анализ основных направлений развития оперативных возможностей Североатлантического альянса после Варшавского саммита

Резюме. Проводится анализ решений саммита Североатлантического альянса, который состоялся в Варшаве в июле 2016 года по вопросам развития оперативных возможностей НАТО на восточном фланге и их влиянию на европейскую и региональную безопасность.

Ключевые слова: Североатлантический альянс, Варшавский саммит, европейская безопасность, военная безопасность, Восточная Европа, оперативные возможности.

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Development methods multi situational management structure and parameters of information security system

Resume. In the article the technique that will allow to implement structural and parametric synthesis systems to obtain adequate results for effective response to a crisis situation (CS) information areas. The features of the proposed approach compared with the known analogs are: multicriteria formalization initial synthesis problem and its solution using technology embedded bundle; situational system configuration according to the Constitutional Court, prevailing at present available sources and their characteristics of available actuators; joint problem solving structural and parametric synthesis.

Keywords: state defense, information security, crisis, case management, automated management information systems.

Formulation of the problem. The problem of information and cyber security, comprehensive application of technical kinds of intelligence, information-psychological, cyber, electronic counter and impacts, special operations units, modern management systems and robotic tools for solving the most important problems of the state's defense increasingly acquires special importance.

In view of the above, provides for the establishment of information security systems of the Ministry of Defence and the Armed Forces of Ukraine (ISS) which accumulates the current and future capabilities of information-psychological and cyber security, intelligence, cyber, electronic and information-psychological resistance.

In the article on the conceptual level made formal mathematical description of the components ergatic distributed information and control system (ICS) responses to conflict situations in terms of set theory and staged task to create techniques that will implement structural and parametric synthesis systems to obtain adequate results for effective response information on the CS.

In a further task is to develop multi directly techniques of situational management structure and parameters ISS.

Analysis of key studies and publications.

Structural synthesis of complex system seen in the writings of A.D. Crickets, I.V. Kuzmin, A.M. Voronin, J.K. Ziatdinova, G.L. Baranov, T.R. Brahman and other particular stages of system requirements; selection of system components, the level of detail, the formation of variants of the system and a description of their interaction component; selection of optimal variants of the system. Problem Solving parametric synthesis of complex systems devoted a significant amount of scientific work. According to the classical interpretation of the problem of parametric synthesis of a complex system is to determine the parameters of a given structure, particularly in the choice of numerical characteristics or the system as a whole or its individual components.

The problem of the synthesis of information and control system (ICS) belongs to a class of problems of analysis and synthesis of complex systems. The purpose of design (synthesis) system is generally efficient specification and definition of its structural elements and relationships between parameters. Thus, the general methodology can be summarized in the following stages:

forming properties of the system, the requirements of her and their functions;

structural synthesis system - forming elements of the system;

parametric synthesis system - determining parameters of the structure.

The main idea of situational management in complex systems or complex systems is to change its properties, behavior or settings according to the current external or internal situation - situation - CS. Typically, situational management implemented under conditions of careful study practical application of the system of formation, modification and development of database and knowledge base of the CS.

Traditionally situational management implementation based on the principle of developing and implementing scenarios of functional phase of ICS. That control with working cop realized by changing functions, activities and properties under components and systems in general. The fundamental principle is to implement

processes situational management on the existing structure - in fact, without changing the structural parameters of the system and within the second element.

In addition, despite the visibility of completion and elaboration of situational management technologies are significant its shortcomings that are in subjectivism management, technological limitations and theoretical methods and models of its practical application. Virtually no system solutions for the management structure and the parameters of ICS in the face of considerable dynamics of change and flux density CS.

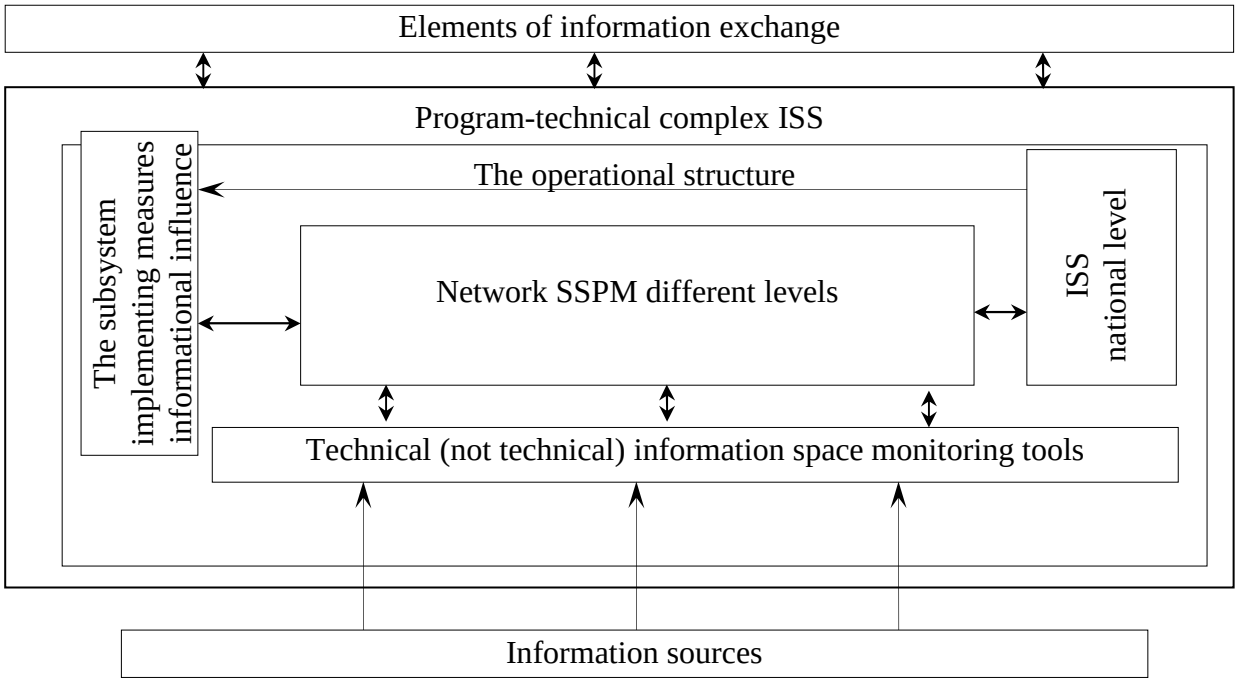

Figure 1. The structural base module ISS

Based on the said possibly argue that traditional approaches to building ICS implementation of the principles of situational management focused on situational change properties of the system by creating a unique list of actions under arisen CS. That refers to situational changes in the functional properties of ICS response to the CS. This fact in no way solves the technical problems of a structural nature inherent in traditional approaches to construction of complex ICS and does not solve the problem of effective functioning in the face of considerable dynamics of the current situation and payment of increased flow CS.

Thus, the purpose of research is to develop methods of multi-situational management structure and parameters ISS.

The aim of the paper is to develop a method that allows to implement structural and parametric synthesis systems to obtain adequate results for effective response to information arisen CS guidance.

Presenting main material. To implement structural and parametric synthesis of ICS implementation of the principles of situational management should promote performance requirements of the process. In the future the problem of situational management structure and parameters ISS have by determining the quantity of excess ICC on the structure of the system and the establishment of its quality.

The synthesis will provide primary consideration workstations (AW) subsystem storage and processing monitoring (SSPM) which appropriate specific composition SZIB other components on the basis of principles of construction of base module system with the appropriate structure (Figure 1).

In fact, the process is implemented situational structural and parametric synthesis information management clusters (IMC) for excessive structure ISS - situational management structure and parameters of the system of information security. Structural synthesis of selecting AW IMC and technical (non-technical) of monitoring information space (MIS) is a direct way for them to form. The choice of actuators to eliminate arisen CS implemented indirectly by the T_{ks} - partial list of tasks the system to address the Constitutional Court, which statically assigned by the appropriate database (DB) to the list of actuators ISS necessary to eliminate a situation. Parametric synthesis actually implemented as an indirect process and the associated structural

synthesis of defined parameters selected for the formation ICC individual characteristics of specific items under the CS.

Description of requirements for the implementation of the synthesis and evaluation of the effectiveness of the system. The problem of synthesis of this class system should provide such a definition of its structure to reflect form CS on the description of AW processing system in conjunction with SSPM MIS ensures high efficiency removal of CS. Therefore, the effectiveness of the description should include a list of parameters and criteria related to the level reflected in its structure demands form CS.

In general, the system which is synthesized, must meet the following requirements:

1) ensure the minimum time spent on eliminating the CS;

2) have high reliability solutions emerging to address the CS;

3) to provide the best information for decision-making redundancy to eliminate the CS.

The result is criterion requirements for the implementation of structural and parametric synthesis system response CS (1):

$$\begin{cases} t_{ks} \to \min \quad to \quad t_{ks} \le t_{ks\ por}, \\ D_{ks} \to \max \quad to \quad D_{ks} \ge D_{ks\ por}, \\ IN_{ks} \to \max \quad to \quad IN_{ks\,\min} \le IN_{ks} \le IN_{ks\,\max}. \end{cases}$$

Multi method of situational management structure and parameters of the system of information security (system configuration) include the following steps:

1) forming the initial data segment - forms CS, AW, MIS - by identifying arisen CS according priori existing database and knowledge base (KB)

2) determine the optimal quantity of AW processing system information necessary due MIS and actuators using optimization models;

3) synthesis of qualitative structure of the Constitutional Court to respond to ICC level;

4) the formation ICC ergatic complex distributed information management system to respond to the CS, its structure and parameters - according to initial data segment - CS forms, AW, executive MIS and list elements;

5) when the current situation is realized repetition n. 1-5 technique.

Conclusions.

The method is based on the principle of situational management practices implemented using multi analysis about the problem of analysis and synthesis of complex systems. The feature common technique is solving the problem of structural and parametric synthesis system. Step structural synthesis realized explicitly, and the choice of system parameters is mediated process of interpreting the results of structural synthesis and selected appropriate , forms CS, AW, MIS and actuators as system parameters.

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Розроблення багатокритеріальної методики ситуаційного управління структурою і параметрами системи забезпечення інформаційної безпеки

Резюме. У статті запропоновано методику, яка дасть змогу реалізувати структурно-параметричний синтез системи з отриманням адекватного результату для ефективного реагування на виниклу кризову ситуацію (КС) інформаційного спрямування. Особливостями запропонованого підходу у порівнянні з відомими аналогами є: багатокритеріальна формалізація початкової задачі синтезу та її розв'язання з використанням технології вкладених згорток; ситуативне конфігурування системи залежно від КС, що склалася, наявних джерел інформації та їх характеристик, доступного складу виконавчих елементів; спільне розв'язання задач структурного і параметричного синтезу.

Ключові слова: обороноздатність держави, інформаційна безпека, кризова ситуація, ситуаційне управління, автоматизовані системи управління, інформаційні системи.

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Разработка многокритериальной методики ситуационного управления структурой и параметрами системы обеспечения информационной безопасности

Резюме. В статье предложена методика, которая позволит реализовать структурно-параметрический синтез системы с получением адекватного результата для эффективного реагирования на возникшую кризисную ситуацию (КС) информационного направления. Особенностями предлагаемого подхода по сравнению с известными аналогами являются: многокритериальная формализация исходной задачи синтеза и ее решения с использованием технологии вложенных сверток; ситуативное конфигурирование системы в зависимости от КС, сложившейся на данный момент, имеющихся источников информации и их характеристик, доступного состава исполнительных элементов; совместное решение задач структурного и параметрического синтеза.

Ключевые слова: обороноспособность государства, информационная безопасность, кризисная ситуация, ситуационное управление, автоматизированные системы управления, информационные системы.

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The principles of management of enterprises and institutions to prepare for work in a specific period

Resume. The article substantiates the need for a rethinking of training enterprises and institutions of the national economy of Ukraine, regardless of ownership, to work in a particular period. This conformance with the subjects assigned to national economic problems ensuring the successful mobilization deployment of the Armed Forces of Ukraine. Emphasized the interdependence of the existence of functioning state executive authorities, other bodies of state and non state-owned enterprises in a particular period.
Keywords: mobilizational preparation of national economy, stability of work of economy in the special terms.

Rising of problem. A problem consists in that in open world editions there is not a careful analysis of terms and factors which will influence on stability of functioning of enterprises of national economy in the special terms. Moreover, existent normatively-legal base in the context of tasks of national economy on the special period and period of extraordinary position, contains positions, which touch mobilizational preparation of industries of industry and enterprises which have mobilizational tasks.

The resulted does not touch that most enterprises, which provide everyday existence of the state, reliability of work of all economy, entering the state budget, employment and terms of survival of population. The decision of the above-mentioned problem will allow specifying a task in sphere economies, the decision of which will assist providing of defensive capacity and, in general, functioning of the state.

Analysis of the last researches and publications. Materials of the last researches and publications show that problem questions are in relation to the normatively-legal providing of organization of supply of military products after intergovernmental agreements (by agreements, contracts) in a special period. Not certainly at legislative level of terms of grant of preferences to the enterprises of peculiar, which can be the potential performers of mobilizational tasks and which, as compared to other private enterprises, will have privileges.

Work is extremely not actively conducted in relation to expansion of circle of enterprises-performers of government order in a peace-time with prolongation of tasks on the special period, conditioning of receipt of credits on development of production capacities after the monistic percent of taxation. [8]

There is the difficult system of entering into contracts (contracts) between a customer and enterprises-performers of mobilizational tasks (orders).

Preparation to providing of Military Force of Ukraine by an armament and military technique during the conduct of the battle operating on the special period must begin in advance in a peace-time which is provided by the programmatic-having a special purpose planning at the level of the state.

Planning of development of enterprises defensive to the sector of economy, maintenance of their possibilities, collaboration with the system of professionally-technical education is the important constituents of the system of the state strategic planning in relation to providing of necessities of sector of safety and defensive. [7]

The purpose of the article is formulation of general looks in relation to maintenance of activity of organs of state and non-state power, leading composition of enterprises in a peace-time and special period, with the purpose of providing of stable work of economy in any terms of situation on the basis of realization of analysis of factors which influence to work of enterprises in the special terms.

Exposition of basic material. Planning and implementations of measures, which are directed to provide readiness of enterprises to work in a special period, is possible on condition of design of reliable variants of development of situations and sources of influence, done early planning of corresponding actions, them comprehensive providing, accumulation of resources, competence of personnel. The arsenal of technical decisions and facilities which can be functioning of enterprises applied in the special terms them structural subdivisions for providing of normal work, proceeding in potential, which is lost as a

result of influence of opponent, or ethnogeny and natural catastrophes, will be probably identical, in comparing to the ordinary terms. But all leaders must be to it ready.

A problem, in our view, consists in that in the best case, on different maintenance of mobilizational preparation of enterprises which have a mobilizational task and preparations of national economy to work in a special period is understood. Yes, it is suggested to understand a current legislation, that ".mobilizational preparation and mobilization are component parts of complex of measures which are carried out with the purpose of providing of defensive of the state, except for having a special purpose mobilization".

In the same time… "a mobilizational plan is an aggregate of documents, which determine maintenance, volumes, performers, order and terms of realization of measures on mobilizational development of Military Forces of Ukraine, other soldiery forming, to forces of civil defence, translation of national economy, activity of public, other public organs, organs of local self-government, enterprises, establishments and organizations, system of providing of vital functions of population authorities, on functioning in the conditions of the special period".[1]

On the view of authors it is necessary to find out from resulted, whether enterprises are brought over to "providing of defensive of the state", or not, all enterprises of national economy must prepare to functioning in the special terms. Under the special terms, functioning of enterprises is understood terms of the special period and extraordinary position. The laws of Ukraine, Decrees of President of Ukraine, acts of Cabinet of Ministers of Ukraine, determine the concept vehicle of the special terms, maintenance of measures which are conducted, responsibility of organs of management, enterprises and population.

All enterprises of national economy must work or as performers of defensive order (mobilizational task), or as a source of receipts of money in the state budget of the special period - source of profits for existence of capable of working population and their families, for creation (maintenance) of favourable terms of vital functions of population (providing a heat, water-supply, gas-supplying, power supply, public food consumption, trade, grant of medical, transport services and others like that), as a source of commodities and services which are needed for effective work of other enterprises, including. those which execute mobilizational (defensive) tasks.

In turn, public authorities, other public organs, the organs of local self-government must in a peace-time to organize a make ready all enterprises in the special terms, and in a special period and terms of extraordinary position to promote them to effective activity:

to determine in a corresponding sphere the management of possibility in relation to satisfaction of necessities of national economy and providing of vital functions of population in the conditions of the special period and extraordinary position in the corresponding sphere of management;

to coordinate work in relation to creation, development of production capacities, reserve of material and technical and raw material resources;

to participate in forming of regional, branch, territorial and local budget on the special period;

to determine the necessities (volumes) of regional, branch, territorial, local budget for corresponding development of economy in a peace-time, make readies in a special period, to prepare suggestions in relation to their including to the State budget of Ukraine statement on a corresponding year and special period;

to participate in development of projects of the government programs of economic and social development of Ukraine with the purpose of account of necessities of region, industry, administrative territory, city;

to carry out measures on providing of implementation of the long-term and annual programs of economic development in the corresponding sphere of management;

to carry out control after implementation of the long-term and annual programs of economic development of region, industry, administrative territory, city;

to organize intergovernmental cooperation on questions an economic collaboration in a peace-time and special period for the production of defensive goods, filling of budgets, creation of workplaces and providing of vital functions of population;

to organize delivery and receipt of scarce material and technical resources for implementation of works and grant of services in interests of filling of the state (regional, local) budget of the special period, vital functions of population, including in relation to supplying with the prepared products, providing of implementation of the noted tasks (orders) by material and technical resources, and also their financing;

to enter into in accordance with established procedure contracts (contracts) on implementation of mobilizational tasks (orders) with enterprises, establishments and organizations which get them to implementation of mobilizational tasks (orders), and enterprises, which carry out supplying with products for work of other enterprises, vital functions of population in a special period with the purpose of planning of the rational use of human and material resources during mobilization and in a war-time;

to initiate a question about the grant of privileges to the enterprises, on what fixed mobilizational tasks, tasks of providing of work of other enterprises of region (industries, territories, cities), providing of vital functions of population;

to develop the criteria of estimations of levels of readiness of enterprises to work in a special period and to carry out control after a ready of enterprises, which mobilizational tasks (order) are set and on what fixed tasks of providing of work of other enterprises of region (industries, territories, cities), vital functions of population in the conditions of the special period and extraordinary position condition;

to carry out control after creation, storage and maintenance of reserve of material and technical and raw material resources on enterprises which belong to the sphere of their management or get them for implementation of tasks of the special period;

to provide a grant to the soldiery commissariats of information about registration, bankruptcy (liquidation) of enterprises, establishments and organizations in compliance with the legislation;

to organize creation, development, maintenance of production capacities and workplaces;

to carry out control after creation, storage and maintenance of mobilizational reserve of material and technical and raw material resources;

to plan, to organize and control motion of make ready in the special terms on territory of corresponding administrative-territorial units and translation of their economy on functioning in the conditions of the special period;

to lead and control the financially-economic state of enterprises, establishments and organizations which are in a public or communal domain (including in common property of territorial communities and passed to the sphere of their management), which execute mobilizational tasks and get them to implementation of tasks of providing to the vital functions of population;

to provide functioning of the system of military account of citizens of Ukraine together with soldiery commissariats, to organize reserving of liable for military service on the period of mobilization and on a war-time, to provide a grant to accounting on questions reserving of liable for military service in the order, certain Cabinet of Ministers of Ukraine.

The brought tasks over of organs of power are certain the corresponding normatively-legal acts of the state. But in these documents of not a single word it is not said about their influence on enterprises which do not have a mobilizational task, or not brought over to providing of vital functions of population.

It is needed to understand that with the purpose of providing of implementation of tasks and measures of mobilizational development of Military Forces of Ukraine, other soldiery forming, forces of civil defence, translation of national economy, activity of public, other public organs, organs of local self-government, enterprises, establishments and organizations, system of providing of vital functions of population authorities on work the centralized distribution of electric power, water, fuel-lubricating materials, other material and technical and raw material facilities and labour resources, potential of a transport system will be carried out in the special terms (depending on the scales of events).

Thus, all leaders of enterprises, regardless of patterns of ownership, together with organs the managements of different levels must know it, in advance to plan realization of corresponding measures, able to organize their realization, provide stable work of national economy in the special terms.

To the basic factors which influence to work of enterprises in the special terms belong :

state of enterprises, them structural subdivisions;

a task of peace-time, possibility and necessity of continuation of their implementation, is in the
special terms;

role and place at general to the system of production, influence on the performance of general
objective in a time of the special terms;

possible influence is in the case of the armed aggression on their possibility to execute a task on purpose;

possibility of enterprise to duplicate, jointly to work for co-operations and give help in implementation of the fixed tasks to other enterprises;

state of the financial system of the state, condition of crediting, financial state of enterprise;

district of location of enterprise;

a sanitary-epidemiology situation is in a region;

season;

locality.

Practice shows that for preparation to the proof functioning of enterprise on purpose in the special terms, a leader in a peace-time must: to provide the everyday reliable functioning of enterprise, him structural subdivisions, financial stability;

to assist the systematic updating of rolling stock, technique, devices, instrument, equipment, repair of building, acquisition and introduction of modern technologies;

to take measures in relation to creation of stand-by and emergency capacities of electric power, supplies of fuel, gas (coal), water, awaiting-parts, lubricating and other materials, raw material,

equipment and maintenance of protective building;

to organize planning in relation to preparation to implementation of the fixed mobilizational tasks, to lead work on creation of corresponding powers, accumulation of resources, preparation of personnel;

to conclude treaties (to sign contracts) in a time of the special period and extraordinary position in relation to supplying with knots, aims, raw material and assured financing for providing of stable work in the special terms;

organize development and fulfilling the annual plans of work with shots, to determine an annual and perspective (on 5 years) requirement in shots on a peace-time and special period, to form an order on preparation, retraining and in-plant training of technical shots and workers;

to organize registering and draftees of liable for military service from the number of working, implementation of measures on reserving of liable [for military service 2].

For a make ready in the conditions of possible ethnogeny, natural failures and catastrophes, military operations, preparation to possible evacuation of personnel the leader of enterprise in advance must:

to work out and confirm instructions about the order of actions in relation to warning of ethnogeny and natural failures and catastrophes, plan of civil defensive in relation to defence of personnel and members of their families, liquidation of consequences of ethnogeny and natural failures, catastrophes, fires, earthquakes, military operations;

to create the system of notification and collection of personnel under various conditions situations;

to organize and control the accumulation of facilities of secret service, radiation and chemical defence of personnel due to money of enterprise, realization of employments in relation to their delivery and application, accumulation of mobile repair facilities, creation and studies of mobile repair and rescue groups [3];

to work out, to confirm and co-ordinate with regional subdivisions from extraordinary situations of instruction about the order of evacuation of personnel equipment of enterprise from cities, attributed to the groups from a civil defensive, boundary;

to prepare the projects of prescriptive documents in relation to the change of the mode of operations of personnel, realization of other changes of productive activity in accordance with the special terms;

to prepare the project of agreement in relation to the temporal stopping of action of some positions of collective agreements with trade unions in relation to the increase of duration of business hours and introduction of overwork, work in week ends, limitations of salary; limitations, or abolition of social payments and others like that;

to plan strengthening of guard of important objects and places of stay of personnel, admission mode, order of implementation of the fixed tasks in the conditions of input of commandant hour, special mode of entrance and departure in settlements, limitations of motion of transport vehicles;

to define the order of introduction of measures of the dedicaded mode of black-out, equipment, devices, time of their establishment and responsible performers;

to plan the order of realization of measures of patriotic education, informing of personnel about that which takes place, it is done, that it is needed to do with bringing in of potential of inferior structural subdivisions of connection, polygraph, publishing house, TV-broadcast, providing of control at their work;

to find out jointly with executive public authorities and organs of local self-government order of providing of personnel basic food and unfold stuffs, by medications in the case of necessity;

to find out the order of realization of measures on establishment of quarantine and other obligatory sanitary and anti-epidemic actions;

to plan, at a necessity, transmission of technique, building, building and objects of infrastructure, which are subject to the transmission in the case of mobilization of Military Powers of Ukraine, other military forming or intended for the general with them use in a war-time for application on purpose;

to plan providing of timely arrival of personnel this is called on military service in the case of mobilization, on collapsible points and to soldiery parts;

to plan moving (setting) of workers in accordance with the plan of replacement of specialists which leave after mobilization and in a war-time to Military Powers of Ukraine, other soldiery forming;

to foresee presentation of requests to profile educational establishments in relation to direction, for possibilities, necessary amount of specialists after directions of activity of enterprise;

to provide readiness of delivery of technique on collapsible points and in soldiery parts according to mobilizational tasks (by orders);

to plan and prepare realization of measures on development of the special forming, intended for a transmission in the case of mobilization to Military Powers of Ukraine, other soldiery forming and transmission of them on purpose;

to organize realization of expel work among working draftees and liable for military service in relation to prohibition of treason of residence without the private of military command;

to foresee realization of informing of personnel, organs of local self-government, military command, organs of extraordinary situations, organs and establishments of government sanitary-epidemiology service in relation to the threat of epidemics, emergency situations, halt of production, violations of technological processes, which create a threat to sanitary-epidemiology safety of population [4];

to be ready to give requests through direct guidance, organs of local self-government, military command, organs of extraordinary situations on the necessary volumes of bringing in of labour resources after a civilian duty, on an exception for the temporal use of necessary property of ministries, other central and local organs of executive power, territorial communities, enterprises, with the purpose of implementation of measures on reliable work of enterprise, in the special terms, and also liquidation of possible consequences of extraordinary situations of ethnogeny, natural and military character.

The lists of enterprises, positions and professions on them, after which possible realization of reserving of labour resources on the special period, are determined by Cabinet of Ministers of Ukraine. Reserving of liable for military service is carried out by a grant to them of postponements from an appeal on the period of mobilization and war-time. Reserving of liable for military service, which are in a supply, is carried out in peaceful and military time with the purpose of providing of functioning of enterprises, establishments and organizations in the conditions of the special period and extraordinary position.

Conclusions and prospects of further researches. Authors did not put a purpose to expound the algorithms of work of leading composition of all enterprises after the types of production and grant of services, by industries of economy and others like that. The brought material over enables to draw conclusion, that most measures of preparation and work in the special terms in most enterprises will be identical.

But it will be more difficult to provide work of enterprises, which do not have mobilizational (defensive) tasks, not brought over to providing of vital functions of population in the conditions of the special period and extraordinary position. Purposefulness and persistence of proprietors and leaders of enterprises, presence in the state of free human, material and technical, raw material capitals and personal internals of personnel of public, other public organs, organs of local self-government, their desire authorities and possibility to provide preparation and work of most enterprises of national economy of Ukraine in the special terms, will influence on it.

It follows to mark that one of the most substantial defects there is that principles of activity of guidance of enterprises, establishments and establishments in relation to a make ready in the conditions of the special period are expounded not in one, but in many normatively-legal documents. It results in some divergences in their exposition, where positions of one document contradict to other. In turn, it results in the irresponsible erroneous understanding of requirements of documents or conscious not implementation of their requirements, leaning on these divergences.

It is considered expedient in **future** to investigate as organs of state, not state administration, the organs of local self-government are able organizationally and by able allocation of resources to influence on preparation and work of

enterprises which do not have mobilizational tasks in the special terms.

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Засади діяльності керівництва підприємств і установ щодо підготовки до роботи в умовах особливого періоду

Резюме. У статті обґрунтована необхідність переосмислення системи підготовки підприємств, установ і закладів національної економіки України, незалежно від форм власності, до роботи в умовах особливого періоду. При цьому досліджується відповідність покладених на суб’єкти національної економіки завдань успішному забезпеченню мобілізаційного розгортання ЗС України. Наголошено на існуванні взаємозалежності функціонування органів державної виконавчої влади, інших органів управління, державних і не державних підприємств в особливий період.

Ключові слова: мобілізаційна підготовка національної економіки, стабільність роботи економіки в особливих умовах.

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Основы деятельности руководства предприятий и учреждений по подготовке к работе в условиях особого периода

Резюме. В статье обоснована необходимость переосмысления системы подготовки предприятий, организаций и заведений национальной экономики Украины, независимо от форм собственности, к работе в условиях особого периода. При этом исследуется соответствие возложенных на субъекты национальной экономики задач успешному обеспечению мобилизационного развертывания ВС Украины. Упор сделан на взаимозависимости функционирования органов государственной исполнительной власти, других органов управления, государственных и не государственных предприятий в особый период.

Ключевые слова: мобилизационная подготовка национальной экономики, стабильность работы экономики в особых условиях.

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Features and issues of definitions for operational and tactical requirements for UAV with current principles of conduction of military (combat) operations

Resume. On the basis of analysis of contemporary principles of conduction of combat actions are disclosed the features of definition of operational and tactical requirements to unmanned aerial vehicles for their effective using in the interests of combat application of rocket troops and artillery, also are related with this some issues.

Keywords: the operational and tactical requirements, the unmanned aerial vehicles, the combat application of rocket troops and artillery.

Challenge problem. It is known that the main primary uses of unmanned aerial vehicles (UAV) are flights with remote control (as usual from ground control station) in order to spy the air intelligence on theatre of land and naval operations by means of surveillance under certain sectors of the terrain (water zone) on which military operations are conducted or planned with providing of intelligence information to the communications processing center in near-real time.

Certain improvements in military (combat) operations during modern military involvement become important factors that defined onrush UAV technology within last years. In our opinion the most driving force of UAV development is principle of *simultaneous defeat the enemy to the entire depth of its operational formation.*

However providing of principle of simultaneous defeat the enemy to the entire depth of its operational formation is impossible without on-hand status of intelligence information as to the goals (objects) of defeat. Moreover definition of echelons to be destructed by missile forces and artillery as well as its effective depth is problematic. And therefore allocation of fire resources between targets becomes problematic.

So issue as to definition of military requirements to UAV becomes pressing concern for research.

Analysis of last researches and publications. Experience of UVA implementation in Afghanistan and Iraq covered by publications in magazines “Jane’s Defense Weekly”, “Aviation Week and Space Technology”, “Independent Military Review” showed that in spite of effectiveness of its usage they still need improvement, initially by means of instrumentation which increase its possibilities.

The purpose of this article is general analysis of concerns as to definition of military requirements to unmanned aerial vehicles (UAV) in favor of artillery elements and missile establishments in order to provide the principle of simultaneous defeat the enemy to the entire depth of its operational formation and feasible directions of improvement of theoretical conception regarding its tactical employment.

Presentation of basic material of the research. Both basic research and scientific (development) work were done during independence of Ukraine. Advantages of production and engagement of UAV were substantiated, thereof in the benefit of combat employment of troops (forces) and definition of military requirements and performance data for its utilization in favor of tactical employment of missile forces and artillery.

Some models of UAV of non-military nature have been partially applied to engagement in military forces by Research and development enterprises (R&D enterprises) of Ukraine in 2014-2016. However engagement of UAV in the interests of military forces is no system-defined. Unavailability of TOE units with UAV engagement makes impossible to take into account their possibilities in view of scouting in time of its planning.

