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# INTRODUCTION

Aerospace industry is a collection of enterprises engaged in designing, manufacturing and testing aircraft, missiles, spacecraft and ships, as well as their engines and avionics (electrical and electronic equipment, etc.). These companies are publicly owned or private owners. This industry has a great defense, overall economic and scientific importance for both developed and rapidly developing countries.

Features of the aerospace industry, is that the production equipment of one of the most intellectually wealthy and technically advanced industries of the country correspond to the complexity of its products. It is widely used and modern machines, and manual labor of highly qualified professionals. Research and development work preceded the issuance of all new types of products the aerospace industry, except for small civil aircraft (their production is often borrows the results of surveys from other areas of technology).

The pace of development of the aerospace industry has surpassed other sectors and become crucial for modern civilization.

Relevance of the research topic. Aerospace Industry has an important political and economic importance. It is largely determined by the industrial potential and prestige of the state: its companies supply their products to domestic and foreign markets, provide orders of other branches of the economy, providing many jobs. And today, when the use of specific features of rocket-space development has become a common practice in many areas of science, the military-industrial complex and the national economy, the efficient development of the domestic space is becoming increasingly important, especially for the maintenance of defense and Russia's competitiveness in the world.

For Russia, due to geopolitical reasons astronautics has always had and will have special significance. In today's world almost any large-scale socio-economic, scientific and defense programs cannot be effectively implemented without the use of possibilities of space-rocket industry.

The aim of the course work is to study the problems of strategy and solutions to problems existing in the aviation industry. The object of research is the development of the aerospace industry of the Russian industry in the province.

1. **Current status of the Russian Aviation and Space Industry**

As you know, post-industrial economy - it's the economy, an essential condition for the functioning of which is the application of scientific knowledge, the use of substantial resources and funds for technical, scientific and technological development. Among the priorities of its development, such as information technology, biotechnology in medicine, nanotechnology, environment, nuclear research, and several others, always present in aviation and space. Therefore, the ineffective use and the more expensive the potential loss of the aerospace industry is one of the most serious issues facing the Russian high-tech industry in the reform.

* 1. **The value of the aerospace industry to the economy**

Modern Russian aircraft industry is one of the most promising areas of the Russian economy over the next decade. Production and technological potential accumulated in the industry for decades of its existence, in many respects, especially in the military aviation sector is still greatly exceeds the achievements of leading industrialized countries.

The continued presence of Russian enterprises of the aviation industry on global markets, particularly in the international market of military aviation. The successful promotion of domestic aviation is associated with the tough competition with world leaders, united in large diversified aerospace and space corporation. Naturally, to preserve the sovereignty, economic development, including employment highbrow work, and social spheres of Russia with its vast territory will always be necessary to ensure independence in aviation technology for military aircraft, for the development of air-space communications, to maintain their infrastructure, and hence will need advanced aviation industry.

The existing international system of regulation of aviation activities and the ever-increasing requirements for aerospace technology, its reliability, safety, economy, environmental impact, require many innovations and legacies of basic and applied research and development.

From the perspective of the base of innovation and technological development of the Russian economy the significance of the aerospace industry cannot be overstated - so large scale and range of its scientific, technical and technological achievements and interests.

## 1.2 Terms of air Industry

When towards the aviation industry was government consistent scientific and industrial policy, it is at the forefront - and in the scientific and technical level aerospace, and manufacturing scale. Industry was one of the world leaders in the development and manufacture of civil (the first jet and the first supersonic airliners - domestic) and military aircraft and helicopters for almost all types. Achieving good results provided a number of factors: the industry had a centralized management system, enjoyed the privilege of priority of resources (financial, personnel, logistics), developed in a balanced current and future plans and targeted programs within the industry-specific (not economic) means to maintain competition various scientific and engineering schools and industries, and carries out scientific-technical policy of uniform rules, requirements, state and industry standards, regulations, certification systems, etc.

Since the beginning of market-oriented economic reforms, to the liquidation of a large-scale policy of state support of the aviation industry was in deep crisis. Become critical factors in domestic demand and government funding, which fell sharply.

