

Problems of diversification of the Russian Federation military-industrial complex and ways of solving them

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Abstract — The article deals with the main problems of diversification of the military-industrial complex of the Russian Federation under the current conditions of military products reduction of financing and supply. In order to solve these problems, the authors propose several ways to increase the level of diversification of the military industrial complex. One of the key areas is the creation of a coordination centre for the development of the defense industry diversification in the Russian Federation at the Federal, regional and municipal levels. In addition, the authors proposed a model for the development of diversification on the basis of this organizational decision, considered the functional competence, as well as the advantages of the implementation of the coordination center for the development of diversification of the military-industrial complex of the Russian Federation into the practice of interaction. The proposed ways of increasing the level of diversification in the Russian Federation can improve the efficiency of the production of military and civilian products by domestic enterprises.

Keywords — *diversification; military industrial complex; military products; civilian products*

I. INTRODUCTION

According to V. Putin, the President of the Russian Federation, the Russian Federation State Armament Plan (2007-2015, 2011-2020) the generated large-scale modernization of the military industrial complex, carried out through a number of Federal target programs and, in the first place, the Federal program of the defense industry development (2011-2020). In other words, during the last ten years the State Armament Plan has pushed the defense industry to a significant modernization. It is also known that Russia is completing the re-equipment of the army and navy by 2020, which inevitably leads to a reduction in the state defense order [11].

In December 2016, Russian President Vladimir Putin set a task for defense industry enterprises to increase the share of civilian products to 17% by 2020, to 30% of total production by 2025, and to 50% by 2030. The indicator of the share of civil production in 17% has already been

achieved, at present, the main task of the Ministry of Industry and Trade of the Russian Federation concerning the diversification sees the adaptation of defense enterprises to market conditions in the sale of civilian products.

The main goal of the diversification is represented in the necessity to ensure high stability of Russian business structures through the development, production, introduction and commercialization of various types of products (military products, civilian products, dual-use products) for supply to domestic and foreign markets.

It is clear that for many companies in this area of activity it will cause complications that are associated the following things:

- lack of guaranteed state funding for the production of civil products;
- decrease in profitability of products taking into account imbalance of its price, qualitative characteristics and a time lag of production modernization;
- lack of modern market management tools (managers of the defense industry traditionally focus on achieving the tactical and technical characteristics of the product, the market SE the main criteria are the price, quality, timing of the product);
- overstocking of storage facilities;
- a significant reduction or stoppage of production;
- the provision of unpaid vacations to the defense industry employees; transfer to a reduced working week; staff reduction;
- bankruptcy, etc. In this sense, the problems of the diversification of defense companies become the most significant.

It should also be noted that not all defense companies as the performance indicators of the new State Armament Plan, the Russian Federation will be fully prepared to enter the control numbers planned diversification, because their power and the staff are engaged in the fulfillment of state programs or the Federal program is almost up to 2025. This should be taken into account when developing a comprehensive diversification program in the country.

II. MATERIALS AND METHODS (MODEL)

Using a differentiated approach to this issue, all defense industry enterprises in relation to conversion should be divided into three conditional groups [4]:

1. Enterprises that fundamentally do not fit into the markets of GP (nuclear weapons complex, missile systems, special ammunition).

2. Businesses that are easily diversified, and are already working on the civilian markets. These are enterprises, which traditionally have a share of high-tech products of civil and dual-use is more than 25%, they have established units specializing in the organization of production and promotion of such products as the following:

- United aircraft Corporation (UAC): civil and transport aircraft;
- United engine Corporation (UEC): a gas-turbine plant of different capacities for production of electric and thermal energy, gas compressor and marine gas turbine assemblies, engines for civil airplanes and helicopters;
- United shipbuilding Corporation (USC): civil sea and river vessels, icebreakers, offshore technology;
- civil helicopter;
- "Almaz-Antey" concern: air traffic control systems, telecommunication equipment;
- "Shvabe" concern: medical equipment, devices for scientific research, energy-saving lighting. Enterprises of this group, of course, are able to independently increase the production of high-tech civil production.

3. Enterprises, which traditionally share the civil production not exceeding 10% of the total production and sales. For enterprises forming the third group, it is very problematic to enter the market of high-tech the civil production independently. After unsuccessful attempts of the 1990s, the attempts of large-scale re-profiling in such business entities were completed. The probability that such a process will be more successful in this case is insignificant.

As a result of the analysis of the experience of production and commercial activities in the direction of the civil production, the following main problems can be identified within the third group of defense enterprises: [1-12]:

1. Lack of a single comprehensive program of diversification in the Russian Federation, covering all the sectors of the defense industry at the Federal, regional, municipal levels of government.

