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CENTRAL INTELLIGENCE AGENCY

WASHINGTON, D.C. 20505

20 May 1977

MEMORANDUM FOR: The Director of Central Intelligence

FROM : William W. Wells  
Deputy Director for Operations

SUBJECT : MILITARY THOUGHT (USSR): Technological  
Progress and Tasks of Soviet Military  
Economists

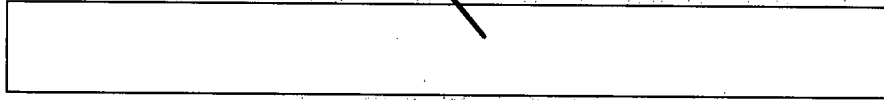
1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". This article reflects the trend of using economic analysis in the operations of the Ministry of Defense to determine the most economically advantageous and effective policy in regard to the allocation of funds for defense. Although the value of economic analysis is recognized, the author maintains that inadequate attention is paid to it, resulting in certain deficiencies, such as the lack of appropriate organizations for working out military economic problems and cases where the scope and level of military economic research do not meet the requirements for building the military establishment. This article appeared in Issue No. 1 (77) for 1966.

2. Because the source of this report is extremely sensitive, this document should be handled on a strict need-to-know basis within recipient agencies. For ease of reference, reports from this publication have been assigned

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## Intelligence Information Special Report

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COUNTRY USSR

DATE OF INFO. Early 1966

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DATE 20 May 1977

SUBJECT

MILITARY THOUGHT (USSR): Technological Progress and Tasks of Soviet Military Economists

SOURCE Documentary  
Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 1 (77) for 1966 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". The author of this article is Colonel General of Quartermaster Service V. Dutov. This article deals with the introduction of methods of economic analysis into the operations of the Ministry of Defense, particularly in the area of research and development of new armament and combat equipment, to facilitate the selection of the most economically advantageous and effective policy in regard to the allocation of funds for building the military establishment. The author examines the specific application of economic research and the tasks confronting military economists, and also cites certain shortcomings which exist such as the lack of appropriate scientific organizations for working out military economic problems, and cases where the scope and level of military economic research do not meet the requirements for building the military establishment.

End of Summary

[REDACTED] Comment:

Colonel General of Quartermaster Service Vladimir Nikolayevich Dutov has been identified as Chief of the Central Finance Directorate since 1962. [REDACTED]

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Technological Progress and Tasks  
of Soviet Military Economists

by

Colonel General of Quartermaster Service V. Dutov

The September Plenum of the Central Committee of the CPSU (1965) presented economic science with a number of major problems, the solution of which is of enormous national importance. In the material of the Plenum, in particular, it was emphasized that at the present stage in the development of Soviet economics, science, technology, and culture, efficient and economical management at absolutely every stage takes on decisive importance.

The decisions of the September Plenum of the Central Committee of the CPSU dealt entirely with building the military establishment in our country. The development of the armed forces and the improvement of their technical equipping embrace a wide range of problems, including to a large extent economic problems. The role of calculating the economic factor in building the military establishment has grown especially in the modern era, a period characterized by a rapid rate of technological progress.

In solving economic problems of building the military establishment, the main criterion, as we know, is to achieve our goal with the least amount of expenditures, that is, to ensure military and military technical superiority over a probable enemy with the minimum expenditure of material resources and monetary means.

The goals of building the military establishment in the USSR are clearly outlined in the Program of our party: "...The CPSU considers it essential to maintain the defensive might of the Soviet state, and the combat readiness of its Armed Forces, at a level which will ensure a decisive and complete rout of any enemy who dares to encroach on the Soviet Homeland."

To fulfil the tasks laid down by the Program of the CPSU for the Soviet Armed Forces, we must continually improve the technical equipping of the troops in accordance with the

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scientific forecast of the nature of a future war. Technological progress makes it necessary to develop corresponding branches in our defense industry. If we take into account the close connection between the defense industry and many other branches of the national economy, it is easy to understand the intimate connection between strategy and the economy of the country as a whole.

The presence of objective interdependence between the economy of the country as a whole and strategy, naturally raises the practical necessity of studying and calculating the numerous factors and conditions which determine and reveal the basic patterns of this interdependence.