For adaptation of indigenous frame UAV to the requirements of its engagement in military targets it is necessary to make instrumentation with modern equipment such as: optical intelligence, position finding in near-real time, passage of information (via secure channels), which will let do not only air scan but also adjustment of instruments of target effects.

According to preliminary data, application of UAV of non-military nature to requirements of

military forces based on well-founded military requirements will lead not only to cutting time for development and production of military-oriented UAV but first of all to consider its recapitalization.

Priority task is common output data development (operational-tactical, military technical character) which is basic for decision of other questions as to definition of general characteristics of UAV. Operational-tactical justification to be done by means of military requirements to UAV; organizational structure of its possible commands (subunits); required number of field strength (forces). Mission execution should be done within the shortest possible period of time necessary for planning of UAV development and government's defence order placing. In the future it is necessary to estimate the need in different types of resources (expenses) for leading of existing non-military nature UAV taken as a base for further modernization in line with certain military requirements and specification provisions.

In view of definition of military requirements to UAV in favor of tactical employment of missile forces and artillery it is important first of all to determine the following:

for which goals and functions is it used;

in favor of which units UAV to be used and possible organizational structure for its maintenance (for example separate unit UAV with team, separate unit with rocket artillery battalion);

the list of possible users of information from UAV.

The remarkable thing is that as for today purposefulness of UAV production for performing the specific duty and goals only in favor of missile forces and artillery is not determined, taking into account affordability, capacity and possibilities of reconnaissance assets of Army Forces which could be used for implementation of principle of simultaneous defeat the enemy to the entire depth of its operational formation, along with estimated cost of one UAV. In our opinion it is reasonable to create multipurpose complex of UAV for implementation of wide range of functions and responsibilities.

Based on above mentioned, in times of definition of military requirements to UAV in favor of tactical employment of missile forces and artillery it is reasonable to consider both performance data of own fire resources (especially as to range of shooting) and disposal norms of main elements of order of battle (battlefield posture) troops of enemy. It is problematical question and is not under consideration in this article.

Conclusions.

1. It is reasonable to have multipurpose military and tactical UAV for utilization in favor of tactical employment of force grouping (alignment of forces) of Armed Forces of Ukraine (thereof tactical employment of missile forces and artillery).

2. It is reasonable to appeal to experience of advanced world countries as to production of military-oriented UAV (its instrumentation with related equipment) and local developers as to engineering research and production of UAV of non-military nature in times of creation of UAV for its utilization in favor of tactical employment of missile forces and artillery.

3. It is important to develop the methodological and practical recommendations as to methods of applications of UAV along with other reconnaissance assets, to justify practical recommendations as do data usage which were received with the help of UAV in favor of not only tactical employment of artillery elements and missile establishments but also security, equipment and combat service support.

4. Oblique directions of research are experimentation providing as to impact evaluation of utilization of UAV in times of tactical employment of missile forces and artillery on the efficiency of missile and strike attacks, development of feasible methods of release of UAV along with other reconnaissance assets of enemy, and justification of its rational set into in-commission status of task (military) group (forces).

Further research perspectives. In further research it is feasible to justify the requirements for instrumentation of comprehensive military (tactical) UAV with related equipment (first of all in favor of tactical employment of missile forces and artillery) with regard to both existing and attractive element base.

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Особливості та проблемні питання визначення оперативно-тактичних вимог до БПЛА з урахуванням сучасних принципів ведення воєнних (бойових) дій

Резюме. На основі урахування результатів аналізу сучасних принципів ведення воєнних (бойових) дій розкриті особливості визначення оперативно-тактичних вимог до БПЛА для їх ефективного використання в інтересах бойового застосування ракетних військ і артилерії та визначені проблемні питання, що з цим пов’язані.

Ключові слова: оперативно-тактичні вимоги, безпілотні літальні апарати, бойове застосування ракетних військ і артилерії.

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Особенности и проблемные вопросы определения оперативно-тактических требований к БПЛА с учетом современных принципов ведения военных (боевых) действий

Резюме. На основании учета результатов анализа современных принципов ведения военных (боевых) действий раскрыты особенности определения оперативно-тактических требований к БПЛА для их эффективного использования в интересах боевого применения ракетных войск и артиллерии, обозначены проблемные вопросы, которые с этим связаны.

Ключевые слова: оперативно-тактические требования, беспилотные летательные аппараты, боевое применение ракетных войск и артиллерии.

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Problems of consolidation and intercommunication of the strategic and defensive planning are in the sector of safety and defensive of Ukraine

Resume. Analyzed the available scientific, organizational and legal approaches to consolidation and correlation of strategic and defense planning in the security and defense of Ukraine.

Keywords: military security and defense, consolidation, strategic planning, defense planning, security and defense sector.

The problem statement and its connection with important scientific and practical tasks.

Russian military aggression, which redrew in eastern Ukraine in hybrid armed conflict, remains for the security and defense sector of Ukraine the most urgent problem today. This according to the current National Security Strategy of Ukraine requires the formation of a crisis for inter-agency coordination and cooperation of all its components including strategic and defense planning.

According to the Annual National Program of Ukraine-NATO medium-term objective in 2016 is to improve interagency coordination mechanism in the field of crisis management and strategic planning by combining the efforts of state agencies, which are aimed at responding to modern challenges and threats to the national security of Ukraine.

Consolidation involves strengthening grouping; unions around the implementation of specific actions related to the improvement of strategic and defense planning.

The purpose of the article. Analyze the problem, to outline possible ways and mechanisms to overcome to consolidate and enhance the relationships of strategic and defense planning in the defense and security sector of Ukraine, its components improve preparedness to repel armed aggression available.

The main materials research exposition and full explanation of the results. Taking the Euro-Atlantic integration and realizing the objectives of the Strategy of National Security of Ukraine and requirements adopted by other conceptual documents on the development of defense and security sector and the roadmap for defense reform, it is appropriate to form the sector consolidated and unified interconnected system of strategic and defense planning.

Analysis of approaches to solve these problems shows that under the normative legal acts of strategic planning differs substantially from the defense as for the mission and for the definition and for the purposes and objectives and ways to achieve it, as well as the types and key indicators and outcomes.

In particular, the mission of high purpose as strategic planning resulting in the formation of the future national defense forces (Forces). While the mission of military planning aimed at creating defense potential (necessary capabilities and resources) for achievement of guaranteed Forces tasks assigned to them. This mission is the start of any management system, since its definition is necessary in order to identify what is its main purpose. Since the mission and goals serve as the benchmark for all subsequent stages of the development strategy, the choice is the first and most crucial decision during strategic planning.

Defense planning as a part of strategic planning is to provide a control state, material, financial and human resources in the field of defense, as enshrined in the current Law of Ukraine “On Defence Planning” and the Regulation on the organization of strategic planning in the Ministry defense of Ukraine.

The main content determined defense planning Strategic Defense Bulletin of Ukraine, the concepts of programs and applications for long-term, medium term and short-term plans/

That is, in the center of these types of planning should be consolidated planning capability of troops (forces) and provide them with the necessary resources.

By law, strategic planning as a function of government is intended to determine the goals, objectives, priorities and a set of measures related

to the state policy in the sphere of defense and military construction. The end result should be its definition, principles of state policy in the field of defense; forecasting measures for its implementation; development and adoption of conceptual and software instruments.

The main content of the defense planning as part of the strategic planning and management of resources in defense is working: Strategic Defense Bulletin of Ukraine; concepts and software programs for the long and medium term; short-term plans.

Strategic planning, as defined by the Cabinet of Ministers of Ukraine, provides training grounds and settlements provide material, financial and human resource management for the maintenance and development of the Armed Forces and other military units (including intelligence agencies), law enforcement bodies and departments of civil protection involved in the defense of the state.

The development of capabilities and resources for the underlying consolidation and correlation of strategic and defense planning. It is this aspect of the research group focuses office of the Ministry of Defense (Office of the Secretary of Defense - OSD), Joint Staff, services and military commands (Combatant Commands - CoComs) in the final report.

From the standpoint of the functions of government strategic planning called to define goals, objectives, priorities and a set of measures on realization of state policy in the field of defense and military construction and defense - aimed at developing the capacity of forces and providing them with the necessary resources.

That is supposed to determine his draft Law of Ukraine "On Amendments to the Law of Ukraine" On Defence Planning".

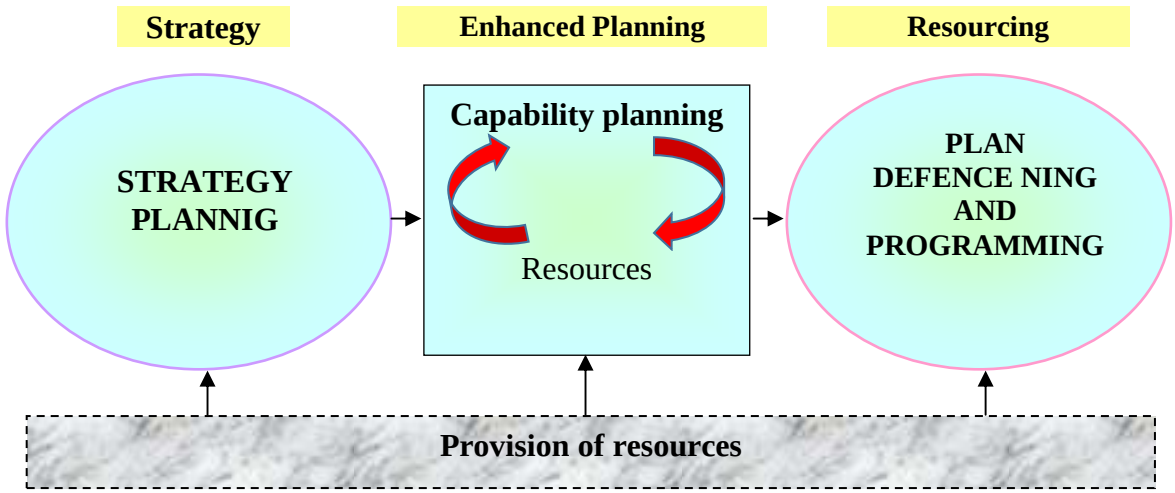

Fig. 1. The process of consolidation of the joint venture and by OP planning capabilities and resources

Planning Strategic Forces also has application to interact with the defense, especially in the process of viewing options (scripts) use and related problems. It is necessary to define requirements and their capabilities Forces for planning.

Measures defense planning and strategic planning application Force agreed during testing will design, policy documents and in the development of state programs of development and plan strategic applications. However, there are a number of issues to ensure the consolidation of the defense and the strategic planning of the Force. Clarification of them in the strategic planning of the use according to defense planning is performed on stage determine their capabilities.

Further changes in the Concept testing are usually not taken into account, leading to inconsistencies plans. This requires clarification of assessment of military threats, the nature of modern armed conflicts, trends of the armed struggle and determining the list of situations Force application, ie implementation of iterative process.

The defense sector has state mission of the Armed Forces of Ukraine and other components of forces necessary resources, modern military equipment and weapons for the proper performance of their tasks. It is in part seen as part of the security and defense. In particular, since it is considered in Belarus, where he laid the scientific and production activities and the creation of goods (works, services) and military.

In the Republic of Poland (RP) also determined that an important element in the security field is the military-industrial potential of the country that has the most to be involved in the technical re-equipment of the armed forces of the state and promote military modernization program,

developed by the Ministry of National Defense of Poland.

At the national level defense planning should fulfill the function of preparation of state for defense, as provided by the Law of Ukraine "On Defense of Ukraine", which includes:

development and implementation of military, military-economic, military-technical and military-industrial policy;

development of the defense industry, creating favorable conditions for mobilization deployment of the national economy to produce weapons, military equipment and property in the required quantities;

the Armed Forces of Ukraine and other military formations created in accordance with the laws of Ukraine and law enforcement agencies trained personnel, weapons, and other equipment, food, real estate, other material and financial resources;

development of military-technical cooperation with other states to provide the necessary forces weapons, military equipment and property that are not produced in Ukraine;

preparation of the national economy, territory and transport, government, military command, local authorities and people to act in times of crisis;

ensuring the development of military science, the formation of scientific, technical and process the substance to create a highly efficient means of armed struggle;

other measures affecting the state of defense and state planning are carried out at national level.

Conclusion. So, in fact, strategic planning is a process of defining the mission, main objectives and tasks of the defense forces, they need the capacity and resources to ensure guaranteed performance of the tasks regarding the defense of Ukraine.

Defense planning as part of the strategic planning and management of resources in the field of defense should provide the necessary level of defense capability of forces, given the nature of real and potential threats in the sphere of military and economic capabilities of the state.

The direction of future research. Researched of article are require more detailed and in-depth study them in order to prepare the relevant legal acts for their settlement and normalization.

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Проблеми консолідації та взаємозв'язку стратегічного і оборонного планування в секторі безпеки і оборони України

Резюме. У статті проаналізовано наявні наукові та організаційно-правові підходи щодо консолідації та взаємозв'язку стратегічного і оборонного планування в секторі безпеки і оборони України.

Ключові слова: воєнна безпека і оборона, консолідація, стратегічне планування, оборонне планування, сектор безпеки і оборони.

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Проблемы консолидации и взаимосвязи стратегического и оборонного планирования в секторе безопасности и обороны Украины

Резюме. В статье проанализированы существующие научные и организационно-правовые подходы для консолидации и взаимосвязи стратегического и оборонного планирования в секторе безопасности и обороны Украины.

Ключевые слова: военная безопасность и оборона, консолидация, стратегическое планирование, оборонное планирование, сектор безопасности и обороны.

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Peacekeeping Strategy of the United Nations: Analysis and Changes

Resume. The analysis of the current state of the United Nations peacekeeping (UN) in the context of the September 2016 conference on peace and security. We consider the change in the strategy and practice of UN peacekeeping.

Keywords: UN, armed conflicts, peacekeeping, international operation for peace support and security, concept, strategy, logistics

Formulation of the problem. The dilemma of UN peacekeeping is waiting for settlement of armed conflicts and the real failure of international peacekeeping operations and security last decade, provide the conditions for conflict resolution. The dramatic change in strategy of UN peacekeeping able to solve this dilemma.

Objective. The article is an analysis of changes in the strategy of UN peacekeeping.

Presenting main material. Despite the extremely difficult situation of national security and defense, Ukraine continues to make contributions to UN peacekeeping. Over the past two years in international peacekeeping and security was attended by over 1,000 members of the Armed Forces of Ukraine. Today, more than 500 Ukrainian servicemen taking part in ten international operations in eight countries and Abyei area [1]. Strategic Defense Bulletin of Ukraine defines the purpose of defense reforms including the establishment of Defence Forces capabilities to perform tasks in international peacekeeping and security (Goal number 3) [2].

Changes in UN peacekeeping strategies discussed at the international conference "The UN peacekeeping" September 8, 2016 in the city. London, UK. The conference was attended by 78 delegations of the world, forty of which are led by the Ministers of Defence.

All of a wide range of changes proposed to bring in UN peacekeeping activities may be summarized in three key areas:

changes in the concept of UN peacekeeping,

changes in the strategy of peacemaking,

changes in the logistics of peacekeeping forces.

The main changes in the concept of peacekeeping activities include:

combining different types of UN peacekeeping operations (from the softest to the mediation and preventive strictest security) into a single mechanism for peace;

review three basic principles of peacekeeping: consent of the parties, impartiality, use of force only in self-defense;

assignment to peacekeeping operations against terrorism (ATO) and task force to combat extremism.

The main changes in peacekeeping strategy include:

changes in the system of operational planning,

changing role in resolving regional conflicts,

parallel association of international, national and regional operations.

The main changes in the logistics of peacekeeping forces include:

creation of regional logistics hubs;

Technical update: the establishment of centers of collection and processing, the use of unmanned aerial vehicles, the use of mobile networks;

creating a single fund for financing peacekeeping.

Conclusions. A wide range of high-level representatives of the UN member states reviewed and supported by a significant number of practical recommendations for changes in peacekeeping strategy, planning and management of peacekeeping operations, providing logistics UN peacekeeping forces. You may expect that many of these recommendations will be implemented in practice the UN.

However, peacekeeping system as a whole can be reformed only with a profound reform of the UN and called for why the President of Ukraine Poroshenko during his speech at the UN General Assembly September 21, 2016

Understanding changes in the strategy of UN peacekeeping can better understand the current and potential of the organization in resolving the conflict in eastern Ukraine.

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Аналіз змін стратегії миротворчої діяльності Організації Об'єднаних Націй

Резюме. Проведено аналіз сучасного стану миротворчої діяльності Організації Об'єднаних Націй (ООН) у контексті вересневої конференції 2016 року з проблем підтримання миру і безпеки. Розглянуто зміни стратегії і практики миротворчої діяльності ООН.

Ключові слова: ООН, збройний конфлікт, миротворча діяльність, міжнародні операції з підтримання миру і безпеки, концепція, стратегія, логістика.

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Анализ изменений стратегии миротворческой деятельности Организации Объединенных Наций

Резюме. Проведен анализ современного состояния миротворческой деятельности Организации Объединенных Наций (ООН) в контексте сентябрьской конференции 2016 года по проблемам поддержания мира и безопасности. Рассматриваются изменения в стратегии и практике миротворческой деятельности ООН.

Ключевые слова: ООН, вооруженный конфликт, миротворческая деятельность, международные операции по поддержанию мира и безопасности, концепция, стратегия, логистика.

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The rationale for the approach to creation of algorithm of work of personnel agencies for assessment of performance of militaries in combat

Resume. The analysis of the experience of the leading countries in relation to training and assessment of **Resume**. The analysis of the experience of the leading countries in relation to training and assessment of militaries during of the special period. Is suggested the algorithm of work of personnel agencies for assessment of performance of militaries in combat.

Keywords: the algorithm of work of personnel agencies, training and evaluation of military, psychological stability, annual assessments, and the certification card.

Formulation of the problem. It is well known that in peacetime applies comprehensive assessment of military personnel (on m/p), which includes: monitoring, study and evaluation of service activities on specific criteria and manifestations of individual qualities. According to the results of evaluation consists card soldier. The results of the annual evaluation results reflect a systematic evaluation of each soldier while performing his duties as functional (positions) during the year, the results of control activities, final checks, inspections and audits.

The algorithm of human bodies on evaluation of performance of military personnel in peacetime is seen as a clear system of measures and actions

1) study (setting) requirements governing documents evaluation service activities;

2) institutional arrangements of evaluation of performance of military and military unit (unit);

3) organization of the commissions ranking soldiers;

4) organization of the personnel of the preparation of documents for making personnel decisions.

Currently, the Armed Forces of Ukraine are involved for ATO. Algorithm of commanders (commanders, chiefs) for evaluating performance of subordinate's soldiers in peacetime can not be used in combat (under special period) because the relevant arrangements (paragraphs 2-4) run out of time and professional human resource capacity.

Thus during warfare evaluation of the military on the basis of existing regulations is not possible and the question to adjust their content, i.e. amendments and additions to the existing legal and installation documents.

The analysis of regulatory documents and publications. Preparation and evaluation of Armed Forces Ukraine is governed by the relevant governing documents. There is no single legal document that regulates the evaluation of performance in terms of military combat missions.

In [1-5] highlights some issues regarding the impact of stress factors on the military activities, discusses the moral and psychological support participation of the Armed Forces of Ukraine in anti-terrorist operations along with some tips on moral and psychological support to commanders (units) and military personnel participating in operations against terrorism.

However, a clear algorithm of human bodies on evaluation of performance of military personnel in combat has not been developed.

The article aims to justify the approach to the creation and use of personnel of the algorithm for the evaluation of performance of military personnel in combat.

Presenting main material. To justify the approach to algorithm design evaluation of performance of military personnel in combat advisable to consider:

- analysis of the experience of leading countries for the preparation and evaluation of military personnel in times of crisis;
- analysis of the current state of preparation and evaluation of Armed Forces of Ukraine.

The views of foreign experts, regular training of servicemen in extreme conditions and their certification are basic procedures needed to study the procedures of personnel management in the armed forces.

When assessing performance of soldiers in combat conditions determined by the level of skills required meeting the requirements specified position.

Available data on existing assessment systems soldiers in the armies of advanced countries indicate that these systems have much in common. [6]

Evaluation military action in extreme situations is an essential basis for the formation of a military career. Analysis of the process is analyzed in the system of the armed forces of Great Britain, the United States and Japan.

Training troops is aimed at forming them such a state that allows to overcome the fear, confusion, fatigue, helps in any situation to keep confidence, motivates be brave and persistent.

Seeking to enhance the combat readiness and combat effectiveness of personnel management of the armed forces seeking measures of moral and psychological preparation of the following tasks:

- to educate physically resilient and psychologically stable soldiers can successfully overcome any difficulties combat and camp life;
- they develop persistent professional military skills to successfully operate in extreme conditions on the battlefield;
- form a psychological readiness to fight against a strong opponent, able to succeed during the fighting;
- to provide psychosocial cohesion of units, combat crews and calculations in combat.

The moral and psychological training of soldiers in the armies of various countries carried out differently. In the US, it engaged during the combat and physical training, usually in special education centers and landfills. In the UK, pay special attention to it in the competitive selection and basic military training (British Army is fully equipped with the Volunteers of contract). In Germany, the most appropriate moment to consider training during combat coordination units and parts. The “self-defense forces” in Japan it is practiced at all stages of life of soldiers and officers, but especially during exercises and maneuvers.

Scenarios moral and psychological training of servicemen have much in common, so we can form a common scenario.

Initially engaged in a kind of “therapy” This means that in learning specifically create such conditions that cause negative mental state military.

Once in the atmosphere close to the military, the young soldiers often lose confidence in their abilities, falls into apathy or depression; he has a sense of fear. Often when he feels pain syndromes type of dizziness, nausea, numbness and so on. As a result, he may refuse to eat, lose sleep, forget about their duties, and take offense and even desert. However, during training it is not of great danger. Soldiers are taught to suppress their fear, overcome apathy and other negative emotions and feelings they produce elementary skills of self-control.

With “psychotherapy” producing ability to restrain the outward manifestation of negative mental states, but they rid themselves is not always possible.

The second phase of training conducted measures of psychological stimulation. Its essence is to teach soldiers safely perform their professional duties in terms of combat operations. To this end, during the military training instructors soldiers load the physical, psychological and moral stimuli, the cumulative effect of which leads to inhibition beyond. Will soldier finds himself almost broken, they are in the exact sense of the word lose the ability to do something.

Psychotherapy and psychological stimulation previously considered important elements of moral and psychological training of military personnel; more attention was paid to the ideological and political education. In recent years the situation has changed radically.

Military experts analyzing the fighting forces of Great Britain in the Falklands, the Soviet troops in Afghanistan, US in Vietnam and the Persian Gulf, firmly convinced of the need for targeted hardening of the psyche of soldiers and officers in an environment as close to combat.

Today, they hold the following concepts:

- if the soldier successfully withstands and performs in the training, he quietly endure and perform under conditions real war;
- first of all the qualities necessary to form a sense of confidence;
- methods and techniques of psychotherapy and psychological stimulation be varied.

After completion of the program of combat training at the site every serviceman (military unit crew) is an integrated assessment that provides a realistic assessment of its (their) actions in conditions as close to combat.

To the moral and psychological training was focused and efficient in the armies of foreign countries set up special bodies exercising control over it. Representatives of these agencies are also involved in training officers and sergeants forms and methods of such training and evaluation of staff.

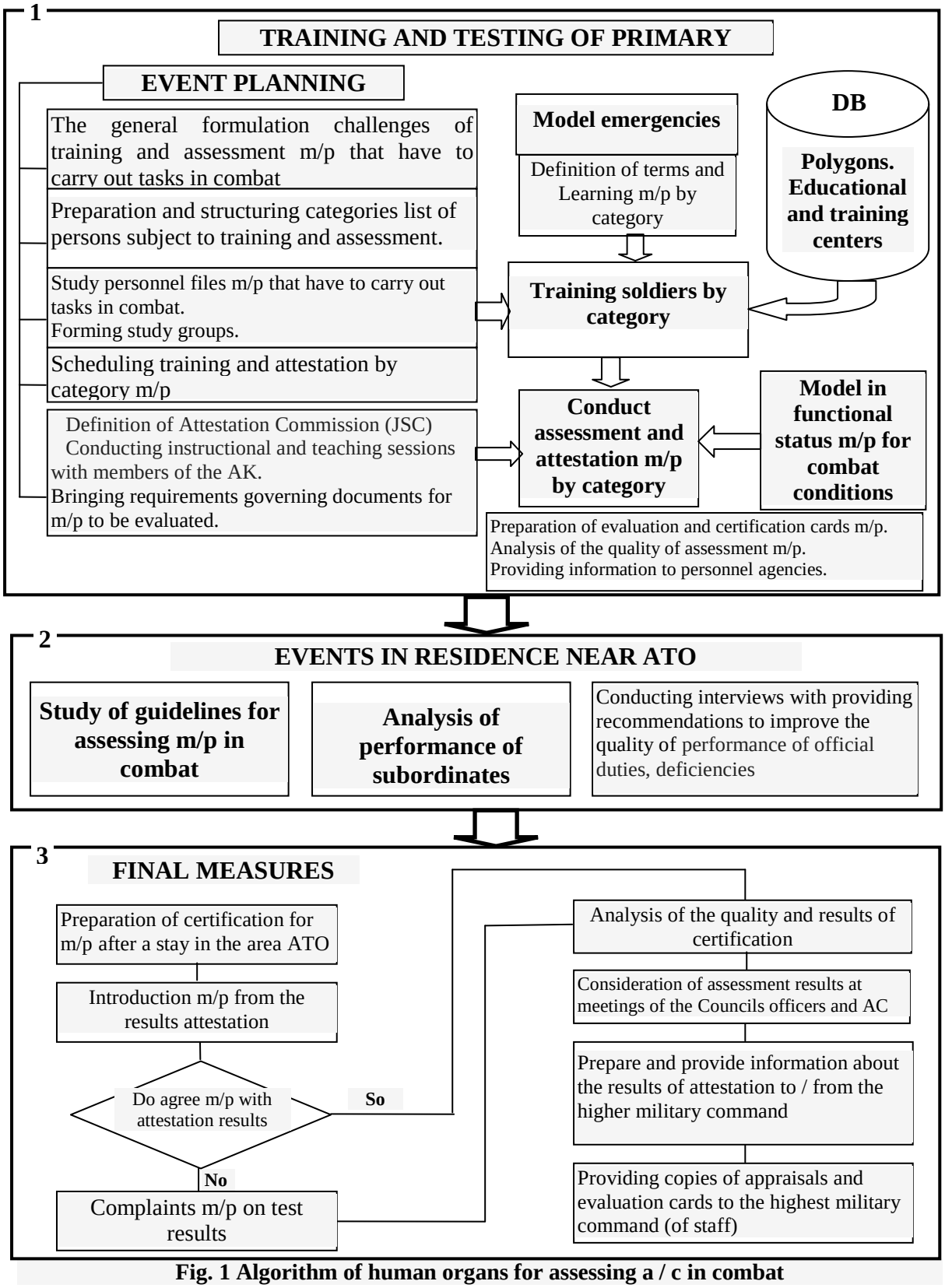

Fig. 1 Algorithm of human organs for assessing a / c in combat

The algorithm of human organs for evaluating performance of subordinate's soldiers in peacetime carried out in three stages.

Preparatory measures (Stage 1) are held from September to December this year. Measures of responsible planning are the commander of the military unit (institution, organization) and the head of personnel authority. Responsibility methodological support measures - Head Attestation Commission, head of personnel authority and unit commanders.

Of responsible measures to analyze performance of subordinates and interviews are officials who carry out an annual assessment and

periodic attestation soldiers (Stage 2).

Final measures (Stage 3) are held from October to December next year. Final of responsible action are: immediate commander (chief) and officials participating in the annual assessment and periodic attestation; Head of personnel authority; management of military units and the Chairman of the Soviets officers and appraisal fees.

The analysis algorithm of staff bodies on the annual assessment and periodic attestation shows that the lion's fate is its content arrangements. The algorithm for combat conditions arrangements for stay of troops in the conflict zone should be minimized.

The algorithm of human organs for the preparation and evaluation of performance of subordinate's soldiers in combat can be submitted in the form as shown in Fig. 1.

The algorithm consists of three parts:

- initial training and attestation;
- activities carried out during the stay of troops in combat (egg in the area ATO);
- the final steps are carried out after the rotation or demobilization.

Actions commanders (chiefs) during the stay in the area ATO (see. Block 2) is reduced to the analysis of performance of personnel, interviews with providing recommendations to improve the quality of performance of duties subordinates.

After returning from extreme area (block 3 - the final steps) commanders made on drafting certification vilely soldiers and provide information about the results of the attestation to the highest military command in accordance with established procedures.

Conclusions. The main content of the proposed approach to the creation of human algorithm for evaluation of performance of military personnel in combat are:

- taking into account the experience of leading countries for the preparation and evaluation of military personnel in times of crisis;
- analysis of the current state of preparation and evaluation of Armed Forces of Ukraine;
- submit proposals for adjustment algorithm of actions to combat human conditions where arrangements for stay of troops in the conflict zone are minimized.

Whereas a special period of evaluation of performance of military personnel and their attestation regulations provided, **further research** is advisable dedication to development "Instructions evaluation of performance of military personnel in times of crisis (combat)", which should be explained the procedure of assessment of service activities.

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Обґрунтування підходу щодо створення алгоритму роботи кадрових органів для оцінювання службової діяльності військовослужбовців у бойових умовах

Резюме. Здійснено аналіз досвіду провідних країн світу щодо підготовки і оцінювання військовослужбовців в особливий період. Запропоновано алгоритм роботи кадрових органів для оцінювання службової діяльності військовослужбовців у бойових умовах.

Ключові слова: алгоритм роботи кадрових органів, підготовка і оцінювання військовослужбовців, психологічна стійкість, щорічне оцінювання, атестаційна картка.

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Обоснование подхода к созданию алгоритма работы кадровых органов для оценки служебной деятельности военнослужащих в боевых условиях

Резюме. Осуществлен анализ опыта ведущих стран мира в отношении подготовки и оценивания военнослужащих в особый период. Предложен алгоритм работы кадровых органов для оценки служебной деятельности военнослужащих в боевых условиях.

Ключевые слова: алгоритм работы кадровых органов, подготовка и оценивание военнослужащих, психологическая устойчивость, ежегодное оценивание, аттестационная карточка.

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Analysis of existing approaches to authenticate users in telecommunications systems

Resume. The article analyzes the current approaches used in the present for identification for users in information and telecommunication systems.

Keyword: protection of information and telecommunication systems, identification of users of personal electronic computer (PC).

Formulation of the problem. Due to the widespread proliferation of computer technology becoming increasingly there is a problem of protection of information in telecommunication systems. It is therefore considered relevant theoretical conceptual projects in the field of information security and their practical application directly to specific information and telecommunication systems (further ITS). The question dealt with the protection of information in telecommunication systems decided to cause unauthorized penetration of a properly functioning information and telecommunications system. Creating a single, manageable security is one of the conditions for the existence of modern ITS.

