

Strategic priorities of Ukrainian aviation development within global economy

Bila Svitlana Olexiivna

International Economic Relations and Business Department, National Aviation University, 1 Liubomyra Huzara ave., Kyiv 03058, Ukraine

E-mail: svbila_2012@ukr.net

Abstract In 21st century during the transition to a new technological structure and mass IT-technologies introduction aviation industry is of strategic importance for Ukraine. This country tends to increase its competitiveness at world markets as well as promote economic growth and national security. The objective of the research is to define strategic priorities of development and actual tools to encourage Ukrainian aviation industry within global economy. While doing research the general and theoretical methods were applied like analysis and synthesis, induction and deduction, historical and logical, scientific abstraction and generalization, as well as empirical methods of scientific research such as statistical analysis, expert estimates, comparative and classification methods etc. Strategic priorities of Ukrainian aviation industry are shaped due to impact of internal and external factors and correspond to the following world trends of aviation sector development: structural and innovation development of aviation and providing aviation services based on innovations considering the standards of ergonomics, environmental protection, reduction in carbon dioxide wastes and transition to sustainable development; securitization of aircraft exploitation; involvement aviation services into transport and logistics routes featuring land, water and air transport; aviation industry development based on innovations, IT-technologies, digital economy and 'Industry 4.0'; ensuring Ukrainian aviation industry development taking into account production of innovative sensitive goods and services (for civilian and military reasons); diversification of air travel; integration of Ukrainian aviation industry into transcontinental air travel market, Ukrainian participation in creation of competitive international global air alliances. The significant priority of Ukrainian aviation industry development should be active involvement of the state, targeted support of aviation development using such incentive mechanisms as introduction of special purposes state programs and budget funding; providing targeted State-guaranteed lending; application of state-private partnership tools, leasing, corporatization, credit lines establishing (with a preferential interest rate) and tax incentives of aviation enterprises. Strategic prioritization of Ukrainian aviation industry development is of significant practical importance as it is closely linked to prospective of high-precision machine building and growth in competitiveness of Ukrainian aviation and aviation services market within global economy.

1. Introduction

Ukrainian aviation industry combines diversified and multi-hierarchical complexes aimed at goods and services production, including production of aircraft (jets, helicopters, unmanned aerial vehicles and component parts of aircraft etc.); repair and maintenance of local and foreign aircraft; proper

maintenance of airports and aviation infrastructure; aviation services targeted at passengers and cargo transport, services delivery for national economy (agriculture, forestry, fishery, heavy and light industry, finances and insurance, state and private enterprises).

In the 21st century under transition to a new technological structure and mass introduction of IT-technologies aviation industry development is of strategic importance for any country which aims to improve population's well-being, cares about economic growth and national security. Under such obstacles the issue of developing and implementing middle-term and long-term strategic priorities of aviation industry improvement within global economy is of actual importance. Determining strategic priorities of development and seeking the proper incentive mechanisms requires complex scientific research.

Stimulating and prioritization of aviation industry development in world countries is a large-scale and important issue which is of theoretical and practical significance. That is why it is widely highlighted in many publications devoted to world aviation [1], [2], [3], [4], [5]. As a rule, the scholars pay a lot of attention to specific segments and branches of aviation. The idea that Ukrainian aviation industry may be successfully developed only as a single economic sector based on competitive aviation whose improvement is guaranteed both institutionally and economically by the state's support lies as the basis for hypothesis in this scientific study.

The objective of the research is to determine strategic priorities of Ukrainian aviation industry development and incentive mechanisms within global economy system.

To fulfill this objective this study sets and solves the following tasks:

- to define the role and components of aviation services market and aviation in general with the system of aviation industry development;
- to justify systematic problems of air travel development and general aviation in Ukraine;
- to represent basic strategic trends peculiar to aviation industry development within global economy;
- to substantiate the role of the state and determine the main incentive mechanisms as well as basic strategic priorities of Ukrainian aviation industry.