Military economists therefore now face new tasks of economic analysis in order to facilitate the selection of the most economically advantageous and effective policy in the field of building the military establishment. Military economists are expected to become active assistants to the organs of strategic leadership in the development and implementation of measures in the field of building the armed forces. Studying the military economic capabilities of the state and ways of effectively utilizing them for the country's defense, analyzing the effect of strategic decisions on the development of branches of the national economy, economic research in determining the development and correlation between branches of the armed forces and branch arms, economic evaluations of the development and putting into service of new systems of weapons and combat equipment, ensuring economy in the use of armament among the troops, etc. -- this is far from a complete enumeration of the economic problems which military economists must solve.

The problem of the most effective allocation of military expenditures -- which is a quantitative expression of the interdependence between building the military establishment and the economy -- takes on particular importance under modern conditions. As we know, the military budgets of the imperialist powers are now at a level unprecedented for peacetime.

On the whole the capitalist countries are spending 15 to 20 percent of their entire national income on armament and their armed forces. The citadel of world imperialism -- the USA -- spends up to 70 billion dollars annually for military purposes.

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As we know, for the 1965-66 fiscal year the US Senate appropriated more than 15 billion dollars for the development of new types of weapons alone.

Under conditions where the imperialists are preparing for a new world war, the Soviet Union and the socialist countries have been forced to appropriate large sums to strengthen their defensive might. Thus, expenditures for defense in 1966 were fixed by the state budget of the USSR at 13.4 billion rubles.

The problem of the effective use of the military budget is exceptionally complex, because many of the factors which must be taken into account in analysis do not lend themselves to measurement and are difficult to compare.

The problem of efficient allocation of the military budget has attracted the attention of prominent specialists in a number of countries of the world. In the US, for example, a number of major works by C. Hitch, R. Makkin, K. Knorr, and others, are devoted to military economic problems and questions of the efficient allocation of appropriations among the main types of armament and combat equipment.

The best energies of university professors, numerous specialists, and advisers to governmental organs and private companies, have been enlisted abroad to work on the problems of military economics, including the question of the efficient use of the military budget. Also engaged in study and applied research in the field of the most efficient distribution and use of resources earmarked for military needs are special scientific research institutions: the Institute for Defense Analysis, the Hudson Institute, and the Rand Corporation -- "a research and development corporation". These organizations, closely connected with the Pentagon and the Central Intelligence Agency, are engaged in theoretical and applied research in the field of military economics.

Of course, the work of bourgeois specialists has as its basic purpose the substantiation and strengthening of the aggressive policies of the imperialist powers. However, individual methods of economic analysis of military problems also can and must be practiced by us.

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Quantitative economic analysis in making decisions on the scale of the armed forces is an important aspect of the problem of developing military economic thought in our country. The theoretical elaboration of economic questions connected with the development of military affairs has become an integral part of Soviet military science.

Unfortunately, it must be stated that the research we are now doing on large-scale military economic problems in the organizational and scientific sense still seriously lags behind the tasks awaiting practical solution.

The fact that the appropriate scientific organizations for working out important military economic problems have not been established, is evidence of the inadequate attention given to these problems. The scientific efforts of the Soviet Academy of Sciences and those of the individual Soviet republics have not been exploited to anywhere near their fullest capacity for research in military economic problems as prescribed in the plans of the Ministry of Defense.

In the Academy of Sciences of the USSR and those of the Union republics, for example, practically no orders have been received from the Ministry of Defense for work on large-scale military economic problems. Close along these lines, there is also the situation that requests for funds from the branches of the armed forces and branch arms, like the allocation of appropriations within the branches of the armed forces, do not contain strict scientific substantiation.

Incidentally, it should be mentioned that, while giving economic analysis its due in solving large-scale military problems, we must not forget another equally important task -- the need to find efficient solutions to individual problems of developing military equipment, controlling troops, organizing materiel-technical supply, and others. This is why a scientifically based approach to the allocation of appropriations within the branches of the armed forces and branch arms is so important.