The process of radical transformation of the socialist economy into a capitalist needs to be managed. Dismantling of a centralized management system, providing fiscal, industrial, social stability of the economy, was not and could not be supported by the establishment in a short time the entire system of necessary and well-functioning market institutions to ensure its stable operation at all levels of the economy. As a result of major economic entities (enterprises) were found in the economic environment, devoid of mechanisms for their coordinated interaction. In these circumstances, the aviation industry, as well as before the military-industrial complex as a whole, got a number of problems that require quick decisions. One such problem - the lack of specialists in the organization of marketing networks, marketing, complex and quite specific products. During its production in a centralized system of governance was not necessary - the formation of state order, its financing and distribution has been the exclusive function of government. Another necessary condition for improving the efficiency of the industry is to improve the organization, management practices and technologies. In the Russian economy a single aerospace complex until finally formed, if we evaluate the degree of rationality of its institutional, scientific and industrial structure. Historically, aviation and space industry have evolved in terms of organizational and technological interaction is relatively independent.

After the reorganization of the management of the military-industrial complex in 1999 was the first step towards unification of aviation and space industry (the Russian Aviation and Space Agency) in the Aviation and Missile and Space Scientific-Industrial Complex of the economy. It should be noted that the organizational and financial problems in this process is not only difficult. No less challenging is the implementation of the unified scientific-technical policy. In the long run such a reorganization would create a new complete set of production which rightfully can be called the Russian aerospace industry. Currently, aircraft are basically due to past scientific, technical, engineering and technological reserve, the reserve is steadily dwindling. The chronic lack of financial resources, limited the narrow framework of state order and federal programs, leads to delays or suspension of promising research and development. In the absence of serious investment in innovation more difficult to compete with Western corporations.

The sharp decline, and in some areas - and the complete elimination of the state order have led to a fragmented operation of sub-aviation industry. Financial and economic situation in the military and civilian aircraft, engine and helicopter are quite different. In better shape now is a military aircraft because of its foreign trade contracts.

## 1.3 The modern potential of the Russian aviation industry

Aircraft industry - a series of scientific and industrial complexes of the closed design and manufacturing cycle consisting of design organizations, experimental and production of industrial enterprises, the central research institutes to develop, manufacture, repair and modernization of civil and military purposes, as well as ground equipment, ensuring the operation of this equipment. In addition, the industry has many general-purpose plants, providing the first and second level of cooperation Aircraft (radio and electronic equipment, apparatus, various units, units, normals, etc.), creates specific tooling and machine tools. The aviation industry in its broadest sense includes the whole range of areas of the design, production, operation, maintenance and repair of aircraft. Also in the field of so-called "other" businesses. They include corporations and holdings of various types, which combine retain legal independence of the enterprise, as well as children, mediation, provisioning, innovative company.

To improve the situation is being restructured AP ultimate goal - to generate in the years to Profiles, thematically and technically gravitate to one another structure: instrumentation, engine building, airframe holdings.

As a result of restructuring, many companies are derived from the aviation industry as a lost profile.

# 2. OBJECTIVES OF DEVELOPMENT STRATEGY OF AVIATION INDUSTRY

To solve the problem of expansion of space activities and to provide a permanent, independent Russia's withdrawal into outer space by Government of the Russian Federation on October 22, 2005 № 635 approved the Russian Federal Space Program for 2006-2015 (PCF-2015), which determine the prospects development of space vehicles of socio-economic, scientific, and dual-use for the upcoming 10-year period. The main objective of the program is to meet the growing needs of government agencies, regions, and the population in space systems and services. In addition, to implement the system, backed by financing decisions in bringing satellite services and information to the Russian consumers Roscosmos prepared the concept of the federal target program "The use of space activities for the socio-economic development of the Russian Federation and its regions for 2010-2015."

Developed and other targeted programs: - Federal Program "Global Navigation System", approved by RF Government Decree of 20 August 2001 № 587; - Federal Program "Development of the Russian cosmodrome in 2006-2015."

The problem of efficiency of space activities, especially in economy and social sphere, it is necessary not only to federal agencies, but also to the subjects of the Russian Federation. There are regions whose development is impossible without the use of space activities, such as further development of the Russian northern and circumpolar regions.

