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ECONOMICS OF UKRAINE AND ITS REGIONS: PROBLEMATIC ISSUES

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UKRAINE AEROSPACE SECTOR: MODERN STATE AND DEVELOPMENT TENDENCIES

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Соколи І.І., Буковський О.О. Аерокосмічний сектор України: сучасний стан та тенденції розвитку.

В статті наводиться дослідження потенціалу України в сфері авіаційної промисловості, оцінюється реальна ситуація на провідних авіабудівних підприємствах. Досліджується ситуація на світовому ринку літаків цивільної авіації та позиції України на ньому. Особливо розглядається ситуація з реалізацією проекту літака Ан-70 на основі широкої кооперації з країнами Євросоюзу. Аналізуються шляхи виходу галузі з кризи та оцінюються можливості впровадження нових видів продукції і шляхи міжнародної кооперації тощо. Пропонується комплекс заходів з боку держави щодо розвитку авіаційного сектору України.

Ключові слова: авіаційна промисловість, літакобудування, авіабудівний комплекс, промисловий потенціал

Соколы И.И., Буковский А.А. Аэрокосмический сектор Украины: современное состояние и тенденции развития.

В статье приводится исследование потенциала Украины в сфере авиационной промышленности, оценивается реальная ситуация на ведущих авиастроительных предприятиях. Исследуется ситуация на мировом рынке самолетов гражданской авиации и позиции Украины на нем. Особое рассматривается ситуация с реализацией проекта самолета Ан-70 на основе широкой кооперации со странами Евросоюза. Анализируются пути выхода отрасли из кризиса и оцениваются возможности внедрения новых видов продукции и пути международной кооперации. Предлагается комплекс мер со стороны государства по развитию авиационного сектора Украины.

Ключевые слова: авиационная промышленность, самолетостроение, авиастроительный комплекс, промышленный потенциал

Sokoly I.I., Bukovskii O.O. Ukraine aerospace sector: modern state and development tendencies.

The article presents a study of the potential of Ukraine in the sphere of aviation industry, it was evaluated the actual situation on the leading aircraft enterprises. We studied the situation on the world market of civil aircraft and the position of Ukraine on it. We consider separately the situation with the implementation of the project of the plane AN-70 on the basis of broad cooperation with the EU countries. It was analyzed the ways out of the industry from the crisis and assesses the possibility of introducing new products and ways of international cooperation etc. It was proposed a set of measures from the state on the development of Ukraine aerospace sector.

Keywords: aviation industry, aircraft construction, aircraft building complex, industrial potential

Ukraine has quite an impressive history of aviation – the beginning of serial production of aviation technics in Ukraine can be considered construction in 1913 at Odessa the first five airplanes "Farman-4". Since then, much time has passed, the aircraft industry in Ukraine had its UPS and downs, the center of the aviation industry moved to Kiev, Kharkov and Zaporozhye. But without a doubt we can say that today the products of these enterprises are products that can safely be called the product of the XXI century. You can also argue that, despite the global economic and political crisis, the market of civil and especially military aviation remains quite promising, to lose it we have no right. However, today's realities do not look very happy: despite the significant potential in the industry, in recent years Ukraine has significant problems with the development of the aviation industry and promote its global markets [2].

Analysis of researches and publications

Problems of aviation industry of Ukraine is devoted to a large number of national publications in which it is possible to trace the evolution of views on its role and place in the development of the state, and ways to ensure progress in its structural organization and method of work. Problems of development of aviation industry of Ukraine are investigated such experts as V. Androsov, V. Boguslaev, B. Burkinskiy, S. Goncharov, V. Gorbulin, V. Zagorulko, S. Zhuryets, A. Kachan, D. Kiva, G. Krivov, J. Kulaev, V. Matvienko, V. Yazyk, N. Pechorin, S. Podreza, I. Sokoly, E. Sych, A. Shevtsov, and others.