Political, morale, and other factors, which cannot be measured by calculations or formal methods, are of great importance in solving large-scale problems. Of great

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significance here is the experience of the people who make decisions, which must be based on scientific principles which combine experience with the comprehensive analysis of social phenomena on the basis of the Marxist dialectic method, with due regard for the material factors in the development of society and of military affairs.

In solving individual problems it is often possible to formulate quantitative criteria for achieving a goal. For example, when selecting a type of fighter-interceptor for air defense aviation, the number of actual interceptions can serve as the criterion. A less expensive fighter ensures a smaller number of interceptions than one which is more improved and expensive. But on the basis of indices of economic expediency, it may be much more advantageous to acquire more fighters of the first type with the funds available, and thus increase the total number of probable interceptions. Economic research methods make it possible to establish the most efficient ratio between the number of bombers and bombs for the destruction of assigned targets, and to answer many other less general, but extremely important practical questions which constantly arise when attempting to solve various problems of building the military establishment. The complexity and diversity of the factors affecting the combat effectiveness of military items makes it impossible to determine their comparative military value without quantitative analysis. This is why in solving large-scale problems, as well as individual problems of building the military establishment, the development and quantitative analysis of different types of models of various combat systems, as opposed to methods of economic analysis, are of great importance.

The results of similar research should serve as the basis on which qualitative factors are developed when making decisions on the most efficient use of forces and means within the framework of appropriations for maintaining and equipping the armed forces as a whole.

The common tasks of military economists in solving individual problems of building the military establishment are: constant economic "weighing" of each measure pertaining both to the development of means of armament and combat equipment and to their use; systematic study of advanced native and foreign experience in the most effective use of funds appropriated for

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development; the production and introduction of armament and combat equipment.

Considering the importance of the problems indicated and foreign and native experience, it is probably advisable to designate (from among those available) a head scientific research institute, which would be responsible for developing methods for solving so-called individual problems of building the military establishment, and would resolve specific practical tasks of such a problem which are ordered by the General Staff, branches of the armed forces, branch arms, and the Central Finance Directorate of the Ministry of Defense. The organization itself of military economic research must, finally, become the subject of comprehensive study.

In examining the tasks of military economists in the light of technological progress, we should dwell particularly on the role of economic research in the process of conducting studies in the military field. As we know, high combat effectiveness in the armed forces is inconceivable unless the latest achievements of science and technology are put into practice in military affairs. It is precisely this circumstance which necessitates the allocation of enormous funds each year for scientific research on the country's defense.

The proper and effective use of funds appropriated for scientific research has enormous significance for the national economy. The newness and complexity of military development projects, and their high cost and relatively rapid obsolescence (in view of the rapid pace of development of science and technology), make it urgent to consider the economic factors in organizing and carrying out scientific research and experimental design work, and incorporating its results.

The scientific validity of decisions made which involve a certain level of expenditures for the technical rearmament of the armed forces will depend largely on the completeness and authenticity of economic research within the framework of specific scientific research and experimental design work to develop new types of armament and combat equipment.

The principal attention of military economists when conducting research should be concentrated on analyzing the

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economic indicators of military systems (items) which are being developed. The numerous indicators reflecting the economic side of this question may be reduced, it seems to us, to two basic groups.

The first should include: the volume of expenditures for the development, production, and introduction of military systems (items); expenditures for their operation and maintenance; a monetary assessment of the impact which may result from the introduction of new developments; and the time required to develop and introduce the new systems (items).

This group of indicators makes it possible to compare systems (items) of various types (or of different functional purpose) with each other. Such a comparison is possible as a result of using a universal equivalent -- money -- as the basis of these indicators.

An assessment of the economic practicability of new items is one practical way of using the indicators in the first group.

Under conditions of rapid technological progress the economic necessity arises to develop military systems and organize their introduction within rather rigid time limits. But these time limits depend, as we know, on the capabilities of industry, the preparedness of "customers", the number of stages involved in the introduction of these systems, etc. A delay in introducing new technical means can lead to increased costs due to obsolescence, which in turn will require a reassessment of questions of preference and the economic advisability of incorporating the results of research. This is why, in examining the time limit for introducing complex systems having a military purpose, the economic aspect can be decisive. The fact is that work included in a plan may be completed theoretically, but may not be able to be implemented in practice because of the high cost or limited production capabilities, or because of the length of time required for their introduction. This can be foreseen only on the basis of strict scientific analysis of the economic indicators of the military systems (items) being developed.