Space technologies penetrate more deeply into all spheres of society. Public authorities regions are increasingly using them to effectively manage their daily activities, improve the quality of services provided to citizens. The use of such technology in the modern information society is a prerequisite for ensuring compliance with government requirements and needs of the population. For several years, Roskosmos intensively developing cooperation at the regional level: agreements with more than 50 subjects of the Russian Federation in the use of space activities. Approved by the joint regional target programs Roskosmos with governments of Kaluga region, Krasnoyarsk Krai and the Republic of Tatarstan and other regions.

Under the Federal Space Program of Russia carried out a large amount of work aimed at creating conditions for real-time monitoring of mobile and stationary objects (vehicles, space launch facilities, nuclear power plants, chemical plants, etc.), as well as the use of space resources for the prediction of emergency situations, control dynamics of their development and possible consequences. But the development is the domestic aviation industry and civil aviation in Russia is one of the priority tasks of complex structural policy. State support of aircraft and air transport in Russia is carried out, in particular, on the basis of the federal target program "Development of Russian civil aviation in 2002 2010 and until 2015, which also has the status of a presidential. In the aircraft industry in Russia is currently being implemented strategy for development of the aviation industry for the period until 2015.

Under the development strategy of the aviation industry refers to an interrelated tasks, deadlines and resources of a set of targeted programs, individual projects and extracurricular activities of the institutional, legal, economic, political and diplomatic nature, providing an effective solution to the dynamic development of the aviation industry.

However, experience has shown that these programs do not provide measures for the development of small aircraft and does not contain specific proposals for addressing pressing problems, the elimination of the negative trends and to ensure the stabilization and improvement in development, production and operation of light aircraft. Lack of public policy approaches to support small aircraft, leading to an unjustified reduction in the use of civil aviation in the region and provides the necessary level of security.

Without the adoption of emergency measures by the government sharply increased demand will be met Aircraft imported. Therefore, one of the main objectives of the strategy of development of domestic aviation is the development of regional programs. Implementation of activities of federal programs will primarily be carried out in regions with significant scientific and technological reserve and production resources for the development of small aircraft.

To implement regional programs should be: - Providing conditions for creating a competitive aeronautical engineering and technology; - Creation of conditions for rapid deployment to the region or area of serial production of aircraft that will provide production flexibility with respect to the needs of the market;

- A significant increase in the revenue budgets of all levels; - The development of export potential of the region;

- Creation of new jobs;

- Providing an additional form of orders for other related industries in the region; - Create the image of the region as a center of high-tech aircraft.

# 3. SOLUTIONS strategic objective of development of domestic aviation

To save the aircraft-building as a strategy to increase its competitiveness requires government support for the aviation industry.

But the state resources for the development of the aviation industry are limited and do not have other more or less effective alternative, but to highlight the priority areas and focus on them. Necessary economically feasible selection first of these areas, specific projects, and then ventures, distribution of public funds only among the working effectively. As an example, consider the region most promising in terms of strengthening and development of the aviation industry.

## 3.1 Voronezh Region

The annual outflow from the current fleet of aircraft and a further rise in demand for air travel, creating a real shortage of transportable facilities and expanding niche market for new aircraft of domestic production, including small aircraft: Agricultural, Specialty, sports, etc. Analysis of Russian market of light planes shows that the demand for them is growing. Aviation Industry Complex of the Voronezh region has a high technical potential, the level of applied technologies, the complexity and high-tech production processes and is able to produce competitive products in small aircraft. First of all, it's OAO Voronezh Aircraft Joint Stock Company, which can produce not only long-haul aircraft, but aircraft are small aircraft.