Access control - one of methods of priv, that regulates and sanctions access to the informative resources of the system for that the complex system of priv (farther CSP) is developed. Methods and systems of priv that lean against access control plug the next functions of priv in ITS:

it is authentication of users, resources and personnel of the system of informative safety;

it is recognition and establishment of authenticity of user after the appropriated login and password, that entered (most models of informative safety work on this principle);

- grant of certain roles and plenary powers, to every separate user that is determined by facilities of priv and is basis of informative safety of most typical models of ITC;

it is protocolling of all actions of users on ПЕОМ, informative safety of that protects informative resources from an unauthorized division and watches all transactions of users in the system.

A management and differentiation of access to the computer systems and to their resources are one of important aspects of informative safety that can be realized due to authentication of users.

Analysis of the last researches and publications. Lately all greater attention of scientists in industry of informative safety is spared to the methods of authentication of face of user. It is possible to consider the considerable increase of researches and publications that is sanctified to this problem proof of it. But it is necessary to notice that considerable most scientific articles are sanctified to the detailed analysis of one of the most widespread methods of authentication of users - password authentication [2, 3]. Considerable attention is also spared biometrical authentication, what publications testify about, for example [4, 5]. But separate biometrical signs that are used for determination of face of user are mostly examined only. As for the complex going near authentication of users, then in modern scientific literature it is not almost presented researches and practical decisions with the simultaneous use of a few signs for authentication [7-10].

The aim of the article is formulation of reasonable recommendations in relation to expediency of the use of existent methods of authentication and methods of authentification at creation of CSP in the informative telecommunication systems, on the basis of analysis of positive lines and defects each of them.

Exposition of basic material. Under unauthorized access understands to information that violates the set rules of differentiation and comes true with the use of regular facilities of the computing engineering or CASS.

The task of the systems of authentication and authentification are determination and verification of set of plenary powers of subject at access to the informative system.

Authentication - this producing by an user some unique, peculiar only identifier (signs) him. Today there are a few methods of authentication of users [5], in each of that there are the advantages and defects.

Authentification - it procedure that checks, or a user has with the produced identifier right on access to the resource. The methods of authentification can be divided into 4 large groups [9], what are driven to Table. 1.

Table. 1

№	Methods of authentification	Description of method
1	Methods based on knowledge of secret information	The classic example of such methods is password defence, when as means of authentification to the user it is suggested to enter a password - some sequence of symbols. These methods of authentification are most widespread
2	Methods based on the use of unique object	As such object can be used smart card, electronic key and all that.
3	Methods based on the use of biometrical descriptions of man	In practice more often used one or some of next biometrical descriptions: finger-prints (use most popularity); picture of retina or iris of eye; thermal picture of palm; photo or thermal picture of person; handwriting (painting); voice.
4	Methods, based on the information associated with an user	Such information user coordinates can exemplify certain by means of GPS. This approach hardly can be used as an only mechanism of authentification, however fully possibly his use as additional element of defence.

Widespread practice of the compatible use a few from the mechanisms listed above - in such cases it is talked about multivariable authentification.

Will consider each of the enumerated approaches more detailed.

Password systems of defence. Main advantage of password authentication - simplicity and usualness [2]. Passwords a long ago are built-in in the operating systems and other services. At the correct use passwords can provide acceptable to many organizations strength security. However, for totalities of descriptions them it follows to admit the weakest means verifications of authenticity. Exactly a weak level of password defence is one of principal reasons of vulnerability of the computer systems to the attempts of unauthorized division (UD).

Authentication is with the use of unique object. Every vehicle (electronic) identifier is a physical device (eToken) that usually small sizes (he can be carried with itself), comfortable and inexpensive.

Advantages of eToken:

it is authentification of users due to the use of cryptographic methods;

it is safe storage of the keys of enciphering and electronic digital signature (EDS);

it is mobility of user and possibility of safe work with confidential data in the not trusted environment (for example, on a stranger computer);

it is the safe use to take advantage of the key of eToken his proprietor can only;

realization of both western and home standards on enciphering ;

it is a comfort of work - the key is executed as trinket with the light indication of office hours and directly connected to USB-ports;

it is the use of one key for the decision of enormous amount of different tasks - to included in a computer, net logon, to defence of channel, enciphering of information, EDS.

Biometrical authentication. Biometrical authentication - it the method of authentication of person on separate specific biometrical signs. [6]. The modern level of development of computer technologies allowed to use similar signs as basis for authentication of man and decision-making about access to the resources. Basic methods three - recognitions on a finger-print, on the image of person (two-dimensional or three-dimensional), on an iris and on the retina of eye.

Complex (or multivariable) authentication. Introduction of the combined systems increases the amount of identification signs and promotes safety the same. For today there are the combined next typing systems:

the systems on the base of noncontact smart cards;

the systems on the base of hybrid smart cards;

the bioelectronics systems.

Conclusions. On the basis of analysis of threats to informative safety and existent facilities of authentication and authentification of users of informative TCN, it is possible confidently to say, that password defence for today is one of the most widespread methods of priv from an unauthorized division both in separate computers and systems and in the networks of the distributed systems. However without the use of other mechanisms of defence password defence, in itself, is not reliable, as can not provide necessary defence. But it is necessary to notice that lately all greater distribution is got by more valuable systems of authentication, that use biometrical descriptions of man for the decision of task of access to informative TCN. In relation to the choice of the system of authentication directly in every separate situation, a proprietor informative TCN must: objectively to estimate correlation of value of information that is on the defensive, and cost of the vehicle software providing of authentication/of authentification. But indisputable advice is the obligatory use of the complex system of authentication, which combines a few going near the decision of tasks of access to the informative resources of the computer systems.

Further researches. The actual is see the problem of development and research of the complex systems that use for an acceptance the decision of access to the informative systems a few biometrical descriptions of user (for example, to use together the features of the keyboard handwriting, voice, dynamics of work of user with a manipulator "mouse" or use of imprints of a few fingers) [7].

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Аналіз існуючих підходів при ідентифікації і аутентифікації користувачів в інформаційно-телекомунікаційних системах

Резюме. У статті проведено аналіз сучасних підходів, які на сьогодні використовуються для ідентифікації користувачів в інформаційно-телекомунікаційних системах.

Ключові слова: захист інформаційно-телекомунікаційних систем, ідентифікація користувачів персональних електронно-обчислювальна машина (ПЕОМ).

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Анализ существующих подходов при идентификации пользователей в информационно-телекоммуникационных системах

Резюме. В статье проводится анализ современных подходов, которые используются для идентификации пользователей в информационно-телекоммуникационных системах.

Ключевые слова: защита информационно-телекоммуникационных систем, идентификация пользователей персональных электронно-вычислительных машин (ПЕОМ).

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Planning of researches with the use of the system of imitation design JCATS

Resume This article introduces the basics of constructing a plan of using factorial design, system simulation modeling type JCATS the purpose of joint detection of factors influence the course of hostilities.
Keywords: simulation, factorial experiment, the experimental design.

Rising of problem. Head-quarter studies (HQS) remain one of basic forms of preparation of command and staff of the Armed Forces of Ukraine. The high level of intensity of educational-battle activity is provided, first of all, due to application in the process of studies of the modern systems designs of military operations that allow to the command and staff to work off educational tasks with bringing in minimum of necessary amount of personnel, technique and money. Thus a primary objective is remained by working off skills of organization and conduct of battle actions, research of methods and forms of application of troops (forces) and new standards of weapon and military technique in operations taking into account different aspects (economic, political, geographical, etc.).

HQS with the use of computers substantially differ from traditional. Actions those, who studies, not "tied" to intention, because the dynamics of battle actions is designed and operatively represented on initial devices in accordance with made decision.

In the most world countries an imitation design (IM) is select as effective and cost-effective means of studies and preparation of the own armed forces for participating in military operations. During realization of computer HQS from IM substantially possibilities of working off the questions of organization and conduct of battle actions, research of methods and forms of application of troops (forces) and new standards of weapon and military technique broaden in operations on determination of different aspects (economic, political, geographical, etc.) [1].

However, facilities of IM of military operations can be (and must be) not only the instrument of intensification of preparation of leading links of the armed forces but also instrument of scientific search and ground of new forms and/whether methods of application of the last.

The incorporated imitator of tactical actions JCATS is the result of long-term deep study of design object and gives possibility to the researcher to take into account the enormous amount of factors at a design. The said remains just for the family incorporated model of design of battle actions of JWARS (Joint Warfare System) [2]. But, without application of the special approaches the effective taking into account of accessible to the researcher factors appears impossible.

The extent of the problem. It is accepted to consider that the beginning was the monograph of Ronald Fisher, which was repeatedly reprinted, put in 1935 the direction known as "planning of experiment" [3]. He first showed expediency of the simultaneous varying all factors on advantage to the widespread one factor experiment.

Raising of factor experiment plenty enough of labors is sanctified to, for example well-known [4-6]. However in these works of not feature of realization of factor experiment with the imitation system as JCATS.

The aim of this article is aiming of method of construction of factor experiment with the system IM as JCATS for determination in totality of character of influence of row of factors on motion of military operations during realization comparatively of small amount of experiments (experiments).

Presenting of basic material. A factor plan appears especially useful in case of the use of the system IM JCATS, as the events imitated by the system carry casual character, thus for the set of necessary statistics the amount of tests grows, at least, in times.

In it is many cases enough to consider in all two level of factors that determine end-point. An

experimenter would like to set, or any of the marked changes influence on end-point. The most obvious approach in this case consists in the exhaustive search of combinations of levels of factors that interest. It works perfectly, if the amount of necessary experiments in such experiment did not grow exponentially. For example, if a researcher wishes to conduct an experiment from 7th factors, then an exhaustive search needs amount of experiments 2^7=128. To learn influence of 10 factors needs 2^{10}=1024 experiments. As for carrying out every test protracted and valuable tuning of the investigated system is needed, then in practice often unreal to put so plenty of experiments. In this case at planning of experiment usually use fractional plans that cast aside co-operations of high order and spare most attention to the main effects.

In present tense over 20 different criteria of optimality of plans that is divided into two basic groups are used. *To the first group* take the criteria related to the errors of estimations of coefficients of function of review, and to the second - with the errors of estimation of surface of review. Criteria of the first group are of interest for the tasks of optimization, selection of dominant (most meaningful) parameters on the initial stages of decision of optimization tasks and for the exposure of unimportant parameters in the tasks of proceeding in conformities to law of functioning of object.

The criterion D-optimality is answered by the minimum volume of ellipsoid of dispersion of errors (minimum to the product of all dispersions of coefficients of polynomial of function of review). In a corresponding plan, the effects of factors are maximally independent one from other. This plan minimizes the expected error of foresight of function of review. The criterion A-optimality is answered by a plan with minimum total dispersion of all coefficients, criterion E-optimality is a plan in that maximal dispersion of coefficients will be minimum.

The criteria of the *second group* are used at the decision of tasks of description of surface of review, determination of limits on the value of parameters. In this case main is a criterion G-optimality, that allows to build a plan with the minimum value of most error in description of function of review.

At the study of influence of separate factors on behavior of object, apply the criterion E-optimality

On the initial stages of optimization for the function of review of object of researches, apply the incomplete polynomials of the second order or linear polynomials. The calculation of estimations of coefficients of such polynomials comes true on the basis of treatment of results realization of the most simple plans, in that every factor takes on only two values $v_{i\min}$ or $v_{i\max}$, located symmetrically in relation to the center of plan after this factor. The value of levels of varying is elected by a researcher, coming from the possible turndown of every factor and possibility of application of linear approximation of function of review in the select range of changes of parameter. It is possible to consider without limitation of community, that encoded the rationed values $x_i = \frac{v_i - v_{i0}}{\Delta v}$ take on a value – 1 and +1 accordingly (it is accepted to mark "–" or "+"). Accepted denotations: v_i is a natural value of factor, v_{i0} is a natural value of base level of factor, Δv is an interval of varying. Great number of all points in k – dimensional space, coordinates of that are combinations "+" and "–", named a complete factor plan or plan of complete factor experiment as 2^k (CFE). An amount of points is in this plan $N = 2^k$.

For an example will take a complete factor experiment with three independent variables x_1, x_2 and x_3, Tables. 1.

Tables. 1

Planning matrix								**Vector of results**
x_0	x_1	x_2	x_3	$x_1 x_2$	$x_1 x_3$	$x_2 x_3$	$x_1 x_2 x_3$	y
+	–	–	–	+	+	+	–	y_1
+	–	–	+	+	–	–	+	y_2
+	–	+	–	–	+	–	+	y_3
+	–	+	+	–	–	+	–	y_4
+	+	–	–	–	–	+	+	y_5
+	+	–	+	–	+	–	–	y_6
+	+	+	–	+	–	–	–	y_7
+	+	+	+	+	+	+	+	y_8

The second, third and fourth table columns answer the plan of experiments actually; fifth – eighth columns contain the value of products of independent variables. A dummy variable $x_0 = 1$ (first column) is entered for identicalness of record of calculation formulas of coefficients of polynomial. Lines answer experiments, for example, the first line characterizes an experiment in that all independent variables are at bottom level.

There are a few methods of construction of similar matrices of planning. In particular it is possible to take advantage of reception characteristic for the record of sequence of binary numbers. In the column of the last variable x_3 signs change in turn, in the column of next to last variable x_2 – alternate through two elements, third on the right variable x_1 – through four elements. Similarly, to build the matrix for any number of variables, order of variables plays no role. Columns with the products of variables are calculated by the increase of values of elements in the corresponding columns of scalar variables.

It easily to see from the analysis of planning matrix, that a complete factor experiment is characteristics:

orthogonal. Sum of pair products of elements any two different columns equals a zero. In particular, for scalar variables

$$\sum_{u=1}^{N} x_{iu} x_{ju} = 0, \quad i \neq j, \ i, j = \overline{0,k};$$

to symmetry. The sum of all elements of any column, except for the first, equals a zero, for example, $\sum_{u=1}^{N} x_{iu} = 0, \quad i = \overline{1,k};$

rationed. The sum of squares of elements of any column equals the number of experiments, so for variable $\sum_{u=1}^{N} x_{iu}^2 = N, \quad i = \overline{0,k}$.

The first two properties provide independence of estimations of model coefficients and admission them physical interpretation. Violation of these properties results in mutual dependence of estimations and impossibility of grant to maintenance to the coefficients of function of review.

With the height of amount of factors k the number of points of plan in CFE grows after an exponential 2^k. The plans of CFE allow getting the underplayed estimations of gradient of function of review in a central point, but in case of application of linear polynomial appearing effective not enough after the amount of experiments at the large number of independent variables, because there are too many degrees of freedom on verification of model adequacy. For example, at $k = 5$ there are 26 degrees on verification of adequacy of linear model. Although plenty of experiments and results in the substantial decline of error in the estimation of coefficients, nevertheless such number of degrees of freedom for verification of adequacy is excessive.

Thus, in the cases when the linear approaching of function of review is used only, the amount of experiments it follows to shorten, using for planning the so-called regular fractional remarks of CFE, that contain the suitable number of experiments and save basic properties of planning matrix. A remark that includes the half of experiments of CFE only is named a semi remark that includes fourth part of experiments - fourth by a remark and others like that. Short denotation of the marked fractional remarks 2^{k-1} 2^{k-2} accordingly.

The construction of regular fractional remark or realization of fractional factor experiment (FFE) as 2^{k-p} envisages a selection from the great number of *k* factors of *k-p* basic for that the plan of CFE is built. This plan is complemented by p columns that answer other factors. Each of these columns is formed by special rule, namely, turns out as a result of member wise increase not less than two and no more *k-p* of certain columns corresponding to the basic factors. Otherwise speaking, in the fractional remarks of *p* of linear effects there are the co-operations equated with effects. But just the same construction of planning matrix and allows to provide her symmetry, orthogonal and rationed.

Rule of education each of *p* columns FFE name the generator of plan. Every additional column is answered by the generator (for a plan as 2^{k-p} it must be set p of different generators). A generator is set as a product of basic factors, which determines the value of elements of corresponding additional column of planning matrix. By the example of record of generator for a plan 2^{3-1} expression, serves $x_3 = x_1 x_2$, Table. 2. Planning matrix FFE as 2^{k-p} a 1 column contains *k* + 1 column and $N = 2^{k-p}$ lines.

Table. 2

Planning matrix				Vector of results
x_0	x_1	x_2	x_3	y
+	–	–	+	y_1
+	–	+	–	y_2
+	+	–	–	y_3
+	+	+	+	y_4

When the basic source of error is random errors of measuring, then in points plan single experiments are usually produced. In such situation the errors of different experiments consider mutually the independent casual sizes, up-diffused on a normal law with a zero mathematical hope and identical, though unknown, dispersion. Thus, the function of review in the different point The estimation of influence of factor in these terms is conducted on the basis of application of method of analysis of variance, essence of that consists in determination of meaningfulness of differences between the mean values of function of review for the different values of the investigated factor. Such comparison is made a not by direct comparison of mean values, but by comparison of factor dispersion of the function of review and remaining dispersion, caused by casual reasons. If dispersion of function of review, descendant influence of different values of factor, exceeds remaining dispersion considerably, then a factor influences on the function of review. And it means that and the mean values of function of review on the different levels of factor differ substantiality of plan is also up-diffused normally. Its mathematical hopes are unknown and can be different.

Thus, for the arbitrary amount of levels of entrance factors by a weekend data are:

plan CFE with the amount of levels of change of factors, even n. Let levels of analyzable factor P answer the columns of square;

matrix of values of function of review $Y = \|y_{kj}\|$ a dimension $n \times n$;

a level of meaningfulness is for verification of statistical hypothesis α.

The analysis of variance includes next steps.

1. A calculation of mean value of function of review after all experiments and mean value is after the different levels of factor of *P*

$$\mu_1 = \frac{1}{n^2}\sum_{k=1}^{n}\sum_{j=1}^{n} y_{kj}\ , \mu_1(j) = \frac{1}{n}\sum_{k=1}^{n} y_{kj},\ j = \overline{1,\ n}.$$

2. Estimation of factor dispersion

$$\mu_{2,\phi} = \frac{1}{n-1}\sum_{j=1}^{n}[\mu_1 - \mu_1(j)]^2 .$$

3. Estimation of remaining dispersion

$$\mu_{2,зал} = \frac{1}{n^2 - n}\sum_{j=1}^{n}\sum_{k=1}^{n}[\mu_1(j) - y_{kj}]^2 .$$

4. The estimation of meaningfulness of factor of *P* is conducted on the basis of method of verification statistical hypotheses. The null-hypothesis of H_0 answers equality of mean values of function of review at the different values of factor. In this case factor and remaining dispersion is the underplayed estimations of unknown general dispersion of function of review and that is why must not substantially differ. Obviously, if the estimation of factor dispersion does not exceed the estimation of remaining dispersion, then veritable hypothesis of H_0. The alternative hypothesis of H_1 answers a statement, that factor dispersion substantially more remaining dispersion, thus, mean values also differ considerably. Verification comes true on the basis of criterion of Fisher $F = \frac{\mu_{2,\phi}}{\mu_{2,зал}}$. The critical value of criterion $F_{кр} = F\left(\alpha; n-1; n^2 - n\right)$ is found standard character, here n–1 answers the amount of degrees of freedom of factor dispersion, and n^2–n are amounts of degrees of freedom of remaining dispersion. If the condition of F is executed $F > F_{кр}$, then the factor of *P* substantially influences on the function of review, otherwise - influence of factor is not substantial.

The criterion of Fisher will apply only at comparison of dispersions of the normally up-diffused sizes. If such confidence is not, then to the got conclusion it follows to belong carefully. In case of carrying out the repeated tests in the points of plan distribution of mean values of function of review will approach normal with the increase of amounts of experiments. And application of criterion of Fisher will be reasonable enough.

Obviously, that the attempt of the direct simultaneous varying unavoidable will result many factors in the so-called “combinatory explosion” in case if a researcher will wish to set a reaction on every combination of factors. Application the brought results over from the theory of planning of experiment deprives a necessity “blindly” to find the best combination after the method of exhaustive search, allowing considerably to shorten surplus.

Conclusion. Thus, it is possible to plan and practically realize an experience experiment on the model of tactical imitator and define the influenced and uninfluenced chosen factors on the end-point.

Thus, the amount of experiments of factor experiment can approximately equal to amounts of factors, influence of that on end-point is subject to research.

Further research. The results of such experience experiment in future allow conducting the estimation of effectiveness of operative plans with varying small, most meaningful, by part of influential factors, carrying out support of decision-making by corresponding public servants the same during realization of different tactical actions.

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Планування досліджень із застосуванням системи імітаційного моделювання JCATS

Резюме. У статті викладено основи побудови плану факторного експерименту для застосування системи імітаційного моделювання типу JCATS з метою виявлення сумісного впливу низки факторів на перебіг воєнних дій.

Ключові слова: імітаційне моделювання, факторний експеримент, план експерименту.

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Планирование исследований с использованием системы имитационного моделирования JCATS

Резюме. В статье излагаются основы построения плана факторного эксперимента для применения системы имитационного моделирования типа JCATS с целью выявления совместного влияния ряда факторов на ход военных действий.

Ключевые слова: имитационное моделирование, факторный эксперимент, план эксперимента.

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Military Doctrine of Russian Federation: basic directions of imperial expansions, which carry threat to the world

Resume. In the article investigates changing in relation to the Military doctrine of Russian Federation of 2010, which allows to "legalizing" the criminal acts which are directed against other countries of the world. And, the main, to give in the future a similar legal form for criminal acts.

Keywords: military doctrine, strategy of military safety, military conflict, information and of communication technologies, territorial troops.

Rising of problem. The acceptance of military doctrine always means forming in the state of new strategy of military safety. The military doctrine of 2014 did not become an exception. She changed the system of looks in the field of defensive safety of the state and directions of military building in Russia.

The last Military doctrine of Russian Federation (farther – MD of Russian Federation) was ratified by the decree of president of Russian Federation from 25.12.2014 № 815.

In a division 1 "Generals", p. 1 it is write-in: " *MD of Russian Federation is a system of officially accepted the in state of looks on preparation to the armed defence and armed defence of RF*" [6].

The evolution of MD of RF forms the clear picture of imperial expansions. Each of them was timed for acquittal of expansion instituting control above regions. All was accepted four MD of RF.

On November, 2, 1993 Б. Yeltsin signed a decree "About the Substantive provisions of military doctrine of Russian Federation", which so not was published by the way. She was accepted after events in Pridnistrovje in 1993 years.

On April, 21, 2000 B. Putin signed a decree № 706 "*At statement of Military doctrine of Russian Federation*". She was accepted after wars in Chechnja in 1999 year.

On February, 5, 2010 Д. Medvedev signed a decree № 146 "About Military doctrine of Russian Federation ". She was accepted after Russian-Georgian war (South Ossetia and Abhazia) in 2008 year.

On December, 25, 2014 B. Putin signed a decree № 815 "*At statement of Military doctrine of Russian Federation*". She was accepted after annexation of Crimea and expansion on east of Ukraine in 2014 years [1].

As see from chronology events which was preceded to the acceptance of MD of RF it is visible in new releases, as guidance of RF each time tries to "legalize" the criminal ant law acts, so to say to vindicate them. And, more main all, to give on the future to the analogical criminal acts of legal kind.

Therefore timely and actual is a task from realization of deep analysis of maintenance of MD of RF and made alteration for them. Thus research priority will be given to the last release of MD of RF.

Analysis of the last researches and publications. Noted problem one of the first investigated V. Gusarov [1] and U. Baluevski [2]. In-process [1] V. Gusarov shows that each of four MD of RF was accepted after annexation and establishment of the control mode above regions: Pridnistrovje, Chechnja, Abhazia, South Ossetia, Crimea and Donbas. He showed also, that by the main feature of MD of RF of 2014 is the location of informative war.

U. Baluevski in the work [2] showed the evolution of changes of basic looks which found a place in four MD of RF, although some his utterances are contradictory or not reasonable enough.

The purpose of the article is illumination of evolution of strategy of military safety of RF, which is represented in her Soldiery doctrines, beginning from the first (1993 rivers of edition) to the last (2014 rivers of edition).

Research of these changes allows watching clear picture of evolution of imperial ambitions of Russia in relation to the nearby states for instituting control above regions.

Exposition of basic material. A military doctrine of RF is a by volume enough document and to rewrite him there is not sense. Therefore basic attention is spared to the changes in her in relation to previous MD in 2010 edition.

Table 1

Position of MD of RF of 2014 relatively ВД of RF of 2010

New positions of ВД of RF of 2014	That it gives RF for new strategy of military safety
I. GENERALS	
4. Strategies development of the **Frigid zone** of Russian Federation.	Wants to legalize the claims on minerals, which bed in the shelf area of arctic ocean, this position of RF
5. ж) with the use of both ordinary and **nuclear decimators**, on territory of region with adjoining to him aquatoriums and in air (space) space above him.	This phrase was withdrawn from positions of MD of RF of 2010, because a world concord condemned her on all levels, including a discussion in UNO and pastures
м) **mobilizational readiness** of Russian Federation is ability of Military Powers, other troops and organs, economy of the state, and also federal public authorities, organs to fulfiling the mobilizational plans;	This position gives determination of mobilizational readiness and mobilizational plans, what was not in MD of RF of 2010
н) the system of **non-nuclear inhibition** is a complex of foreign-policy, soldiery and military-technical measures, sent to prevention of aggression against Russian Federation non-nuclear facilities.	This position gives determination to the system of **non-nuclear inhibition**, what was not in MD of RF of 2010
II. SOLDIERY DANGERS AND SOLDIERY THREATS OF RUSSIAN FEDERATION	
9. World development on the modern stage is characterized by **strengthening** of global **competition**, to tension in different areas intergovernmental and interregional cooperation, by the rivalry of the valued reference-points and models of development, by instability of processes of economic and political development on global and regional levels on a background general complication of international relations.	World development on the modern stage is characterized by **weakening** of ideological confrontation, **decline** of level economic, political and military… This indention of MD RF 2010 to the fate. As be obvious from comparison of two positions - their maintenance almost fully oppositely, although the basic source of growing tension is RF.
11. The tendency of displacement of soldiery dangers and soldiery threats was set in **informative space** and internal sphere of Russian Federation.	A clear tendency to the grant to informative influence of to the quail factory role in preparation and conduct of battle actions was set in MD of RF of 2010.
12. к) growing threat of global extremism (terrorism) and his new displays in the conditions of effective not enough international counterterrorist cooperation.	Russia is one of not many countries which are the source of extremism and supports extremist groupments are certain.
л) …of foreign **private soldiery companies**.	Although such companies are in Russia.
м) use of **information and of communication technologies** in military-political aims for realization of actions, conflicting with an international law, directed against sovereignty.	About informative influence it is said literally in every division of MD of RF of 2014 [1].
н) establishment is in the states, contiguous with Russian Federation, modes, including. as a result of **overthrow of legitimate public authorities** the policy of which threatens to interests of Russian Federation.	Russia tries these positions to justify the power actions against Ukraine support of "legitimate president of Ukraine" of V.Yanukovych
о) **subversive activity of the special services and organizations** of the foreign states and their coalitions against Russian Federation.	In actual fact all vice versa: it the special services of Russia conduct subversive activity against other states, especially in adjoining regions.
13. г) show of military force during exercising **on territories contiguous** with Russian Federation or her allies of the **states with provocative aims**.	As a rule, such studies are regularly conducted by Russia, the last from which passed on the borders of Ukraine and in occupied Crimea in September, 2016.
15. а) complex application of military force, political, economic, informative and other measures of non-military character, realized with deployment of protest potential of population and forces of the special operations.	What and Russia occupies, especially from 2013 years in Ukraine.
в) affecting opponent on all depth of his territory simultaneously in global **informative space**, in aerospace space, on land and sea.	

New positions of ВД of RF of 2014	That it gives RF for new strategy of military safety
е) strengthening of centralization and automation of management troops and weapon as a result **of transition from strictly vertical control system to global network CASS of management troops (by forces) and weapon**.	A decision to pass to control system by troops (by forces) and armament for example of the USA and other front-rank countries of the West is looked over.
the з) participating is in the military operations of the **irregular armed forming and private soldiery companies**	That and Russia does: the involved cossacks, "volunteers and persons" on vacation, members of the so-called military-sports association and private soldiery companies.
к) use of the political forces financed and guided from outside, public motions.	That is clearly looked over in Crimea and on Donbas.
Activity of Russian Federation on inhibition and prevention of soldiery conflicts	
з) cooperating with **Republic of Abhazia and Republic of South Ossetia** for providing of joint defensive and safety.	Attempt though as to legalize the illegal not acknowledged educations and mother occasion to interfere in the internal affairs of Georgia.
и) there is a observance of international agreements of Russian Federation in area of reduction and limitation of **rocket-nuclear** armaments.	In MD of RF of 2010 a range was considerably wider: "**strategic offensive** armaments".
л)… creation of the joint systems of missile defence with **equal in rights** Russian participation.	Attempt of Russia to enter in European about in quality an equal in rights partner.
м) counteraction to the attempts of the separate states (groups of the states) to obtain military superiority by development of the systems of **strategic non-missile defence**, placing of weapon in space, developments of the strategic non-nuclear systems of high-fidelity weapon.	Attempt of Russia to enter in the European system about in quality an equal in rights partner.
у) conditioning, providing the decline of risk of the use of **information and of communication technologies** in military-political aims.	It is considered higher
32. б) **strategic inhibition**, including. prevention of soldiery conflicts.	MD of RF of 2010 had **"nuclear and non-nuclear inhibition".**
о) fight against terrorism on territories of Russian Federation and suppression of international terrorist activity **outside her territory**.	By it RF appropriates to itself a right to interfere in the matters of other countries of powers by under a pretext drive "suppression of international terrorist activity **outside the territory**".
BUILDING AND DEVELOPMENT OF MILITARY POWERS, OTHER TROOPS AND ORGANS	
з) forming of **territorial troops** for a guard and defensive of military, state and special objectives.	Made decision since Russia saw efficiency of application in Ukraine of battalions of territorial defensive.
DEVELOPMENT Of DEFENSIVE-INDUSTRIAL COMPLEX	
53. к) creation of control system by the complete life cycle of armament, military and special technique.	This position became a very actual after introduction embargo by the countries of the West and Ukraine.
MILITARY-POLITICAL AND MILITARY-TECHNICAL COLLABORATION OF RUSSIAN FEDERATION WITH THE FOREIGN STATES	
55. б) forming and development of internalized relationships with the states-members of ODKB and states - participants of the CIS, with Republic of Abhazia and Republic of South Ossetia, friendly and partner relationships with other states;	In accordance MD RF 2010 it is added a fate by "Republic of Abhazia and Republic of South Ossetia".
е) development of dialog with the interested states about the national going near counteraction to the soldiery dangers and soldiery threats, to arising up in connection with the scale use of information and of communication technologies in political aims.	
58. Basic directions of military-technical collaboration are formulated **in annual Message of President to Russian Federation to Federal** Collection of Russian Federation.	At MD RF 2010 to the fate of there was a release: "Basic directions of military-technical collaboration are determined **by corresponding conceptions**, asserted by President of Russian Federation"

To 1991 year Russia which was in composition of the USSR, MD of Soviet Union followed, which was accepted in 1987 year.

