Given clause (article) is devoted maintenance of a harmonious combination of interests of economy of republic and its (her) each region and area.

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References

1 Zubareva Yu.V., Pilipenko L.M. Problemy vedeniya agrobiznesa i napravleniya ih resheniya // Fundamental'nye issledovaniya. - 2016. - № 12(4). – S. 858-862.

2 Moldashev A.B. APK Kazahstana: problemy razvitiya i poisk ih resheniya // Problemy agrorynka. – 2016. – №3. – S. 7-13.

3 Ermolaeva S. G. Rynok truda: uchebnoe posobie. – Ekaterinburg: Izdatel'stvo Ural'skogo universiteta, 2015.– 108 c. URL: http:// http://elar.urfu.ru/bitstream/10995/30847/1/978-5-7996-1393-8.pdf

4 Нургалиева А.А. Ауылдық аудандарда әлеуметтік инфрақұрылымды дамытудың экономикалық механизмі // монография. – Павлодар, 2011.

5 Evenson, R.E. 2001. «Economic Impacts of Agricultural Research and Extension.». [Electronic resource]. 2001. Mode of access: http://escop.ncsu.edu/infobook/evensonhandbookchapter1.pdf. - Date of access: 13.08.2013

6 More and Better Investment in Agriculture//World Bank [Electronic resource]. 2010. Mode of access: http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTWDRS/0,,contentMDK:23092384~pagePK:478093~piPK:477627~theSitePK:477624,00.html.-Date of access: 10.09.2013.

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ЗАПРОВАДЖЕННЯ ІНФОРМАЦІЙНО – АНАЛІТИЧНИХ СИСТЕМ У ЗАХОДАХ УПРАВЛІННЯ ФІНАНСОВИМ ЗАБЕЗПЕЧЕННЯМ ВІЙСЬК

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IMPLEMENTATION OF INFORMATION AND ANALYTICAL SYSTEMS IN THE AFFAIRS OF FINANCIAL SECURITY MANAGEMENT MEASURES

Аннотация. У статті проведено дослідження причин виникнення проблемної ситуації стосовно використання програмного забезпечення з фінансового та бухгалтерського обліку російського виробництва, а також розглянуто рекомендації стосовно подальших дій суб'єктами державного сектору. Розроблені і науково обґрунтовані теоретико-методологічні засади формування політики впровадження нових програмних продуктів, вимог до них. Обґрунтовано та чітко окреслено мінімальний обсяг модулів та їх специфікацію, що дає змогу прийняти рішення про впровадження продуктів на певному рівні. Виділено та запропоновано необхідні переваги від впровадження програмних комплексів. Проаналізовано перспективи та можливості використання програмних комплексів для аналізу великих даних. Практична реалізація отриманих наукових результатів надає можливість обґрунтованого і цілеспрямованого управляти інноваційним розвитком військових формувань в умовах інформаційної економіки, створює передумови їх переходу до глибинного аналізу та використання машинного навчання у фінансовому забезпеченні військ.

Abstract. The article analyzes the causes of the problematic situation with regard to the use of Russian's software for financial and accounting control. Was made short reviews of recommendations for further action by public sector entities. Theoretical and methodological foundations of forming the policy of introduction of new software products, requirements for them have been developed and scientifically substantiated. The minimum size of the modules and their specifications are justified and clearly specified, which makes it possible to make a decision on product implementation at a certain level. Necessary advantages from the implementation of software complexes are highlighted and offered. Prospects and possibilities of using software complexes for Big Data analysis are analyzed. The practical realization of the obtained scientific results gives the opportunity of the grounded and purposeful management of the innovative development of military formations in the conditions of an information economy. This creates the preconditions for their transition to in-depth analysis and the use of machine learning in the financial support of the military forces.

Ключові слова: програмне забезпечення; військовий бюджет; фінансове забезпечення; Збройні Сили, військова аналітика, інформаційно – аналітичні системи.

Key words: software; military budget; financial support; Armed Forces, military analytics, informational – analytical systems.