This allowed the Voronezh region to take part in the pilot mining activities developed by the Federal Program "Revival and development of small aircraft of Russia has additionally raise funds in the region. At the same time, the potential of aviation industry is not limited production capacity aircraft factory. Of the previous scientific and technical developments allow to realize several projects in the aviation industry:

- Selhozsamolet Tu-54 ", business jets," Tu-34 ", snowmobile - Amphibian" AS-2, which have no analogues in the world (Voronezh branch of JSC "Tupolev"); - "Corporate" interregional multipurpose 15-30 setter aircraft short takeoff and landing of a universal-based transport aircraft vertical takeoff and landing with a lifting scheme and module combination selhozsamolet CX-5 (OOO "Composite Air"); - Lightweight silent patrol aircraft to meet the challenges of supervision and counterterrorism (OOO NPP "ORT");

- Ultralight secure multi-purpose gyro, ultra lights various modifications (Ltd. "Sigma Project"); - An unmanned, remotely piloted helicopter to freewheeling aerial chemical works, the remote control system using a satellite navigation system GPS, secure multi-purpose gyros (ZAO Processor Echo "); - Ultra-light aircraft "Horizon", "Debut" (OOO "Horizon") and others. - Especially important for the development of small aircraft is the development and manufacture of piston engines for small aircraft, including diesel (Federal State Unitary Enterprise "VSW", OJSC "OKBM");

We should note that enterprises, research institutes and design industry mostly managed to retain highly skilled human resource capacity of specialists capable of solving complex problems for the development of new types of aircraft. In the Voronezh region has experience in aircraft leasing scheme. However, the lack of a coordinated integrated approach to development of small aircraft do not make full use of available resources and inputs. Currently, new approaches to support small aircraft, and the Voronezh region could become a testing ground to simulate the modern mechanisms of its development. The main mechanism of implementing industrial policies in addressing this issue has become the regional purpose program "Development of small aircraft of the Voronezh region, 2007-2011." However, the Decision of the Voronezh Regional Duma on December 24, 2009 № 2034-IV-AP program has been recognized lapsed. According to official statistics, today in Russia there are about 60,000 settlements, which are not accessible ground transportation. Basically, these are areas of Siberia, Kamchatka, Far East and Chukotka. Hence it is clear demand for these and many other regions in small aircraft. At one time, inaccessible areas of the country serviced by an AN-2. But it must be replaced with new small-sized aircraft. Development of such aircraft is currently engaged in collective Voronezh business incubator.

**3.2 Kaluga region**

Kaluga region was among the first complied with the recommendations of the Government of the Russian Federation on the need for regional targets for space programs.

In order to expand the range and volume of services provided by governments and organizations to the population on the basis of an integrated regional information system of the Kaluga region, using the results of space activities and modern GIS technology was developed long-term regional target program (OTSP) "Use of space activities and modern geographic information technologies for socio-economic development of the Kaluga Region in 2010-2012. "

This program is a logical extension of such a space program, already implemented in 2008-2009., which was designed to meet the growing needs in the results of space activities in all categories Russian users of federal and regional executive authorities, local authorities and domestic business. Preparing to implement the new program was carried out almost the entire year 2010, has accumulated a large scientific-technical and methodological groundwork that will allow to fully implement this program. Practical work carried out in 2007-2009. In the Kaluga region on the integrated use of satellite monitoring systems, space and geographic information technologies have enabled a first Integrated Regional Information System (IRIS), the Kaluga region.

This was achieved through the introduction of highly effective information technology and solutions.

IRIS is part of the state information system of the Kaluga region and contains information derived from space monitoring tools (data from remote sensing (RS), navigation, communications), uses space technology and GIS, the existing geographic information system of the Kaluga region (GIS Kaluga region) , high speed corporate information and communications network authorities of the Kaluga region.

A whole infrastructure - Regional Information and Analytical Center (RIATS), Regional Centre for Space Monitoring (RTSKM), basic and municipal GIS centers, information and analysis centers in the ministries of the Kaluga region, which integrates information resources of government region. In addition to addition, based on the KF Bauman possibilities of using the results of space activities in the area. A specialist FSUE RISDE "- the parent organization for the implementation of OTSP - a program of training them. NE Bauman was created innovative educational space center of the first stage. Its main objective is training and promotion of public and municipal officials on a special course, "The possibilities of practical use of space and geo-information technologies for social and economic development in the Kaluga region."