Everyone knows that the socio-economic indicators of domestic enterprises are the final result of the socio-economic development programs in the relevant areas of business adopted by the Government of the Russian Federation. For example, the adoption and implementation of the state armament program (2010–2017) by the defense industry enterprises has become, in fact, one of the drivers of the growth of socio-economic indicators, both in the regions and in Russia as a whole. The implementation of this program in conjunction with the Federal target program gave a serious impetus to the technological re-equipment of the production capacities of most defense enterprises. Naturally, the further development of individual enterprises of the defense complex, taking into account their industry specifics and existing potential, will also depend on the adoption of a new Federal Target Program, and on the development and implementation of a comprehensive program of diversification in the country. This, of course, will require a range of strategic measures of marketing,

organizational, financial, information, analytical, methodological, etc. nature, aimed at the systematic implementation of a comprehensive step-by-step process of defense enterprises diversification in the Russian Federation, to prevent failures and losses like in the 90s.

Moreover, the target indicators of the share of civil programs should first of all be planned at the level of integrated structures, then - at the level of individual enterprises, since it is not always advisable to immediately combine civil and defense competencies within one legal entity. Taking the course of diversification of activities, large multi-profile integrated structures will be able to carry out internal reorganization independently, which can unite several areas that are not related to the main areas of core activities, and the business units included there will combine organizational autonomy with the ability to access production assets and technologies of these integrated structures.

According to the Ministry of Industry and Trade of the Russian Federation, represented by D. Manturov, the state has created a full package of tools to support projects in the framework of diversification:

- "Now the main pool of the Ministry of Industry and Trade of the Russian Federation, includes more than 170 projects on diversification of the defense industry, planned for the implementation in the next four-five years. Only from "Rostec", "Rosatom" and "Roscosmos" state corporations we have received more than 110 specific project proposals related to the production of civil products", – said Denis Manturov, the Minister of of Industry and Trade of the Russian Federation. Moreover, "Rostec" state corporation, which's perimeter includes an impressive part of the defense industry, intends to reach the target of 50% five years earlier - by 2025;

- for the defense industry enterprises that do not have experience in the civil direction, a marketing center was created – "Conversion" scientific and production Association – a joint structure of the state Corporation "Rostec" and "Vnesheconombank" state corporations, specializing in identifying market needs, finding directions and opportunities for the promotion and sale of products of defense industry enterprises;

- the main point of collecting civil projects of defense industry enterprises today is the "Geoinformation System Industry" platform, which forms interactive catalogs of high-tech products manufactured by defense industry enterprises. Currently, these catalogues include about 4.3 thousand items of the nomenclature, of which more than 2.2 thousand items are high-tech products for civil and dual-use;

- The Ministry of Industry and Trade of the Russian Federation has identified several priority sectors within the framework of diversification for the next two or three years, primarily oil and gas, energy, transport and machine-tool engineering, civil arms, radio electronics, medical equipment and a number of other areas.

However, the above-mentioned tools aimed at supporting civil projects within the framework of the diversification, developed by the relevant structures of the Federal level, again confirm the absence of the following aspects [4,10]:

- unified statistical database reflecting high potential demand and low supply for specific types of civil products in the country;

- comprehensive analysis of the potential of defense enterprises in terms of their capacities and relevant personnel;

- the absence of a body engaged in these studies, analysis, and, as a consequence, developing at this critical stage in the defense industry proposals/orders for defense industry enterprises taking into account their industry, specifics and potential;

- specific successive stages of the unified diversification program in order to minimize the risks, costs, time lag of the participants in this process, and, therefore, an integrated approach to this issue;

- selected criteria of industry-specific production of the defense industry, taking into account its potential personnel reserves and capacity;

- direct and reverse interaction of responsible participants in the diversification procedure at the appropriate levels of management (Federal, regional, municipal) within the relevant sectors of the defense industry, etc.

2. High competition in the promotion of civilian products in foreign and domestic markets.

As shown by almost 20 years of experience, the defense industry enterprises, overwhelmingly focused on the production of military products, objectively do not have the ability to independently overcome the systemic crisis due to its sectorial structural nature. Accordingly, at this stage of their development, they are not able to respond quickly to changes in market demands and the price scale of potential competitors. In this sense, the problems of reducing the cost of civil production, the complexity of its production, continuous improvement of technical appearance and design come to the fore. In addition, the strongest difficulties experienced in positioning and promotion of civil production also arise due to the unknown manufacturers and the lack of previously developed brands. Further, there is unproductive competition between enterprises within the integrated structures of the defense industry in an attempt to become "finalists", to develop and produce identical civil production or products of the same product line.