Forming of ВД of new Russia went extraordinarily difficultly and contradictory. During 1,5 years after 1991 year the not less seven of variants was worked out.

Majority from them was essentially repeated by the key points of soviet MD, which foresaw organization of defensive within the limits of the CIS.

But in 1993 years, after events in Pridnistrovja, first MD of RF of 1993 was accepted. After these events there were also events of next years

A main feature of MD of RF of 2014 is a location of informative war in dominant positions of modern military opposition. Russia admitted that information is a weapon which is arrive at victories. Along from traditional decimators an informative weapon got confession at Russian military and political guidance.

If to touch internal threats of Russia, then an informative constituent occupies one of main places in the system of state stability. Along from activity of terrorist organizations, MD of RF counts threatening "activity on the informative affecting population with the purpose of injury of historical, spiritual and patriotic traditions", and also "provocation of international and social tension, extremism, kindling of ethnic and religious hatred or enmity" [6].

But, most widely MD of RF of 2014 sees application of information technologies in modern conflicts. Application of elements of informative war is thus examined, "*realized with the use of protest potential of population in complex with military force, political and economic measures of non-military character*" [6]

More that, present because of the use of fifth column, id est. the political forces public motions financed and guided from outside, that was already used as instrument for the correction of public idea in Crimea and Donbas in 2014

Enormous attention is spared to informative influence over the internet, influence in global informative space on an opponent on all depth of his territory [6]. To that end in the Russian power structures were created special half-division for the prosecution of informative war in the Internet. Their activity is sent to programmatic-computer defence and penetration in the closed informative networks of other states.

Characteristically, that emphasizing threats from NATO, MD of RF of 2014 does not examine the increase of the armed power the east neighbours of RF. The uncovered one-sidedness strikes the eyes in the estimation of soldiery threats. To attention territorial claims and soldiery preparations of Japan, and also creations of infrastructure, do not undertake by China along the Russian border [1].

Conclusion. MD in 2014 RF very clearly outlined the contours of the real NATO enemy with his criminal intents: increase of power potential of NATO; activity of the international armed groupments, foreign private soldiery companies is on territories which abut upon the state boundary of Russia, and also presence of territorial contradictions; establishment is in the adjoining states of the modes friendliness to RF, as a result of power replacement of legitimate public authorities.

There is a general review of positions of MD of RF of 2014 such.

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Воєнна доктрина Російської Федерації: основні напрями імперських експансій, що несуть загрози світу

Резюме. У статті досліджуються зміни щодо Воєнної доктрини Російської Федерації 2010 року, які дають змогу їй "узаконити" свої злочинні дії, спрямовані проти інших країн світу, а найголовніше, надати на майбутнє аналогічним злочинним діям законного вигляду.

Ключові слова: воєнна доктрина, стратегія воєнної безпеки, воєнний конфлікт, інформаційні та комунікаційні технології, територіальні війська

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Военная доктрина Российской Федерации: основные направления имперских экспансий, которые несут угрозы миру

Резюме. В статье исследуются изменения относительно Военной доктрины Российской Федерации 2010 года, которые позволяют ей "узаконить" свои преступные действия, направленные против других стран мира, а главное, придать на будущее аналогичным преступным действиям законный вид.

Ключевые слова: военная доктрина, стратегия военной безопасности, военный конфликт, информационные и коммуникационные технологии, территориальные войска.

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Improvement of maintenance of principles of application of rocket troops and artillery during the fire defeat of opponent

Resume. In the article the analyzed principles of application of the military forming of Rocket troops and Artillery during the fire defeat of opponent taking into account the organizational association of his subsystems. Considered principles of massaging (concentration) of artillery subdivisions and their fire on major directions and hard, proof and continuous management by artillery subdivisions. New principle of balanced of subsystems is offered on their possibilities.

Keywords: principles of application of artillery, rocket troops and artillery, fire defeat of opponent.

Rising of problem. In the armed conflicts testifies the results of analysis of battle application of the military formations of missile troops and artillery to certain disparity of results of planning and application of them the real results of influence on an opponent. Sometimes at achievement of necessary level of irretrievable losses of opponent as a result of fire influence he (opponent) did not only renounce the plans but also kept ability to execute set tasks in full. Marked leads to the waste of time, and then the processing of plans of fighting application. Also increases the risk of errors due to the need to work with the plans for combat use in extreme conditions due to the conduct of hostilities.

In the essence a problem consists in that during organization of battle application of the military formations of missile troops and artillery not enough possibilities are exactly taken into account as own forces as forces of opponent. Besides, as a rule, interference of possibilities of subsystems of fire defeat of opponent (intelligence, management and fire influence), and also interference of possibilities in relation to the receipt of result (productivity) and possibilities in relation to the maintenance of forces and facilities of the military formations of missile troops and artillery (sustainability), is not taken into account, or taken into account through certain permanent coefficients.

Thus in practice of battle application of military formation of missile troops there was an urgent requirement in the search of ways enough exact determination of possibilities as the troops so troops of opponent, and also their (possibilities) interference.

Degree of developed of problem. The results of analysis of the last researches on noted questions testify to certain achievements in relation to determination of possibilities of opponent and troops through determination of importance of objects depending on the stage of operation (to the fight). However, importance of object depends on in relation to plenty of factors the parameters of which dynamically change during an operation. Besides, some factors in a certain measure are interdependent that is why to conduct speech about some permanent value of importance of certain object, even on the certain stage of operation (to the fight) possibly only in a theoretical plan.

Thus, in the theoretical plan of determination of possibilities as the troops so troops of opponent and their (possibilities) interference there was an urgent requirement in the complex revision of principles of application of missile troops and artillery during the fire defeat of opponent taking into account the organizational association of his subsystems.

Thus, **the purpose of the article** is to perfect maintenance of principles of application of missile troops and artillery during the fire defeat of opponent for the increasing of degree of realization of their possibilities.

Presenting of basic material. Usually at sufficient possibilities of subsystems of secret service and management in relation to providing necessary information, it is possible to assume the subsystem of fire influence, that it is possible to estimate resulting possibilities of all of the system of fire defeat of opponent only for to possibilities of subsystem of fire influence. However, even in this case, in relation to firmness of certain subsystems will bring insufficient possibilities over to the decline of possibilities of this subsystem and accordingly other subsystems. It in a complete measure answers the law of the least, in accordance with which: “Firmness of chain (systems) is determined the weakest from its links (subsystems)”.

Thus, interference of possibilities of subsystems of the system of fire defeat of opponent

consists in limitation of the noted possibilities the level of the least possibilities of certain subsystem. For an example, it is suggested to consider a certain idealizing organizational structure, which will include subsystems: secret service, management and fire influence. Possibilities $\lambda^{(c)}$ but possibilities $\lambda^{(м)}$ it is suggested to measure "treatments" of objects of opponent through intensity (here is a certain action for information or direct influence depending on the specific of subsystem). Therefore, for the subsystem of secret service it is intensity of exposure of objects of opponent λ_p for a management is intensity of delivery of commands on the defeat of objects of opponent λ_y for the subsystem of fire influence is intensity of implementation of tasks in relation to the defeat of objects of opponent $\lambda_в$ (Fig. 1).

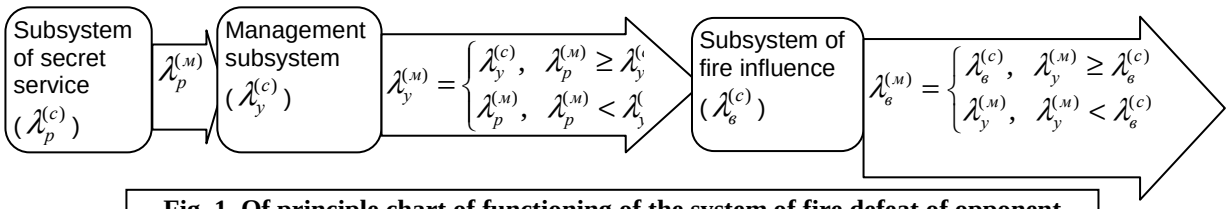

Fig. 1. Of principle chart of functioning of the system of fire defeat of opponent

An analysis is a fig. 1 testifies to the necessity to form organizational chains with approximately even possibilities for the increase of degree of realization of possibilities of the system on the whole. Besides, the use of approximately equal after possibilities subsystems of fire defeat of opponent will allow to attract the necessary amount of forces and facilities minimum, that will promote firmness of subsystems mediated.

It is suggested to extend maintenance of principle of massaging (concentration) of artillery subsections and their fire on major directions the following addition: in that number, and for to the most weak (or found out) subsystems of fire defeat of our troops (law of the least). Essence of addition consists not in the complete exception of objects of other subsystems, but in the case of origin of necessity to do a choice between a few objects for a defeat to give advantage those objects, which behave to the weakest subsystem of fire defeat of our troops.

Besides, it is suggested to realize principle of hard, proof and continuous management artillery subsections not through centralization of organizational structure of management, but through its dispersal (network centrism), for the increase of firmness of functioning and degree of realization of possibilities of missile troops and artillery during the fire defeat of opponent.

Also, because of the results got in-process, it is suggested to plug in the aggregate of principles of battle application of missile troops and artillery during the fire defeat of opponent, principle of balanced of subsystems of fire defeat of opponent for to their possibilities. Principle essence consists in forming of organizational chains of subsystems of fire defeat of opponent (secret service, management, fire influence) with approximately even possibilities. Application of principle also will allow promoting the degree of realization of possibilities of the system on the whole. Besides, the use of approximately equal after possibilities subsystems of fire defeat of opponent will allow to attract the necessary amount of forces and facilities minimum, that will promote firmness of subsystems mediated.

Conclusions. Thus, in the article maintenance of principles of application of missile troops and artillery is improved during the fire defeat of opponent, in particular to principle of massaging (concentration) of artillery subsections and their fire on major directions and principle of hard, proof and continuous management artillery subsections. Principle of massaging is improved for an account the use of law of the least (weak link), that will allow to promote the degree of realization of possibilities of the military formations of missile troops and artillery during the fire defeat of opponent. Principle of hard, proof and continuous management artillery subsections is improved due to dispersal of organizational structure of management which also will allow promoting the degree of realization of possibilities and promoting firmness of functioning of missile troops and artillery during the fire defeat of opponent.

Also new (for the aggregate of principles of battle application of missile troops and artillery during the fire defeat of opponent) principle is offered in the article, in particular principle of balanced of subsystems of fire defeat of opponent for to their possibilities, which is based on forming of organizational chains of subsystems of fire defeat of opponent with approximately even possibilities, that will allow to promote the degree of realization of possibilities of the system on the whole, and also to attract the necessary amount of

forces and facilities minimum, that will promote firmness of subsystems mediated.

It is suggested to devote **subsequent researches** the ground of methodical recommendations in relation to the increase of degree of realization of possibilities and firmness of functioning of missile troops and artillery during the fire defeat of opponent.

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Удосконалення змісту принципів застосування ракетних військ і артилерії під час вогневого ураження противника

Резюме. У статті проаналізовано принципи застосування військового формування РВіА під час вогневого ураження противника з урахуванням організаційного об'єднання його підсистем. Розглянуто принципи масування (зосередження) артилерійських підрозділів та їх вогню на найважливіших напрямках та твердого, стійкого і безперервного управління артилерійськими підрозділами. Запропоновано новий принцип збалансованості підсистем за їх спроможностями.

Ключові слова: принцип застосування артилерії, ракетні війська і артилерія, вогневе ураження противника.

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Усовершенствование содержания принципов применения ракетных войск и артиллерии во время огневого поражения противника

Резюме. В статье проанализированы принципы применения войскового формирования РВиА во время огневого поражения противника с учетом организационного объединения его подсистем. Рассмотренные принципы сосредоточения артиллерийских подразделений и их огня на важнейших направлениях, устойчивого и непрерывного управления артиллерийскими подразделениями. Предложен новый принцип сбалансированности подсистем по их возможностям.

Ключевые слова: принципы применения артиллерии, ракетные войска и артиллерия, огневое поражение противника.

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Analysis of military-technical cooperation between Ukraine and NATO in the framework of the trust funds

Resume. The analysis of the current state of the creation and implementation of the NATO Trust Fund aimed at helping Ukrainian defense sector.

Keywords: Trust Fund, NATO, the memorandum agreement, the country leader, contributors, the executive agency of NATO.

Formulation of the problem. An important area of military-technical cooperation between Ukraine and NATO, which allows international cooperation for the development of arms and military-industrial complex of Ukraine is cooperation under the relevant Trust Fund (TF), which strengthens the defense of the state.

Therefore, in our view, particularly in a covert military aggression of the Russian Federation, it is important to study the experience of launching and implementing the new TF Ukraine NATO support for their successful operation.

Objective. In the article analyzes the formation of legislative and regulatory functioning of the NATO Trust Fund, the chronology of their establishment and implementation.

Presenting main material. The decision to launch the new NATO TF, designed to assist the Ukrainian defense sector, it was decided during the meeting of the NATO -Ukraine Foreign Ministers 25.6.2014 (m. Brussels, Belgium).

Extremely important event was attended by the President of Ukraine, P.A. Poroshenko in NATO Summit in Wales (UK) 4-5 September 2014, during which at the meeting of the NATO-Ukraine Commission at the highest level was decided to increase aid and support Ukraine through the creation of four projects TF NATO [4], namely: in the field of consultation, command; command, control, communication and computers (C4); logistics support and standardization; cyber and discharged militaries from military service in the interest of assisting Ukraine in important areas of security and defense sector.

During the meeting of the NATO-Ukraine Commission Ministerial in December 2014 was made a decision regarding the launch of the fifth TF NATO aimed at treatment and rehabilitation of wounded soldiers [5].

For legal and regulatory functioning TF NATO in December 2014 the Verhovna Rada adopted amendments to the laws "On the principles of internal and foreign policies" [6] and "On National Security framework" [7], which were reported rejection of non-aligned status and deepening cooperation with NATO. The new National Security Strategy of Ukraine [8] defines deepening military-industrial and military-technical cooperation with other countries, first of all the states - members of NATO, the EU as one of the main objectives of improving the defense of the state. Annual National Program NATO-Ukraine cooperation for 2015, approved April 23, 2015 [9] recognizes the strategic partnership with NATO integral part of the European integration course of Ukraine as complementary process of internal reforms in the context of the implementation of the Association Agreement between Ukraine and the EU.

The adoption of the above statutory and regulatory asset provided an opportunity to form the next legal base of the NATO TF:

1. Memorandum of understanding between the Government of Ukraine and the Agency for Communication and Information, NATO (NCIA) on cooperation in the field of consultation, command, control and communication (C4), signed on 24.04.2015, the Verkhovna Rada of Ukraine ratified 07/01/2015 and entered into force on 08.27.2015.

The memorandum is aimed at practical implementation of the Trust Fund Ukraine - NATO Consultation, Command, control and communication (C4).

The memorandum allows further develop technical cooperation between NCIA and the Ukrainian Government. Agency for Communication and Information, NATO is responsible for providing advanced communication technologies and information in support of NATO operations and missions.

2. Agreement on cooperation in support between the Government of Ukraine and NATO

support and supply (ONPP), signed on 04.27.2015 year. Agreement ratified by Law number 563-VIII of 07.01.2015.

The agreement forms the basis Agencies use NATO support (NSPA) as the executive structure of two Trust Funds NATO / PfP in Ukraine on standardization, logistics and medical rehabilitation.

3. Agreement implementing the Trust Fund NATO-Ukraine on cyber security between the Security Service and the Romanian Information Service 07/23/2015 signed and entered into force for Ukraine of 07.23.2015.

4. Implementation of memorandums held by the relevant Technical (Implementation) agreements that are currently undergoing interagency coordination, and continues to work on adoption of new memorandums sent to other practical implementation of the Trust Fund.

Budgets allocated TF formed from the governments of each Member State and Partner countries voluntary and civil budget of NATO.

For management of funds created TF NATO / PfP. In some cases, the management of the department involved investments in the defense of the International Staff at NATO Headquarters, especially when it comes to procurement of any equipment.

The decision to use them (funding of activities and projects) taken in each case by consensus with the participation of leaders of TF and all countries contributing.

Certain countries made contributions assignment and maintenance of constant military advisers on the NATO Liaison Office in Ukraine to work in the Ministry of Defense of Ukraine and the General Staff of the Armed Forces of Ukraine.

Conclusions. Created in Ukraine Trust Funds are one of the important areas of military-technical cooperation with NATO to enhance defense capability.

During the period of initiation and implementation of TF Ukraine NATO support for their successful operation, addressing the following issues:

passed the necessary legislation, formed and shaped regulatory base of the corresponding TF;

defining the purpose, the main priorities for cooperation, duration of operation TF leading countries contributing countries, the executive of the NATO military command contact of the Armed Forces, contact officers from NATO and from the Ukraine, development of pilot projects and organized their financing.

In general, conducted the work, to launch, operation and implementation of NATO TF, provided an opportunity to use international cooperation for the development of weapon systems and military-industrial complex of Ukraine, and facilitate capacity building in the management, control, communications and computer technology, logistics and standardization, cyber, social and medical rehabilitation.

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Аналіз оборонно-технічного співробітництва України з НАТО в рамках трастових фондів

Резюме. Проведено аналіз сучасного стану започаткування та реалізації Трастових фондів НАТО, спрямованих на надання допомоги українському оборонному сектору.

Ключові слова: Трастовий фонд, НАТО, меморандум, угода, країна-лідер, контрибутори, виконавча агенція НАТО.

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Анализ оборонно-технического сотрудничества Украины с НАТО в рамках трастовых фондов

Резюме. Проведен анализ современного состояния создания и реализации трастовых фондов НАТО, направленных на оказание помощи украинскому оборонному сектору.

Ключевые слова: Трастовый фонд, НАТО, меморандум, соглашение, страна-лидер, контрибуторы, исполнительное агентство НАТО.

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Development of suggestions to the projects of laws and normatively-legal acts (making alteration in operating) about providing of Military Powers of Ukraine by an armament, military technique, other material and technical facilities in a special period

Resume. In the article is analysed the existing normative-legal base of Ukraine and the content of the new edition of new release of military doctrine of Ukraine. Defines the principles of providing state of the Armed Forces of Ukraine weapons and military equipment, and other material and technical facilities.

Keywords: armament, military technique, armed forces, the principles of ensuring.

Rising of problem. In the conditions of global political and economic transformations to the world, by appearance of new lines of modern soldiery conflicts, radical changes in the state, society, Military Power of Ukraine the question of satisfaction of necessities of troops (forces) becomes extremely actual by the defensive sector of national economy of Ukraine armament and military technique and other material and technical facilities. This question found a reflection in the new release of the Military doctrine of Ukraine, but it did not result in changes in the legal field of Ukraine. It became foundation for writing of this article.

Degree of worked out of problem. In existent publications [1,2] an analysis over of modern soldiery conflicts, their sentinel indexes and features of realization, is brought.

A research purpose is formulation of suggestions to the normatively-legal documents in relation to providing of Military Power of Ukraine of armament and military technique and other material and technical facilities. in a special period.

Exposition of basic material. For today by basic legislative and normatively-legal acts on questions providing of Military Power of Ukraine of armament and military technique and other material and technical facilities in a special period is: laws of Ukraine "On the defensive of Ukraine", "About Military Powers of Ukraine", "About mobilizational preparation and mobilization", "About a government order for satisfaction of priority state necessities", "About a government defensive order".

A law of Ukraine is "On the defensive of Ukraine"

In a peace-time preparation of the state to the defensive includes:

forming measures and realization of military, military-economic, military-technical and military industrial policy of the state;

creation of favourable terms for mobilizational development of industries defensive to the sector of national economy and others like that.

Cabinet of Ministers of Ukraine:

determines requirements in defensive charges, provides implementation ratified of Ukraine of the State budget of Ukraine Verkhovna Rada in relation to financing of measures in the field of defensive in certain volumes;

organizes development and implementation of the government programs of development of Military Power of Ukraine, other soldiery forming and development of armament and military technique , other programs (plans) on questions a defensive;

carries out the measures foreseen by a legislation on forming, placing, financing and state defensive ordering (farther - DOSES) fulfilment on supplying (purchase) with products, implementation of works, grant of services for the necessities of Military Power of Ukraine, other soldiery forming;

carries out in compliance with the legislation Ukraine measures on mobilizational preparation and mobilization, creation of government material reserve, system of accruals of monetary resources,

other backlogs for providing of necessities of defensive of the state;

Department of defense of Ukraine: comes forward, in accordance with certain the General staff of Military Powers of Ukraine (farther - General staff of Military Powers of Ukraine) of necessities, requirements and priorities, by a customer from DOSES on development, production, supply, repair, elimination and utilization of armament and military technique, munitions and scrap-metal, implementation of works and grant of services, and also on supplying with material values to mobilizational reserve of Military Powers of Ukraine;

organizes the accumulation of armament and military technique, other material resources in a emergency reserve and mobilizational reserve, and also creation of reserve of military-trained of human capitals;

carries out within the limits of the competence a military and military-technical collaboration with the corresponding public organs of other states;

determines requirements in a personnel, of armament and military technique, material and technical, power, financial, informative resources, food, lot and aquatic lands, communications, funds and property, necessary for the proper implementation tasks of Military Powers of Ukraine, other soldiery forming, controls plenitude and quality of their receipt;

participates in development of mobilizational plan of the state, controls the state of mobilizational preparation of public organs, organs of local self-government, industries of economy, enterprises, establishments, organizations of all patterns of ownership and implementation by them mobilizational asks in a special period.

Ministries of and other central organs of executive power in co-operating with of Department of defense of Ukraine (farther - DD of Ukraine) of within the limits of the plenary powers:

participate in forming and realization of the government programs of development of MP of Ukraine of and of SF, formed in accordance with the laws of Ukraine, and law enforcement authorities, development of AMT, other programs (plans) on questions a defensive;

organize development and implementation of the programs from creation of new and modernization of present standards of AMT, munitions, creation of production capacities for their producing, gaining experience in the sphere of science, technique and technologies and introduction of him in the production of defensive goods; provide implementation of DOSES.

Enterprises, establishments and organizations of all patterns of ownership : execute DOSES, including carry out researches and execute developments in the sphere of defensive, create and support mobilizational powers in readiness, keep the material values of mobilizational reserve;

carry out a production and supplying with MF of Ukraine on contractual principles, SF, formed in accordance (CD) with the laws of Ukraine, and About to the products, produce other works, render communal- domestic and other services which do not enter at DOSES;

Public servants of enterprises, establishments and organizations of all patterns of ownership:

bear the responsibility for preparation of enterprises, establishments and organizations to implementation of mobilizational tasks, maintenance of material values of mobilizational reserve;

provide the production of defensive goods and supply of her on purpose in the set terms and after a certain nomenclature, and also implementation of works, grant of services.

A law of Ukraine is “On Military Powers of Ukraine”

Cabinet of Ministers of Ukraine :

will organize preparation and realization of the national programs of development of MF of Ukraine, AMT, other government programs concerning MF of Ukraine, DOSES on supplying (purchase) with products, implementation of works, grant of services for the necessities of MF of Ukraine, creation of inviolable and mobilizational supplies;

provides the supply of MF of Ukraine of AMT, power, material and technical and other resources and property, grant of services and their financing in volumes which are needed for effective implementation of MF of Ukraine of the tasks and functions fixed on them.

Department of defense of Ukraine:

comprehensively provides the vital functions of MF of Ukraine, their functioning, battle and mobilizational readiness, military efficiency, preparation to implementation of the tasks fixed on them and application, completing a personnel, his preparation, supply of AMT, material, financial, other resources and property, according to necessities, certain GS MF of Ukraine within the limits of money, foreseen by the state budget, and carries out control of them the effective use, will organize implementation of works and grant of services in interests of MF of Ukraine.

A law of Ukraine is "On mobilizational preparation and mobilization"

The requirements of this law are set a military cargo duty on the special period, this law spreads to the central and local organs of executive power, other public organs, organs of local self-government, enterprise, establishment and organization, including on railways, ports, piers, airports, filling stations of travelling economy and other enterprises, establishments and organizations which provide exploitation of transport vehicles, and also on the citizens-proprietors of transport vehicles. [7]

Cabinet of Ministers of Ukraine:

determines and asserts the basic indexes of mobilizational plan of national economy and mobilizational tasks (order) to the central and local organs of executive power, other public organs, Council of ministers of Autonomous Republic of Crimea on the special period; creates mobilizational reserve of material and technical and raw material resources;

the order of taking off an embargo of material values of mobilizational reserve, and also order of their vacation, sets in a special period;

the order of creation, development, maintenance, transmission, liquidation and realization of mobilization powers sets;

the order of entering into contracts (contracts) determines on implementation enterprises, by establishments and organizations of mobilizational tasks (orders), in particular on supplying with material and technical resources, implementation of works and grant of services, including. in relation to supplying with the prepared products, providing of implementation of the noted tasks (orders) by material and technical resources, and also in relation to their financing;

determines and asserts limits and norms of alienation of transport vehicles and technique on the period of mobilization and in a war-time;

in the case of necessity initiates a question about the grant of privileges to the enterprises, to abolishment and organizations which mobilizational tasks (order) are set for.

Central organ of executive power on questions an economic policy:

conducts the analysis of economic and strategic potentials of national economy;

coordinates work in relation to creation, development, maintenance, transmission, liquidation and realization of mobilizational powers;

summarizes the necessities of MF of Ukraine and SF and develops mobilizational tasks (order), coming from economic feasibilities of the state;

coordinates work from education and preparation of the special forming, intended for a transmission to MF of Ukraine and SF during realization of mobilization. [8]

Department of defense of Ukraine :

organizes in a peace-time an accumulation in an inviolable supply and mobilizational reserve of MF of Ukraine of AMT, other MTF in a special period, food, material and other property, provides creation, forming and conduct of insurance fund of documentation on the products of the mobilizational and defensive setting and creation of reserve of trained to military business resources on the period of mobilization and on a war-time;

provides forming of military-technical policy and suggestions in relation to mobilizational tasks (orders) on creation, production and repair of AMT, other MTF;

carries out control after a mobilizational ready condition in MF of Ukraine and after preparation of enterprises, establishments and organizations to implementation of mobilizational tasks (orders) for satisfaction of necessities of MF of Ukraine, MF;

enters into in accordance with established procedure contracts (contracts) on implementation of mobilizational tasks (orders) with enterprises, establishments and organizations which are attracted to them to implementation of mobilizational tasks (orders), and enterprises which carry out supplying with military products;

gives to Cabinet of Ministers of Ukraine (farther is CM of Ukraine) of suggestion in relation to the necessities of MF of Ukraine on the special period, MF, which are included to the chart of mobilizational development, coming from economic feasibilities of the state;

participates in planning of mobilizational preparation in the corresponding central organs of executive power (after the sphere of their management or industry of national economy).

MO of Ukraine through ГШ MF Ukraine:

plans in a peace-time an accumulation in an inviolable supply and mobilizational reserve of MF of Ukraine of AMT, other MTF, food, material and other property and creation of reserve of trained to military business resources of human capitals on the period of mobilization and on a war-time;

determines the necessities of MF of Ukraine on the special period, summarizes the necessities of ІВФ, which are included to the chart of mobilizational development, coming from economic feasibilities of the state;

participates in forming of military-technical policy;

prepares suggestions in relation to mobilizational tasks (orders) on creation, production and repair of AMT, other MTF;

participates in a conclusion in accordance with established procedure of agreements (contracts) on implementation of mobilizational tasks (orders) with enterprises, establishments and organizations which are attracted to them to implementation of mobilizational tasks (orders), and enterprises which carry out supplying with military products.

Central organs of executive power and other public organs:

determine a management in a corresponding sphere, industries of national economy of possibility in relation to satisfaction of necessities of MF of Ukraine, MF, national economy and providing of vital functions of population in the conditions of the special period;

carry out measures on providing of fulfilling the mobilizational plans, long-term and annual programs of mobilizational preparation in the corresponding sphere of management and industry of national economy;

mobilizational tasks (order) take (set) to the enterprises, establishments and organizations which belong to the sphere of their management;

provide implementation enterprises, by establishments and organizations of mobilizational tasks (orders) in accordance with entered into contracts (contracts);

organize creation, development, maintenance, transmission liquidation and realization of mobilizational powers on enterprises, in establishments and organizations which belong to the sphere of their management or get them to implementation of mobilizational tasks (orders);

carry out control after creation, storage and maintenance of mobilizational reserve of material and technical and raw material resources on enterprises, in establishments and organizations which belong to the sphere of their management or get them to implementation of mobilizational tasks (orders).

Local organs of executive power:

determine possibilities of administrative-territorial units in relation to satisfaction of necessities of MF of Ukraine, MF, national economy and providing of vital functions of population in the conditions of the special period;

provide implementation enterprises, by establishments and organizations, which are on territory of corresponding administrative-territorial units, mobilizational tasks (orders);

carry out control after creation, storage and maintenance of mobilizational reserve of material and technical and raw material resources on enterprises, in establishments and organizations which are in a public or communal domain (including. in common property of territorial communities and passed to the sphere of their management), which get them to implementation of mobilizational tasks (orders);

organize during mobilization in accordance with established procedure timely notification and arrival of citizens which are called on military service, technicians on collapsible points and in soldiery parts, excretions of building, building, lot lands, transport and other MTF and grant of services of MF of Ukraine, MF in accordance with mobilizational plans.

Enterprises, establishments and organizations, are under an obligation: to retain in the proper state a technique, building, building and objects of infrastructure, which belong for a transmission in the case of mobilization of MF of Ukraine, MF or intended for the general with them use in a war-time;

to provide in the case of mobilization delivery of technique on collapsible points and in soldiery parts according to mobilizational tasks (by orders);

to carry out measures on preparation to development of the special forming, intended for a transmission in the case of mobilization to MF of Ukraine, MF, development and transmissions of them in a special period according to mobilizational plans;

to give during mobilization to building, building, transport and other MTF MF Ukraine, MF according to mobilizational plans with the next compensation of their cost in the order, set by a law.

A law of Ukraine is "On a government order for satisfaction of priority state necessities".

This law determines the priority requirements of the state in commodities, works and services, necessary for the decision of major socio-economic problems, maintenance of defensive capacity of country and her safety, creation and maintenance on a due levels of government material reserves, realization of the government and intergovernmental having a special purpose programs, providing of functioning of public authorities which hold back due to the State budget of Ukraine.

This law is determining such concepts, as a government order, state customers, performers of government order, state contract.

A law of Ukraine is "On a government defensive order".

DOSES is the mean of government control in the sphere of the scientific and material and technical providing of necessities of defensive and national safety of Ukraine, which determines the order of cooperation of ministries, other central and local organs of executive power, public institutions, organizations and subjects of entrepreneurial activity of all patterns of ownership during his forming, placing and implementation, and also foresees measures on implementation of international agreements of Ukraine on questions a military-technical collaboration.

