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Ukrainian international economic cooperation in the development of the national aviation cluster

The report is identified the goals, the main components and the first results of the development of the aviation cluster in Ukraine. The main priorities of the international economic cooperation of Ukraine with the countries of the world in the area of cooperation in the production of aviation equipment are considered. The ways of increasing the competitiveness of Ukrainian aviation equipment in the world markets are determined.

In the twenty-first century there are global changes in the area of international economic relations, which are connected with the intensification of competition in the world markets of resources, goods, and capital. The development of high technologies and innovative processes are actualizing the search for new forms of production of goods and services, creating the added value. Production and distribution networks, strategic alliances, business partnerships and clusters dominate on the global market, forming a new type of industrial relations that changes the global economy. Clusters play a leading role in this process, involve the creation of added value as national producers of goods, services and international entities. The study of the gist and specifics of cluster development in the world economy has a significant theoretical and practical meaning because this experience is useful for the economic revival of Ukraine.

The development of clusters has the important value for the Ukrainian aviation industry. After all, in the complex: the development of aircraft engineering, aviation services - from air transport to aircraft maintenance, as well as the provision of educational services for training specialists working in all sectors and the aviation branches has a positive effect for economic growth, job creation and competitiveness of the country economy.

Ukraine belongs to the elite "club" of a few countries in the world, which produce aircraft, to countries with potential for the development of the aerospace complex. Aircraft engineering is an industry where one of the highest volumes of added value is produced. High technologies, innovative developments, precision engineering, IT technologies and others are involved in the sphere of aircraft engineering,. Ukraine has human capital for the development of the aviation industry, including specialists - which are trained by the National Aviation University (Kiev).

In the world air-space industry, Ukraine is known as the first country built freight liners Ruslan and Mriya. In the twenty-first century Ukraine remains a country with high technologies and the necessary infrastructure for the design, production and implementation of the final assembly of aircraft. The Ukrainian aviation industry has 39 enterprises in whole of various forms of ownership, 15

aircraft repair companies, which provide services for aircraft maintenance; 2 aviation institutions for higher education; 3 higher military aviation schools; about 1,500 civil aviation aircraft, more than 6,000 airborne aircraft. Ukraine has all the components of the infrastructure that allows the development, testing, serial production of airplanes, aviation engines, special equipment, on-board radio electronic equipment, aircraft units, research and development works in the field of technology of production and operation of aviation engineering, modernization and repair of aviation equipment. The competitive niche of Ukraine's potential are design and components for aircraft building and repair, for which our country has intellectual and productive resources on the world market [1].

The Ukrainian aviation industry and its accompanying industries have a close connection with the DK "Ukroboronprom", which executes the order and works to ensure the defense of Ukraine. In 2016, an aircraft building cluster - "Ukrainian Aviation Building Corporation" - was created in the structure of the DK "Ukroboronprom". Ukraine's aviation cluster is closely linked to the military-industrial complex and operates on an analogous basis to the work of aviation clusters on Boeing and Airbus. Consolidation of resources and technical capabilities in the cluster will enable the unification of the power of dispersed aviation construction companies, have a positive impact on the quality of design, the production of new innovative goods for the aviation industry, will allow the introduction of international quality and safety standards. The cluster consolidates the aviation capacities of the country: the corporation of the State Enterprise "Antonov", as well as the state enterprise (DP) "Civil Aviation Plant 410", the state enterprise "Novator", the "Kharkiv Machine-Building Plant" FED ", the" Kharkiv Aggregate Design Bureau", PJSC" "Mayak", Lviv State Aircraft Repair Plant, Zaporizhzhya Aircraft Repair Company "MiGremont", etc. [2]. Ukraine's aviation cluster is actively cooperating with such countries as: Poland, Azerbaijan, Belarus, Myanmar, Algeria, Canada, USA, France, Turkey, Saudi Arabia, China, Iran, India and others. The development strategy of the aviation cluster created in Ukraine is connected with the entry into the world market of competitive products and services. For this purpose it is necessary to attract foreign and domestic investors, to engage in branding, marketing, promotion of Ukrainian aviation production in world markets.

For active marketing and popularization of Ukrainian aviation products on world markets, annually Ukraine takes part in international exhibitions and fairs of aviation equipment, which represents products and services, and establishes international relations. Thus, at the Farnborough-2016 exhibition, Ukraine signed a memorandum of cooperation with such companies as Pratt & Whitney (USA) on the supply of PW-150 engines to the An-132 aircraft; with Esterline CMC Electronics (Canada) to supply 60 sets of avionics for An-148, An-178 and An-124 aircraft upgrades.