3. Ignoring the real market needs of civil production in the country and regions.

According to Vladimir Dovgiya, the General Director of the "Interdepartmental analytical Center, " ... the current task of transformation of the defense industry is not so much the task to relieve the economy of everything that fell on the shoulders of Russia after the Soviet Union (as it was in the 1990s) as much the task is, based on the current state of the defense industry, to make a maneuver its forces, means, competencies, personnel so as to make the most of the reserves that it has... to work in the market logic: there is an open market, where it is necessary to act in a market " [1].

The absence of modern market mechanisms does not allow to operate even at the regional level and, moreover, does not allow to comprehensively realize the market potential of the all-Russian scale, which can have a significant part of the innovative civil products in the case of its production development.

4. Significant risk investment in alternative production of civil direction.

The production of civil products requires the formation of a package of technical documentation embodied in the form of patents and licenses, and their purchase is a costly investment that is not available to every

defense enterprise. In addition, when establishing the production of civil products by defense enterprises, the question of their technical re-equipment inevitably arises, which, due to the narrow specialization of production capacities, used previously in the manufacture of special equipment, may be either unprofitable or impossible even in terms of their financial stability.

5. Insufficient supply of relevant resources of the participants of diversification in the development and production of promising non-core products for civilian use.

Non-stop management of promising non-core civil developments has an extremely negative impact on the lack of financial, human, information, etc. resources, on the timing of readiness of products to enter the market, their functional and quality indicators, etc.

It should also be noted that the field of defense industry has a number of features that objectively do not allow enterprises to diversify painlessly: a long production cycle, a high level of work in progress, a system of advance payments, which generates an increase in receivables and payables between the participants under one state contract, a limited level of profitability of products, etc.

The Ministry of Industry and Trade of the Russian Federation, for its part, has developed a package of programs to provide financial support to defense enterprises, for example:

- a special program of industry development fund called "Conversion", intended for preferential crediting of the enterprises included in the register of companies, ranging in size from 200 to 750 million rubles for a period of up to five years with an interest rate of 1% in the first three years of the loan and 5% for the remaining period. Target sales of new products should be at least 50% of the loan amount per year, starting from the second year of serial production;

- the Research and Development subsidy program, aimed at the selection of projects to increase civil production;

- joint program of the Ministry of Industry and Trade of the Russian Federation and the Ministry of Education and Science of the Russian Federation aimed at the creation and development of engineering centers at universities (the program budget for 2017 is 700 million rubles). In 2013-2016, 49 such engineering centers were created; the sixth stage of competitive selection of projects is planned for autumn 2017, etc.

An important priority real problem in this issue today is the lack of highly qualified personnel (specialists of engineering and design, marketing and management corps) for the implementation of diversification processes in the country.

6. Risks of losses of accumulated innovative potential in the country as a whole.

It is known (data of 2017) that the defense industry enterprises employ about 2 million people, which is about 3% of the total working population of the country, the share of the defense industry in the domestic economy is 5-6% of industrial production and 3% of the gross domestic product. It is also known that at the same time about 70% of all Russian science-intensive products are created in this sector. It should be emphasized once again that the forthcoming diversification of industry is a rather painful process that has already been passed in the 1990s. Therefore, one of the most important tasks for the transfer of defense enterprises on the

rails of civil production is not to lose the existing reserves and modern competence in the field of defense.

7. Lack of motivation of defense industry enterprises management concerning the civil production development.

Managers of defense industry enterprises often have a utilitarian and technological view upon the production of non-core civil products as a temporary forced measure designed to load idle expensive equipment and support unoccupied personnel. Moreover, in general, the structure of scientific, technical and production complexes involved in the production of civilian non-core products at defense industry enterprises is developing on a residual basis in relation to the state defense order. This "secondary" undermines the competitiveness and commercial efficiency of the non-core civil proceedings.

To solve the above-mentioned problems related to the implementation of diversification in the field of defense industry at the Federal, regional and municipal levels of government, it is necessary to do the following things:

- recommend to the Government of the Russian Federation to develop a comprehensive mechanism for carrying out the diversification procedure in the country, supported by an appropriate legislative framework, the work of which would be based on successive stages of a single multi-level program of diversification of the defense industry in order to minimize the risks, costs, time lag of all participants in this process;

- develop a policy of promotion of civil production at the state level with elements of protectionism aimed at the initial stages of implementation to protect domestic producers from foreign competitors;

- control direct and reverse interaction of responsible participants of the diversification procedure at the state and regional levels of management;

- identify the main criteria for the diversification process management to the level of the predictive control targets, taking into account industry-specific enterprises of the defense industry, the existing specialized production facilities, potential employee pools, etc.