Introduction. According to the present pace of the development of information and analytical systems, it becomes impossible to ignore their importance for the measures of financial support of the military forces. The ability to process and use up-to-date information is an important element in complex economic systems. This also applies to the Armed Forces and other military formations. Ukraine is one of the few countries in the world to be a party to armed conflicts, both on its own territory and as part of peacekeeping contingents to maintain peace and security in other countries. In view of the above, in such circumstances, it is necessary to develop innovative methods and tools for managing the data, material and financial flows of troops, military forces and the means that use them. Not only the gathering, processing, and transmission of information, but also its actual and fast operational analysis in real-time is of paramount importance. This will take into account absolutely all or most of the interconnections that arise in our time between objects of different systems. The management of the above processes will help to assess risks effectively and improve the effectiveness of providing military units, to formulate strategies and information sets for decision-making at different levels. This is possible if the financial information systems are effectively implemented.

Actual scientific researches and issues analysis. Problems of financial support development of the Armed Forces were investigated by M. Semenikhin, Y. Medvedev, I. Vashchenko, C. Vikulov, V. Fedosov, B. Andresyuk, O. Cheberyako and Z. Varnalii, F. Pedan, G. Rudenskaya, M. Tkachenko, R. Fedorenko, H. Çakmak, Avigur-Eshel and D. Filc, B. Phillips, P. Yesilyurt and E.Esilurta, T. Sandler and others. At the same time, the very question of the methodology of implementing financial information systems in the Armed Forces needs research.

Aim and tasks. The purpose of the study is to develop recommendations for the implementation of financial information-analytical systems, as well as to reveal the essence of the capabilities of financial analysis software within the framework of a systematic approach to the financial security of the troops. The totality of research methods is a methodology for analyzing and organizing the main legislative acts and laws, namely the methods of generalization, comparison, analysis, and generalization.

The statements of basic materials. Presidential Decree №133/2017 on the Decision of the National Security and Defense Council of April 28, 2017 “On the application of personal special economic and other restrictive measures (sanctions)”, on the application of sanctions against more than 1000 individuals and 400 legal entities. The list of software products included, among others, «1C» and «Parus», which were extremely popular in budgetary institutions, in particular in the Armed Forces [5].

The expected effect of these measures was to strengthen the state's cybersecurity level:

– protection of state secrets and other information protected by law;

– protection of Ukrainian society from the aggressive influence of destructive propaganda, information propaganda.

In practical terms, these changes have caused users to lose the ability to receive regular software updates from distributors and service providers. Also, in case of termination of the license (sub-license) agreement, the use of the program becomes illegal. Users may be held liable (primarily criminal) for actions involving the use of unlicensed software. These are just a few of the problems with using products that have been included in the sanction list.

The biggest blow to the decision was given to the security structures. As for a long period of time the Armed Forces and other security forces were investing considerable financial, labor and time resources in the construction of infrastructure using the «Parus» software as a basis. In the context of the transition to a new plan of accounts in the budgetary sector and fighting, this caused a negative effect on the financial system of agencies.

The reaction to the presidential decree was implemented in the form of an internal order for the forces and means of military formations to disconnect, from December 31, 2018, the automated workplaces where this IAS was installed from the information and telecommunication networks of the Armed Forces (including the Internet). This decision was made in accordance with the explanation of the State Service for Special Communications and Information Protection of 04.12.2017 №04 / 02 / 01-3135, which use is allowed only in the case of creation of appropriate integrated information security systems of the appropriate level [9].

However, the set of conditions associated with the execution of the funds by the managers of their functions has led to numerous requests from parts and military authorities to the security agencies to specify further actions. Thus, as of May 29, 2017, No. 248/3/11/284, it is recommended to continue applying a number of sanctioned software products to provide additional clarification, but to suspend escort services, new job creation from this program family [8].

Thus, the further development of information and analytical systems in the Ministry of Defense is a long time at a turning point, which will not only depend on the direction of development of the financial system but also the material, technical and personnel support. A well-done analysis of information systems for the automation of the processes of financial and economic activity management was conducted by the Center for Military-Strategic Studies of the National University of Defense of Ukraine named after Ivan Chernyakhovsky. A roadmap for software selection and implementation was proposed. The analysis of the software available in the department by scientists was formulated in a recommendation for the expedient introduction in the

Armed Forces of Ukraine of the information-analytical system «Parus» (full name – «Complex system of automation of management of the budgetary institution Parus-Budgetary institution, version 8») [12].

Given the current situation in the software market for budgetary institutions, and law enforcement agencies, in particular, it can be concluded that using the existing approach and the available financial resources will not be able to fully automate financial software in the short term. This is confirmed by the failure of several recent procurement procedures related to the acquisition of special software for automation of the Armed Forces' financial and economic activity.