Law of Ukraine "On national security Council defensive of Ukraine"

By the functions of national security Council defensive of Ukraine there is co-ordination and realization of control after activity of organs of executive power in the sphere of national safety and defensive in the conditions of martial or extraordinary law and in case of occurring of crisis situations which threaten to national safety of Ukraine.

Thus by the customers of AMT, other MTF is ministries, other central organs of executive power, and also soldiery forming, created in accordance with the legislation of Ukraine, to conclude the authorized CM of Ukraine state supply contracts (purchase) products, implementation of works, grant of services.

The brought list over of legislative acts which determine the legal field in relation to providing of MF of Ukraine of AMT, other MTF can be increased due to the documents of double-duty. Law of Ukraine is so, for example, used "On the government having a special purpose programs".

Unfortunately, in the legal field have a city different interpretation of certain state measures. So, for example, Law of Ukraine determines "On organization of the defensive planning", that "long-term plans (government programs) in the sphere of defensive are folded for a term of 12 years, medium-term plans (government programs) in the sphere of defensive are folded for a term of 6 years".

In turn Law of Ukraine interprets "On state prognostication and program of economic and social development of Ukraine" development, that ".the prognoses of development of industries of economy on a medium-term period are developed on 5 years…"The Corporate strategic planning in general is not foreseen".

This is important more than during an order, development and preparation to the mass production of AMT. Coming from experience, cycle of production of AMT from preparation of tactical-technical task, realization of research and experienced-designer works, preparation of pre-production model for enterprise tests, state tests, preparation of mass production for technologically lasts difficult standards 10-15 years.

There is an idea, that KILOMETRE of Ukraine, Ministry of economy unable trade of Ukraine with the high degree of authenticity to do a prognosis entering of money the state budget more than on 5 years. On the view of authors, order and preparation to the supply in the troops (forces) of new standards of AMT and financing of the noted measures are different things. When a political decision is accepted in relation to the production of standard of AMT by domestic industry after the reserved cycle or, the more so, in cooperation which lays on international responsibility - it will be always financed annual budgets.

IT IS OFFERED:

In Law of Ukraine "On state prognostication and program of economic and social development of Ukraine" development to bring in addition, that the government programs in the sphere of defensive and national safety are developed: long-term - for a term of 12 years, medium-term - on 6 years.

Ten of laws formulate functions and plenary powers of different organs of state administration which extremely complicates to the public servants professional preparation and guidance by legislation during implementation of official duties. It is suggested to pass to the code on questions the defensive of the state.

A code on questions the defensive of the state must have two parts:

the normative-legal field of peace-time;

normatively-legal field of the special period or extraordinary time.

In quality of divisions, as a variant, must to be:

duties and plenary powers of organs of power in the sphere of defensive and national safety;

duties and plenary powers of citizen are in the sphere of defensive and national safety;

conceptual questions of providing of national defensive and safety on the whole;

legal field of building and reformation of the soldiery forming and law enforcement authorities;

legal field of functioning and development a defensive to the sector of national economy;

legal field of functioning and development of the system of research and experimentally-

designer structures, experimental production defensive to the sector of national economy;

the legal field of preparation, functioning and development of national economy is in a special period and extraordinary time;

the legal field of participation of the state is in international peacemaking activity, collaboration in a military and military-technical sphere;

legal field of decision of social questions in the sphere of defensive and national safety on the whole.

The resulted is conditioned by the tie-up of these questions inter se.

Coming from principles, certain the new release of the Military doctrine of Ukraine of providing the state of MF of Ukraine of AMT, other MTF, quickly necessary adjustment of the above-mentioned legislative acts of the state and the new need development.

On the view of authors, Law of Ukraine "On national security Council defensive of Ukraine" clearly not enough determines right and duties this powerful political organ in relation to providing of MF of Ukraine of AMT, other MTF in a special period.

It is suggested to complement the Article 4 “Competences of national security Council defensive of Ukraine” by next positions: to determine reliable allies, those, who can render political, military, material and technical support, degrees of co-ordination and coordination with them of military-political, military-strategic actions and military-economic (military-technical) policy in a peace-time and in the case of war;

to establish order satisfaction of requirements in AMT and MTF due to resources accumulated in a peace-time, which will be mine-out in a special period, or after the mixed variant;

to make decision from creation of powers, in relation to making of certain nomenclature of AMT after the reserved cycle;

to prepare the military-political directives of President of Ukraine in relation to realization of the state defensive planning;

to make decision in relation to creation of institute of general designers, designer bureaus on the type of activity, experienced productions;

to offer what AMT, rockets, live ammunitions, difficult knots and asms, element base for electronics and automation, medications and facilities of hygiene and others like that the state will produce after the reserved cycle, which in cooperation and with whom, which will be bought in, for whom and in what amount;

to make decision, what critical technologies, the standards of AMT must be purchased on offset charts, what nomenclature of armaments will undertake in leasing;

to determine the order of maintenance and development of hi-tech export potential of enterprises of defensive sector of national economy within the limits of certain military-technical international cooperation.

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Розроблення пропозицій до проектів законодавчих та нормативно-правових актів (внесення змін до діючих) щодо забезпечення Збройних Сил України

озброєнням, військовою технікою, іншими матеріально-технічними засобами в особливий період

Резюме. У статті проведено аналіз діючої нормативно-правової бази України та змісту нової редакції Воєнної доктрини України. Визначено принципи забезпечення державою Збройних Сил України озброєнням та військовою технікою й іншими матеріально-технічними засобами.

Ключові слова: озброєння, військова техніка, збройні сили, принципи забезпечення Збройних Сил України.

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Разработка предложений к проектам законов и нормативно-правовых актов (внесение изменений в действующие) по обеспечению Вооружённых Сил Украины вооружением, военной техникой, другими материально-техническими средствами в особый период

Резюме. В статье проведен анализ действующей нормативно-правовой базы и содержания новой редакции Военной доктрины Украины. Определены принципы обеспечения государством Вооружённых Сил Украины вооружением, военной техникой, другими материально-техническими средствами.

Ключевые слова: вооружение, военная техника, Вооружённые Силы, принципы обеспечения Вооружённых Сил.

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Alternate methods of improvement of metrological support of modern means of communication

Resume. In this article was made analysis of current state of metrological provision, described the basis of metrological provision in Ministry of Defense and in the Armed Forces of Ukraine, determined tasks of metrological provisions of modern means of communication, underlined main tasks and principles of their metrological servicing.

For effective fulfillment of tasks of metrological provision in this article described proposals for their improvement and measures of metrological servicing of modern communication means.

With purpose of effective fulfillment of measures of metrological servicing, herewith are offered methods, which are necessary to follow.

Keywords: metrological support, measuring, control of parameters.

Actuality of issue, determination of tasks. Analysis of situation with current metrological provision has shown that after quick development of communication means exists necessity of development and improvement of their metrological provision with the following purposes:

achievement of needed effectiveness of digital communication means;

support to the permanent fighting readiness of digital communication means and their operational capabilities;

to provide highly effective maintains and repair of digital communication means;

to increase effectiveness of scientific research, research design, manufacturing and testing of digital communication means;

to provide unity, necessary accuracy of measurements and authenticity of valuation of tactical and technical characteristics of digital communication means.

To achieve the above purpose of metrological provision it is necessary to determine priority directions of its development, ways and methods of their implementation in each day activity.

Aim. The purpose of this report is to make analysis of metrological provision of digital communication means and determination of tasks and measures for gaining of metrological provision.

Main provisions. Metrological provision of Ministry of Defense of Ukraine and of Armed Forces of Ukraine is a complex of measures for achieving of their unity and authenticity of parameter control of military objects measurements.

Metrological provision is conducting by metrological and standardization services, by military metrological laboratories, staff of military units and establishments, according to regional (geographical) principles, that are based on regional division of territory of Ukraine governed by regional metrological military units.

According to the above mentioned, metrological provision of digital communications appears as complex of scientific and organizational measures, technical devices, rules and norms for achieving unity, necessary accuracy of measures and increasing of authenticity of parameter (characteristic) control of digital communication means, to gain high fighting readiness of them and effectiveness in their use.

According to metrological maintenance tasks, it is possible to determine main tasks herewith:

- creation and development of scientific, methodological, and organizational basics of metrological provision of digital communication means;
- planning of metrological provision of digital communication means due to development of military techniques and national economy;
- development, production and life maintenance of military units and subunits, defense industry enterprises using means of military

measuring devices that are needed during creation, production, testing, using and repair of digital communication means;

- setting up of rational nomenclature of parameters to be measured, magnitude of measurements and norms of exactness of measurements during creation, production, testing, using and repair of digital communication means;

- working out of requirements of metrological provision of digital communication means that are in stage of creation (modernization) and control of their fulfillment;

- standardization, unification, certification of means of military devices of measurement;

- metrological service of digital means of communication;

- making of metrological control and supervision on state of metrological provision of digital communication systems;

- making of metrological examination and military metrological support for development and using of digital communication means;

- making analysis and valuating of level of metrological provision of digital communication systems;

- development and implementation of normative documents concerning securing of measurement unity, including those that establish requirements of metrological provision of digital communication systems.

One of the important tasks of metrological provision of digital communication systems during their use and part of their technical service – is metrological service.

Metrological service of digital communication means is complex of works for measurement and control of parameters (characteristics) of devices and checking necessity for their adjustment, regulation or repair.

Hereafter we make proposals to improve system of metrological provision of digital communication means:

- to make metrological service of digital communication means by professionals of repair units.

- to determine list of military units (establishments) that will make training of staff about the order of fulfilling of operations to measure parameters and to provide staff with practical skills.

- to determine list of measuring devices that will make this measurements.

- to determine errors of this devices.

- to determine list of measures of metrological service of digital communication means by staff who is responsible for their use.

In the case, when measures of metrological service of concrete type digital communication means are not definite we propose:

to determine list of parameters that has to be controlled;

to determine accessible deviations of this indicators;

to determine list of measuring devices that are necessary to make measurements;

to determine errors of this devices;

to prepare methodological plan of such measurements.

For fulfilling the above mentioned measures there are methodological plans that have to be followed.

Conclusions. Therefore, metrological provision is involved in all sides of performance of Signal Corps and all stages of life cycle of digital means of communication and directly influences on effectiveness of their usage, application and army combat readiness. Therefore, exists great need in creation of effective system of metrological provision for digital means of communication that will be based on above proposals.

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Альтернативні способи вдосконалення метрологічного забезпечення сучасних засобів зв'язку

Резюме. У статті проведено аналіз сучасного стану метрологічного забезпечення, викладені основи метрологічного забезпечення в Міністерстві оборони України та Збройних Силах України, визначено завдання метрологічного забезпечення сучасних засобів зв'язку, виокремлено основні завдання та принципи їх метрологічного обслуговування. Для ефективного виконання завдань метрологічного забезпечення в статті викладено пропозиції щодо його вдосконалення та заходи з проведення метрологічного обслуговування сучасних засобів зв'язку.

Ключові слова: метрологічне обслуговування, вимірювання, контроль параметрів.

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Альтернативные способы усовершенствования метрологического обеспечения современных средств связи

Резюме. В статье проведен анализ текущего состояния метрологического обеспечения, изложены основы метрологического обеспечения в Министерстве обороны Украины и Вооруженных Силах Украины, определены задания метрологического обеспечения современных средств связи, выделены основные задания и принципы их метрологического обслуживания. Для эффективного выполнения заданий метрологического обеспечения в статье изложены предложения по его усовершенствованию и мероприятия по проведению метрологического обслуживания современных средств связи.

Ключевые слова: метрологическое обслуживание, измерения, контроль параметров.

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Ground of rational distribution of rocket troops and artillery on dangerous directions on the basis of determining their "weight"

Resume. Given the proposals in relation to the increase of effectiveness of maneuver of missile troops and artillery (MT and A) of connection (associations). The index of determination of possible threatening directions – "weight" of direction, that allows rationally carrying out distribution of MT and A after certain directions, is offered. To reduce the time of determining the direction of the main attack of the enemy is suggested to replace existent indexes corresponding coefficients: coefficient of part of battle potential of groupment of our troops on direction; coefficient of capacity of direction; coefficient of account of necessary maneuver forming on this direction from initial districts for massaging of forces and facilities.

Keywords: fire defeat of opponent, battle potential, the direction of the main blow, missile troops and artillery, artillery reserve, "weight" of direction, maneuver.

Raising of the problem: the experience of local wars and armed conflicts of recent years and the anti-terrorist operation of modern times is evidence of further increase according to the course and the final outcome of the battle (operation) from hard-kill actions (HKA) [1-5]. The role of missile troops and artillery (MT and A) the experience of the last years of participation in the HKA has increased and has its share in the amount of up to 70% [4] of the total.

The problem was, and remains, a rational distribution of MT and A in threatening areas, definition of quantitative structure and maneuver reserve, which is created.

In general, the process of planning and creating groups MT and A connection (Association) is considered in the guidance documents, and unfortunately the described methods do not take into account the latest experience, which was gained during the antiterrorist operation (ATO) in the Eastern regions of Donetsk and Lugansk regions of Ukraine.

Recent developments the above-mentioned operations make it possible to state the increasing role of MT and A in HKA, so the question is what is the amount of MT and A, distributed in threatening areas, with the aim of reducing the volume of maneuver units during combat operations in the interests of the HKA for a timely response to sudden changes in environment is very important.

Thus, an urgent task is the scientific justification of some approaches to the rational distribution of PB and As in threatening areas on the basis of determining their "weight".

Analysis of recent researches and publications. Analysis of recent researches and publications [1-6] shows that today the problem of the distribution of MT and A decided on outdated principles and methods that rely on outdated approaches and the organizational structure of the MT and A and does not have sentences on the justification of the distribution of artillery in directions to reduce the volume of maneuver of artillery units to respond to sudden changes in environment.

Research precursors [7-9] indicate that the question of rational distribution of MT and A in threatening areas reviewed in General terms against the background of studies that are associated with HKA MT and A combined arms battle (operation). However, the issue is considered in the context of guidance documents, which do not take account of the experience atoms [6].

You can highlight unresolved earlier parts of general problem, namely consideration of the rational distribution of MT and A in threatening areas on the basis of the definition of "weight" of these areas. Currently specified is not defined in the governing documents.

The article is devoted to consideration of the question of rational distribution of MT and A in threatening areas on the basis of the definition of

"weight" of these directions.

The **purpose of this article** is based on the experience of the ATO to consider changes in views on approaches to the distribution of MT and A in threatening areas on the basis of determining their "weight".

Presentation of the basic material. As established in [8], a high degree of uncertainty in the assessment of the possible nature of actions of the opponent, limited MT and A maneuver attacks and fire [4] objectively necessitate greater use of the maneuvering capabilities due to the withdrawal of units when reducing the ratio of military capacities for MT and A during the operation in one direction and increasing in the second one, which will allow to create on threatened directions necessary for the success of defensive action, the balance of forces and means MT and A in the composition of the groups MT and A.

The current approach to the creation of groups, in particular – the subordination of the artillery units and units of combined arms formations and units of the first echelon (including retail), as well as their inclusion in the composition of artillery groups and units significantly complicates the ability to quickly retrieve artillery from their structure with the need to implement the maneuver in the other direction.

When considering distribution of forces and means is necessary to take into account the fact that the necessity of maneuver formations and organization, one of the most significant factors that affect the achievement of the goal of the maneuver, there is time. In addition, there is a natural desire to create a group, which, even in the presence of several alarming directions, suitable to select the opponent as the NGU would allow in all cases of the enemy to make the maneuver a minimum number of troops from other directions.

Thus, there is the problem of determining tool, which allows in conditions of limited initial information to make such a distribution of artillery, which will help to realize their maneuvering abilities, while meeting the conditions of the situation. In the conditions considered a basis for the development of such a tool may be assessment of the severity of threatening directions.

Thus identified an urgent need to look at the possibility of rational distribution of MT and A in threatening areas on the basis of determining their "weight".

Studies [10] allow concluding that in conditions which are considered, from the point of view of the defender, the importance of direction can be determined by the value of the probability of selection of the enemy in this direction as NGU. This work is the evaluation of the situation, specifically the evaluation of the area of the battle (operation).

When defining the concept of offensive actions during the consideration of suitable areas as selection of NGU can be identified as a priority on a number of factors, the main of which are: the composition of the groups of our troops in the areas of; operational capacity areas; opportunity in the short term massaging of forces and means on these areas of possible actions (that is the minimum required time for the maneuver).

Analysis [10,11], shows that the main conditions for the selection of the NGU in the fighting that began, the enemy sees the success you have outlined, and results of fire damage during offensive operations.

Given the possible availability of information to assess the situation on the stage of the work of staff that is considered acceptable to make a number of restrictions that allow you to set indicators for evaluation of the importance of and present them in quantitative form.

The enemy will seek to identify the weak points in the defense of our troops to strike. Therefore, it will be of great importance such as the overall "power" factions of our troops in every direction, and their operational structure, the presence of joints between the joints and parts of the terrain, presence of water hazards, characteristics of the road network, ability to maneuver within the direction and from one direction to a second direction of impact, which is defined by the highest authority, the location of source areas (areas of concentration) compounds and others.

However, taking into account all possible factors requires a large amount of information, large time loss, and often have it in such volume it is impossible [4,5,11], or not. This allows you to focus on a few variables, which are determined by the following factors: the ratio of combat potential of the grouping of our troops in the field; the coefficient of capacity; coefficient considering the required maneuver forces on the direction from the source areas for the massing of forces and means.

Consideration of the listed variables allows to identify the coefficients to determine the importance of trends when assessing the area of operations.

The coefficient of combat potential of the grouping of our troops in the (i) direction (F_{gi}) can be calculated by the formula [9]:

$$F_{gi} = \frac{CP_{oi}}{CP_o}, \quad (1)$$

where CP_{oi} - the combat potential of the grouping of our troops in *i* direction.

CP_o - the combat potential of the grouping of our troops across the line of defense compounds (enterprises).

The coefficient of the *i*-th direction (F_{ei}) can be identified [10]:

$$F_{ei} = \frac{W_{oi}}{W_{dc}} C_t C_{drn} C_{wh} C_{tws}, \quad (2)$$

where W_{oi} - the width of the *i* direction (km);

W_{dc} - the bandwidth of defense connection (association) (km);

C_t - the coefficient of the terrain [8,12] Table. 1;

C_{drn} - the coefficient of the density of road network [8,12] Table. 2;

C_{wh} - the coefficient of the availability of water hazards [8,12] Table. 3;

C_{tws} - the coefficients take into account the decrease in the rate of advance of troops depending on the time of year, weather conditions, and soils [8,12] Table. 4.

Table 1

Coefficients taking into account the influence of topography on the rate of advance of troops C_t

Name	The coefficients in the steepness of the slopes (degrees)						
	0-2	2-4	4-8	8-15	15-25	25-35	> 35
	Type of terrain						
	Plain		What medium crossed			Mountains	
The coefficient of speed reduction promotion	1,48	1,28	1,1	0,95	0,83	0,68	0,6 i <
	1,35		1,0			0,7	

Note: changing the speed of troop movement can be determined by the type of terrain or the value of the slope of the rays.

Table 2

Factors take into account the change of the speed of advance of troops, depending on the density of the road network C_{drn}

Name	The values of the coefficients of the density of the road network km/100 sq km						
	45,6	34,2	22,8	17,1	11,4	7,2	5,7
The coefficient of speed reduction promotion	1	0,91	0,79	0,72	0,63	0,54	0,5
Step coeficient changes	0,008	0,01	0,012	0,016	0,021	0,027	

Notes:

- relative decrease in the rate of advance of troops given for the bandwidth of the offensive mechanized division of the Russian Federation, which is equal to 30 km;

- if the bands of the onset of action be other – change in proportion to the density of the road network and the value obtained from the table find the value of the reduction factor;

- when the density of the road network, which takes an intermediate value, the reduction ratio of the speed of advance is determined by interpolation by zoom in, zoom works, the value of the step changes in contrast density of the road network from table.

Table 3

Factors which take into account the influence of hydrographic on the rate of advance of troops C_{wh}

Name	The values of the coefficients when the width of the water obstacles, m.						
	до 50	50-100	100-150	150-200	200-250	250-300	≥300
The coefficient of speed reduction promotion	1	0,75	0,6	0,45	0,3	0,25	0,2 i <

Notes:

- the table shows the relative value of reduction of speed of advance in the presence of one water hazard on the depth of the advance of troops that is planned for the day;

- when another density of water barriers reduced speed determined by the formula:

$$C_{whi} = 1 - (1 - C_{whta}) D_{wo} \quad (3)$$

where C_{whta} - the table value of coefficient

D_{wo} - he density of water obstacles u/km;

- if you have multiple water barriers of different widths the values of the coefficients find as an average value;

- is the density of water obstacles calculated by dividing their number in the offensive zone for the duration of combat of the connection (association).

Table 4

The coefficients take into account the decrease in the rate of advance of troops depending on the time of year, weather conditions and soil C_{tws}

Soils	Value of coefficients for to the months											
	1	2	3	4	5	6	7	8	9	10	11	12
Sandy	0,8	0,8	0,7	0,77	0,93	1	1	0,97	0,91	0,8	0,83	0,87
Sandy-loam	0,8	0,8	0,7	0,72	0,84	1	1	0,91	0,85	0,75	0,81	0,87
Loamy	0,8	0,8	0,7	0,68	0,75	1	1	0,85	0,78	0,7	0,79	0,87
Clay	0,8	0,8	0,7	0,64	0,73	0,83	0,95	0,8	0,75	0,65	0,77	0,87
Salt-marsh	0,8	0,8	0,7	0,6	0,7	0,75	0,9	0,75	0,69	0,6	0,74	0,87
Peat	0,8	0,8	0,7	0,55	0,6	0,65	0,7	0,65	0,6	0,5	0,69	0,87

The coefficient of flexibility for the massing of forces and means in *i* direction F_{ei} can be calculated [12] by the formula:

$$F_{ei} = \frac{L_{pi} - L_{ri}}{L_{pi}}, \qquad (4)$$

where L_{pi} - the length of the route *p* most remote connection (part of) the *i* direction (km);

L_{ri} - the length of the route *r*, the compounds (parts) on the *i* direction (km).

Values which are considered to form a vector of indicators, the maximum dimension of which is equal to the number of possible directions of enemy attacks are considered ($= \overline{1,3}$).

These figures are unequal between themselves and their contribution to total weight will be different. Accounting contribution can be made by ranking the indicators, which in turn makes use of estimates Fishburnes to determine the coefficients of the rank of each indicator [8, 10]:

$$C_{Ri} = \frac{2(n - j + 1)}{(n+1)n}, \qquad (5)$$

where C_{Ri} - the coefficient of the rank of i-factor (indicator);

N - the total number of indicators;

J - the number of each figure in the series preferences.

The results of the expert survey and calculations performed using formula (6) shown in Table. 5.

Table 5

The indicators that determine the weight direction (option)

Name of the indicator	Rank	The coefficient of the rank C_{Ri}
The coefficient of combat potential of our forces in this area	1	0,5
The coefficient capacity direction	2	0,3
The coefficient necessary flexibility for the massing of forces and means	3	0,2

Then the weight of the *i* direction g_{oi} can be determined using the formula [8]:

$$g_{oi} = \sum_{j=1}^{n} C_{Rij} F_{ij}, \qquad (6)$$

where F_{ij} - the *j* indicator of the *i* direction;

N - the number of indicators.

Conclusions. Thus, the "weight" allows limited information to make the distribution of artillery at the threatening direction that is in the directions of actions of the troops.

The findings agree with historical experience [8,13], the experience of local wars and conflicts [6], researches [5], which convincingly show that the higher the degree of uncertainty of the situation, the greater the proportion of forces and means of MT and A should be included in the composition of the second echelons and reserves. This determines the need for the provision in the conditions, discusses this issue in a separate task of the study.

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Обґрунтування раціонального розподілу ракетних військ і артилерії за загрозливими напрямками на основі визначення їх “ваги”

Резюме: Наведено пропозиції щодо підвищення результативності маневру ракетних військ і артилерії (РВіА) з’єднання (об’єднання). Запропоновано показник визначення можливих загрозливих напрямків – “вага” напрямку - який дає змогу раціонально зробити розподіл РВіА за визначеними напрямками. Для скорочення часу визначення напрямку головного удару противника пропонується існуючі показники замінити відповідними коефіцієнтами: коефіцієнтом частки бойового потенціалу угруповання наших військ на напрямку; коефіцієнтом ємності напрямку; коефіцієнтом врахування необхідного маневру формуваннями на цей напрямок з вихідних районів для масування сил і засобів.

Ключові слова: вогневе ураження противника, бойовий потенціал, напрямок головного удару, ракетні війська і артилерія, артилерійський резерв, “вага” напрямку, маневр.

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Обоснование рационального распределения ракетных войск и артиллерии по опасным направлениям на основании определения их “веса”

Резюме: Приведены предложения относительно повышения результативности маневра ракетных войск и артиллерии (РВ и А) соединения (объединения). Предложен показатель определения возможных угрожающих направлений – “вес” направления, который позволяет рационально осуществить распределение РВ и А за определенными направлениями. Для сокращения времени определения направления главного удара предлагается существующие показатели заменить соответствующими коэффициентами: коэффициент части боевого потенциала группировки наших войск на направлении; коэффициент емкости направления; коэффициент учёта необходимого маневра формированиями на данное направление из исходных районов для массирования сил и средств.

Ключевые слова. огневое поражение противника, боевой потенциал, направление главного удара, ракетные войска и артиллерия, артиллерийский резерв, “вес” направления, маневр.

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Methodical going near the evaluation of level of preparation of organs of military management of tactical level

Resume. In the article on the basis of scientifically-methodical approaches on the evaluation of level of preparation of organs of military management, and also experience of their educating on the improved system, methodology of evaluation of level of preparation of organs of military management of tactical level is offered, that unlike existing in common takes into account individual possibilities of public servants and their harmony.

Keywords: preparation of organs of military management of tactical level, evaluation.

Formulation of the problem in general. Experience combat the use of military units in counter-terrorist operation in eastern Ukraine proves that successful performance of combat missions largely depends on the learning of command and control tactical level.

Use planning and management units of the brigade during warfare exercise of command and control. All this lards to finding and implementing new approaches to planning and carrying out measures of command and control tactical level.

Imperfection of existent methodical approaches from the evaluation of level of навченості objects preparations, which take into account changes which took a place in the system of preparation of Military Powers of Ukraine with introduction of new conceptual documents [1] not in a complete measure, that impossibility them valuable application for the evaluation of level of навченості organs of military management of tactical level after the improved system of preparation, induces to the improvement of scientifically methodical vehicle and ground of the offered changes. Therefore there is a requirement in the scientific ground of the methodical going near the evaluation of level of навченості organs of military management of tactical level. All of it testifies to actuality of theme which is examined.

The analysis of the last researches and publications from this direction [2-4] testifies that they are based on the evaluation of level of навченості organs of military management after the traditional system which existed in Military Powers of Ukraine to 2013 years. Researchers went out from those scientific tasks which were descendant the issues of the day that time, and applied criteria and indexes, which removed processes which was examined most full. After introduction in preparation of Military Powers of Ukraine of the improved system of preparation, information about publications, which are devoted this question, is.

Partly this question was considered in the article of Kazan [5], but general approaches were certain only in the context of determination of the generalized estimation of efficiency of the combat training for military part on the whole. An order and criteria of evaluation of organs of military management after the standards of preparation in this article is not exposed.

Thus, the approaches resulted higher can be utilized for the evaluation of level of навченості organs of military management of tactical level only partly, and perfections require.

The purpose of the article consists in the improvement of present scientifically methodical vehicle of evaluation of level of навченості organs of military management of tactical level for the subsequent planning of their preparation.

Exposition of substantive provisions of material of the article

Preparation of organs of military management of tactical level is directed on the increase of individual preparation of public servants of organ of military management, their harmony for the successful planning of application and management of brigade subsections during the conduct of battle actions.

Estimation of level of training organ of military management of tactical level it is suggested to determine a partial index $M_t(t)$, after the size of which the level of knowledge of military and their abilities to execute the put tasks in composition of organ of military management is determined. To the indexes which characterized the level of learning organ of military management of tactical level it is suggested to take: combined level of individual possibilities servicemen of organ of military management of tactical level $C_{ip}(t)$ but their coordination $C_z(t)$.

Because of those individual possibilities servicemen influence on coordination of organ of

military management, and their indexes are strongly correlated consequently, estimation of level of learning organ of military management of tactical level $M_t(t)$ it is suggested to expect by rationed multiplicative aggregation:

$$M_t(t) = C_{ip}(t) \cdot C_z(t)^{q_z} \qquad (1)$$

where $C_{ip}(t)$ - the total level of individual military capacity of command and control on the time t ;

$C_z(t)$ - level coordination of command and control at the time t ;

q_{ic}, q_z - weighing coefficients of indexes of the combined level individual possibilities servicemen and their coordination.

The calculation of weighing coefficients is carried out the method of expert evaluation.

Estimation of the combined level individual possibilities it is suggested to determine servicemen after an index which takes into account a level individual possibilities every serviceman of organ of military management taking into account his importance.

How level individual possibilities every separate serviceman does not depend on a level individual possibilities other, and consequently and their indexes are not dependent one from other, for the evaluation of the combined level individual possibilities servicemen of organ of military management $C_{ip}(t)$ it is suggested to utilize additive aggregation:

$$C_{ip}(t) = \sum_{j=1}^{J} L_{icj}(t) \cdot q_j , \qquad (2)$$

where $L_{ipj}(t)$ - level individual possibilities soldier of organ of military management on time t ;

q_j – weighing coefficient of importance soldier of organ of military management;

J – an amount of soldiers is in the organ of military management.

Weighing coefficients of importance soldier q_j settle accounts by setting of norms of comparative grades of positions of soldiers of organ of military management R_{js} in accordance with the expression, what is offered in-process [6]:

$$q_j = R_{js} \Big/ \sum_{j=1}^{N} R_{js} , \qquad (3)$$

where R_{js} – comparative grade soldier of organ of military management;

$\sum_{j=1}^{N} R_{js}$ – sum of all of grades of soldier of organ of military management;

N - a general amount of positions is in the organ of military management.

Comparative grade soldier of organ of military management determined dependence:

$$R_{js} = 1 - \frac{N_{js} - 1}{N_s} , \qquad (4)$$

where N_{js} - sequence number soldier of organ of military management;

N_s - number of troops that are part of command and control

Evaluation of level individual possibilities soldier determined on indexes, which characterize the level of him theoretical knowledge, practical abilities and psychological qualities. How knowledge, ability and qualities of serviceman not dependent one from other, but consequently and their indexes are not dependent, for the evaluation of level individual possibilities j serviceman $L_{ipj}(t)$ it is suggested to utilize additive aggregation:

$$L_{ipj}(t) = \sum_{y=1}^{Z} B_{yj}(t) \cdot q_y , \qquad (5)$$

where $B_{yj}(t)$ - indexes which characterize the level of development of soldier on time t : “theoretical knowledges” $B_{tk}(t)$, “practical abilities” $B_{paj}(t)$; “psychological qualities” $B_{pqj}(t)$;

q_y – weighing coefficients of indexes $B_y(t)$.

Determination of weighing coefficients q_y carried out the method of expert evaluation.