In the framework of the 13th International Military Equipment Exhibition "IDEF-2017" (Istanbul), Antonov has signed a Memorandum of Cooperation with Turkish Aerospace Industries (TAI) for the development and production of various modifications of unmanned aerial vehicle (UAV) - including needs of the Armed Forces of Ukraine. A Memorandum on the modification of an An-132 aircraft for

maritime patrol service was signed. The modification of the An-132 will be carried out jointly by Ukroboronprom, in cooperation with the companies TAQNIA (Saudi Arabia) and Havelsan (Turkey) [3].

The development of cooperation between Ukrainian and foreign aircraft manufacturers positively affects on its competitiveness, facilitates the process of advancement in the international markets. As an example: The partnership agreement between Taqnia Aeronautics and Antonov (2015) on the development and production of an An-132 Light Transport Aircraft in Saudi Arabia. In March 2017, the first successful flight of the AN-132D demonstration aircraft took place. It should be noted that Ukraine has a great potential for the development of mass production of small aircraft, including: ultralight two-seater aircraft A-20, A-22, A-24, A-26, A-36; hang gliders, tricycles; ultralight aircraft "Bekas", "Chibis", as well as production of rescue parachutes, accessories for pilots, etc. Such products have a guaranteed demand in countries where small and medium-sized businesses are actively developing, where the middle class is large. Production of ultralight aircraft has a guaranteed demand in the US, Saudi Arabia, Australia, New Zealand, Great Britain, France, in the EU.

Ukraine's aviation cluster has great potential for the development of unmanned aerial vehicle (UAV) - drones. In 2017, Antonov presented an unmanned aviation complex "Gorlitsa" to the world, which became the first Ukrainian shock drone with high-precision means of defeat. In 2018, Ukraine announced the development of a unique solar dron that can use unlimited solar energy in the air for an unlimited amount of time. Such UAVs are already used by the world-known companies, such as Google and Facebook. At the same time, the mass production of drones produced by Ukrainian developers can be successfully used in all spheres of the economy: for video and photography, in agriculture and forestry, for the prevention and monitoring of breaks, illegal felling of forests, to combat smuggling, as well as in other sectors of the economy, including in the military forces, etc. [4].

The creation of aviation cluster in Ukraine has intensified international economic cooperation in the field of aircraft construction with foreign partners, including partners from the USA, Canada, UK, Germany, France - Honeywell, Pratt & Whitney Canada, Liebherr - Aerospace Toulouse SAS, Dowty Propellers, etc. Special attention is paid to the plans of production An-132 (Kingdom of Saudi Arabia).

According to experts, the competitive potential of the JSC "Motor Sich", which specializes in the production of gas turbine engines for civil and military aviation, . The world-wide publicity received a collective project of Ukraine and Iran for the production of An-140-100 aircraft. From the Iranian side, the Iranian aerospace industrial company HESA, Iran Aircraft Manufacturing Enterprise (IACI - Iran Aircraft Industries) took part in the projectCooperation between Ukraine and Iran in the field of aircraft building is uncertaine through sanctions imposed by the United States against Iran (2018).

One of the most promising markets for aviation cluster is the Chinese market. Yes, Skyrizon (China) and Motor Sich, within the framework of the Motor Sich Partnership and Beijing Skyrizon Aviation Industry Investment Co. Ltd create a joint venture company for the production of aviation engines in the Chinese city of

Chongqing, according to Ukrainian technologies. Such joint production positively characterizes the competitive potential of the development of the Ukrainian aviation-industrial complex.

Competition on the world market for aviation industry products is extremely severe. In the world there is a continuous competition between powerful aircraft companies about sales markets, material and human resources, contracts for the production of airplanes, components, service, etc. So, in 2016, The Boeing Company (USA) has launched 748 aircraft, in 2017 - 228; The European aircraft building company "Airbus S.A.S." in 2016 has issued to markets 949, and in 2017 - 233 planes; in Ukraine "DP" Antonov ") for 2016 and 2017 only one aircraft was issued. In total, for the period from 2014 to 2017, 7 aircraft were built at aircraft construction companies in Ukraine [1].

Conclusions

Among the constant problems of the development of Ukraine's aviation cluster should be:

- High indicators of physical (up to 60-65%) and moral depreciation of fixed assets of machine building in Ukraine;
- lack of guaranteed demand for Ukrainian aviation factories, including guaranteed public contracts;
- complicated procedure, problem of finding foreign partners for cooperation and mutually beneficial cooperation in the field of aircraft engineering;
- lack of diversification of aircraft production;
- absence of guaranteed state support to the development of the Ukrainian aviation-space cluster;
- high competition in the world market of aircraft and space technology.

These and other problems can be solved with the help of targeted state support, the adoption of the state program and the introduction of public-private partnership in the development of Ukraine's aviation cluster in the XXI century.

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