- centrally on a single information platform to statistically process the issues of effective use of existing assets and personnel reserves of defense enterprises, taking into account their specifics;

- create a single information base reflecting the availability of equipment for the production of civil products, the list of intellectual property objects, the existing needs to attract suppliers, proposals for the creation of joint ventures on the basis of existing assets on the basis of equity (joint-stock companies, limited liability companies), resource associations (simple partnerships, consortia), in the form of economic partnerships. This form of organization will enable an analysis and evaluation of the existing potential and taking the participants of economic activities, consolidate available resources for the purpose of formation determine the possibility of their interaction, and to identify potential members of the associations on the issue of civil products etc.;

- systematically attract financial resources: investments, loans / guarantees (it is possible to organize a specialized financial structure that provides preferential loans by analogy with the industrial development Fund, etc.);

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- develop modern financial mechanisms in the form of the organization of funds to provide funds issued to enterprises of the defense industry to Finance mergers and acquisitions with companies engaged in the production of related types of SOEs. It is known that in accordance with the current regulations, it is possible to purchase shares only from net profit. In turn, the current pricing mechanisms in the field of state-owned enterprises do not allow to consider military products highly profitable, which limits the defense industry enterprises in the markets of mergers and acquisitions. It is worth noting that US companies in the defense industry, such as Boeing, General Dynamics, Raytheon Corp. constantly spend buying new and selling their own assets

- provide consulting support to the processes of diversification on the reorganization of management systems, development of strategies, search for specialists and managers, cost management;

- systematically carry out technological audit of each enterprise of the defense industry in the framework of a comprehensive diversification program;

- to expand the existing supplier base for the defense industry among enterprises working in the civil sector of the economy;

- separately work out the procedure for creating new business units operating in civil markets;

- to carry out comprehensive implementation of the theory of inventive problem solving by G.S. Altshuler and morphological analysis by F. Zwicky at the enterprises of the defense industry through local, regional and Federal training centers that improve the level of generating new ideas, first and foremost, employees of the engineering profession involved in the civil production development and implementation [2].

The authors propose to implement these areas on the basis of the implementation of the coordination center for the development of diversification of the defense industry of the Russian Federation at the Federal, regional and local levels of government.