Index which characterizes the level of theoretical knowledge j -ro officer $B_{mzj}(t)$ it is suggested to expect as a result of theoretical questions (testing) from the basic articles of studies. The general amount of questions must provide the objective and comprehensive

estimation of level of theoretical knowledges of soldier.

Evaluation of level of theoretical knowledge soldier $B_{mzj}(t)$ determined after expression:

$$B_{mzj}(t) = \frac{X_{npj}(t)}{X_{qj}}, \qquad (6)$$

where $X_{npj}(t)$ - amount of right answers of given by a soldier;

X_{qj} - general amount of questions, which was checked up in soldier.

Index which characterizes the level of practical abilities soldier $B_{paj}(t)$ settles accounts as a result of executed by him practical tasks. The table of contents and amount of tasks must take into account the functional setting of serviceman in accordance with held a position.

Evaluation of level of practical abilities of serviceman $B_{paj}(t)$ determined after expression:

$$B_{paj}(t) = \frac{X_{викj}(t)}{X_{заєj}}, \qquad (7)$$

where $X_{викj}(t)$ - amount of the executed tasks by a soldier;

$X_{заєj}$ - general amount of tasks, which was checked up in soldier.

Index which characterizes the level of psychological qualities soldier $B_{pqj}(t)$ it is suggested to expect an individual on the basis of such psychological qualities, as a level of neuro-psychological stability and orientation of personality. It is suggested to determine these qualities by the standardized test methods "Prognosis" and "Orientation of personality".

After the first method for a soldier one of four levels of neuro-psychological stability, which translate in the ball system after such order, is determined:

I level – 5 marks; II level – 4 marks; III level – 3 marks; IV level – 2 marks.

The orientation of personality is determined after the second method after three such directions:

an orientation is on business which answers 5 to the marks of standard estimation;

orientation on people, that answers 4 to the marks of standard estimation;

orientation on itself, that answers 3 to the marks of standard estimation.

Level of development of psychological qualities soldier $B_{pqj}(t)$ determined after expression:

$$B_{pqj}(t) = \frac{\sum_{h=1}^{H} X_h(t) \cdot q_h}{5}, \qquad (8)$$

where $X_h(t)$ – indexes which characterize the level of development of psychological qualities of soldier on time t: "neuro-psychological stability" $X_{nps}(t)$, "orientation of personality" $X_{op}(t)$;

q_h - weighing coefficients of indexes $X_h(t)$.

Ponder ability of indexes which characterize psychological qualities of serviceman it is certain with the use of method of expert estimations taking into account the type of activity of serviceman and it is resulted y Table 1.

Table 1

Weight indicators that characterize the psychological qualities of a soldier

Type of activity	Indexes of personality qualities	Ponder ability of indexes of personality qualities
Organzatonal-management	neuro-psychological stability	0,6
	orientation of personality	0,4
Analytical and constructive	neuro-psychological stability	0,6
	orientation of personality	0,4
Information and analysis	neuro-psychological stability	0,5
	orientation of personality	0,5

Coordination of organ of military management $C_з(t)$ it is suggested to expect as a result of practical work of organ of military management during the lead through of trainings (separate, general, command staff), command staff studies. An evaluation is carried out after the standards of preparation.

Consequently, estimation of level of Coordination of organ of military management $C_з(t)$ settles accounts after dependence:

$$C_з(t) = \frac{\sum_{k=1}^{K} X_k(t)}{5 \cdot K}; \quad X_k = \overline{2,5}, \qquad (9)$$

where $X_k(t)$ - index which characterizes an estimation the organ of military management k to the standard of preparation on time t;

K - an amount of standards is preparations which are planned for working off of military management an organ in accordance with Plan of preparation of brigade.

Every standard of preparation consists of sections of standard, which characterized possibility the organ of military management to execute set tasks. Estimating the standard of preparation is suggested after the estimations of section of standard after a formula:

$$X_k(t) = \frac{\sum_{s=1}^{S} R_{CПs}(t)}{S};\ R_{SPs} = \overline{2,5}, \quad (10)$$

where $R_{SPs}(t)$ – index which characterizes an estimation as a result of implementation of military management an organ s - го to the section of standard of preparation on time t;

S - amount of sections of standard of preparation.

Standard training evaluated :

$$X_k = \begin{cases} \textit{perfectly}, \textit{ if } \dfrac{\sum_{s=1}^{S} R_{SPs}(t)}{S} \geq 4{,}5;\ R_{SPs} \geq 4; \\ \textit{fine}, \textit{ if } \dfrac{\sum_{s=1}^{S} R_{SPs}(t)}{S} \geq 3{,}5; \quad R_{SPs} \geq 3; \\ \textit{satisfakto rile}, \textit{ if } \dfrac{\sum_{s=1}^{S} R_{SPs}(t)}{S} < 3{,}5;\ R_{SPs} \geq 3; \\ \textit{unsatisfak torily}, \textit{ if } R_{SPs}(t) = 2. \end{cases} \quad (11)$$

In same queue, the sections of standard of preparation consist of elements which must be executed the organ of military management. A calculation of estimation is as a result of implementation it is suggested to carry out the section of standard of preparation as follows:

$$R_{SPs}(t) = \left(\frac{x+y}{x^*+y^*}\right) \cdot z_x;\ z_x = \begin{cases} 1,\ x = x^*; \\ 0,\ x < x^*, \end{cases} \quad (12)$$

where x – amount of the executed critically important elements;

x^* – general amount critically important elements;

y – amount of executed other elements;

y^* – general amount of other elements;

z_x – an index of валідності of end-point is after critically important elements (condition of obligatory complete implementation).

Chapter estimated standard preparation:

$$R_{SPs} = \begin{cases} \textit{perfectly}, \textit{ if } R_{SPs}(t) \geq 0{,}8; \\ \textit{fine}, \textit{ if } 0{,}7 \geq R_{SPs}(t) < 0{,}8; \\ \textit{satisfaktorily}, \textit{ if } 0{,}6 \geq R_{SPs}(t) < 0{,}7; \\ \textit{unsatisfaktorily}, \textit{ if } R_{SPs}(t) < 0{,}6. \end{cases} \quad (13)$$

Conclusions are from researches and prospect of subsequent researches. Methodical approach is offered in the article takes into account the requirements of the system of preparation that inculcated, and unlike existing in common takes into account a level individual possibilities soldier and their harmony which gives possibility with greater authenticity to estimate the level of learning organs of military management of tactical level.

Directions of subsequent scientific researches can be researches of problem questions which arise up during the evaluation of level of learning organs of military management of tactical level during the lead through of measures of the combat training.

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Методичний підхід до оцінювання рівня навченості органів військового управління тактичного рівня

Резюме. У статті на основі науково-методичних підходів з оцінювання рівня навченості органів військового управління, а також досвіду їх підготовки за удосконаленою системою підготовки, запропонована методика оцінювання рівня навченості органів військового управління тактичного рівня, яка на відміну від існуючих сукупно враховує індивідуальні спроможності посадових осіб та їх злагодженість.

Ключові слова: підготовка органів військового управління тактичного рівня, оцінювання, навченість.

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Методический подход к оцениванию уровня подготовки органов военного управления тактического уровня

Резюме. В статье на основе научно-методических подходов по оцениванию уровня подготовки органов военного управления, а также опыта их обучения по усовершенствованной системе, предложена методика оценивания уровня подготовки органов военного управления тактического уровня, которая в отличие от существующих совокупно учитывает индивидуальные возможности должностных лиц и их слаженность.

Ключевые слова: подготовка органов военного управления тактического уровня, оценивание, обученость.

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The using of state standards during creating information systems for military purposes

Resume. In the article considered the questions of application of state standards during creating information systems (IS) for military use and their components, development of standards, changes to them.

Keywords: state standard, standardization system, the customer, the developer, information system, regulatory document, compilation, systematization.

Raising of the problem. The main part of the complex of state standards in relation to information technology (IT), information-analytical systems (IAS) was developed in the 60-90-ies of the last century and many of which are outdated. These documents sometimes contradict the changes that have occurred in the economy of Ukraine does not meet modern level of technical capabilities for products, processes and services for defense (military) assignment, based on the combination of the latest achievements of science, technology and practical experience. This is due to the rapid development of technology, the introduction of new it that led to the loss of standards of their appointment. Urgent becomes the problem of the analysis of existing standards, amendment or repeal.

Analysis of recent researches and publications. Among the leading scientists in their work pay attention to standardization in the field of information technology it is possible to note the scientists. Thereto, V. Tkachenko , V. Vershinin, V. Podoynycin, O. Bondirska etc. They came to the conclusion that the relevant issue is the revision of the regulatory documents that are used during the development, operation and modernization of IS. Also, the scientists confirmed that today much attention is paid to the development of harmonized standards. The necessity of the mandatory review of intergovernmental normative documents, which Ukraine has inherited in the implementation of the IS.

The aim of this article is to study the issues of application of state standards in the process of development, modernization of IS, the development of new standards for military purposes for information systems, order changes, identifying problems and possible solutions.

Presentating of the basic material. Currently grow the size and complexity of IS. Radically change not only the requirements of IS and IT, but also the conceptual apparatus. Development of the systems in the new environment requires new design methods and new organization of design work. The basic concepts of IS, their design depends on standards, methodologies and techniques.

Entered into force the Law of Ukraine of 15.01.2015 № 124-VIII “On standardization” [1] establishes the legal and organizational basis of standardization in Ukraine and aims at ensuring the formation and implementation of state policy in the relevant field.

ISO 8402-94 [2] States that “standardization” is an activity aimed at achieving the optimum degree by establishing provisions for general and repeated use in relation to actual or potential problems.

As an activity to establish norms, rules and characteristics of standardization is to ensure:

technical and information compatibility and interchangeability of products;

the quality of products, works and services in accordance with the level of development of science, engineering and technology;

national defense and mobilization readiness of the country;

unity of measurements;

saving all kinds of resources, etc.

The main document that reglamentary these questions, there is a standard.

To the normative documentation in the sphere of defense relate: [3]:

national standards of Ukraine (DSTU M), normative guidance documents (NGD M), recommendations (R M), the national classifier of Ukraine (NC M);

national standards of Ukraine for economy and defense needs (DSTU);

military addition (MA) the national standards of Ukraine (DSTU MA...), Supplement to the national standards of Ukraine (DSTU...MA) at a particular period;

military interstate standards (GOST) In the NGD M, military Supplement to international military standards;

additions to the inter-state military standards in the special period , international standards for the special period;

interstate standards (GOST) for products of economic purpose and the needs of national defense.

In accordance with agreements [4,5] state standards of the former USSR , including the standards in the field of defence, has acquired the status of inter-state and are active in Ukraine.

For the purpose of coordination of works on interstate standardization Ukraine joined the agreement on creation of Interstate Council on standardization, Metrology and certification [4].

This Council recognized that industry standards, specifications, catalogs, standardized parts and components are used subject to their consistency with the current legislation of Ukraine before the expiration or replacement on the national ND.

This policy has allowed maintaining regulations governing the production of defence products.

Practice the application of the standards of IS, ACS showed that they use the same conceptual apparatus, there are many common objects of standardization, however, the requirements of some standards are not consistent among themselves, there are differences as to the composition and content of work, designation, composition, content and design of documents, etc.

In Ukraine in need of revision standards that are used during the development and exploitation of IS for military purposes, namely: the Standards (GOST) of series 1 – “State system of standardization”; the GOSTs of series 2 is “a unified system of design documentation”; GOSTs series 19 “a unified system of software documentation”; GOSTs series 20 “Integrated system of General technical requirements”; GOSTs series 24 “System technical documentation for automated control systems”; series of GOSTs 27 State system “Reliability in technique”; the Standards series 34 a set of standards for automated systems; The GOSTs series 54 “standardization System of computers”, etc.

From the list of documents shows that goals, tasks and problems of military and civil standardization in the it sector in many ways.

An example of this is the General technical standards of the Unified system for design documentation (USDD) and the Unified system of technological documentation (USTD).

The initial goal of creating these standards was to have common requirements USDD and USTD for products for civilian and military purposes.

These standards set common requirements, rules and regulations for the development of design and technological documentation on products for civil and military purposes. Special attention is paid to the GOSTs 34 series.

GOSTs series 34 was conceived in the late 80-ies as a comprehensive set of interrelated inter-branch documents. Objects of standardization are automated systems of various types and all kinds of their components.

The complex is designed for the interaction between the customer and the developer.

The most popular are standards GOST 34.601-90 (the stage of creation of the automated system), GOST 34.602-89 (the Technical project on creation of automated system”) and guidelines of RD 50-34.698-90 (Requirements for contents of documents”). For reviews of customers and performers of works on Informatization Standards of the series 34 are universal and unique.

The GOSTs describe the content of documents prepared during the development of IAS, namely:

formation requirements for IAS; development of the concept of creation; technical design; technical documentation development; the commissioning of the developed system in place; pre-testing; pilot operation; acceptance tests; maintenance (performance of works under warranty).

The degree of adaptability of the standard GOST series 34 is defined by the following features:

to abandon the conceptual design phase, and combine the stages of technical design and working design documentation;

to opt out of certain stages of development, and also to combine most of the documents and their sections;

dynamically create partial technical problem that allows enough flexibility to shape the life cycle of IAS.

Documents GOST series 34 define a common vocabulary and it is reasonable klassificeret work on the creation of IAS and other documents developed as a result of these works.

A key document of the interaction of the parties (principal–agent) is a technical specification (TS) on the creation of the AS. TS is the main source document for the creation of the AS and its acceptance, it determines the most important points of interaction between customer and developer.

The composition of the GOSTs series 34 includes a package of regulatory documents GOSTs series 1934. The main purpose of development of regulatory documents GOST series 1934 is addressing issues arising from the integration of IS due to inconsistencies of normative-technical documentation. This is primarily due to higher complexity of the IS, which is built on different information technology platforms focused on a specific subject area or a particular type of task, for example, the management of the institution or streaming processing of paper forms.

Platform is a hardware and software complex, providing a basic set of services that users need to perform certain tasks. Platforms can be created to perform local tasks, and can be universal. They can modernize, expand, fully replaced or updated. Features universal platform allow you to use it for solving a wide range of tasks.

According to various estimates, currently in the global market there are more than 500 IS. In the market of ERP systems undoubtedly lead company SAP, Oracle, J.D. Edwards, PeopleSoft, Baan [10].

When using the set of standards GOST 1934 simplifies the integration of different information systems and improving the quality of systems resulting from the integration.

Problematic questions of military-scientific (scientific and technical) support of the processes of development of IS. According to the authors, requires the development of a state standard (guiding normative document) definition of the range of issues of cooperation of the customer and the developer during the development of the IS and on the stages of its life cycle, in particular, maintenance of the end product and user training.

All this requires revision and amendment of normative documents– GOST, DSTU, NGD etc.

The current procedure of developing, changes to national standards for weapons and military equipment requires improvement in terms of their adoption.

For military standardization corresponds to the Ministry of Defence of Ukraine and standardization of armaments and military equipment performing industrial establishments (institutes, research centers) to order the Armed Forces of Ukraine.

In terms of the changes taking place in Ukraine, it is necessary to reform the standardization system in the sphere of defense, standardization of weapons and military equipment (WME), with implementation of the latest it is only through Technical committees (TC) in accordance with the Law of Ukraine “On standardization” [1,7,9].

Verification of existing standards is provided by the developer at least every 5 years to ensure their compliance with the current legislation of Ukraine with the needs of defense, the level of development of science and technology made at the time of inspection standard, but also to establish their degree of compliance with international, regional and national standards of other countries.

The test shows that with the development of IT and automation standards they get older and require their revision, Supplement, deposits given the long-term prognosis and advance the pace of scientific and technological progress, the so-called “anticipatory standardization”.

Promising is the introduction of advanced standardizat respect it is standardization, which establishes increased in relation to the achieved in practice level of standards, requirements to object of standardization, which according to forecasts will be optimal at a later time.

The standards are not systematically updated and only retaining existing settings and levels, can be a brake of technical progress, because the process of development and improvement of IS and their improvement is continuous.

To ensure that the standards are not hampered technical progress, they must establish promising quality indicators with time frames for their industrial production.

The process of anticipatory standardization is continuous, that is, after the commissioning of the advanced standard immediately begin to develop a new standard, which will replace the previous one.

In the development of standards used by scientific and technical results scientific research, development work and other information about the latest achievements of domestic and foreign science, engineering and technology.

The order of development, approval of state standards and changes to them are regulated GOST 1.2 [6], which provides as follows:

TC on standardization consider reasonable orders for the development of the standard and submit proposals to the plan of state

standardization to Derzhspozhyvstandard of Ukraine;

consideration of proposals, formation and approval of the annual plan of state standardization of Ukraine and conclusion of agreements with the developer for the development of standards;

development the developer of the specification for the standard which should have a list of organizations that need to send draft for review, and a list of organizations that need to agree;

approval of TC chairperson after consultation with the Derzhspozhyvstandard of Ukraine;

development of the draft standard (the first edition) and explanatory notes and sending them out for review organizations according to the list;

treatment reviews and the preparation of the consolidated reviews;

revision of the draft standard and explanatory notes based on the comments and proposals contained in the summary of feedback and drafting of final version of the standard;

the approval by developer of the final version of the draft standard with the conciliation organizations and submitting it with supporting documentation to the Derzhspozhyvstandard of Ukraine;

state expertise of the project standard;

review of the standard after the examination and decision on its approval or return for revision.

During the adoption of the standard to determine the grant date him strength with respect to time to carry out preparatory activities for its implementation;

By results of check standard prepare proposals on expediency of its further use without revising and changes or proposals for revision, amendment or repeal.

The revision of the standards is to develop new standards where it says instead of what the standard is developed. In his notation, change the year of approval.

The changes to the standard design in case of replacement, the exclusion or inclusion of new requirements to the standard.

The abolition of the standards is carried out in the event of termination of production or development instead another normative document.

Summurise and suggestions. To summarize, we note that the priority in the development of standards in relation to IT in modern conditions is their harmonization with the international ISO standards, continued testing and revising the GOSTs in the projects of the Concept and the State target program of standardization for the period up to 2017.

Subject to inspection (viewing) of ND relative to IT in the sphere of defence, development, if necessary, national standards DSTU In the replacement of the interstate military standards. To ensure strict compliance with the international standards developed ND in the field of IS (IAS).

The current collection of ND on standardization of development and exploitation of IS is mainly equipped with the international standard. Now the overwhelming majority of these standards are significantly outdated. This requires careful review and cancellation of some inter-state GOSTs currently in effect in Ukraine.

To start the execution of research work on the analysis of the compliance of systems and complexes of standards that regulate the processes of development, production and exploitation of IP for military and special purpose.

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Застосування державних стандартів при створенні інформаційних систем військового призначення

Резюме. У статті розглянуті питання застосування державних стандартів при створенні інформаційних систем (ІС) військового призначення та їх елементів, порядку розроблення стандартів, внесення змін до них.

Ключові слова: державний стандарт, система стандартизації, замовник, виконавець, інформаційна система, нормативний документ, узагальнення, систематизація.

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Применение государственных стандартов при создании информационных систем военного назначения

Резюме. В статье рассмотрены вопросы применения государственных стандартов при создании информационных систем военного назначения и их элементов, порядок разработки стандартов, внесение

Ключевые слова: государственный стандарт, система стандартизациии заказчик, исполнитель, информациионная система, нормативний документ, обобщение, систематизация.

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Methodology of estimation the achievement of strategic (operational) aims of the action Plan on implementation of defensive reform in 2016-2020 years

Resume. In the article, methodology of estimation of achievement of strategic (operational) aims of plan of operating is offered under introduction of defensive reform in 2016-2020. This methodology, in case of its statement, will give possibility to provide guidance of the Ministry of Defense of Ukraine and the General Staff of the Armed Forces of Ukraine objective information on the state of implementation of measures certain the road map of defensive reform.

Keywords: methodology, criteria, strategic aims, operational aims, the Strategic defensive bulletin of Ukraine, the road map of defensive reform.

Rising of the problem. By the decree of the President of Ukraine from June 6, 2016 approved by the Strategic defense Bulletin of Ukraine, which is a strategic planning document for security sector and defense [1]. This document provides for the development of the defense potential of Ukraine up to 2020, it sets out five strategic goals that are planned in the period up to the end of 2020.

Strategic objective 1. The joint leadership of the defence forces shall be in accordance with the principles and standards adopted by the States-members of NATO.

Strategic objective 2. Effective policies, planning systems and resource management in the defence sector with the use of modern Euro-Atlantic approaches.

Strategic objective 3. Operational (combat, special) abilities of the defense forces needed to be able to repulse armed aggression, defense, peacekeeping and international security.

Strategic objective 4. United system of logistics and medical support, able to support all components of the defence forces.

Strategic objective 5. Professionalization of the defence forces and creation the necessary military reserve.

Each strategic objective includes from two (Strategic objective 4) to eight (Strategic objective 2) operational objectives. "Matrix of strategic objectives and main tasks of military reform" (Annex 1 to the Strategic defense Bulletin of Ukraine [1]) provides for the implementation of tasks to achieve operational objectives.

The Action plan for implementation of defense reforms in 2016-2020 (roadmap for defense reform), which was approved by the Minister of Defense of Ukraine on August 15 of the current year [2], specify for each task a list of these events. The same document for each event identified responsible for implementation, deadlines, evaluation criteria and expected results.

Introduces a road map of the military reform the Committee reform of the Ministry of Defence and the Armed Forces of Ukraine (Committee reform), – an Advisory body chaired by the Minister of Defense of Ukraine, which is responsible for coordinating, monitoring and evaluation of the military reform. Each strategic objective in the Committee structure of the reforms is provided by a separate Subcommittee, and operational – separate working group. Committee reform reports directly to the Minister of Defense of Ukraine on the achievements and problems encountered during implementation of reform [3].

One of the problematic issues, as stated in the report of the Committee of the reforms is the uncertainty of the criteria for evaluating the tasks.

The aim of this study is to develop "methods of assessing the achievement of the strategic (operational) objectives of the action Plan for implementation of defense reforms in 2016-2020".

Analysis of recent researches and publications. The basis for the development of a Methodology for estimating the achievement of strategic (operational) objectives of the action Plan for implementation of defense reforms in 2016-2020, it is advisable to adopt a Method of determining the criteria for achieving strategic and operational objectives of the Strategic defence Bulletin of Ukraine, which are set out in the pages of scientific information Bulletin "the Academy of national security"[5].

The main part. In the course of implementation of operational objectives road map for defence reform provides for the implementation of tasks. General information regarding the tasks of the road map the military reform shall be presented to the leadership of the Ministry of Defense of Ukraine directly by the team through the appropriate subcommittees and individual working groups of the Committee of reforms.

Each of the activities includes a number of actions that are defined are responsible for the execution. In General, all activities under the roadmap for defense reform can be divided into two categories: those that provide for improvement of normative-legal acts; other activities that do not provide for the development of normative legal acts.

For the criteria to achieve strategic and operational objectives of the action Plan for implementation of defense reforms in 2016-2020 proposed to adopt the indicators:

the percent complete for detailed activities on development of normative-legal acts (in General);

the percentage of completion of the detailed measures for the implementation of other measures defined road map for defence reform which did not involve development of normative-legal acts.

The task is considered completed when the percent complete of all provided a road map of measures the military reform will be 100%.

In our case, with the aim of assessing the achievement of strategic and operational objectives, performing certain actions that are most evident, in our view, method of construction "objectives tree" (Fig.1.)

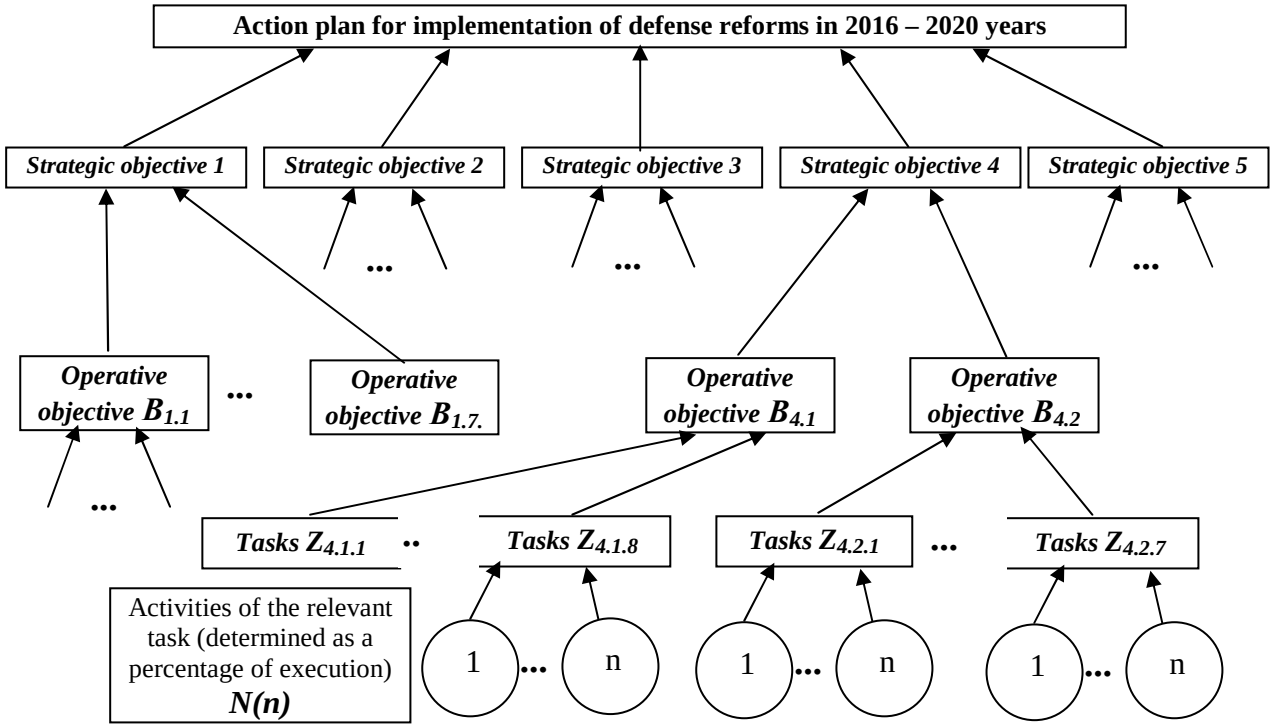

Fig. 1. The objective Tree to display the components of the process of implementation of the action Plan regarding the implementation of military reform in 2016 – 2020

The implementation of measures for development of normative-legal acts. Today the Ministry of defense of Ukraine tested and used technique in which the percentage of completion of activities on development of normative-legal acts is determined by:

the development of the draft regulatory act – 40%;

discussion of the project with the public, experts, carrying out public actions, the project is published on the website of the developer + 20%;

coordination of the project with interested the Central bodies of Executive power + 20%;

the conclusion of the Ministry of Justice + 10%;

the project has been submitted to the Cabinet of Ministers of Ukraine – 90% (total);

the project was approved at the governmental Committee adopted (including refining) at the meeting of the Government – 95%;

released decision (order) of the Cabinet, filed and registered in the Verkhovna Rada of Ukraine – 100%.

According to the authors this technique is suitable for determining percent complete for

detailed activities on development of normative-legal acts defined road map for defence reform.

Implementation of the measures defined in the roadmap for defense reform which did not involve development of normative-legal acts. According to the analysis of existing methods of determination of criteria proposed indicator of job-specific road map for defence reform, different from the development of a normative legal act, defined as the sum of the products of the measures that comprise the job and of the factors that determine the degree of importance of these events to perform the specified tasks:

$$Z_{ijk} = \sum K_{ijk(n)} \cdot N_{(n)} ,(1)$$

where: Z_{ijk} – the rate of implementation of k -task j -operative goal i - strategic goal;

$K_{ijk(n)}$ – the coefficient of importance of n - event k - task j - operative goal i -oï strategic goal, in this case $\sum K_{ijk(n)} = 1$;

$N_{(n)}$ – the percentage of completion of n - event.

The definition of the indicator ratio, which determines the degree of importance of the event **(**$K_{ijk(n)}$**)**.For the implementation of each activity road map of the military reform responsible the structural units of the Ministry of Defence of Ukraine and General Staff of the Armed Forces of Ukraine, other components of the defence forces. Must from each of a business unit to allocate experts on the issues of concern, to establish an expert group on each task road map of the military reform, which include the dedicated experts (specialists) of the structural units responsible for implementation of the corresponding tasks. Expert group work together on each assignment to determine the rate **(**$K_{ijk(n)}$**)**,what determines the degree of importance of the event to perform a specific job.

In general, the sum of coefficients **(**$K_{ijk(n)}$**)**,what determines the degree of importance of the event, the task must equal one $\sum K_{ijk(n)} = 1,\quad N(n)$– the percentage of completion of n -event, which is determined by the members of the appropriate Subcommittee (the working group) Committee for the reform for a certain time period. The value ranges from 0 to 100%.

Consider, as an example, the algorithm for determining **the execution rate of the task 1.4.7**., a specific road map for defence reform.

Created by the expert group for the task "1.4.7. The creation of a system of situational centers components of the defense sector for operational decision-making in the sphere of defense." Its membership included experts, representatives of the structural divisions responsible for specific implementation activities related to this task, namely the joint operations staff of the Armed Forces of Ukraine (JOS AFU), General Staff of the Armed Forces of Ukraine(GS AFU), Department of information technology Ministry of defence of Ukraine (DIT MDU), Chief Directorate of communications and information technology of the General staff of the Armed Forces of Ukraine (CDCIT GS AFU), Armed forces of Ukraine, Commanders of airborne forces of Armed forces of Ukraine (CAF AFU) , Command of the special operations forces of the Armed forces of Ukraine (CSO AFU).

The expert group determines the coefficients $K_{1.4.7.(1)}$, $K_{1.4.7.(2)}$, $K_{1.4.7.(3)}$, $K_{1.4.7.(4)}$, which characterize, according to these experts, the degree of importance of events (in this case, four events).

For a specific time period of members of the respective subcommittee (the working group) Committee for the reform of the Ministry of Defense of Ukraine and Armed Forces of Ukraine by results of work have indicators ($N_{(n)}$),characterizing the percentage of completion of activities.

If fully worked out proposals in the operational-technical requirements for the automated (knowledge) system of the Situational center of Armed Forces of Ukraine is determined by the percentage of completion of the event 100%.

Purchased sets telecommunications and server equipment for situational centers 15% – defined percent complete for the event 15%.

The measures on creation of system of situational centers for the defense sector, on the basis of protected information and telecommunication systems not yet implemented – defined percent complete for activities 0%.

Respectively is determined by the percentage of implementation of project on improvement opportunities (systems of display of the combat situation) the Center for operational leadership of the Armed Forces of Ukraine in the framework of the NATO trust Fund for modernization of communications and automation of command and control of the Armed Forces of Ukraine.

The above information is given in the Table. 1.