Unsolved aspects of the problem

The main issue that faces today the leadership of aviation industry of Ukraine, consists in determining the correct development prospects of the industry

given the dire realities of today's economic conditions.

The aim of the article is analysis of the current state of aircraft industry of Ukraine, the definition of competitiveness of the Ukrainian aviation industry in the following categories:

- To explore the potential of Ukraine in this industry, considering the actual situation in enterprises, which not unreasonably was considered as the flagships of the Soviet aircraft industry.
- To study the situation on the world market of civil aircraft and the position of Ukraine on it.
- To analyze ways out of the industry from the crisis: the possibility of introducing new products, ways of international cooperation.
- Analyze the necessary resources and possibility to attract them.
- To determine the necessary steps by the state.

It should also be noted that the emphasis on technique as well as civilian cargo aircraft, which can be used for military purposes.

The main part

Ukraine, as already noted, has historically been a state with a rich history of aviation. Today in Ukraine there is still a fairly strong base in the aircraft industry – both industrial and scientific. The potential of the industry is concentrated in the industrial and scientific centers of the country such as Kiev, Kharkov, Zaporozhye. In advance, I note that in this work will be analyzed mainly the activities of such important aspects of the industry as:

- Kiev factory "Aviant";
- Aviation scientific-technical complex named O.K. Antonov;
- JSC Motor Sich.

For example, consider the Kiev factory "Aviant" Today its main product is a light transport aircraft AH-32. The machine comes with 1982, the general result produced 357 copies. After the collapse of the USSR a large number of AH-32 was in the newly formed countries and immediately began at bargain prices sold and rented a variety, including foreign owners. This fact discourages potential customers from the plant and has exacerbated the critical situation at the plant due to a general economic downturn. Today, due to the depletion of the market of used aircraft and marketing efforts of the output of these machines can again be seen as a promising. The plane, which is often considered the pride of Ukraine and an example of the industrial power of the country AH-124 "Ruslan". From the recent past "Aviant" has inherited an unfinished AH-124. On this eighteenth "Ruslan" Kiev Assembly work performed on the airframe and installed a number of systems. It is planned that with the participation of Antonov ASTC and JSC "Motor Sich" aircraft construction will be completed in 2017 and it will determined his future owner. In November 1989 by order of MAI USSR No. 398 at the Kiev aviation, it was decided to produce short-haul passenger airliner TY-334. Since then, this long-suffering program has experienced

many upheavals – among the main problems should be noted first of all the General economic problems, also the fact that the plane was built enterprises of different States, although the authority of the Ukrainian partners no doubt [1].

At the plant in 1999 was completed the serial production of the aircraft, which allows to produce more than 30 such cars a year. But yet possible to complete the assembly of even the second instance, the state of which the recent two years (2014-2015) has not changed. This plane has a strong interest in a number of airlines. Exploitation TY – 134 (which experts admit is not the best Ukrainian airliner) is approaching full development of the resource. In order not to lose the air transport market, airlines-operators of these aircraft will be forced to look for ways to buy new aircraft, in particular, to address problem loans, leases and the like. TY-334 the cost of which will amount to about 17-19 million dollars, looks very attractive, because it is at least 10 million cheaper than foreign analogues [1].

Another promising program Aviant is the average military transport aircraft AH-70. As noted in his article Andrey Sovenko [4], in Europe today it is difficult to find anyone who has not heard of superproject AH-70. After all, this machine promises a lot both in terms of technical-economic characteristics, and in terms of prospects of cooperation between Ukraine and the European Union. Given the potential of this project and the place that it occupies in the industry, deeper we touch it directly in the analysis of the problem. Considering the production of the aviation industry, we have already touched briefly discuss the future of products on the market. For a final understanding of the problem should in general look at the modern market of aviation equipment. Note that describing a General picture of the state of air transport and aviation industry, we rely on sources that have not yet consider, which is obvious now: a threat to global economic and political crisis in general, and the state of air travel after the events of the arab spring and the escalation of military conflicts around the world [4].