The second group of indicators, formed with regard to the functional purpose of the system (item), may include: the effectiveness of the system (item), the cost of increasing the

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mathematical expectation of the number of installations or targets to be destroyed, the price of survivability or reliability, etc.

The economic indicators in this group, reflecting specific features of individual systems (items), have a more limited range of application. They may be used as comparable characteristics only for systems having the same functional purpose. For example, with the use of an indicator of the cost of completing a large number of operations, information processing systems can be compared; while by using an indicator of the value of transmitting a million characters, communications systems can be compared, and so forth.

One practical approach to the utilization of indicators in the second group might be, for example, that of substantiating the selection of the most economical variant of the system (model) when achieving the prescribed basic parameters which characterize the purpose of the research.

Economic indicators of both the first and second groups unquestionably must be considered when organizing scientific research and experimental design work, both while it is being done and when evaluating the results obtained. Without such analysis there is very little hope that the development will turn out to be exactly what is needed in practice.

Much attention is being given abroad to questions of technical-economic analysis of research being conducted for defense (war) departments. According to the foreign press, in the USA since September 1963 technical-economic analysis has been included in most contracts both for the delivery of military equipment and for the conduct of scientific research. Technical-economic analysis has been given the task of reducing the cost of military contracts by 100 million dollars. A special guide on technical-economic analysis has been issued by the US Department of Defense.\*

\* "Electronics", No. 37, 1963, p. 55.

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At present 250 engineer-economists in the US Defense Department (and their number is expected to double by 1966) are working on ways to achieve a saving of 500 million dollars by applying technical-economic analysis of the Department's undertakings.\*\*

It is difficult to overestimate the importance of considering the economic indicators of scientific research and experimental design work when planning the activities of scientific research institutions and design bureaus. For example, a comprehensive examination of economic indicators can contribute greatly to the successful resolution of such questions as selecting the basic channels for the effective allocation of appropriations among scientific research institutions, concentrating monetary and material resources on the most effective and promising scientific research work being done within scientific research institutions, monitoring the fulfilment of thematic plans, and others.

The practical significance of economic analysis lies in the fact that it enables the collectives of scientific research institutions to organize their research more purposefully. It exerts a positive influence on seeking ways of reducing the cost of the work being done, and serves to increase the responsibility of the directors of scientific research institutions for the proper spending of funds.

The experience of work confirms the great practical significance and high effectiveness of economic research in the process of conducting complex scientific development projects and experimental design work. In practice, however, there are unfortunately still many examples where inadequate attention is being paid to economic analysis. Many instances are known where the scope and level of work in economic research lag seriously behind the requirements involved in the building of the military establishment. There are often cases where whole sections of economic research are excluded from the plans of scientific research and experimental design work, and the finished results are submitted and accepted without economic substantiation, etc.

\*\* "Electronics", No. 12, 1966, p. 60.

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There is no doubt that these deficiencies have an adverse effect on the effectiveness of the activity of scientific research institutions, design bureaus, and other organizations doing work for the Ministry of Defense.

What, then, are the tasks of military economists in eliminating these shortcomings in the further development of scientific economic analysis when performing scientific research and experimental design work?

Among the urgent tasks, in our opinion, we should point out the need to develop scientific methods of forecasting expenditures for the development of systems (items) of military purpose, methods of forecasting the economic effectiveness of capital investments and new equipment, the importance of introducing network methods of planning and administering complex development projects in order to optimize the time required for and cost of the projects.

The quality of military economic work and its further development will of course depend not only on the completeness of the theoretical solution of the tasks enumerated above, but mainly on the breadth and depth of the practical incorporation of the results of the research.

The successful solution of scientific problems requires systematic synthesis of the experience of military economic research and precise coordination of the work of the institutions engaged in economic research.

Particular attention should be given over to the collection, processing, and analysis of data from statistical observations in the area of developing, producing and employing complex systems (items) of military purpose, including those ordered by industry.