Table 1

Indicators implementation task 1.4.7

Tasks	The coefficient that determines the degree of importance of the event	The percentage of completion of the event	The content of the event	Responsible for the implementation
Task 1.4.7. The creation of a system of situational centers components of the defense sector for operational decision-making in the sphere of defense	$K_{1.4.7.(1)} = 0{,}3$	$N_{(1)} = 0\%$	The creation of a system of situational centers for the defense sector, on the basis of protected information and telecommunication systems	JOS AFU GS AFU DIT MDU
	$K_{1.4.7.(2)} = 0{,}05$	$N_{(2)} = 100\%$	The testing of proposals in the operational-technical requirements for the automated (knowledge) system of the Situational center of Armed Forces of Ukraine	JOS AFU, GS AFU, DIT MDU
	$K_{1.4.7.(3)} = 0{,}4$	$N_{(3)} = 15\%$	Purchase sets telecommunications and server equipment for control rooms	CDCIT GS AFU JOS AFU
	$K_{1.4.7.(4)} = 0{,}25$	$N_{(4)} = 5\%$	Implementation of the project on improvement opportunities (systems of display of the combat situation) the Center for operational leadership of the Armed forces of Ukraine in the framework of the NATO trust Fund for modernization of communications and automation of command and control of the Armed Forces of Ukraine	JOS AFU GS AFU, Branches AFU, CAF AFU CSO AFU

The expression (1) ($Z_{ijk} = \sum K_{ijk(n)} \cdot N_{(n)}$) is determined by the rate of implementation of the 7th task of the 4th operational objective 1 strategic objective:

$$Z_{1.4.7.} = 0{,}3 \cdot 0\% + 0{,}05 \cdot 100\% + 0{,}4 \cdot 15\% + 0{,}25 \cdot 5\% = 12{,}25\%.$$

Conclusion: task 1.4.7. road map of the military reform by creating a system of situational centers components of the defense sector for operational decision-making in defence made by 12.25%.

According to the analysis of existing methods of determination of criteria, the execution rate of the task-specific road map for defence reform, different from the development of a normative legal act.

The rate of implementation of operational objectives defined roadmap for defense reform is proposed to be defined as the sum of the products of the tasks, operational objectives and the factors that determine the degree of importance of these tasks to achieve operational objectives:

$$B_{ij} = \sum K_{ijk} \cdot Z_{ijk}, \qquad (2)$$

where: B_{ij} – the rate of implementation of j - operative objective i -strategic objective;

Z_{ijk} – the rate of implementation of k - task j - operative objective i - strategic objective;

K_{ijk} – the coefficient of importance of k -task j - operative objective i - strategic objective, in this case $\sum K_{ijk} = 1$.

As an example, consider the determination of the rate of implementation of operational objective 5.3:

The first stage is created by the expert group on operational objectives “5.3. Reform of the system of mobilization and the creation of a military reserve.”

The composition of the working group of the subcommittee of the reforms responsible for the implementation of objectives included experts, representatives of certain structural units responsible for the implementation of tasks related to the operational objective. In our case, when considering the reform of the system of mobilization and the creation of a military reserve, in addition to the structural units of the Ministry of defense of Ukraine in the working group is composed of representatives of the National guard of Ukraine (NGU), security Service of Ukraine(SSU), Administration of state border service(ASBSU) and the like – that is, the representatives of certain components of the security sector and defense of Ukraine, and also representatives of the Ministry of economic development (MED), the Central election Commission (CEC), region and Kyiv city state administration.

These professionals determine the coefficients $K_{5.3.1.}$, $K_{5.3.2.}$, $K_{5.3.3.}$, $K_{5.3.4.}$, $K_{5.3.5.}$, $K_{5.3.6.}$, $K_{5.3.7.}$, $K_{5.3.8.}$, which characterize, according to these experts, the degree of importance task to accomplish operational objectives in general.

In general, the sum of coefficients (K_{ijk}), what determines the degree of importance of tasks for operational objective should be equal one.

For operational objective 5.3. it will be

$$K_{5.3.1.} + K_{5.3.2.} + K_{5.3.3.} + K_{5.3.4.} + K_{5.3.5.} + K_{5.3.6.} + K_{5.3.7.} + K_{5.3.8.} = 1$$

Generalized information on the indexes of implementation of tasks (Z_{ijk}) in this case from $Z_{5.3.1}$ to $Z_{5.3.8}$ on a certain sentinel term given from corresponding subdivision of committee (separate working group) of Committee of reforms of Department of defense of Ukraine and Armed Forces of Ukraine.

The marked information is driven to the Table. 2.

Table 2

Performance indicators objectives operational objective 5.3

Tasks	The coefficient of importance of tasks	The percent complete of the task	Responsible for implenentetion
Operational objective 5.3. Reoraganization and the creation of a military reserve			The working group of the subcommittee reforms
Task 5.3.1. The formation of the military reserve of human resources, taking into account the experience gained in the creation of a military operational reserve of the first stage	$K_{5.3.1.}$	$Z_{5.3.1.}$	MDU MED, The Ministry Of Finance, Ministry Of Justice, Ministry Of Infrastructure, SSU, MIA, NGU, ASBSU, Foreign Intelligence Service (FIS), the State special transport service (SSTS), the State service of special communication and information protection(SSSCIP), the Department of state protection(DSP)
Task 5.3.2. Creating and ensuring effective functioning of system of preparation of reservists and conscripts	$K_{5.3.2.}$	$Z_{5.3.2.}$	MDU, NGU, ASBSU, SSU, FIS, SSTS, SSSCIP, DSP
Task 5.3.3. The creation of the Unified state register of conscripts to provide the military registration of citizens of Ukraine and the guaranteed acquisition of Armed Forces of Ukraine, other military formations personnel in peacetime and special period	$K_{5.3.3.}$	$Z_{5.3.3.}$	MDU, Ministry Of Justice, MIA, The Prosecutor General's office, the Ministry of education and science, CEC, ASBSU, the State migration service, the State fiscal service
Task 5.3.4. Creation on the basis of military commissariats of territorial centers of completing and social support	$K_{5.3.4.}$	$Z_{5.3.4.}$	MDU, RSA, Kyiv city state administration (KCSA)
Task 5.3.5. Implementing an effective mechanism for mobilization planning in the sectors of the national economy	$K_{5.3.5.}$	$Z_{5.3.5.}$	MED, with the support of the CMU
Task 5.3.6. Improving the creation and preservation of material values of the mobilization reserve	$K_{5.3.6.}$	$Z_{5.3.6.}$	MED, with the support of the CMU
Task 5.3.7. The development and maintenance of production facilities mobilization purposes	$K_{5.3.7.}$	$Z_{5.3.7.}$	MED, with the support of the CMU, State space Agency, GC “Ukroboronprom”
Task 5.3.8. The formation and maintenance of the state material reserve	$K_{5.3.8.}$	$Z_{5.3.8.}$	MED, with the support of the CMU

The expression (2) ($B_{ij} = \sum K_{ijk} \cdot Z_{ijk}$) is determined by the rate of implementation of the 4th operational objective 1 strategic objective:

$$B_{5.3.} = K_{5.3.1.} \cdot Z_{5.3.1.} + K_{5.3.2.} \cdot Z_{5.3.2.} + K_{5.3.3.} \cdot Z_{5.3.3.} + K_{5.3.4.} \cdot Z_{5.3.4.} + K_{5.3.5.} \cdot Z_{5.3.5.} + \\ + K_{5.3.6.} \cdot Z_{5.3.6.} + K_{5.3.7.} \cdot Z_{5.3.7.} + K_{5.3.8.} \cdot Z_{5.3.8.}.$$

Z_{ijk} The rate of implementation of strategic objectives defined roadmap for defense reform (the Strategic defense Bulletin) is calculated as the sum of the products of the indicators of the operational objectives and the coefficient of the importance of these operational objectives to achieve the strategic objectives:

$$C_i = \sum K_{ij} \cdot B_{ij}, \quad (3)$$

where: C_i – indicator of implementation of i - strategic objective;

K_{ij} –the coefficient of importance of j - operational objective i -strategic objective, in this case $\sum K_{ij} = 1$;

B_{ij} – indicator of implementation of j - operational objective i - strategic objective.

As an example, consider how the definition of the indicator *Strategic objective 4:*

The first stage is created by the expert group on Strategic objective 4. “United system of logistics and medical support, able to support all components of the defence forces”.

A member of the reform subcommittee No. 4 responsible for the implementation of strategic objectives determined by experts – representatives of the structural subdivisions of the Ministry of Defense and General Staff of the Armed Forces of Ukraine, other components of the defence force, the Ministry of health of Ukraine, Ministry of economic development, Ministry of social policy and the like, certain responsible for the implementation of operational objectives related to this strategic goal. These professionals determine the coefficients $K_{4.1.}$, $K_{4.2.}$, which characterize the degree of importance of the operational objectives to accomplish strategic goals in general.

This information is presented in Table. 3.

Table. 3.

Performance indicators objectives Strategic objective 4:

Tasks	**The coefficient of importance operational objective**	**The percentage of completion operational objectivesi**	**Responsible for implenentetion**
Strategic objective 4. United system of logistics and medical support, able to support all components of the defence forces			The reforms Subcommittee No. 4 of the Committee of reforms of MDU AFU
Operational objective 4.1. Improvement of logistics of the defense forces	$K_{4.1.}$	$B_{4.1.}$	Working groop of Subcommittee of reforms of MDU AFU
Operational objective 4.2. The construction of the medical system to provide proper medical support for all tasks of the defence forces	$K_{4.2.}$	$B_{4.2.}$	Working groop of Subcommittee of reforms of MDU AFU

Summarized information relative to the indicators of the operational objectives (B_{ij}),in this case, relatively $B_{4.1.}, B_{4.2.}$ for a specific time period is granted from the appropriate Subcommittee (separate working groups) Committee for the reform of the Ministry of defense of Ukraine and Armed forces of Ukraine.

The expression (3) $C_i = \sum K_{ij} \cdot B_{ij}$ is determined by the rate of implementation of the 4th strategic objective:

$$C_4 = K_{4.1.} \cdot B_{4.1.} + K_{4.2.} \cdot B_{4.2.}.$$

Conclusion. The proposed method allows to provide the leadership of the Ministry of defence of Ukraine and General staff of the Armed Forces of Ukraine timely and objective information on the state of implementation of the measures defined in

the roadmap for defense reform.Напрям подальших досліджень.

The execution plan, approved by the First Deputy Minister of Defense of Ukraine, [4] it is expected that the proposed method could be used in the development of electronic data models (prototype interconnected “master-project”, “subproject”, “mathematical models of assessment of the achievement of strategic (operational) objectives and tasks action Plan” and reporting) using the software Microsoft Project. Interest research as optimal for the assessment of the achievement of the strategic (operational) goals and tasks of the action Plan is software Microsoft Project.

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Методика оцінки досягнення стратегічних (оперативних) цілей Плану дій щодо впровадження оборонної реформи у 2016 – 2020 роках

Резюме. У статті запропоновано методику оцінки досягнення стратегічних (оперативних) цілей плану дій щодо впровадження оборонної реформи у 2016 – 2020 роках. Ця методика, у разі її затвердження, надасть змогу забезпечити керівництво Міністерства оборони України та Генерального штабу Збройних Сил України об’єктивною інформацією щодо стану виконання заходів визначених дорожньою картою оборонної реформи.

Ключові слова: методика, критерії, стратегічні цілі, оперативні цілі, Стратегічний оборонний бюлетень України, дорожня карта оборонної реформи.

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Методика оценки достижения стратегических (оперативных) целей Плана действий по внедрению оборонной реформы в 2016-2020 годов

Резюме. В статье предложена методика оценки достижения стратегических (оперативных) целей плана действий по внедрению оборонной реформы в 2016-2020 годов. Эта методика, в случае ее утверждения, предоставит возможность обеспечить руководство Министерства обороны Украины и Генеральный штаб Вооруженных Сил Украины объективной информацией относительно состояния выполнения мероприятий определенных дорожной картой оборонной реформы.

Ключевые слова: методика, критерии, стратегические цели, оперативные цели, Стратегический оборонный бюллетень Украины, дорожная карта оборонной реформы.

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Problems and state of logistical support of the Armed Forces of Ukraine on an end 2013 year

Resume. In the article the necessity of comprehension of looks is reasonable to the system of logistical support of the Armed Forces of Ukraine.

Keywords: system of logistical support, organizationally-regular structure, Rear and Arming with Armed Forces of Ukraine, transport providing, state of technique and armament, supplies of material and technical facilities.

Raising of problem. Actuality of research of theme, that is examined predefined by the threat of further escalation of military aggression of Russia against Ukraine and intensifying of problems of proceeding in the defensive capacity of the state, that systematic for years collapsed from the serve of Russia and by her protégés in Ukraine.

Problems were stopped up everywhere: in curvature of theory of art of war, in the system of military education and science, in providing of army an armament and military technique, by logistical support, by skilled and informative politics, in "reforms" of the Armed Forces and others like that.

The aim of the article consists in research of annual lectures of the Main inspection of Department of defense of Ukraine, parliamentary listening in Verkhovna Rada of Ukraine on July, 23, 2014, materials of research and practice conferences in relation to generalization and study of smell of powder, got ЗС of Ukraine during realization of ATO in 2014-2015 and realization of analysis of problems and state of logistical support of the Armed Forces of Ukraine on the end of 2013.

Exposition of basic material. Analysis of sources [1-5] convinces, and the state of functioning of the system of logistical support witnessed that in the Armed Forces of Ukraine the single system of logistical support was not created. Existing, consisted only of subsystems of the rearward and technical providing, that included for it management (them structural subdivisions) organs and forces and facilities of logistical support are inferior to them.

Logistical support of the Armed Forces of Ukraine came true in the conditions of absence of legal legitimacy, theoretical grounds of creation and functioning of the system of logistical support, out-of-date documents from logistical support of the Armed Forces of Ukraine, that did not take into account the state of the Armed Forces, especially at creation of operative groupments of troops.

Organizationally-regular structures of managements (departments) of logistical support of operative commands "North" and "South" did not answer tasks that had to decide these administrative structures of operative commands in interests of realization of them functional setting.

Certificate. Passed development of organizationally-regular structures of operative commands in time normative determination of the strategic setting of operative commands, their functions and tasks. It conflicted with classic logic of development of organizationally-regular structures and stipulated inefficiency of functioning of administrative structures of the perspective Armed Forces of Ukraine [3].

After disbandment of capable Command of forces of support of the Armed Forces of Ukraine in 2011, under the direction of depchief of the General staff from logistical support the Central management of organization of logistical support of the Armed Forces of Ukraine and Armament and Rear of the Armed Forces of Ukraine (each separately) were formed. After acquisition of legal legitimacy the system of logistical support began to work, but in 2013 mentioned a central management was disembodied and then brief position of depchief of the General staff [4]. A management logistical support of the Armed Forces of Ukraine on an existent chart chief of the General staff ЗС carried out Ukraine, that Rear and Armament of the Armed Forces of Ukraine were inferior [3]. Elimination of the system of logistical support proceeded.

The process of assigning collected turns for leading positions of Rear and Armament of officers of not specialists (tank crew members, builders, artillerymen, chemists) after the "personal devotion", that negatively influenced on the processes of functioning of both systems.

Certificate. Yes, by the state on in 30.10.2013 in 6 АК of 43 %% chiefs of motor-car services of soldiery parts were assigned for positions without a corresponding profession [3].

The conducted measures of reformation of organs of management a rear resulted in a volume, that effectively able to function there was only the system of military rear.

In the system of the rearward providing of operative level there were problems that did not give an opportunity to create the optimal mechanism of accumulation, storage and supply of operative supplies in troops (forces).

Creation of strategic link of the rearward providing was not completed actually. An exception from the general system of the rearward providing of forces and facilities of types of the Armed Forces of Ukraine violated integrity of the system [1].

The organs of management a rear in all links did not have information about the state and motion of material facilities, material well-being by them troops. Such state resulted in the selective, planless providing of troops material facilities without the account of their presence.

Priorities and basic directions of concentration of efforts of the rearward providing were not certain in a special period.

The existent structure of Rear of the Armed Forces did not answer the requirements of the temporal discipline from logistical support of the Armed Forces of Ukraine.

According to this discipline on Rear the task of a transport providing was fixed.

Certificate. Planning of soldiery transportations in accordance with the requirements of leading documents must come true in the system of a transport providing and consisted in the centralized complex use of all types of transport (railway, water, air, motor-car and pipeline).

At the same time, in accordance with the order of chief of the General staff from 16.05.11 № 90 the Central management of soldiery connections, that was inferior to the chief of the General staff, but not Rear of the Armed Forces of Ukraine, organized soldiery transportations a railway, marine, river and air transport [1].

During reformation of commands of types of the Armed Forces conducted during 2004-2011, the chiefs of armament (to it managements of hardware) of commands of Aircrafts and Naval Forces of ЗС of Ukraine, as public servants that must be directly responsible for the technical state of armament and military technique of type of ЗС of Ukraine were actually excluded from the process of management a hardware after the basic types of armament and military technique of kind, are confined from responsibility and influence on the technical state of OBT, that armed with, zenithal-rocket, rocket and radio technical air-unit, ship composition and others like that.

Yes, the chief of armament of Aircrafts was not responsible for the technical state and providing of aerotechics, technique of ЗРВ and РТВ.

In Naval Forces the chief of armament of Naval Forces was not responsible for the state and providing of ship composition.

Such inconsistency of centralization of management the technical state of OBT of types of the Armed Forces lifted on a considerable level a problem in relation to organization co-operations between managements that is not concentrated under only guidance in the systems of technical и of the rearward providing [1].

The experiments conducted in the last years above the structure of the system of hardware resulted in the loss of skilled potential, absence of the system and development according to plan in-process, to humiliation of status and absence of material well-being of level of influence of chiefs of armament (through corresponding commanders) on the state of armament and military technique.

The result of it was the considerable worsening of the technical state of armament and military technique on the whole [3].

The clear vertical line of management logistical support was absent, including providing of nomenclature of aviation and air defense property. In the operative commands of function of the technical and rearward providing of nomenclature of aviation and air defense it was fixed on Armament and Rear of operative commands. At strategic level the Central management of providing of aviation and air defense is created in composition Main administration of application of aviation and air defense that resulted in misunderstanding on questions a management providing of nomenclature of Aircrafts property.

The measures of reformation of the systems of the rearward and technical providing resulted in their inconsistency, violation of integrity and complication of providing of troops (forces) material and technical facilities. In operative commands a rear was only "on a paper".

The strategic and operative supplies of armament, military technique and material and technical facilities were practically absent.

Also, without claim of norms of order of material and technical supplies, it was impossible to form control system by logistical support.

Sharply a question stood in relation to the transport of material and technical facilities.

Absence of the only centralized management a transport providing of troops (forces) was done by impossible by timely and quality implementation of combat missions by troops (by forces).

Not certainly it was in full order of transport of inventories, rockets, live ammunition and military-technical property from arsenals (bases, centers of providing, syllables) to the troops (forces), order of serve of armament and military technique to soldiery parts (subdivisions).

The existent technical state of facilities of transporting put under a doubt possibility of implementation of combat missions troops (by forces).

Exception from the states of battalions (divisions) of the mechanized (tank) brigades of repair subdivisions and subdivisions of the material providing, erection of them in separate companies complicated considerably, and on some questions did impossible implementation of measures of the technical and rearward providing of basic battle subdivisions of brigades.

Certificate. From the states of battalions (divisions) of the mechanized and tank brigades repair subdivisions and subdivisions of the material providing were excluded, they are erected in separate companies. Certain terms of readiness to implementation of tasks on purpose of platoons of hardware, repair company, platoons of the material providing and companies of the material providing, that to go across in a submission the commanders of the battalions (divisions) considerably exceeded the terms of readiness to implementation of tasks on purpose of battle subdivisions [2, 3].

On beginning of realization of anti-terror operation the system of transport of material facilities to the troops (forces) was a disbalance, had minimum possibilities, and not in full answered tasks that on her were laid [5].

Conclusion. Existent state of technique and armament, state of the system of logistical support of the Armed Forces of Ukraine and there are supplies of material facilities did not give an opportunity to carry out logistical support of the Armed Forces in full, both in a peace-time and in a special period. It was confirmed in the conditions of battle actions that began in 2014.

Coming from resulted, suggestions and prospects of researches are formed on the future:

1. To create the single effective system of logistic and supply of forces of defensive both in peaceful and in a special period for maximal satisfaction of their necessities.

2. To create and revise the volumes of necessary soldiery, operative and strategic inviolable supplies of rockets, live ammunition, fuel-lubricating materials, food, material, medical and other military-technical property.

3. To define and have in composition of organizational structures of types of the Armed Forces, operative associations, soldiery parts (subdivisions) of the Armed Forces of Ukraine parts (subdivisions) of the all-round providing, that is able to execute the list of set tasks of the all-round providing in accordance with setting of these types of ЗС, operative associations, soldiery parts (subdivisions).

4. To define, legislatively to fasten and undoubtedly adhere to necessary correlation of general quantity of troops of the all-round providing in composition ЗС of Ukraine, as it is done in most armies of leading countries of the world.

5. To complete parts (subdivisions) of troops of the all-round providing the new systems and standards (compatible) of armament, military technique and technicians of transport, which on the descriptions is able to execute a task on purpose in the conditions of fire influence of opponent and climatic terms.

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Проблеми та стан матеріально-технічного забезпечення Збройних Сил України на кінець 2013 року

Резюме. У статті обґрунтовано необхідність переосмислення поглядів на систему матеріально-технічного забезпечення Збройних Сил України.

Ключові слова: система матеріально-технічного забезпечення, організаційно-штатна структура, Тил та Озброєння ЗС України, транспортне забезпечення, стан техніки та озброєння, запаси матеріально-технічних засобів.

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Проблемы и состояние материально-технического обеспечения Вооруженных Сил Украины на конец 2013 года

Резюме. В статье обоснована необходимость переосмысления взглядов на систему материально-технического обеспечения Вооруженных Сил Украины.

Ключевые слова: система материально-технического обеспечения, организационно-штатная структура, Тыл и Вооружение ВС Украины, транспортное обеспечение, состояние техники и вооружения, запасы материально-технических средств.

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Methods of separate demodulation of signals are in the multiposition integrated communication and radio-location secret service network

Resume. In the article by means of least-squares method and the before offered models the worked out methods of separate selection of OFDM (N-OFDM) and impulsive signals in the multiposition integrated communication and radio-location realized on the basis of much user version of MIMO network, for the different modes of radio-location and connection of the mobile stations of connection and radio-location in every position, equipped by digital arrays in the format of linear, flat and conformal constructions. Advantages offered approach is simplicity of calculable procedure, quality estimation of parameters of signals, invariance of the worked out methods to the model of functioning of multiposition integrated communication and radio-location.

Keywords: digital array, matrix model.

Raising of problem. One of progress of the radio technical systems trends there is combination of the different after setting systems on an only vehicle platform. The cognation of architecture of modern facilities of radio contact, radio-location and navigation providing became soil for such integration. The question is about the wide use of technologies of digital arrays (DA), MIMO (a plural entrance is a plural exit), compatible architectural decisions on the basis of programmatic reconfiguration of apparatus, signals of OFDM (multiplexing is with the orthogonal frequency demultiplexing) and N - OFDM (multiplexing is with the unorthogonal frequency demultiplexing) for the decision of tasks to connection and radio-location. Such approach is confirmed by the looks of specialists of countries-members of block of NATO [1], where such systems got the name of radar-telecommunication (RedCom).

Analysis of the last researches and publications. By an author jointly with a professor B. I. by Locksmith, there was the offered idea of creation of the multiposition integrated communication and radio-location (ICRL) network with application in every position of the mobile station of connection and radio-location (MSCRL) on basis DA consonant with technology of MIMO. For realization of such system the matrix models of descriptions of reviews receiving linear were worked out [3-7], flat [3-6] but conformal multisegment DA [8-10] with identical channels in composition multiposition ICRL, realization of that leans against technology of MIMO. The novelty of the worked out analytical models consists in overcame various variants of digital treatment of OFDM, N - OFDM and impulsive signals, both on the weekend of the tensions counting out of analog-to-digital transformer (ADT) and after procedure them additional strobing. A next step on the way of creation of theoretical bases of functioning of ICRL development of specific methods of treatment of signals of connection and radio-location is considered.

The aim of the article is development of methods of separate treatment of OFDM (N-OFDM) and impulsive signals in multiposition ICRL, realized on the basis of much user's versions of MIMO, for the different modes of radio-location and connection of MSCRL, equipped DA in the format of linear, flat and conformal constructions.

Exposition of basic material. During research a bread-winner family of matrix models of review of receiving subsystem of the mobile station of connection and radiolocation secret service was worked out with a multiposition construction [3-10]. In these models by the special character, through introduction of the system of indexes and association of elements of matrices to the lines, columns and blocks, got components, that take into account descriptions of diagrams of orientation of the aerial systems, transmission descriptions of channels, gain-frequency characteristics (GFC) of signals, feature of treatment of signals and structure of construction of the multiposition radar-telecommunication system. The operations of sectional product of matrices, hroneker's product of matrices and other specific operations were thus used.

Limited to the variant of implementation of tasks to the radio-location and connection of ICRL with distribution on time and condition about the identity of GFC of descriptions of aerial elements DA MSCRL in every position of multiposition ICRL.

For description of totality of tension signals on the exits of receiving channels of the

multiposition system of digital arrays will apply the known matrix record [11]:

$$U = P + A + n, \quad (1)$$

where U - sectional vector of complex tension signals after the exits of frequency filters of spatial channels of totality DA multiposition MSCRL;

P - alarm matrix;

A – sectional vector of complex amplitudes of signals;

n - the sectional vector of tension made noise.

Tension that is brought around to aerial elements DA is the sum of all useful signals and noise on the entrance of every aerial element. With the use of (1) it is undifficult to lay down the system of linear equalizations for the close decision of task from the search of unknown sectional vector of complex amplitudes of signals A in the mode of connection. It is thus considered that all elements of sectional alarm matrix of P are known.

For determination of unknown parameters of signals in the modes of radio-location and connection it is expedient to take advantage of least-squares method (LSM). His advantages are simplicity of calculable procedure and acceptable from statistical data quality of estimation. The optimal after the least-squares method of evaluation of vector of complex amplitudes of signals for the mode of connection comes true taking into account spatio-temporal or other from the varieties of code of MIMO- of signals according to the known expression:

$$\tilde{A} = \left(P^T P\right)^{-1} P^T U . \quad (2)$$

Unlike the decision of tasks to connection, the self-reactance elements of alarm matrix of P must be subject in the mode of radio-location to the evaluation. Unknown angular coordinates of radiation, their frequency taking into account the effect of Doppler, current distances. Thus unknown amplitudes of signals it maybe to ignore, if there is not sense to measure the effective beating back surface of aims and carry out recognition of their classes. At the same time, if to take into account the estimations of complex amplitudes, then optimal after a least-squares method the estimation of elements of matrix of P can be got after the known matrix expression:

$$\tilde{P} = \left(A \; A^*\right)^{-1} A \; U^* . \quad (3)$$

The got information from every MSCRL about the value of angular coordinates and radial speeds of aims will be basis for the decision of task of determination to distance to the aims of triangulation or other methods known from the theory of multiposition radio-location.

Thus, in the brought expressions over a key element is an alarm matrix of P, the structure of that determines arrangement of elements of vectors of tension, amplitudes and noises.

Works [3-10], within the limits of that family of matrix models of descriptions of reviews receiving was worked out TSAR in multiposition ICRL, were sanctified to determination of structure of matrix of P for different office, amount and structure of signals that come on the receiving segment of ICRL hours. Substitution in expressions (2, 3) of matrix model, that will answer the mode of functioning of ICRL and alarm situation that was folded, and will make basis of methods of demodulation of signals. Advantage of such approach is an unitization of expressions (2, 3) for any model. Hypothesis about the amount of sources of signals, structure of signals, the amount of objects of radio-location it maybe to decide by iteration surplus by the processor of the station of existent bank of models.

Will consider the format of matrix of P more in detail. As an example of structure of matrix model and entered system of indexes will point the model of review of receiving segment of ICRL with application in MSCRL conformal multisegment DA with flat grates in segments and to the reception of ortogonal onefrequency signals that will answer the structure of one OFDM of package (fig. 1).