2. Materials and Methods

Scientific monographs, case-studies and articles, analytical materials and official documents by Ministries and agencies of Ukraine whose mandate includes state regulation of aviation industry development (Ministries of economy development, trade and agriculture, Ukrainian agency 'UkrOboronProm', State aviation service of Ukraine and other authorities) shape the basis for this study [6], [7], [8]. To highlight world trends of aviation strategic development analytical materials and official documents by international organization keen on issues of systematic development of aviation industry in the world as well as in EU countries (European Civil Aviation Conference (ECAC), European Organization for the safety of air navigation (Eurocontrol), International Civil Aviation Organization (ICAO) etc.) are studied [9], [10], [11].

While researching general and theoretical methods (analysis and synthesis, induction and deduction, historical and logical, scientific abstraction and generalization) as well as empirical methods (statistical analysis, expert estimates, comparative and classification methods etc.) are applied in this study.

3. Results

Aviation industry involves the market of aviation services, aviation industry, airports and various infrastructures of aviation production and design bureaus, detailed system of staff training for aviation etc. At international level aviation industry development is regulated and rationed by international organizations, including International Civil Aviation Organization (ICAO), European Civil Aviation Conference (ECAC), European Organization for the safety of air navigation (Eurocontrol). Ukraine's participation in these international organizations provides it with a range of preferences concerning its

involvement into world standards of aviation development and encourages country's entry into world airspace [8].

To determine strategic priorities of Ukraine's aviation industry development the significant parts of this process should be considered, the main challenges should be highlighted and the ways of their solutions in the 21st century should be justified. The market of aviation services is a result of the whole aviation operating. It unifies the range of segments and priority ways of its improvement like international and domestic national air passenger travel in civilian aviation, freight international and domestic national transportation, including the goods with short-term duration (frozen foodstuffs), fresh fruits, flowers etc, air travel in the international and domestic tourism, air travel in the sphere of health care, transplantology and emergencies, air travel and aviation services in civil service, including Emergency Service (population's evacuation due to natural disasters (earthquakes, floods, forest fires etc.) both at national and international shipping markets, services in the sphere of military aviation and community policing to defend the country's borders, provide peace-keeping missions according to UN resolutions, undertake surveillance operations etc., services in aviation sport development, creative industries etc.

Under the terms of the spread of world pandemic COVID-19 and involvement world countries into the process of self-isolation and quarantine regime, as well as borders closures, at the beginning of 2020 sharp slowdown in provision transport services is observed at the world market which even led to temporary termination of aviation services. Negative trends at the beginning of 2020 were observed in Ukraine's aviation industry as well. For instance, due to termination of air travel Ukraine faced negative consequences over 4 months in 2020, such as decrease in output of air production by 21.6% compared to indicators in 2019 [6; 12].

Due to COVID-19 pandemic states-leaders of world economic growth rejected the traditional model of "open economy" which was fundamental for globalization processes. Since 2016-2017 western leading countries (including the USA) have begun the transition to the model of "neo-protectionism", concentrating on domestic national market development. This trend resulted in slowing down international transport travel. But economic policy of "neo-protectionism" fails to last long. According to the law of 'globalization waves' after COVID-19 pandemic finishing the gradual rejection the policy of 'closeness' and 'neo-protectionism' by the countries should be expected, as well as progressive transition to a new 'wave' of open national economies by the world countries which will result in revival and revitalization of foreign trade and migration processes. In the world economy all above-mentioned processes will be accompanied by active increase in transport-transit services market, including air travel. Correspondingly, the total demand for aircraft and other beneficial air services will go up.

Aviation services market in Ukraine requires innovative updating and structural transformation to meet the world criteria of competitiveness. Aviation industry is the basis for aviation development, as it shapes the quality and security of aviation services provision like repair and maintenance of aircraft, airports conditions and improvement, infrastructural market of air travel etc.

Among the essential challenges of air travel market and Ukraine's aviation industry development the following should be highlighted:

- weak competitive positions of Ukraine in a segment of innovative competitive product of air travel and aviation industry at world market;
- high level of technological worn-out and technological backwardness of aviation products;
- loss of traditional markets and breakage of traditional cooperation ties between the enterprises of Ukraine's aviation industry in 2014;
- shortage of financial and investment resources, high value of loans;
- lack of efficient use of state support and a low level of introduction incentive mechanisms of aviation development by the state (budget funding, state-private partnership, concessional lending etc.);
- ageing of staff in aviation and worsening the level of technical education in Ukraine;

- poor well-managed system of efficient international economic cooperation of Ukraine in aviation industry and air travel development;
- absence of steady international economic ties in the sphere of establishing and operating links of value addition, creating aviation clusters, including those ones in aviation-building and serial jets production [6; 7; 8].