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## 3.3 Samara Region

Samara Region has significant scientific, technical and technological potential, which is largely due to the presence of a diversified economy, a large concentration of the engineering profile (mainly automotive and aerospace) as well as close cooperation Samara scientists with research centers in Moscow and the Volga region. One of the main directions of development of the region is to support the defense industry to solve the problem by increasing gross domestic product (GDP).

Most of the DIC is part of the aerospace cluster. Samara region - one of the first regions in Russia began to consistently implement the cluster approach to economic development: it is the basis of socio-economic development of the province until 2020. This is the most suitable option for the industrial region with a significant industrial and technological and scientific potential, a complex, diversified structure of economic activity. Considerable potential for the formation of clusters laid in the most competitive industries - are the automotive, petrochemical, aerospace clusters that make up the backbone of the economy of the Samara region.

In Samara region in Russia are the leading company in development, production and launch of rockets and spacecraft, among which are the following. State Research and Production Space Rocket Center TsSKB-Progress ", on the basis of which formed aerospace cluster - the world leader in the development of launch vehicles of the middle class. Launch vehicle "Soyuz" - the most reliable in the world of missile. The company occupies a leading position in Russia, a spacecraft remote sensing and spacecraft for medico-biological experiments. Worldwide known booster of the "Soyuz" spacecraft "Resurs DK", "Bion-M" and "Photon-M. OAO SNTK them. ND Kuznetsov has been working on a new engine NK-93, which took flight tests. Beginning in 2005, is R & D work on creating an engine running on compressed natural gas for the main railway locomotive power of 8.3 MW. OAO Motorostroitel along with the implementation of increasing orders for rocket engines for SRP Federal State Unitary Enterprise "Design Bureau Progress" continues to develop the production of gas turbine-based aircraft engine on the orders of Gazprom and subsidiaries of RAO UES. Among the priority activities in 2007-2010. was the implementation of the state defense order for the repair and modernization of aircraft engines for the Strategic Air Command. OAO Aviakor-Samara Aviation Plant. The main products of the plant - passenger aircraft TU - (New and renovated) and the assembly of a new regional aircraft AN - 140 together with Ukrainian companies. For businesses aerospace industry includes enterprises aggregate direction of "Aviaagregat, OAO Gidroavtomatika", OJSC "unit", OJSC "Salute", and OAO "Metalist-Samara, specializing in the manufacture of components of aircraft and rocket engines.

Prospective development of the aerospace cluster, the Samara region is carried out in several interrelated ways.

Is a priority use of the building industry for the transition to innovative development, production of new products and attracting for these purposes by private investors.

Competitive advantages of the cluster based on its strong scientific-technological and engineering base.

The scientific activity of the aerospace cluster in the Samara region is TsSKB-Progress SNTK them. N. Kuznetsov, Samara State Aerospace University, and other organizations. Technologies developed and tested in organizations, in design offices, universities hold significant promise for use in various sectors of the economy: medicine, instrument and machine-tool industry, meteorology, cartography, mineral deposits. In this sector, a number of fundamentally new technologies that have no analogues.

The cluster on the basis of the largest innovative university Samara State Aerospace University, a powerful innovation infrastructure - technology park, technology transfer center, media center, business incubator.

Established infrastructure to eventually become one of the supporting elements of the national innovation system and serve as the basis for the formation of regional zones of innovative development.

The use of these competitive advantages will effectively implement the Samara region and Russia major breakthrough technology industry. It is also important active interaction with the structures that make decisions on state support for industry.

In this direction, priorities are the following approaches: - The listing of cluster created at the federal level, the integrated structure (in particular, involves pooling the research, design and production of the once-common industrial complexes); - Increase the flow of federal funds; - The participation of organizations in a variety of federal target programs; - Encouraging diversification of production, incorporation into the value chain civilian direction of various economic sectors - automotive, agricultural machinery, rail transport, fuel and energy complex; - Long-term systemic interaction with major national companies, OAO Gazprom, OAO Russian Railways ";

- To attract private investors, especially in order to create innovative sources of economic growth;

- The use of innovative opportunities for the aerospace cluster development in other sectors of the economy.

## 3.4 Perm Region

Today, Perm has taken a firm position in the ranking of Russian aerospace techno.