An important element of effective in terms of the economic theory of the functioning of any market is the presence of competition. It contributes to the development of the product, the improvement of its components, the establishment of a fair and equitable price. However, when it comes to providing automation of the Armed Forces, interaction of different software complexes, the scale of the potential system, information security requirements, the task becomes difficult for every counterparty to become a winner in the procurement procedures. After all, it will require the availability of potentially very large staffing, technical and financial resources. Therefore, by analogy with the creation of one of the best Procurement systems, Prozorro can be offered to create an artificially limited but competitive market for the Armed Forces software.

The basis is the creation of a single centralized information database. Given its size, importance, and security requirements, there are several options for launching it. First of all, use of experience and software of world leaders in the field of information systems such as SAP and Oracle, or development of own software product that will meet the requirements. They will be put forward by management of information in terms of information security, system functioning, use of existing communication channels, creation of backup communication channels and information accumulation, etc. However, the centrality of the central database is to formulate methodological approaches and requirements for the interoperability of the central database for downloading information from third-party software and sources.

At the same time, clear criteria in terms of reference for market participants need to be developed. One of the most important, given the specifics of the field, is the security of information. Its verification should not consist in the presence of permits, but in the objective evaluation of the processes of information circulation in the system and its access to users, data encryption, interaction with other software complexes. The terms of reference and requirements for market participants should also include specific descriptions of the processes, key roles of military personnel, clear detail of the hierarchical structure of the system, and the order of the exchange of information flows. Thus, only those participants will be admitted to the software vendor market who will meet clear criteria that are important to the Armed Forces. The ability to appeal to multiple units at the same time of choice for automation of financial and accounting processes will affect competitive pricing, as well as the prospect of improving the existing product by market participants, as a prerequisite for gaining more market share, increasing their revenue.

At the same time, the simultaneous involvement of several companies as software vendors will help simultaneously start the process of automation on a large scale, on different territories, etc. However, this will not prevent adherence to uniform accounting principles for the creation of a Central database, subject to conditions. This approach has its advantages because, in the presence of only one supplier in the market and without competition, the supplier has the ability to dictate its terms, may have some restrictions on the introduction of its product due to the lack of affiliated units along with military units, etc., or sufficient quantity. trained staff.

Thus, at this stage of informatization of the processes of financial and economic activity, there is also a need to formulate basic principles during the process of introduction of information-analytical systems and to create basic recommendations, which should be taken into account in the technical task of the Ministry.

A typical program startup procedure consists of the following steps: project preparation, business analysis, project realization (test and study), final preparation, go-live, and support. Certainly, all stages are important and require 100% responsibility during execution. However, the main stage is the planning and preparation of the project. It is upon it that the success of all further work depends. Thus, during the evaluation of software products and the prospects for their future use, it is possible to formulate the minimum necessary package of transactions that would allow conducting business activities by military units.

In financial planning and calculations, it is necessary to account for annual estimates and changes thereto; records of appropriations received and commitments made; control over the implementation of the budget and its excess; formation of monthly analytics according to the allocation plan; formation of annual and quarterly financial plans; accounting for budgetary and financial commitments.

An important issue is contract work in the face of increasing numbers of decentralized payments. For her, the complex should include keeping a book of accounting and registration of contracts and agreements (including additional ones); typical departmental contract templates; correspondence of contracts; control of tenders and procurement; setting limits, thresholds, and norms.

For personnel accounting it is extremely important to automate the processes of accounting movement of personnel; keeping orders on personnel; supporting the legal framework for personnel accounting and reporting; planning vacation schedules; staffing and changes thereto; accounting for combinations; calculation of length of service and years of service; keeping personal cards and personal affairs of staff;

accounting of employment contracts and their uniform departmental templates.

Accounting and financial reporting should enable inventory of material assets; carry out their posting, transfer of write-offs, reassessment; to keep records of purchases from various sources; accrual and accounting of payment of wages and cash; maintaining a memorial-order form of accumulation and accounting; formation of different types of internal, summary and interim financial statements.

In the context of the increased level of mobilization readiness, it is important to have the possibility of address storage of goods in the warehouse; keeping books, cards, and magazines of warehouse accounting; inventorying; drawing up reports on warehouses; preparation and submission of primary documents.