V. Belyaev, in his article "Civil aviation at the turn of the century" [3] notes that despite the various economic and political upheavals – the financial crisis in South-East Asia and Latin America, the war in Yugoslavia, the uncertain situation in the middle East and the like, for the last 5 years, passenger traffic on international and domestic routes grew respectively by 6.8% and 5.5%, and cargo by 8.9% and 2.8% [3] In mid-2010, the headquarters of the International Civil Aviation Organization has published the annual report on its activities in 2009, which summarizes the activities of airline passenger and cargo traffic, and States that the airlines of the 185 countries participating in domestic and international regular airlines was brought 1,558 billion passengers and 28.2 million tons of cargo. In the total amount of regular traffic on the share of airlines of North America was 36%, Europe 28%, South-East Asia – 27%, Middle East 3% and Africa 2%. In many ways the development of aviation technology is based on

forecasts of the world market of aviation, which regularly in the last 30 years are by leading foreign companies. These projections are attempts to define the needs of companies in a particular type of aircraft, after which the software companies choose strategic directions in the design of new aircraft. During 2000 there were published forecasts of firms "Boeing", "Airbus", "Rolls-Royce" and others. In general, all these forecasts is close enough. So, all the companies agree that in the next 20 years, the average annual growth rate of passenger traffic will be 4.8-4.9% and cargo – 5.7-6.4% [6]. On this basis, it is assumed that during the 2010-2019 years can be bought from 15 to 22 thousand new planes.

In assessing the overall opportunities of Ukraine in this sphere, we note features the following key:

- Good industrial potential for the industry
- Quite competitive products
- Availability of potential selling markets

So what prevents today the development of aviation industry in Ukraine? What measures should be implemented to overcome the crisis in the industry? It is these issues that we will analyze in the following section. From the particular above, we can conclude that in order to solve the problems of the industry, traditional measures of investment and attracting foreign partners for joint projects. But really it can be done only through specific attractive project, which is now a production aircraft AH-70. Just exactly this problem is should, in our view first of all to analyze. First we need to look at the history of the project Dating back to Soviet times, when have completed the design stage, but to expand the preparation for serial production is not done. In June 1993 there was an agreement signed by the then Prime Ministers of Russia and Ukraine, L.D. Kuchma and V.S. Chernomyrdin for the joint development and production AH-70. Further, talking about the serial production of AH-70 was carried out for about three years – from the time when I was up in the air first basic variant of the plane. In the same period, the hope of Ukrainian aircraft manufacturers relied primarily on European orders. Europe was prepared and is now preparing to abandon American products (which according to experts is already outdated and does not meet the needs of the military forces of NATO and the European countries) in favor of one of the European alternatives. These alternatives are narrowed to two planes: the plane of AH-70 Ukrainian production and A-400M made in France. Although ownership of these projects to specific countries is a symbol – both are interstate. A-400M at the tender presented French-Spanish-German consortium Airbus Military Company. Ukrainian project is too far from the national. European version of the aircraft AH07X is a joint program of the joint consortium "CTC" which includes 13 enterprises and German AirTruck consortium consisting of 9 companies of the so-called mid-level. By the way one of the strengths of this project is thought-out scheme of industrial cooperation of Ukraine firms and the European Union. Today is actually obvious is the fact of winning the tender of the aircraft A-400M. And

this according to many is a political decision, made under pressure from such countries as France and England. After all, for NATO, and especially in a country like Germany benefits from the project are indisputable. Joint work on the AH-7X could be an important step towards establishing mutual dependence between West and East in industry and the development of weapons that will fundamentally reduce the risk of military conflict on the continent. Technologically speaking, Germany has received not only the design documentation, necessary for the production and after-sales service of aircraft, but also the ability to perform its final Assembly. The main advantages for Germany lie in the economic sphere, because the project requires less spending from the Federal budget than any other project. Today to procure the transport aircraft from the Federal budget has allocated 12.9 billion euros. This amount can be purchased and put into operation 75 copies of the AH-7X, while the number of competitor will be only about 40 [8].