Within the structure of aviation industry the market of air travel acts as a final product, as a result of aviation system activity, whereas country's aircraft, its technical condition and performance characteristics shape the basis for air travel market which is closely dependable on the level of aviation industry development.

To preserve the status of aviation state Ukraine has to update aircraft development and establish series production of aircraft; maintain repair facilities and technical services of planes, airports at proper level, as well as all infrastructures in aviation.

The development of aircraft and the whole complex of aviation industry is multi-hierarchical structure which includes;

- design and production of planes and aircraft;
- operation support and aircraft repairs;
- maintenance the aviation infrastructures and airports at proper level;
- marketing and promotion of aviation industry products both at national and international markets;
- recycling of outdated aircraft, whose lifespan is over.

Foreign experts who study the prospects of world aircraft and aviation market development in the 21st century emphasize the formation of the following strategic trends of the process in global economy:

- enhancement of requirements concerning innovation introduction and technological updating of aircraft based on standards of ergonomic, security, environmental friendliness and sustainable development criteria [9; 10];

- mass transition of world aviation industry and aircraft to the state of involvement smart transport system based on IT-technologies, information and electronic databases, digital technologies, innovation satellite navigation devices and space technologies цифрових технологій, інноваційних засобів супутникової навігації та космічних технологій [11];

- increasing demands for the security level of aircraft operation, including high standards of aircraft security in case of technical malfunction, and blockage of hi-jacking risks during flights;

- rise in demand for design and practical introduction of efficient logistic routes and schemes, application of multimodal transport technologies and infrastructures to operate aircraft [11];

- need for development of transcontinental air travel market and creation competitive world aviation alliances which use all existing forms of international economic cooperation in their activity;

- increase in consumer demand for a number of low-cost air travel at the world air travel market by small, middle-sized and large aircraft appropriate at dimensions and economic efficiency;

- increase in consumer demand for competitive price policy, elimination of monopoly prices and price availability at air travel market for the population and businesses, introduction of flexible and competitive price policy in aviation services;

- Importance of the role of international economic cooperation in formation international aviation alliances and creation international aviation clusters aimed at production, realization and aircraft maintenance.

The experience of developed world countries confirms that the state is unable to succeed in aviation development only at cost of market mechanisms and private business interests. Capital-intensive aviation complex requires long-term investments, solvent demand and guaranteed market products. In the 21st century the risks of internal and external origin occur constantly which threaten steady aviation development.

To succeed in aviation services development it is necessary to put in place systematic state economic and institutional support. This statement is especially important for Ukraine. In this country aviation and aviation industry are traditionally the drivers of hi-tech machine building. That guarantees

Ukraine the status of industrially developed country, secure the state's place in world elite, the countries that possess own aviation and space industry.

Nowadays Ministry of development of economy, trade and agriculture carries out and coordinates state support of Ukrainian aviation. For instance, legal and economic preferences for aviation representatives are valid during the period from January, 1,2017 to January,1,2025. In general, the total sum of tax benefits provided for Ukrainian aviation enterprises by the state over 2017-2018 is 2,3 bln.UAH [12]. In particular, 46 Ukrainian enterprises exempt from a number of taxes and duties, including income tax, value added tax, land tax, import duty on goods for main production needs [12].

State and state support are of significant importance for aviation development in Ukraine, as capital-intensive and knowledge-intensive aviation cannot develop only at cost of private investments and private economic interests.

State concern 'UkrOboronProm' plays greater importance for preservation industrial and personnel potential of Ukraine's aviation. It includes powerful state (SE) and joint-stock public (JSPE) aviation enterprises like SE "Antonov", Kharkiv state aviation production enterprise, SE "Lviv state aviation and repair plant", SE "SpetsOboronMash" etc. [7].