One of the important steps is the automation of submission of data to internal and external users, which can be realized through the formation of electronic files for registration of budgetary, financial commitments and payment orders for submission to the bodies of the State Treasury Service of Ukraine, export (file creation) of documents to electronic system «Client – Treasury»; export (file creation) of documents to M.E.Doc system for submission to the tax authorities; export (file creation) of documents to E-data portal; build file uploads and information arrays with other external users at the user's request.

All of this together is a set of activities and modules that are minimally needed when implementing software in military units and controls. For several years now, the World Bank has been supporting initiatives in Ukraine that relate to the compliance of governmental organizations with international standards for International Public Accounting Standard (IPSAS). In particular, within the framework of the Public Finance Modernization Project, which was implemented together with the State Treasury of Ukraine. It also has a significant impact and places new demands on software packages. Namely, their flexibility and ability to quickly reconfigure accounting processes, edit accounts plan, process logs with retention and access to prior periods, which will allow for further verification of balance transfers centrally, etc.

Updates should be made without major changes at the expense of optional packages, which, provided the stability of the core products without involving large-scale updates, will allow innovations to be implemented and respond to changes. Such solutions should enable only the selective features to be updated in order to prevent system overload and the possibility of forwarding stress testing of changes. The requirements for the software product are described in Table 1.

Table 1.

Requirements for implementation of the software

Requirements	Description
Openness and scaling	The software kernel is written in the popular, powerful, commentary programming language and is clearly structured with minimal use of looping functions and hidden libraries. The construction of the system should allow it to scale according to the scope of the tasks performed.
Integration	The processes used in the software should fall within the logic of the Armed Forces models and algorithms. This will speed up implementation and reduce the risk of other structural changes.
Low cost of use	The software must be capable of interoperating and effectively utilizing existing IT infrastructure, integrating and integrating with existing systems. This saves considerable time on implementation and ownership of the program in the long term.
A clear map of implementation and development	The built infrastructure and code will become in the future the technological basis for all further changes and reforms. This should be foreseen at the implementation stage and should include updates without significant changes and data transfers, which would cause delays in work and loss of data and process interoperability.

As for the organizational structure, here are some key points to consider. Of course, we have to start from the structure of spending units approved by the Budget Code of Ukraine, but we also have an organizational and staff structure of the Armed Forces based on the specific affiliation of military formations, as well as the structure of security bodies. However, of course, the Ministry of Defense of Ukraine, which already covers the General Staff, Joint Operational Staff, Land Forces Command, Air Force Command, Naval Forces Command is the main steward and highest object of control, Special Operations Forces and other departments with departments. However, it is these entities that form the basic structure of the military administration. In turn, some of them are divided into operational commands, air command, and naval bases. This allows the creation of an additional controlling layer for the accumulation of information on costs and cash flows based on the principle of geographical location and area of activity, which in turn will increase the efficiency of responding to the challenges of command at operational and tactical levels. However, the detailing of the organizational structure requires a large scale, which will allow controlling including the availability of property in warehouses, in separate units, etc. The complex and unified organizational structure of process accounting can only be implemented by creating an index structure of the Armed Forces.

At the same time, it should be noted that almost all fund managers act as independent balance sheet units since they are obliged to submit financial and budgetary

reports established by regulatory acts to local regulatory authorities. This complicates accounting processes and causes duplication of certain functions by management bodies, a delegation of authority to lower organizational levels, with further verification of the legality of their implementation, increasing the burden on staff.

These findings have been formulated in the framework of a systematic approach, which is a scientific methodological direction, the purpose of which is to create tools and methods for researching complex objects in their organization. [11]. The systematic approach is fundamental in financial and economic analysis. It is necessary for complex prospective planning, creation of weapons samples and ensuring the life of troops [16, 17]. The complex organizational structure, the large number of channels of information exchange, its volumes and structure stimulate the most effective analysis of its software complexes. The practice of such an application has begun a long time ago, but it is only at this stage that we gain new dimensions for considering information arrays. Modeling accuracy is increasing, which can be used to solve problems related to time series analysis. Although time series analysis cannot exclude the use of complex systems, it can produce surprisingly accurate and reliable results if certain conditions are met.