Practice shows that the organization of military economic work is largely determined by how well the role and tasks of economic research are understood by the people in charge of planning scientific research and experimental design work and heading design and scientific research institutions.

In this regard, we think it is advisable to enhance the responsibility of staffs of the branches of the armed forces, and

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the chief and central directorates of the Ministry of Defense which approve the subject matter of scientific research work by scientific research institutions under their jurisdiction and receive the finished projects, for carrying out orders and directives from the Minister of Defense which predetermine requirements for the economic substantiation of work done for the Ministry of Defense, and for creating conditions in scientific research institutions and higher military educational institutions of the Ministry of Defense for the conduct of military economic research. We must reach the point where not a single major scientific research or experimental project is assigned and carried out without serious scientific-economic analysis being done to justify it.

To achieve this it is of course necessary to determine precisely the goals of new projects and to compare their scope against the capacity of the available material resources, and their orientation -- with the tasks of the branch of the armed forces, and to calculate what the new projects will cost the state.

In 1965 a procedure was established in the Ministries of Defense and Defense Industry, which obliged researchers working on new models of armament, before submitting their proposals to the government, to prepare advance designs with a detailed technical-economic analysis of the anticipated cost of developing prototypes, their mass production, and their operation. This undoubtedly will contribute to a more efficient expenditure of funds.

In the development of military economic research, it is difficult to overestimate the importance of the level of training of the specialists who will be charged with carrying out military economic work. Skilled cadres of scientists and military economists, imbued with a spirit of innovation and creativity, to a large extent determine success in solving the central economic problems of building the military establishment.

In view of the necessity of sharply increasing the scope and level of military economic research, in our opinion the need is urgent for radical improvement in the existing system of training military economists. They must have mastered modern methods of research, using the latest achievements of technology, such as

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the queueing theory, methods of mathematical planning, operations research, the use of electronic digital computers, and others.

For example, we should welcome the setting up of special advanced courses for the further training of officers engaged in military economic research, the allocation of places for graduate work at higher military educational institutions and leading scientific research institutions where scientific researchers can be trained in the field of large-scale military economic problems, and the introduction of a special series of lectures in military academies on economic analysis.

And finally, there is the matter of the material interest of collectives of scientific research institutions and higher military educational institutions in doing the most effective development projects and scientific research. Such interest can be achieved only if work, considered effective from the standpoint of the state's interests, is most "advantageous" both to the directors of scientific research institutions and to the scientific researchers. To achieve this goal we must seek economic levers which will make it possible to tie wages to the effectiveness of the research and the development projects being done. Specifically along these lines, we should explore the possibilities of making more flexible use of the existing bonus system.

These, then, are some questions, the solution of which, in our opinion, could considerably increase the effectiveness of the work of scientific research institutions. We hope that the proposals set forth in this article will contribute to a broader discussion and study of questions of the development of military economic research, as well as of methods for more effective and efficient use of material and money.

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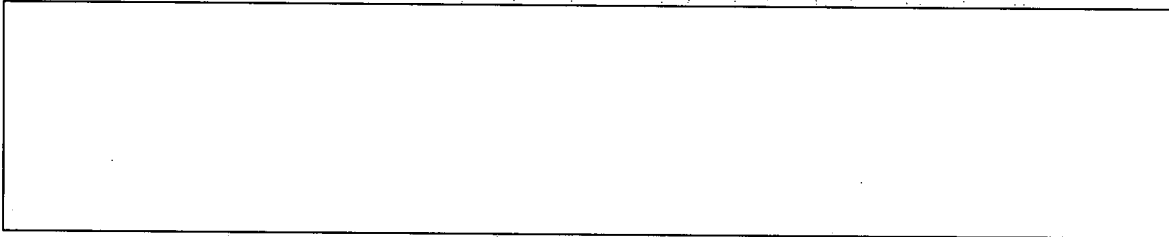
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The introduction of methods of economic analysis into the operations of the Ministry of Defense, and particularly into the area of the organization of military technical development projects, will help to significantly improve the expenditure of budgetary appropriations, and thereby increase the defensive capability of the Soviet Armed Forces.



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