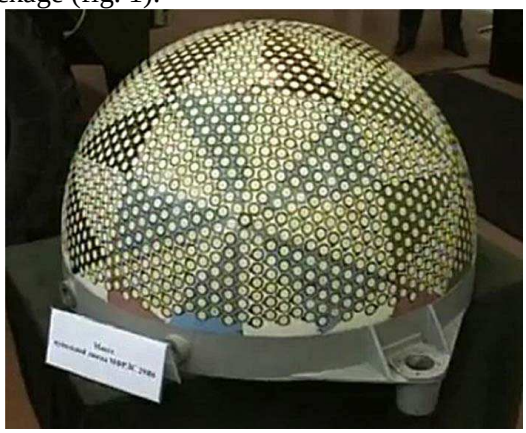

Fig. 1. Example of multisegment conformal array

On condition of factorization of diagrams of orientation of aerial elements in an azimuth and corner of place planes and identical amount of elements in lines and columns of flat array in segments, the model of review of receiving segment of multiposition ICRL will purchase a kind:

a) mode of connection is on principle of MIMO

$$P = \left(\left(Q \circ \tilde{H}_Q\right)[\otimes]\left(V \circ \tilde{H}_V\right)\right)[\blacksquare]F ,$$

b) mode of radio-location

$$P = \left(Q\,[\otimes]\,V\right)[\blacksquare]F ,$$

де $Q=\begin{bmatrix} Q_{111}(x_{1_{11}}) & \cdots & Q_{111}(x_{M_{11}}) \\ \vdots & \ddots & \vdots \\ Q_{R_{11}11}(x_{1_{11}}) & \cdots & Q_{R_{11}11}(x_{M_{11}}) \\ \hline \hline Q_{1T_IG}(x_{1_{T_IG}}) & \cdots & Q_{1T_IG}(x_{M_{T_IG}}) \\ \vdots & \ddots & \vdots \\ Q_{R_{T_IG}T_IG}(x_{1_{T_IG}}) & \cdots & Q_{R_{T_IG}T_IG}(x_{M_{T_IG}}) \end{bmatrix}$, $V=\begin{bmatrix} V_{111}(y_{1_{11}}) & \cdots & V_{111}(y_{M_{11}}) \\ \vdots & \ddots & \vdots \\ V_{R_{11}11}(y_{1_{11}}) & \cdots & V_{R_{11}11}(y_{M_{11}}) \\ \hline \hline V_{1T_IG}(y_{1_{T_IG}}) & \cdots & V_{1T_IG}(y_{M_{T_IG}}) \\ \vdots & \ddots & \vdots \\ V_{R_{T_IG}T_IG}(y_{1_{T_IG}}) & \cdots & V_{R_{T_IG}T_IG}(y_{M_{T_IG}}) \end{bmatrix}$ -

sectional matrices of diagrams of orientation of aerial elements in an azimuth $Q_{r_{t_ig}t_ig}\left(x_{m_{\mathrm{t_ig}}}\right)$ and corner of place $V_{r_{t_ig}t_ig}\left(y_{m_{\mathrm{t_ig}}}\right)$ planes in directions on m- e source of signals with angular coordinates ($x_{m_{\mathrm{t_ig}}}, y_{m_{\mathrm{t_ig}}}$) relatively t_ig - of position, matrices are broken on blocks for vertical lines, each of that describes the diagrams of orientation of spatial channels in separate position of MSCRL;

$\mathrm{t_i}$=1, ..., T_i - sequence number of position DA in *i* environment;

i=1,…, I - sequence number of environment;

g=1,...., *G* - sequence number of segment of conformal DA;

r=1, ..., R_{t_ig} - a sequence number of aerial element is in a linear array within the limits of tig- of го segment;

$\tilde{H}_Q=\begin{bmatrix} \tilde{h}_{Q1111_{11}} & \cdots & \tilde{h}_{Q111M_{11}} \\ \vdots & \ddots & \vdots \\ \tilde{h}_{QR_{11}111_{11}} & \cdots & \tilde{h}_{QR_{11}11M_{11}} \\ \hline \hline \tilde{h}_{Q1T_IG1_{T_IG}} & \cdots & \tilde{h}_{Q1T_IGM_{T_IG}} \\ \vdots & \ddots & \vdots \\ \tilde{h}_{QR_{T_IG}T_IG1_{T_IG}} & \cdots & \tilde{h}_{QR_{T_IG}T_IGM_{T_IG}} \end{bmatrix}$, $\tilde{H}_V=\begin{bmatrix} \tilde{h}_{V1111_{11}} & \cdots & \tilde{h}_{V111M_{11}} \\ \vdots & \ddots & \vdots \\ \tilde{h}_{VR_{11}111_{11}} & \cdots & \tilde{h}_{VR_{11}11M_{11}} \\ \hline \hline \tilde{h}_{V1T_IG1_{T_IG}} & \cdots & \tilde{h}_{V1T_IGM_{T_IG}} \\ \vdots & \ddots & \vdots \\ \tilde{h}_{VR_{T_IG}T_IG1_{T_IG}} & \cdots & \tilde{h}_{VR_{T_IG}T_IGM_{T_IG}} \end{bmatrix}$ -

matrices of transmission descriptions of channel MIMO in an azimuth $\tilde{h}_{Qr_{t_ig}t_igm_{t_ig}}$ and corner of place $\tilde{h}_{Vr_{t_ig}t_igm_{t_ig}}$ planes in direction on m- e source of signals with relative angular coordinates ($x_{m_{\mathrm{t_ig}}}, y_{m_{\mathrm{t_ig}}}$);

r=1, …, R_{t_ig} - it is a sequence number of aerial element in an array within the limits of tig- of го segment;

$F=\begin{bmatrix} \mathrm{F}_{111}(\omega_{1_{11}}) & \cdots & \mathrm{F}_{111}(\omega_{\mathrm{M}_{11}}) \\ \vdots & \ddots & \vdots \\ \mathrm{F}_{\mathrm{S}_{11}11}(\omega_{1_{11}}) & \cdots & \mathrm{F}_{\mathrm{S}_{11}11}(\omega_{\mathrm{M}_{11}}) \\ \hline \hline \mathrm{F}_{1\mathrm{T_IG}}(\omega_{1_{\mathrm{T_IG}}}) & \cdots & \mathrm{F}_{1\mathrm{T_IG}}(\omega_{\mathrm{M}_{\mathrm{T_IG}}}) \\ \vdots & \ddots & \vdots \\ \mathrm{F}_{\mathrm{S}_{\mathrm{T_IG}}\mathrm{T_IG}}(\omega_{1_{\mathrm{T_IG}}}) & \cdots & \mathrm{F}_{\mathrm{S}_{\mathrm{T_IG}}\mathrm{T_IG}}(\omega_{\mathrm{M}_{\mathrm{T_IG}}}) \end{bmatrix}$ - sectional matrix of AFH of the frequency filters formed by means of operation of rapid transformation of Fourier, on frequencies of sub bearing OFDM of signal.

In case of presence of OFDM of signal from every source of *M* with the arbitrary amount of sub bearing in every package the structure of matrix of F will purchase a next kind:

$$F=\left[\begin{array}{ccc|c|ccc}
\mathrm{F}_{111}(\omega_{1_{11}}) & \cdots & \mathrm{F}_{111}(\omega_{\mathrm{E}_1 1_{11}}) & & \mathrm{F}_{111}(\omega_{1\mathrm{M}_{11}}) & \cdots & \mathrm{F}_{111}(\omega_{\mathrm{E}_\mathrm{M}\mathrm{M}_{11}}) \\
\vdots & \ddots & \vdots & & \vdots & \ddots & \vdots \\
\mathrm{F}_{\mathrm{S}_{11}11}(\omega_{1_{11}}) & \cdots & \mathrm{F}_{\mathrm{S}_{11}11}(\omega_{\mathrm{E}_1 1_{11}}) & & \mathrm{F}_{\mathrm{S}_{11}11}(\omega_{1\mathrm{M}_{11}}) & \cdots & \mathrm{F}_{\mathrm{S}_{11}11}(\omega_{\mathrm{E}_\mathrm{M}\mathrm{M}_{11}}) \\
\hline
\mathrm{F}_{1\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{1_{1_{\mathrm{T}_\mathrm{I}\mathrm{G}}}}) & \cdots & \mathrm{F}_{1\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{\mathrm{E}_1 1_{\mathrm{T}_\mathrm{I}\mathrm{G}}}) & \cdots & \mathrm{F}_{1\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{1\mathrm{M}_{\mathrm{T}_\mathrm{I}\mathrm{G}}}) & \cdots & \mathrm{F}_{1\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{\mathrm{E}_\mathrm{M}\mathrm{M}_{\mathrm{T}_\mathrm{I}\mathrm{G}}}) \\
\vdots & \ddots & \vdots & & \vdots & \ddots & \vdots \\
\mathrm{F}_{\mathrm{S}_{\mathrm{T}_\mathrm{I}\mathrm{G}}\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{1_{1_{\mathrm{T}_\mathrm{I}\mathrm{G}}}}) & \cdots & \mathrm{F}_{\mathrm{S}_{\mathrm{T}_\mathrm{I}\mathrm{G}}\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{\mathrm{E}_1 1_{\mathrm{T}_\mathrm{I}\mathrm{G}}}) & & \mathrm{F}_{\mathrm{S}_{\mathrm{T}_\mathrm{I}\mathrm{G}}\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{1\mathrm{M}_{\mathrm{T}_\mathrm{I}\mathrm{G}}}) & \cdots & \mathrm{F}_{\mathrm{S}_{\mathrm{T}_\mathrm{I}\mathrm{G}}\mathrm{T}_\mathrm{I}\mathrm{G}}(\omega_{\mathrm{E}_\mathrm{M}\mathrm{M}_{\mathrm{T}_\mathrm{I}\mathrm{G}}})
\end{array}\right],$$

where F_m – кількість піднесучих в OFDM пакеті *m*-го джерела сигналів.

Accordingly the structures of alarm matrix of *P*, block-vector of amplitudes of signals, will be accepted by a kind $A=\left[\mathrm{A}_{11}\ \cdots\ A_{1\mathrm{E}_1}\ \vdots\ \ldots\ \vdots\ A_{\mathrm{m}1}\ \cdots\ A_{\mathrm{m}\mathrm{E}_\mathrm{m}}\right]^T$.

It maybe to notice that worked out in works [3-10] the list of models does not embrace all possible variants of construction of MSCRL and alarm situation for functioning of offered multiposition ICRL. With the increase of amount and structure of signals, vehicle construction of MSCRL the structures of alarm matrix and block-vector of amplitudes of signals will be modified in multiposition ICRL an analogical method, but the methods of separate demodulation of signals (2, 3) will remain unchanging.

Conclusion. On the basis of least-squares method the worked out methods of separate treatment of OFDM (N - OFDM) and impulsive signals are in multiposition ICRL, realized on the basis of much user version of MIMO, for the different modes of radio-location and connection of MSCRL, equipped DA in the format of linear, flat and conformal constructions. Advantages offered approach is simplicity of calculable procedure, quality estimation of parameters of signals, invariance of the worked out methods to the model of functioning of ICRL. Direction of **further researches** the estimation of potential exactness of the worked out methods and design of some aspects of functioning of ICRL is considered.

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Методи роздільної демодуляції сигналів у багатопозиційній інтегрованій системі зв'язку та радіолокаційної розвідки

Резюме. У статті за допомогою методу найменших квадратів та раніше запропонованих моделей розроблені методи роздільної селекції OFDM (N-OFDM) та імпульсних сигналів в багатопозиційній інтегрованій системі зв'язку та радіолокації (ІСЗРЛ), реалізованої на основі багато користувальницької версії MIMO, для різних режимів радіолокації і зв'язку мобільних станцій зв'язку та радіолокації у кожній позиції, оснащених цифровими антенними решітками у форматі лінійних, плоских та конформних конструкцій. Перевагами запропонованого підходу є простота обчислювальної процедури, якісна оцінка параметрів сигналів, інваріантність розроблених методів до моделі функціонування ІСЗРЛ.

Ключові слова: цифрова антенна решітка, матрична модель.

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Методы раздельной демодуляции сигналов в многопозиционной интегрированной системе связи и радиолокационной разведки

Резюме. В статье с помощью метода наименьших квадратов и ранее предложенных моделей разработаны методы раздельной селекции OFDM (N-OFDM) и импульсных сигналов в многопозиционной интегрированной системе связи и радиолокации (ИСЗРЛ), реализованной на основе многопользовательской версии MIMO, для разных режимов радиолокации и связи мобильных станций связи и радиолокации в каждой позиции, оснащенных цифровыми антенными решетками в формате линейных, плоских и конформных конструкций. Преимуществами предложенного подхода является простота вычислительной процедуры, качественная оценка параметров сигналов, инвариантность разработанных методов к модели функционирования ИСЗРЛ.

Ключевые слова: цифровая антенная решетка, матричная модель.

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Analysis of world experience of integration technologies for automated control systems

Resume. The article deals with different approaches and modern methods of integration of automated control systems in terms of creating a single information system of defense management Armed Forces of Ukraine. The basic principles and benefits of each technology are presented.

Keywords: integration, information technology, automated control systems.

Formulation of the problem. The Automated control systems (ACS) in our country in it's development have been passed three stages. The first was related to the use in the 70's of the last century of computers for solving organizational and economic governance. These systems are characterized by partiality and locality.

The second stage, referring to the mid 80's, was held in conditions of dissemination of technical and programmatic framework of ACS. The experience of ACS first and second generations they found a number of serious flaws, such as:

no closed systems management tasks (planning, accounting, analysis, regulation);

different types of ACS acted autonomously on facilities management, without relationship;

the system does not provide interoperability with leaders of different levels and so on.

These shortcomings have prompted the search for more modern forms and methods of designing and developing a new generation of ACS. So the next phase of ACS (from mid 80's to date) characterized by the creation of integrated automated control systems.

Analysis of recent research and publications. At the present stage of the Armed Forces of Ukraine adopted by the ACS and operated many associated with the process control of troops and weapons, military and political activities, administrative and economic activity [1].

The greatest relevance acquired the integration of ACS the management of administrative and economic activity of the Armed Forces of Ukraine [2]. Under administrative and understand business activities realize a specific form of defense management, namely the support of the defense and mobilization planning, accounting personnel, health care, development of armaments and military equipment, management of financial, material and technical, information resources, etc. [3, 4].

The complexity of the administrative and economic activities of the Armed Forces of Ukraine determines the impossibility of implementing process control by one or more local ACS. It is necessary to create a single information system of defense management (*Defence Resource Management Information System, DRMIS*). According to the "Military Doctrine of Ukraine", "Strategic Defense Bulletin of Ukraine" [5, 6], one of the most important tasks is to introduce NATO standards, such as interoperability of all structures of the Armed Forces of Ukraine and their special forces of forces and means of the relevant structures of NATO integration of command, control, communications, computers, intelligence, surveillance, reconnaissance (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance, C4ISR).

The purpose of the article identifying promising ways to integrate ACS of the Armed Forces of Ukraine in common information space of the Armed Forces of Ukraine, based on analysis of global integration technologies, including the experience of NATO.

Presenting main material. Analysis of the mechanisms and principles of the organization management and control C4ISR defense resources in Allied (USA, Germany, Britain and others) shows the following basic strategy of their implementation [7-10].

1. Focus on the development programs of common principles of organization development and provision of information technology services

within the national electronic government ("e-government" - as a model of public administration).

2. Focus on the use of national industry standards and protocols of information transmission.

3. Focusing on the use of international industry standards for communications and information systems (Communication Information Systems, CIS) and protocols information transfer systems, which are formed according to the principles and requirements of AJP-4 "The doctrine of the United posture regarding logistical support" and AJP-6 "The doctrine of the United NATO on communication and information systems" [11, 12].

Looking abroad CIS, designed for defense management, it should be noted separately focus on innovative information technologies:

1. Appliance tools transform data into information (Business Intelligence, BI), including:

appliance of data warehousing;

appliance of online analytical processing;

appliance of service-oriented architecture information-analytical systems.

2. Appliance of data objects (things) through the Internet.

3. Appliance a large volume of data for analysis and forecasting (Big Data).

4. Integration of corporate applications (Enterprise Applications Integration, EAI).

5 Appliance of web-services and portal technology implementation interactions.

So, creating a unified information management system DRMIS defense resources should be based on the use of information technology and innovative approaches, as reflected in the defense policy documents (AJP-6, AJP-4).

Firstly, it concerns software tools to create industry solutions for the Armed Forces of Ukraine, which meets the standards and recommendations of NATO doctrine.

Second, a comprehensive solution to support product life cycle (Total Lifecycle Management Systems) or life cycle of armament, military equipment and materiel (CALS-technologies) [13-15].

Third, it supports deployment and use of troops (forces) and processes of administrative and economic activity (management personnel, management of organizational structure, management of defense planning, logistics, medical and other types of support, procurement management, property management, finance and budget document, etc.).

In fourth, is the creation of a single technological platform sharing of diverse sources, data warehousing, online analytical processing and statistical analyzes and forecasting.

One of the most important requirements that must be performed when creating DRMIS and integration of C4ISR system, is coordinated functioning of all facilities management. According to international experience, modern methods of integration at CIS corporate (departmental) functional modules combined technology integration of corporate applications (Enterprise Application Integration, EAI). You can identify the following main approaches to implementing the principles of EAI:

SOA (Service-oriented architecture) – a modular approach to software development through the use of services (services) with standardized interfaces;

MOM (Message-Oriented Middleware) – software middleware oriented messaging in a distributed environment;

ETL (Extract, Transform, Load) – a technology that converts data (usually with a batch processing) with the operating environment in the integrated data coordinated and suitable for use in data warehouses or in the windows of situation rooms to display data in a convenient readable form.

At the core principles of SOA are reusable functional information and communication technological elements, eliminating duplication of functionality in software, unifying standard operational processes, ensuring the transfer of operational model business processes for centralized processes and functional organization based industrial platform integration.

SOA provides a flexible way to combine and reusable components for building complex distributed software systems.

Technology IOM – is one of the technology that makes messaging and a command "send" and "receive". It differs from E-mail real time. There may be embodiments of IOM queues, while on-line mode is optional. The need for messaging systems is due to differences between aligns programs, unreliable data networks, the need to support change.

The main advantages of using technology MOM are:

organization of interaction between remote programs;

integration of differing technologies, platforms, and programming languages;

organization asynchronous interaction;

load regulation;

guaranteed delivery.

The concept of data integration ETL is extraction, transformation (and loading data from different systems into a single data warehouse for processing and analysis. ETL technology is most useful for creating data warehouses containing well documented and reliable data for historical analysis, for example, to analyze data that vary over time, or multidimensional queries. ETL is used to integrate key reference data. ETL tools provide the ability to run repetitive processes for greater coherence and the possibility of multiple use.

Based on the above analysis, in the creating of a single information system of defense management DRMIS, the challenge of integrating disparate segments, including the organization of inter-agency and international exchange (the further development of cooperation with NATO) will have priority. For this purpose it is expedient to use the combined set of integration technologies, depending on how closely integrated to be one or the other module (segment) DRMIS common information space in the Armed Forces of Ukraine, and eventually the system C4ISR, compatible (interoperable) with the CIS countries' NATO members. Therefore, in addition to integration at corporate (departmental) functional modules EAI technology, must also achieved the required level of interoperability with other CIS, according to the requirements of NATO doctrine.

According to the AJP-6 ways to achieve interoperability between the CIS can enter into one or more categories:

1. Technical standards – a formal agreement to jointly implement a technical solution. They are commonly used in the design, buying or taking into service of new equipment. Standards applicable to technical or operational procedures.

2. Procedures for configuration and operation – a set of rules that allow the CIS, which is technically able to share information, to exchange by changing the configuration or establishment of appropriate mechanisms.

3. Gateways – is communication or computer interfaces that solve problems or technical procedural interoperability. There are two main types of gateways:

gateways to technical interfaces, changing the nature of the data in order to make them able to exchange between CIS or equipment;

information exchange gateways that serve to connect the various security domains, for inspection and filtering information that may be exchanged between them.

Thus, the main promising methods of integration ACS Armed Forces of Ukraine is the integration of information management, namely the integration and consolidation, centralized maintenance of reference data and metadata (information about data), unifying interactions with subordinate units (organizations), unification and standardization of design decisions.

Data from primary sources (troops, some military units and institutions) should be integrated into a consolidated data warehouse, which is a set of domain-specific data, and integrated, constant, with the support timeline constant replenishment of new reliable information. This data set should be the only source of consistent and coordinated data for all ACS.

The use of standardized technology solutions at the level of central government and the typical design decisions on the strategic, operational and tactical levels will abide by the principles of unification of processes of interaction with subordinate units (organizations) among single departmental information and communication systems.

Conclusions. When creating ACS of the Armed Forces of Ukraine, including DRMIS, the challenge of integrating disparate segments, including the organization of inter-organizational and international exchange and further data will have priority. For this purpose it is expedient to use the combined set of technology integration, depending on how closely should be integrated into one or the other module (segment) to the general information field of the Armed Forces of Ukraine, and eventually the system C4ISR, compatible (interoperable) with CIS of member countries NATO.

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Аналіз світового досвіду застосування інтеграційних технологій в автоматизованих системах управління

Резюме. У статті розглянуто різні підходи і сучасні методи інтеграції автоматизованих систем управління з точки зору створення єдиної інформаційної системи управління оборонними ресурсами Збройних Сил України. Наведено основні принципи та переваги кожної з технологій.

Ключові слова: інтеграція, інформаційні технології, автоматизовані системи управління.

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Анализ мирового опыта использования интеграционных технологий в автоматизированных системах управления

Резюме. В статье рассмотрены разные подходы и современные методы интеграции автоматизированных систем управления с точки зрения создания единой системы управления оборонными ресурсами Вооруженных Сил Украины. Приведены основные принципы и преимущества каждой из технологий.

Ключевые слова: интеграция, интеграционные технологии, автоматизированные системы управления.

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The theoretical approaches to determine a place of the information infrastructure of the Ministry of Defense of Ukraine in understanding the architectural framework methodologies

Resume. The article reveals the features of the term of information infrastructure in the concept of enterprise architecture from the standpoint of applying for the Ministry of Defense of Ukraine. The modern world approaches was looked to the design of framework architectures. There is a classification in the domain architectures. The features of the methodology C4ISR were detailed.

Keywords: information infrastructure, enterprise architecture, architecture framework, C4ISR.

Formulation of the problem. The Ministry of Defence (MoD) of Ukraine in 2016 conducted a comprehensive analysis of the actual state of the use of information-analytical and software systems support the processes of defense and mobilization planning, accounting personnel, development of armaments and military equipment, management of financial, material, technical and information resources, information and telecommunications, software, technical, engineering and regulatory support creation of information infrastructure MoD of Ukraine in view of the need to introduce new information technologies with regard to NATO standards and achievements of the System Project of the Unified management system of the Armed Forces of Ukraine, with the interests MoD and priorities development of the Armed Forces of Ukraine (AF).

The result of the analysis was the further development of the Roadmap to create the information infrastructure of MoD of Ukraine. The draft roadmap was developed based on the introduction of new information technology standards and approaches NATO Defense Ukraine the interests and priorities of the Armed Forces of Ukraine in the framework approved by the Minister of Defense of Ukraine "Concept of information infrastructure of the Ministry of Defense of Ukraine." When you create information infrastructure is important to define the architecture and see its place in the overall architecture of the information (in the generally accepted terminology – enterprise architecture). Therefore, the study of theoretical approaches to the definition of enterprise architecture with adaptation to the military is an urgent task.

The extent of a problem. In [1-7] on the general principles adopted in the US Armed Forces are the rules for developing, presenting and analyzing the architecture of related public sector. The evolution of military architecture framework architecture (Architecture Framework), the underlying structure of command, control, communications, computers, intelligence, surveillance and reconnaissance (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance, C4ISR) ranging from 1995 to 2007. In the reviewed publications, are structure analyzed the principles of creation and solvable problem of having such a C4ISR architecture.

The purpose of the article is to determine the place of the Information Infrastructure of the MoD in the enterprise architecture on an analysis of the current global approaches to the design of framework architectures.

Presenting main material. Information infrastructure for the military establishment based on the concept more familiar to the civilian sector - enterprise architecture [8].

Enterprise Architecture is based on three components related to the functional architecture, information technology and management of the architectural process. The architecture includes a base (current) architecture target (perspective) architecture and plan the transition from the current to the target architecture.

Consider approaches to enterprise architecture development. There are different concepts, different-developed organizations, which, in turn, represent a plurality of different methodologies - Framework architecture or framework models. This systematic set of methods, practices and tools in the form of general schemes ("frames" or "framework"), which is used to build enterprise architecture models. Among the most famous: Zachman Framework, TOGAF, FEAF, C4ISR, ARIS.

Zachman Framework (Zachman Framework architecture). The general scheme of general purpose is a universal basis for the development of architecture. It is a matrix that is divided into 6 visions displayed in columns (data, function, network, people, time, motivation), and 5 levels of abstraction that are deposited in rows.

TOGAF (The Open Group Architectural Framework). The general scheme of Open Group offers its own approach aimed at providing practical, industrial standard approach to the development of enterprise architecture. It is neutral in relation to the concepts and techniques. TOGAF is used in developing products related to any of the universally recognized structural models, such as the Zachman Framework, FEAF, C4ISR / DoDAF, if necessary for the creation of a specific architecture.

FEAF (Federal Enterprise Architecture Framework). The general scheme of the US Federal architecture includes the following layers of architectural models and business architecture; application architecture services; information architecture; architecture technology (IT architecture).

C4ISR (Command, Control, Computers, Communications, Intelligence, Surveillance, and Reconnaissance). The general scheme developed by the US Department of Defense and for the standardization of all units within the department. It later changed it's the Department of Defence Architecture Framework (DoDAF).

ARIS. ARIS is a complex system for analysis and modeling in the company. Its methodological foundation is a set of different modeling techniques that reflect different views of the system investigated. Its essence lies in the fact that one and the same model can be developed using several methods, allowing the use of ARIS experts from different theoretical knowledge and configure it to work with systems that have their own specifics.

ISO / IEC 10746. It defines a set of standards for building flexible architecture for distributed systems and open distributed processing, allowing you to realize the benefits of distributed data processing services in an environment of heterogeneous IT resources and multiple organizational areas. These standards are designed to limit the systems specifications and providing them infrastructure that removes the difficulties inherited from the design and programming of distributed systems.

These methodologies allow classification of the basic elements of architecture and common principles to describe them in conjunction with each other, describing the rules (policies), standards, processes, models used to determine the architecture of different elements at different levels of abstraction. For example, the military – it is a template, it is own architecture framework.

Joint analysis methodologies create a comprehensive architecture, and they demonstration partial architectures of three basic types:

activity architecture (business architecture);

logical architecture (system architecture);

physical (technical or technological) architecture.

Each component has its own architectural technique. The description of each technique are specified, documented and defined the basic elements of architecture.

Each methodology typically includes at:

description of methods of designing architecture in terms of the use some "building blocks";

description of mutual relations "building blocks";

set of tools to describe the elements of architecture;

common vocabulary terms used;

a list of recommended standards;

a list of compatible products that can be used to implement various elements of architecture.

For example, the method to describe IT architecture provides is a detailed document. It is a guide that defines the basic, standard or typical elements of the IT systems. Their relationship and the management of information systems. We can formulate the following, partly contradictory, requirements for this document:

must contain a sufficiently high level of detail for the practical use of experts in the field of information technology in the development of new systems;

for ease of understanding the audience by functional areas;

dynamic examination ("Architecture: As is " - "Architecture: To be" - "Short-term and medium-term objectives" - "Strategic Plans");

adaptability in new requirements and consideration of the feasibility of unplanned projects.

There are two complementary definition of architecture: "Architecture as a description" and "architecture as a process". The first definition says that "architecture - a description of some complex system at a time, describes two architectural idea: the current and future state". The second definition - "architecture - a process that set the regulations, rules and standards applied in the construction of new systems". That is the second meaning of architecture is to create a system of rules aimed to ensure the transition from the current state of information systems in the future. One element of the architecture here is the architecture model that provides a list of approved technologies for implementation. It is important that the technique not only define a set of documents and plans required for company description and determine the communications elements of description.

In the item-architecture distinguish several major subject areas (domains). These areas consistently cover architectural aspects, that based on the needs of the function of the organization and provide the entire set of technologies for specific solutions for functional areas. Below in the text we demonstration a classification of enterprise architecture domains:

1. Functional architecture (architecture or business). Describes the organization in terms of its key functional processes.

2. Architecture of information (data). Determine what data needed to support functional processes (data model) and for the stability and the possibility of long-term use of these data in application systems.

3. Architecture applications. Determine which applications are used and should be used for data management functions and support activities.

4. Technological architecture (infrastructure or system architecture). Determines on which technology (hardware and system software, networking and communications) applications creates a work environment which, in turn, manages data and provide control functions. This environment should provide job application system at a given level to provide services to their users.

Depending on the specific needs of the organization and the relevance of the solution of certain problems can be identified and other domains of architecture:

1. Integration Architecture. Defines infrastructure for the integration of different applications and data. For example, projects in the field of "electronic government" when there is a large amount of state information systems of different agencies, there is an urgent need to create an independent infrastructure integration (Integration Architecture) to provide integrated services on a "single window".

2. Architecture of common services. For example, there are services such as mail, directories, common security mechanisms (identification, authentication, authorization). That is, a sufficiently large number of application systems, which are "horizontal type".

3. Network architecture. Defines the description, rules, standards related to networking and communications technologies used in the organization.

4. The security architecture and more.

In particular, the integration of architecture and common services are particularly relevant for a distributed information environment. The network architecture covers a very broad subject area, which stands domain associated with network technologies (data accessing, transferring, routing, switching, etc.) and domain name associated with communications (voice and video, remote access, mobile computing etc). But most methods consider these subject areas, as part of a larger domains such as architecture and technology architecture applications, highlighting them in separate domains on the lower level next stages detailed description of the architecture.

According to the classification, the Defense Information Infrastructure of Ukraine can be seen at several "levels". However, a decision on the implementation of a part of the infrastructure to scale organizations or individual units is a strategic decision that should be based on accepted principles of building architecture.

If we say about the Defense Information Infrastructure Ukraine we understand several functional units and various set of technologies. Some of these technologies are coordinated and operated centrally, others - on the level of individual units. These IT services required for general provided a combination of corporate and public infrastructure. The infrastructure of the unit is focused on more specifications and their functional needs. Large amounts of data can be carried in a single corporate data center. All units use this centralized infrastructure, but have some additional local needs, which provided local infrastructure. One or more organizational units (departments), the largest in terms of congestion, may not have their own local infrastructure and use only centralized services.

The relevance of creating this Information Infrastructure of the MoD of Ukraine underlines the fact that one of the priorities of the national interests of Ukraine today is integration into the Euro-Atlantic area and deepening cooperation with NATO. According to the significant papers such as the Military Doctrine of Ukraine, the Strategic Defense Bulletin of Ukraine" [8, 9] in Ukraine we have the main objective that consist in introducing NATO standards. Also one consist in tasks from interoperability of all structures of the Armed Forces of Ukraine and their special forces of forces and means of the relevant structures of NATO integration the system of command and control such as C4ISR.

It C4ISR architecture to some extent changed the approach to warfare by using the network centric principles. This architecture was developed in the US in 1990 and became the starting point for the military framework architectures, including the most famous - architecture framework of NATO. Later, when creating the information infrastructure of Defense of Ukraine, should stay on the methodology C4ISR.

Conclusions. This paper was defined place of the Information Infrastructure of MoD of Ukraine in the overall approach to enterprise architecture development. Were considered methodological approaches to the design of framework architectures. He was made a general overview of modern architecture framework in which the emphasis was put on the role of C4ISR methodology to create the information infrastructure of MoD of Ukraine.

Further research should be devoted to analysis methodology C4ISR features.

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Теоретичні підходи щодо визначення місця інформаційної інфраструктури Міністерства оборони України у розумінні рамкових архітектурних методологій

Резюме. Стаття розкриває особливості поняття інформаційної інфраструктури в концепції архітектури підприємства з точки зору застосування для Міністерства оборони України. Розглянуто сучасні світові підходи до проектування рамкових архітектур. Наведено класифікацію доменів архітектур. Визначено особливості щодо методології C4ISR.

Ключові слова: інформаційна інфраструктура, архітектура підприємства, рамкова архітектура, C4ISR.

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Теоретические подходы к определению места информационной инфраструктуры Министерства оборони Украины в понимании рамочных архитектурных методологий

Резюме. Статья раскрывает особенности понятия информационной инфраструктуры в концепции архитектуры предприятия с точки зрения использования для Министерства обороны Украины. Рассмотрены современные мировые подходы к проектированию рамочных архитектур. Приведена классификация доменов архитектур. Определены особенности методологии C4ISR.

Ключевые слова*:* информационная инфраструктура, архитектура предприятия, рамочная архитектура, C4ISR.

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In accordance with the Decree of the higher attestation Commission of Ukraine № 7-05/1 from January 15, 2003 scientific articles should contain the following elements:

- **problem statement** in general view and its connection with important scientific or practical tasks;
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- **conclusions** and prospects for further research development in this direction;
- the **annotation and key words** are placed after the title of the article.

The article should follow the conventional terminology. All abbreviations and new terms must be disclosed by the author.

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Матрична модель OLAP-систем (*font size 14 PT bold*)
Матричная модель OLAP-систем
Matrix model of OLAP-systems

Резюме. Розглянуті особливості матричних моделей … (***кегль 12 пт***)
Ключові слова: модель, OLAP система, інформаційні технології.
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Analysis of recent researches and publications. In works [1, 2] considered the applied methods ...

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Presentation of the basic material. The author proposes the use of analytical methods of search for optimal regime

1 spacing

$$\sum_{p=1}^{N^2} X_{n_k}^{pk}$$

1 spacing

where $\sum$ *- Times New Roman 18 font;*
X *- Times New Roman 14 font;*
N ; pk; p=1; n *- Times New Roman 10 font;*
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Conclusions. ... The most effective by criterion of minimum cost of resources was...

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