As can be seen from the analysis that Ukraine has a "margin of safety" in the aviation industry and is theoretically ready for serious projects. However, there are powerful inhibiting factors to overcome, may not all the time:

- A limited number of real partners
- The lack of research and as a consequence the lack of modern projects
- The traditional lack of financial resources and innovation resources.

Experts [6-8] see the following solutions to these problems:

- Differentiation of partners and sales markets. That is we must focus both on new partners in the West, and colleagues in the CIS (Kazakhstan and Belarus) with which there are established contacts and mutual understanding. In order to enter the Western market, partnerships should be developed with the countries of Eastern and Central European countries, future members of NATO and the EU, which will strengthen the political position of Ukraine in the decisions of the European political and military circles [6].
- Differentiation of products. Differentiation should be implemented towards the development of those projects which have already been developed by Ukrainian enterprises and are ready for serial production. These projects mentioned above, many of them are promising and do not require large financial investments [7].
- The development of the domestic market, which today is virtually absent in Ukraine. However, the introduction of certain new solutions, such as the interesting development of leasing programs, reducing the cost of production of the small transport aircraft, etc., may in the end to "shake up" the market [8].

Of course an important element is the participation in the air shows of the world and the organization's own Airshow. At such events there is an effective search for new partners and maintain relationship with

traditional customers. So, in the near future ASTC Antonov plans to sell AH-70 on air show "Aviasvit-XXI" in Kyiv, do not exclude its participation in international Judiska the air show in China, scheduled in November. As for the future conquest of the AH-70 Asian market, to which it is directed, the head of the Chinese government, speaking about the possibility of acquiring the Chinese side of the Ukrainian plane AH-70, said that can not make statements on behalf of the airlines because this is a business issue. He also noted that currently, the domestic aviation market in China is highly competitive, and added that previously, China had purchased a large number of "Airbus" and "Boeing". Nevertheless the Asian market is traditional for Ukraine and our position on it can still be saved [8]. Projects can be many, but in the current situation the primary objective is at least the preservation of existing positions industry. To do this, first save the project of serial production of AH-70 and maintain partnership with the European Union in the field of aviation. Another preparation for the beginning of series production, in connection with acute need of Ukraine in the military-transport aviation, has become the summer of 2014. But it then became quite clear that Europe does not need our military transport planes. Perhaps as subcontractors, we organize the European member countries of NATO, but nothing more. And the issue of speeding up the program of serial production of AH-70 in Ukraine again stalled indefinitely, although the program was considered at the highest state level, was approved by the President of Ukraine, and signed a number of relevant international agreements. In the last year and a half, even in conditions of its own military necessity, the program of production of AH-70 developed very slowly, as Ukraine awaited the results of the next European tender for the purchase of military transport aircraft. It was about the supply of 225 military transport aircraft at a cost of the transaction was estimated by experts between \$6.5 to 8 billion. In the case of the acquisition of the European Alliance of plane AH-70, it would be necessary to modify them to meet NATO standards. Because of this factor, the chances of the AH-70 in this tender were very low, as European producers have announced the creation of its own military transport aircraft Airbus-400M [8]. The winning bid went to a consortium of Airbus, although the model of this plane exists until a sketch of it. It is expected that its operation will begin in 2017, although the opinion of authoritative experts, while the aircraft will be "put on the wing", for five years more the Americans will supply Europe with their outdated models. But despite the failure of the aircraft on the European market, the project AH-70 continues in Ukraine is real. Customers of plane were made by the air force of Ukraine. It is therefore not surprising that the specialists of the main developer of the aircraft – Antonov ASTC, without waiting for the expected results of the European tender, decided to accelerate the programme for the examinations and establishing its serial production. However, the first serial AH-70 would not be ready before the end of 2020. Additional

complexity in the project AH-70 adds a severing of ties with the Russian Federation, in connection with which at the present stage it is planned to replace cooperation with Russia's own resources. So in the framework of this programme it is planned to develop the production of engines for AH-70 at the Zaporozhye JSC "Motor Sich" [9].