Concentration of resources at these enterprises, introduction of target budget financing system and providing state orders for production aircraft both for military purposes and dual-purpose products create active stimuli to develop Ukraine's aviation.

To develop aviation enterprises Ukraine is deeply interested in state support concerning dramatic technical improvement and structural and innovation reformation of aviation based on up-to-date world trends of innovation development, i.e.:

- enforceability of "Industry 4.0." for innovation Ukraine's innovation development;
- innovative updating of Ukraine's aviation industry for reduction in CO2 wastes and transition of aviation to sustainable development;
- introduction of digital and IT-technologies, cybersecurity of aircraft IT-systems within structural and innovation updating of Ukraine's aviation industry production;
- introduction of the system of innovative goods and services production in dual-purpose aviation (for military and civilian goals) [13]. Innovative development is the main strategic priority of Ukraine's aviation development within global economy.

4. Discussion

Under the terms of stiffer international competition at air travel market, in the sphere of production and marketing of aircraft the discussions on determining strategic priorities of support and stimulation Ukraine's aviation development are still in progress. On the one hand, it is thought that Ukraine should refuse any targeted state support of aviation enterprises, transition to mass privatization of state aviation enterprises and free access of foreign investors to aviation intellectual property objects. On the other hand, world aviation market is characterized by the high level of capital and resources concentration, transnational aviation companies work closely with state governments, concluding multibillion contracts for state orders, including those ones in military sphere and public administration operation security (police, customs, emergency service etc.).

It is appropriate to conclude that under greater international competitiveness and unfavorable external conditions (COVID-19, breakage of cooperation production links) Ukraine should prioritize strategically targeted state support of aviation development with the application of such incentive mechanisms as targeted budget financing(including state-private partnership), state orders and state contracts.

The search for financial sources is of actual importance to stimulate Ukraine's aviation. The state should apply targeted programs of budget financing systematically, as well as the following incentive mechanisms of Ukraine's aviation development:

- to introduce direct state support of aviation development as targeted state programs and budget financing of state orders projects, for instance, to provide Ukrainian army, structures of Ministry of foreign affairs, Ministry of Emergencies;

- to introduce targeted lending of finances under state guarantees, including those ones aimed at structural transformation, innovation development and technical updating of aviation enterprises;
- to employ a tool of State-Private Partnership (SPP) which means co-partnership of state authorities (Ministries of Ukraine, local authorities) and private business-structures, involved in aviation sphere. Each of SPP participants is able to provide own resources for aviation development like land plots, permits, money, technical documentation, rights of intellectual property etc. Among the mechanisms of SPP projects realization there concession, leasing, co-funding etc.;
- to apply the tool of leasing, including operational and financial, for updating aircraft.

Thus, scientific novelty of this study lies in the fact that it justifies the thesis on necessity of targeted state support of Ukraine's aviation development with the use of the following incentive mechanisms: introduction of targeted state programs and budget financing, targeted lending under state guarantees, state-private partnership, leasing, corporatization, beneficial credit lines and beneficial taxation of aviation enterprises.

Reasoning for the following strategic priorities of Ukraine's aviation industry and aviation services development within global economy are further improved: structural and innovation aviation industry and aviation services development based on innovations and concerning ergonomic, security standards, as well as principles of sustainable development, environmental friendliness and reduction in CO2 wastes; aircraft operation security; involvement of aviation services into transport and logistic routes; development of aviation industry based on innovations, IT-technologies, digital economy and "Industry 4.0"; Ukraine's aviation development based on production of innovative dual-purpose goods and services (for military and civilian goals); diversification of air travel market; integration of Ukraine's aviation into the market of transcontinental air travel and Ukraine's participation in creating competitive world international aviation alliances.