Conclusions. An important determinant of successful state development is the military component. Given the long-term unpredictability of the situation, current trends in international support and arms cannot be considered as a guarantee of stability and elimination of all threats. Successful acceptance of our country's membership in the European Union and the North Atlantic Treaty cannot be such a guarantee. Ukraine's strategic location means that security and defense must be a key national issue, and therefore the basis of a defense strategy. An approach based on the idea of creating a unified system of analytical support for financial security issues will help increase the effectiveness of management decision making. At this stage, it is no longer just a challenge of the future, but a necessity for the present to increase the competitiveness of domestic military units. Further informatization steps should be followed taking into account the proposed principles and modules in the software, which should be an alternative to the existing format. At the same time, at the implementation and planning stage, a simple database structure should be designed and implemented that can be evaluated and presented in programmatic environments by using a closed and personalized feature set for rapid and rapid information analysis. These, in turn, can be presented in the form of prepared and encrypted libraries, which will be provided to analysts depending on the required level of analysis.

References:

1. Andresjuk BP. Reformuvannja Zbrojnykh Syl na suchasnomu etapi. Kyiv: Universytetsjke vydavnyctvo “Puljsar”; 2002.

2. Avigur-Eshel A, Filc D. Military Conflict and Neo-Liberalization in Israel (2001–2006): A Neo-Gramscian Approach. Political Studies. 2017;66(2): 503–20.

3. Cheberiako OV. Finansove zabezpechennia oborony Ukrainy yak osnova natsionalnoi bezpeky v umovakh zbroinoi ahresii RF. Scientific Letters of Academik Society of Michal Baludansky. 2017;5(2), 49-8.

4. Cheberyako OV, Varnalii ZS. Financial Prerequisites and Assessment of Defense Under the Conditions of Russian-Ukrainian Hybrid War. Scientific Bulletin of Polissia. 2017;1(4(12):143–9.

5. Decree of the President of Ukraine №133/2017 «Shhodo Rishennja Rady nacionaljnoji bezpeky i oborony Ukrajiny vid 28 kvitnja 2017 roku «Pro zastosuvannja personaljnykh specialjnykh ekonomichnykh ta inshykh obmezhuvaljnykh zakhodiv (sankcij)»

6. Department of Finance of the Ministry of Defense of Ukraine instructions from 29.05.2017 №248/3/11/284.

7. Fedosov VM. Ghosudarstvennye fynansy. Kyiv: Lybidj; 1991.

8. General Directorate of Communications and Information Systems of the General Staff of the Armed Forces of Ukraine instructions from 04.12.2017 №04/02/01-3135.

9. General Directorate of Communications and Information Systems of the General Staff of the Armed Forces of Ukraine instructions from 26.12.2018 №34110/C.

10. Çakmak HK. A Theoretical Glance at Military Expenditures. Economic Research-Ekonomska Istraživanja. 2009;22(4):118–27.

11. Kupalova GhI. Teorija ekonomichnogho analizu. Kyiv; 2001.

12. Pedan FP, Rudensjka GhV, Tkachenko MV, Fedorenko RM. Porivnjaljnyj analiz informacijnykh system avtomatyzaciji procesiv upravlinnja finansovo – ekonomichnoju dijaljnistju. Zbirnyk naukovykh pracj Centru vojenno-strateghichnykh doslidzhenj Nacionaljnogho universytetu oborony Ukrajiny imeni Ivana Chernjakhovsjkogho. 2016; (2):95-100.

13. Phillips BJ. Civil war, spillover and neighbors’ military spending. Conflict Management and Peace Science. 2014;32(4):425–42.

14. Sandler T, Hartley K. Economics of Alliances: The Lessons for Collective Action. Journal of Economic Literature. 2001;39(3):869–96.

15. Semenikhin IM, Medvedjev JuB, Vashhenko IV. Finansove zabezpechennja zbrojnykh syl v umovakh rynkovoji ekonomiky Ukrajiny. Kyiv: Dim Dmytra Buragho; 2006.

16. Vykulov SF, Zhukov GP, Tkachev VN, Ushakov VJa. Voenno-ekonomycheskyj analyz. Moscow: Voenyzdat; 2001.

17. Vykulov SF. Voenno-ekonomycheskyj analyz: istoriya, metodologiya, problemy. Vooruzhenie i єkonomika. 2012; (4):86-97.

18. Yesilyurt ME, Elhorst JP. Impacts of neighboring countries on military expenditures. Journal of Peace Research. 2017;54(6):777–90.