In the current difficult conditions, the government continues to assist in the implementation of promising aircraft projects in Ukraine in 2016 the Cabinet of Ministers has provided funding for the state program examination and production of aircraft AH-70 and AH-140 – for these purposes will be allocated 200.5 million UAH. The budget law obliges the Cabinet to allocate funds to Finance the program of examination and production of domestic aircraft AH-70 and AH-140. The funding for the preparation of the plant for serial production of AH-70 delegated to the State Committee of industrial policy. In October 2016 it is expected to allocate about UAH 80 million, and by the end of the year, taking into account resources for the production of AH-140, – up to UAH 200 million. Next year the financing will be done at the expense of the budget for capital expenditures part of budget funds and own funds of enterprises in the industry. In addition to the Ministry of defense of Ukraine, which counts for 65 units of AH-70, an interest in acquiring this aircraft has expressed the Ministry of emergencies of Ukraine. According to preliminary estimates, the production and sale of more than 110 aircraft will make this project cost-effective. And implementation of approximately 200 aircraft will provide more than \$3 billion in revenues. The cost of the aircraft is approximately \$50 million.

Conclusions

The aviation industry of Ukraine is not only an abstract pride of the country, which is traditionally mention the ambassadors of foreign countries and of Ukrainian politics – this is an industry that can really bring Ukraine revenues now and in the future. We are convinced that Ukraine is able to develop and present projects – competitive not only regionally but also globally.

The potential of the industry is comprised not only of flight, but also the presence of personnel and a highly developed scientific base for the industry. Activate them and effectively use – a goal which will help to raise not only the industry, but also numerous research institutions, basic research. The giant plants, but were not effective enough according to modern standards, able to provide highly qualified workers and engineers who find themselves in our time to the threat of loss of qualification.

Potential can be considered and established cooperation with partners in other countries. Without losing ties with traditional partners in the CIS, you must try to find new partners in the West, after the experience of promotion of the project AH-70 is indicative of the complexity independent of entering new markets.

The potential aircraft market is quite large in the global and regional scales. The domestic market is

difficult to assess, but cannot be ignored. Its development is impossible without assistance from the state.

As a result, it is possible to speak about competitiveness of the aviation industry in Ukraine – an industry that is one of the few industries in Ukraine, which could claim a high place in the modern world of high technology. Summing up the proposals of governmental and non-governmental organizations, which include line ministries and departments, enterprises, industry associations, Ministry of External Affairs and others, we can highlight the following:

1. To continue the comprehensive cooperation with traditional partners, but only if it allows to use the potential of the industry efficiently and to the benefit of Ukraine.

2. To establish links with firms mid-level of the European Union. Because with them you can compete with the "owners" of the industry – Airbus and Boeing.

3. To cooperate, including at the state level with countries of Eastern Europe, the future members of the EU and NATO.

4. To develop an alternative project of AN-70, such as the production of the civil version of this aircraft, serial production of TU-334 for the domestic market of Ukraine, a small transport aircraft that could replace AN-24 and E-145.

5. The development of the internal market through the introduction of special programs of crediting and leasing.

Abstract

The goal of this article is to estimate the scientific and industrial potential of Ukraine and to show the ways to improve its present insufficient situation. Traditionally Ukraine is the country with quite powerful base of aviation industry, it disposes 3 large aviation plants and a complex of auxiliary structures. Today, the most profitable project is the project of military transport aircraft AN-70, which is to be constructed in co-operation with leading EU aviation firms. Due to organizational and structural problems this project is slipping now, but even in such a difficult situation this project has a future and is to be continued. Main conclusions of this work are the following: saving the present industrial co-operation with traditional partners, seeking the business contacts with EU aviation firms of "middle rank", elaborating the new alternative projects, developing the internal market of civil aviation aircrafts.

JEL Classification: L22, L62.

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