Conclusions

Strategic priorities of Ukraine's aviation development within global economy are shaped under the impact of multi-hierarchical internal and external factors, relevant to 'waves of globalization' and basic trends of transport services development. Transition of aviation industry to a new technological structure, "Industry 4.0", digital economy and sustainable development deeply influence shaping new strategic priorities of Ukraine's aviation development. Dramatical change in consumer demand dynamics and modification of monopoly competitiveness at world market of aviation goods and services also influence these processes. Determining strategic priorities of Ukraine's aviation development in harmonization with strategic priorities of Ukrainian aviation transport strategy till 2030 realization requires further researching [14]. Strategic priorities of Ukraine's aviation change under the impact of new poles of world economy and establishing new integration groups of world countries, shaping new trends of world market of transport and transit services development. All above-mentioned factors necessitate the demand for further scientific studies concerning establishing and improvement of strategic priorities of Ukraine's aviation specific components within global economy of the 21st century.

References

- [1] Arblaster M. 2018 Air Traffic Management: Economics, Regulation and Governance 1st Ed. (Amsterdam: Elsevier) p 286
- [2] Dwan R and Pavliuk O 2010 Building Security in the New States of Eurasia: Subregional Cooperation in the Former Soviet Space: Subregional Cooperation in the Former Soviet Space 2nd Ed. (London: Routledge) p 318
- [3] Garan R 2015 The Orbital Perspective: Lessons in Seeing the Big Picture from a Journey of 71 Million Miles 1st Ed (Berlin: Berrett-Koehler Publishers) p 208
- [4] Nair KK 2019 Small Satellites and Sustainable Development - Solutions in International Space Law 1st Ed. (Springer – Springer Briefs in Law) p 83

- [5] Wolf H 2013 Liberalization in Aviation: Competition, Cooperation and Public Policy 1st Ed., ed. P Forsyth and D Gillen (New York: Routledge) p 488
- [6] Strategy of Ukraine's aviation development till 2030 [Internet] Ministry of Development of Economy, Trade and Agriculture of Ukraine c2020 [cited 2020 Aug 12]. Available from: <https://www.me.gov.ua/News/Detail?lang=uk-UA&id=3d6c8fde-f1c5-4b7f-aefc-5991964c2b53&title=UriadAktualizuvavStrategiiuVidrozhenniaAviabuduvannia>
- [7] Enterprises of aviation and aviation repair. [Internet] UkrOboronProm c2020 [cited 2020 Aug 12] Available from: <https://ukroboronprom.com.ua/uk/category/struktura/zagaluzzyu/pidpryyemstva-aviabuduvannya-ta-aviaremontu>
- [8] Participation in international organizations. [Internet] State aviation service of Ukraine c2020 [cited 2020 Aug 12]. Available from: <https://avia.gov.ua/pro-nas/mizhnarodna-diyalnist/uchast-u-mizhnarodnih-organizatsiyah/>
- [9] ecac-ceac. Org [Internet] European Civil Aviation Conference (ECAC) c2020 [cited 2020 Aug 12]. Available from: <https://www.ecac-ceac.org/>
- [10] eurocontrol.int [Internet] European Organization for the safety of air navigation (Eurocontrol) c2020 [cited 2020 Aug 12] Available from: <https://www.eurocontrol.int/>
- [11] icao.int [Internet] International Civil Aviation Organization (ICAO) c2020 [cited 2020 Aug 12]. Available from: <https://www.icao.int/Pages/default.aspx>
- [12] Approval of State Program on aviation development has begun. [Internet]. Ministry of Development of Economy, Trade and Agriculture of Ukraine c 2020 [cited 2020 Aug 16] Available from: <https://www.me.gov.ua/News/Detail?lang=uk-UA&id=b55ddcf9-a1a5-4a0b-b7c0-e10b7de33566&title=RozpochalosiaZatverdzhenniaDerzhprogramiZRozvitkuAviatsii>
- [13] Innovations [Internet] UkrOboronProm c2020 [cited 2020 Aug 16] Available from: <https://ukroboronprom.com.ua/uk/category/inovacii>
- [14] Regulation 'On approval of National Transport Strategy of Ukraine till 2030' № 430-p from 2018 May 30 [Internet] Cabinet of Ministries of Ukraine c2020 [cited 2020 Aug 11] Available from: <https://www.kmu.gov.ua/npas/pro-shvalennya-nacionalnoyi-transportnoyi-strategiyi-ukrayini-na-period-do-2030-roku>