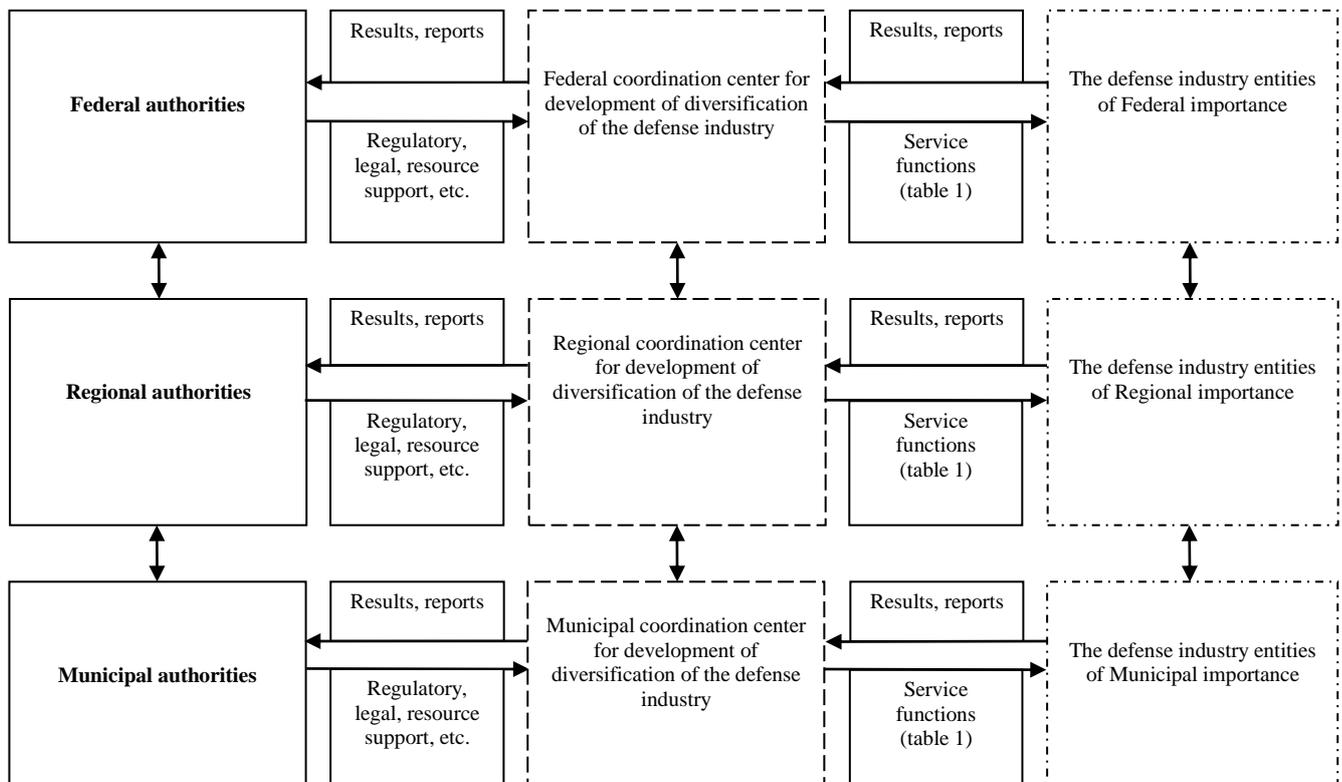


Fig. 1 Model of implementation of the coordination center

The model of implementation of the coordination center for development of diversification of the defense industry of the Russian Federation is presented by the authors in figure 1.

III. RESULTS AND DISCUSSION

The proposed model of implementation of the coordination center for the development of diversification of the defense industry of the Russian Federation allows [3, 11]:

- determine the levels of diversification of the defense industry of the Russian Federation (federal level, regional level, local level);
- establish organizational cooperation within the framework of diversification of the defense industry between the authorities, the Coordination center for the development of diversification of the defense industry of the Russian Federation and the subjects of the military-industrial complex (chief executives, enterprises of different levels of cooperation);
- establish the place of the coordination center of development of diversification of the MIC of the Russian Federation in the General structure of interaction;
- to form the key competences of the coordination center for the development of the Russian Federation's defense industry diversification depending on the goals set, etc.

Consider the main functions of the coordination center for the development of diversification of the defense industry of the Russian Federation at different levels of management, which are presented in table 1.

TABLE I. Key functions of the coordination center

Functions	Content
Consulting and information support	<ul style="list-style-type: none"> - consulting support within the mechanism of organization of the interaction process "authorities-the coordination center of development of the defense industry of the Russian Federation - subjects of the defense industry"; - formation of unified geographic information systems for the collection, processing and analysis of data in the field of diversification of the defense industry; - organization of communication channels between the subjects of the process of diversification of the defense industry etc.
Methodological support	<ul style="list-style-type: none"> - standardization and unification of activity of the coordination center of development of diversification of the defense industry of the Russian Federation; - developing methods of analysis, evaluation, planning, forecasting, controlling etc. the diversification of defense; - forming a common base for the development of the level of diversification of the defense industry, etc.
Analytical and evaluation procedures	<ul style="list-style-type: none"> - plan-fact analysis of the level of defense industry diversification development; - development of measures to achieve the planned indicators of defense industry diversification; - assessment of the level of defense industry diversification development by industry, subjects, regions, etc.
Forecasting and planning	<ul style="list-style-type: none"> - forming point plans and forecasts in the field of defense industry diversification; - forming consolidated plans and forecasts of defense industry diversification;

	- adjustment of plans and forecasts based on external and internal factors, etc.
Control	- controlling target indicators of diversification according to industries, regions, subjects, the responsible, etc.;
	- controlling incoming and outgoing information flows;
	- checking the correctness of indicators, plans and forecasts in the reporting of subjects of defense industry, etc.
etc.	

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IV. CONCLUSION

Thus, in order to ensure a systematic entry into the markets of civil orientation with new products, a centralized set of marketing, organizational, financial measures, significant investments, etc. is needed. The limited production capacity of defense enterprises does not allow them to independently realize the market potential of the all-Russian scale in the case of the production development of innovative civil production.

A sectorial state and regional programs of diversification of the defense industry of the Russian Federation with the allocation of specific areas of support and sources of funding with parallel amendments to the legal framework should work today. At the same time, it should be guaranteed that the existing production capacities of enterprises are loaded with orders from both state and monopoly structures for the period of implementation of the strategy of socio-economic development of a particular region. Diversification of the defense industry is a specific task not only for defense industry enterprises, but also for the whole country.

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