In Soviet times nearly 50% of factories, design bureaus and institutes of Perm in the aerospace, defense and space industries have worked to space launch and space forces, the Strategic Rocket Forces, the civil, military transport aircraft and air force. Today the Permian enterprises produce competitive in the global market space-rocket engines, helicopter gearboxes and transmissions, aircraft instruments and machines, cables and wires for space and aviation, design aircraft engines, machines and devices for next generation aircraft.

In the postwar years, Perm was a closed city solely because of the abundance of enterprises and KB rocket and space industry. In Perm, and today make engines for the main Russian rocket Proton and a number of solid-fuel rockets land-and sea-based systems.

Difficulty almost four generations in the Perm region established and operates the largest Russian enterprises complex aircraft engine-, assembly-and instrument-making, aerospace industry, producing highly competitive products. Today in the Perm region there is only one subject the supreme national interest and sovereignty of Russia. This is the theme of quality and ability to do the "Perm Motors and other companies a competitive aviation and space-rocket motors, the world's best helicopter gearboxes, transmissions, units and appliances.

In enterprises, industrial and aviation-space-rocket complex in Perm today, the question is whether the Perm region a first-class, advanced and highly respected Russian region or the end will slide to the raw materials and the transit provinces, even with a budget surplus.

Decisive in resolving this issue are the two most important for the Perm engine problems. First of all - it guarantees to equip aircraft engines PS-90A all new (adapted for the purpose) of the types of domestic aircraft and repairs have already issued.

The second is a very promising area of activity for companies perm aerospace industry - is to create first-stage engine for the rocket Angara. The problem today is the approval of the funding program "Angara" in general.

## 3.5 Penza region

Strategy for socio-economic development of the Penza region in the long term (until 2021) - a system of policies and measures of public administration, aimed at creating conditions for innovation development, strengthening of the Penza region among the subjects of the Russian Federation and in the world economy. The strategy is based on the targets specified in the policy documents at the federal level: the annual Presidential Address to the Federal Assembly and the Concept of long-term socio-economic development of the Russian Federation until 2020. Among the traditional industries of the regional economy more competitive remains instrument-making, ensuring the needs of defense industry, aviation and aerospace industry. Here are the leading enterprises of the aviation industry, among them Russia's largest company to develop, manufacture and repair of aviation equipment "Tupolev", OAO "BSPC" - the Russian leader in the design and manufacture of flight simulators, developed on the basis of world science and technology, which operate both in Russia and in countries near and far abroad; Institute of Physical Measurements specializes in creating devices for airborne and ground-based measuring systems to be placed on the rockets and spacecraft, instruments, ground launch facilities from which to launch rockets, provides facilities for space research and industry in other countries. Penza Simulation Design Bureau is - state-owned enterprise of the Russian Aviation and Space Agency. Government of the Penza region%.

# CONCLUSION

Russia needs a strong aerospace industry, which requires effective state support. Public policies supporting the aviation industry should be directed primarily to support a limited number of technologically balanced production in selected areas and projects. Others, excessive production have to adjust, relying on its own strength, or they need to provide targeted support for the conversion of their activities on the basis of competition of the proposals.

The main form of direct financial support for the aviation industry are federal programs. In addition, the increased financial opportunities states allow to develop aircraft leasing. Another area of state support of aircraft industry is the implementation of joint projects for the creation of a new civil aircraft. Such programs are many. There are numerous programs of cooperation of Russian and foreign airlines, which have so far insignificant amount of work. State support may be in the form of large-scale programs in the field of military aviation, which, along with civilian programs contribute to the preservation of science, technology and competitiveness.

When you create a space-rocket technology implemented many projects. They are potentially interested in other sectors of the economy. Consumers of this product may be, and small and medium-sized businesses are not able to conduct their own research, but wishing to use the new ideas that will eventually lead to more competitive products. High enough demand for intangible products RCP: methods of development and design, management techniques, new processes, implemented in the manufacture of products.

The implementation of space programs significantly enhance the ability of information and communication technologies in various sectors of the economy and in the implementation of priority national projects in our country.

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